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Preliminary Design

Java Problem Repository & Education Platform

JPREP

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1 Product Overview and Summary

DeltaTech's client, Dr. Darren Lim, is in need of a web based system for delivering Java programming problems to the students in the Java programming sequence. The Java Problem Repository and Education Platform (JPREP) will be utilized by Dr. Lim and other faculty members to create problems and assignments or reuse old problems from the question pool. Students will be able to write, compile, and run code within the web browser and then get immediate feedback from test cases.

2 User Case Narratives

2.1 Student

A student will login with credentials provided by the administrator. The username will be the student's Siena email address, and a password will be created by the administrator. Once logged on to JPREP, the student will have access to all enrolled courses. The student will have access to that course's assignments. Pending and past assignments will be available to view, but only pending assignments can be worked on and submitted. Through the submission process, the student's code will be compiled and validated using predetermined test cases. If the student wishes to work on the problem at a later time, the student will be able to save the code from the most recent question that the student had worked on. The student will be able to see the completion status and grade for each assignment. If the student is enrolled in more than one course, the student will be able to switch between courses as needed. Once the student wishes to end the session on JPREP, the student will be able to log out and return to the login page.

2.2 Faculty

A faculty member will login with credentials provided by the administrator. The username will be the faculty member's Siena email address, and a password will be created by the administrator. Once logged on to JPREP, a faculty member will have access to the courses that the administrator has associated with that faculty member. Once a course has been selected, the faculty member will be able to create and edit assignments. When an assignment is selected, the faculty member will be able to create, edit, and delete questions within that assignment. In addition to creating questions, the faculty member will be able to add a question to the faculty member's personal question pool. At any point, the faculty member can reuse a question from either the personal question pool or the course question pool. The faculty member will also be able to set a due date for each assignment. The faculty member will be able to see which students have completed past assignments. The faculty member will also have access to a grade book that displays which questions for each assignment students have completed. Once the faculty member wishes to end the session on JPREP, the faculty member will be able to log out and return to the login page.

2.3 Course Coordinator

A course coordinator will login with credentials provided by the administrator. The username will be the course coordinator's Siena email address, and a password created by the administrator. The course coordinator will be able to create questions for the course question pool. The purpose of the course coordinator is to deliver the same questions across all sections of a course, when multiple faculty members are teaching the same course. The course coordinator will also have the same privileges as *Faculty*.

2.4 Administrator

An administrator will be able to login with unique credentials. The administrator will be in charge of creating student and faculty accounts. The administrator will provide the unique credentials for all users. The administrator will be able to create and remove courses from JPREP. The administrator will be able to create questions for any particular course question pool. The administrator will assign courses to faculty members. The administrator will be able to enroll students into a course and lock out users who have completed or dropped the course.

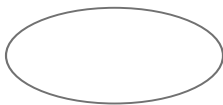
3 UML Use Case Diagram

A use case diagram is a representation of a user's interaction with the system.

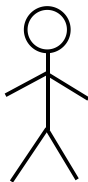
3.1 UML Use Case Diagram Legend



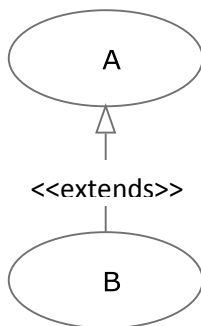
System Boundary: Contains all the Use Cases an Actor is capable of performing within JPREP.



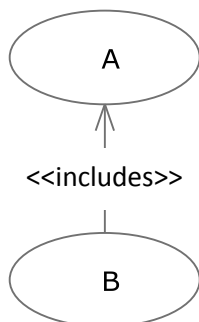
Use Case: Actions done by Actors to interact with JPREP.



Actors: Human or non-human entities that interact with JPREP through various Use Cases.



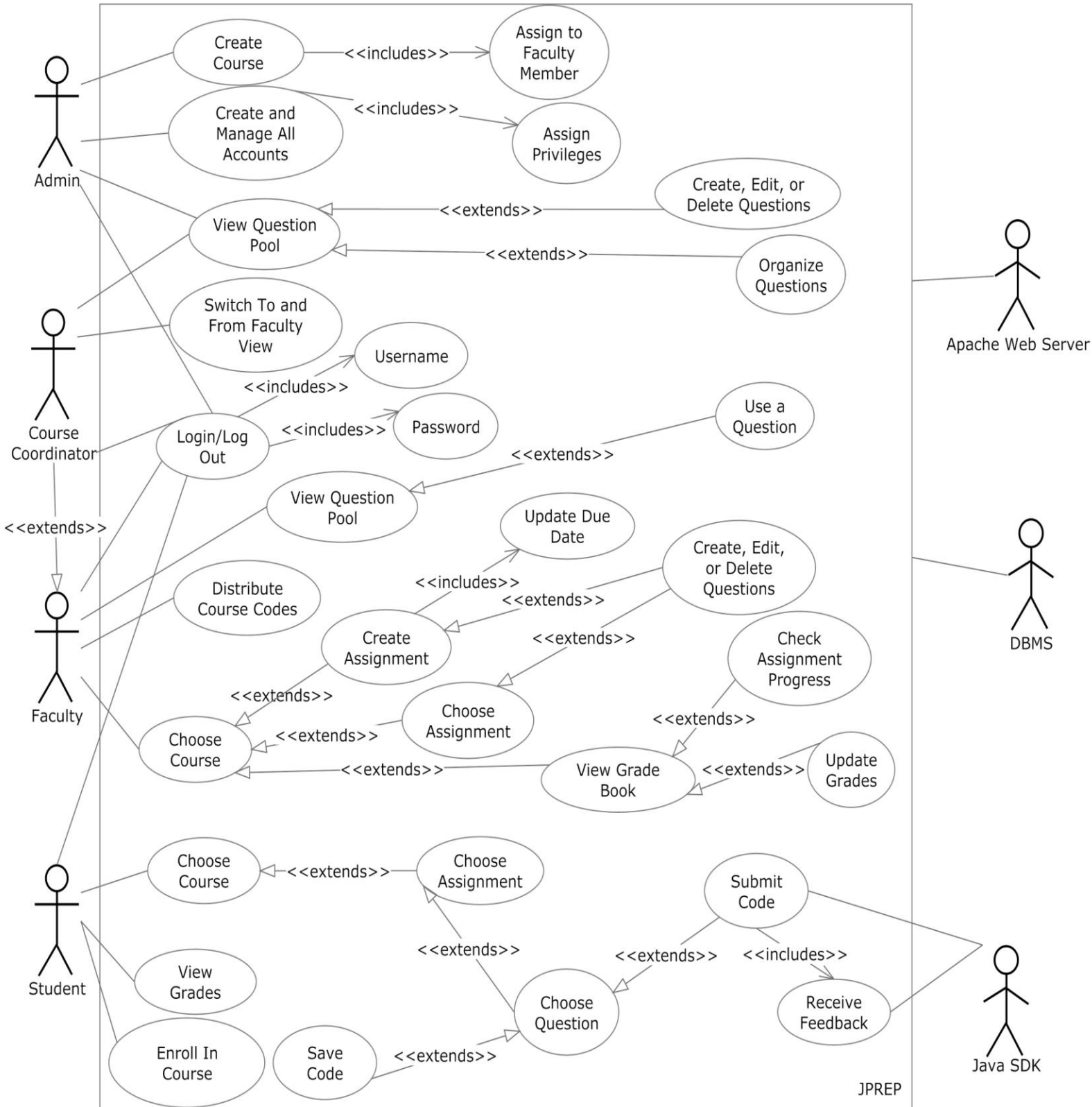
Extends Relationship: Indicates a relationship from one Use Case to another—Use Case B contains features of Use Case A.



Includes Relationship: Indicates a dependency of one Use Case on another Use Case—Use Case B requires Use Case A.

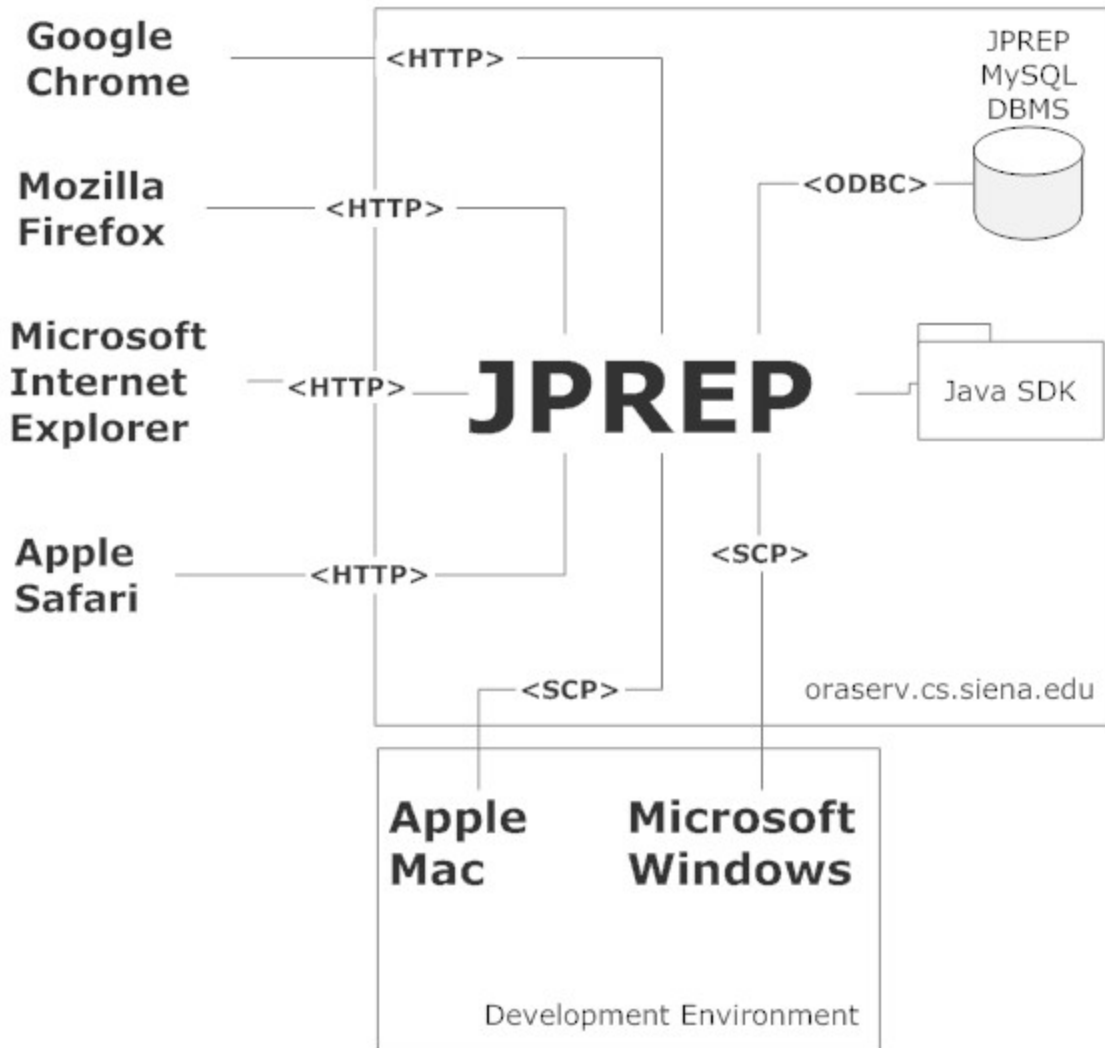
3.2 UML Use Case Diagram

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4 UML Deployment Diagram

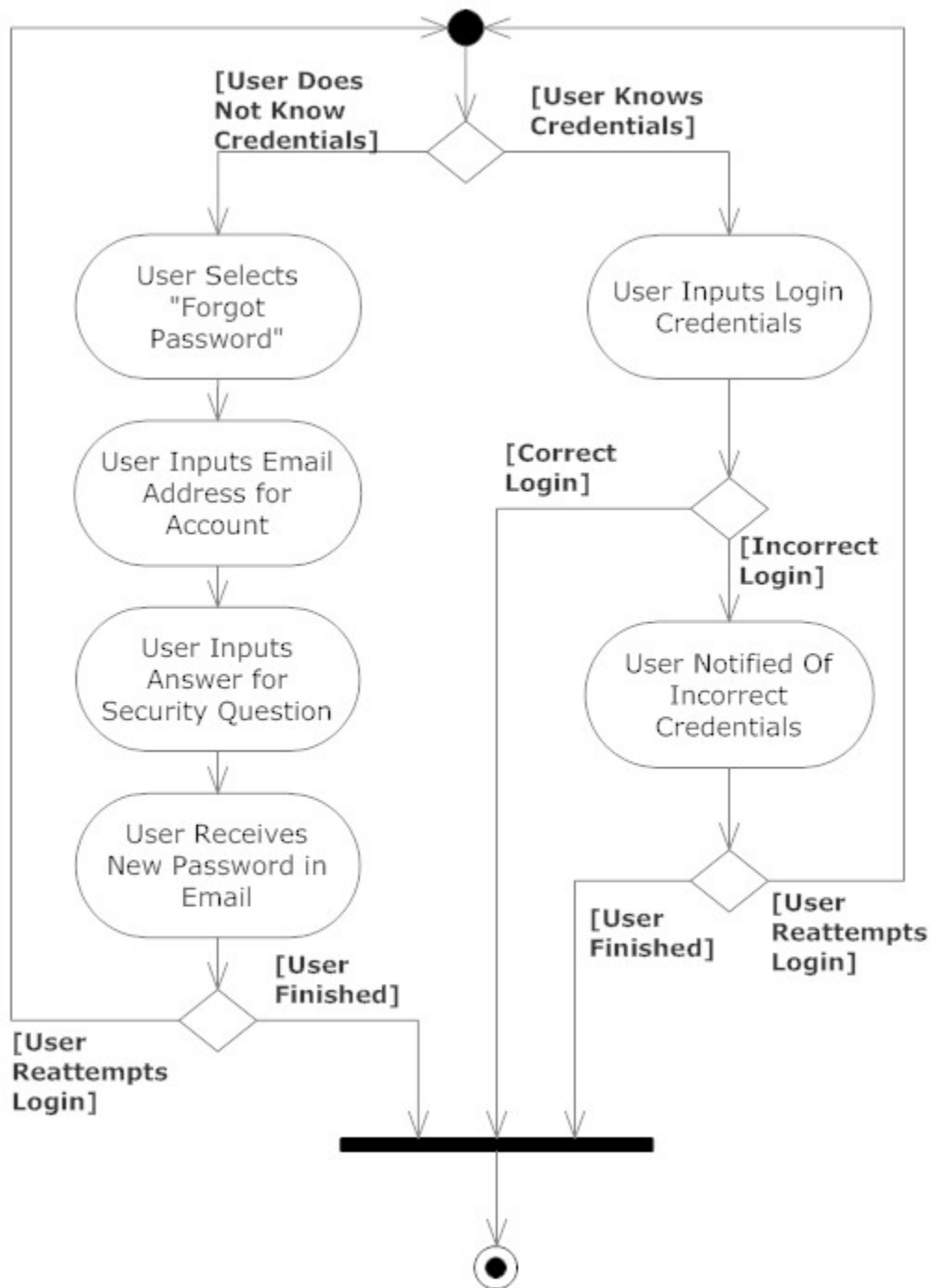
A deployment diagram models the deployment of artifacts on nodes.



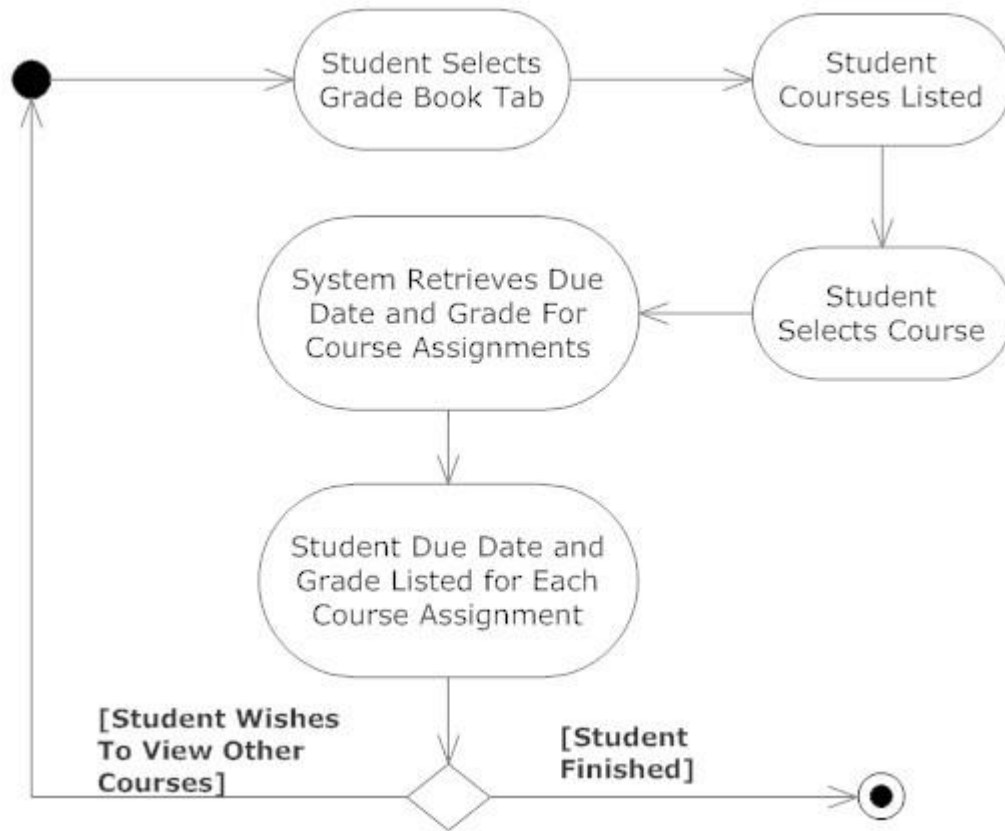
5 Activity Diagram

An activity diagram is a graphical representation of workflows of stepwise activities and actions with support for choice, iteration and concurrency.

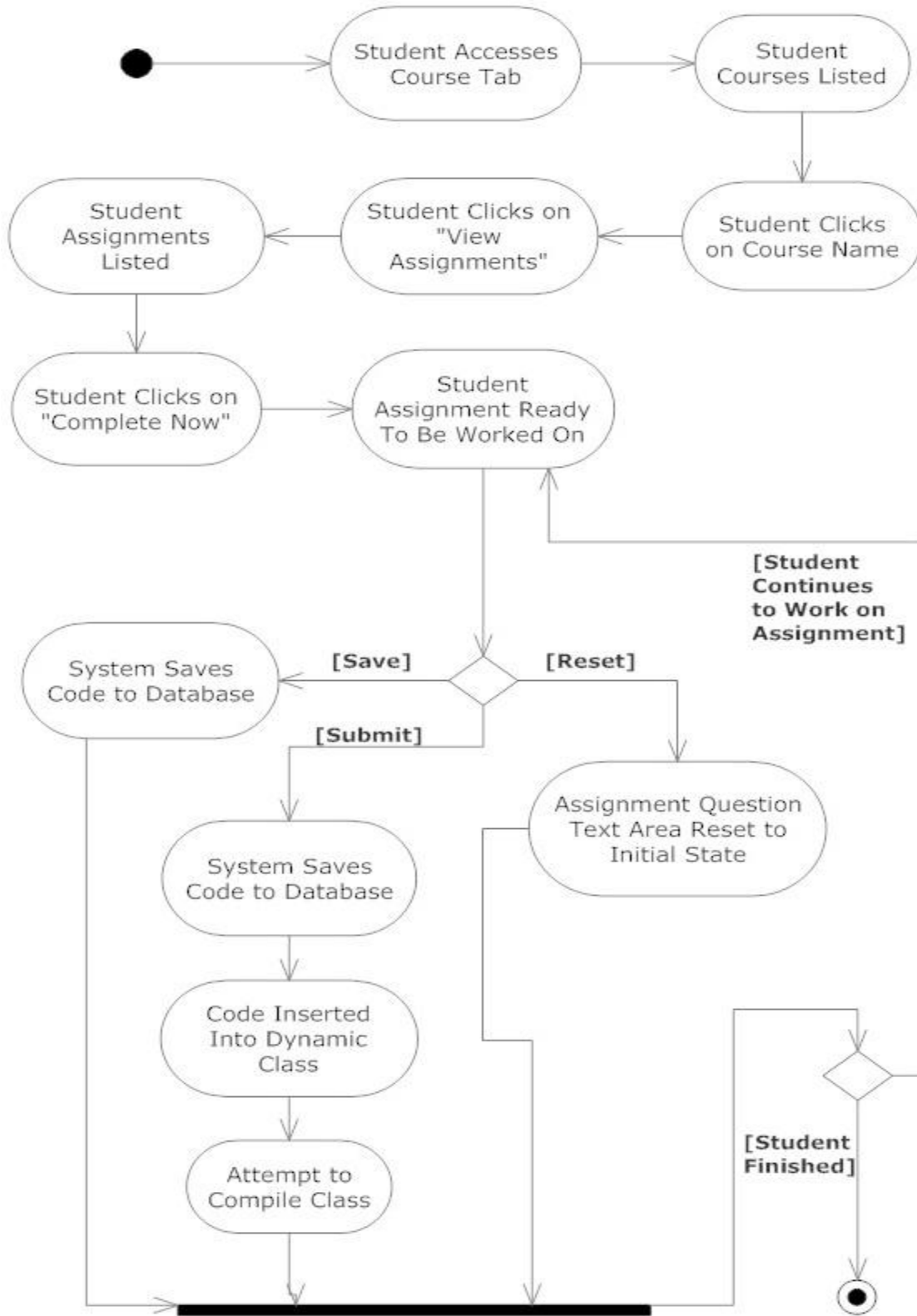
5.1 Activity Diagram - Login



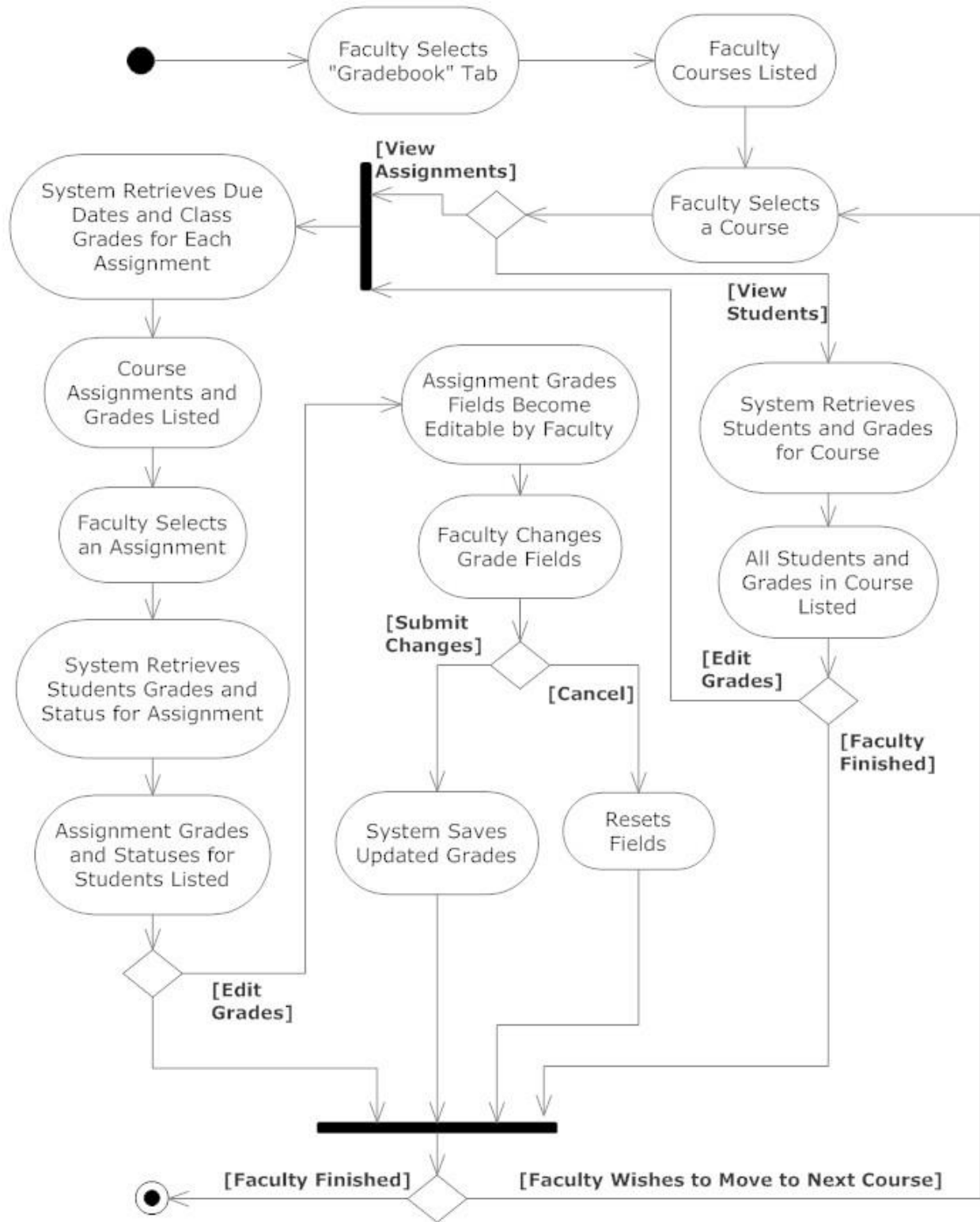
5.2 Activity Diagram – Student Gradebook



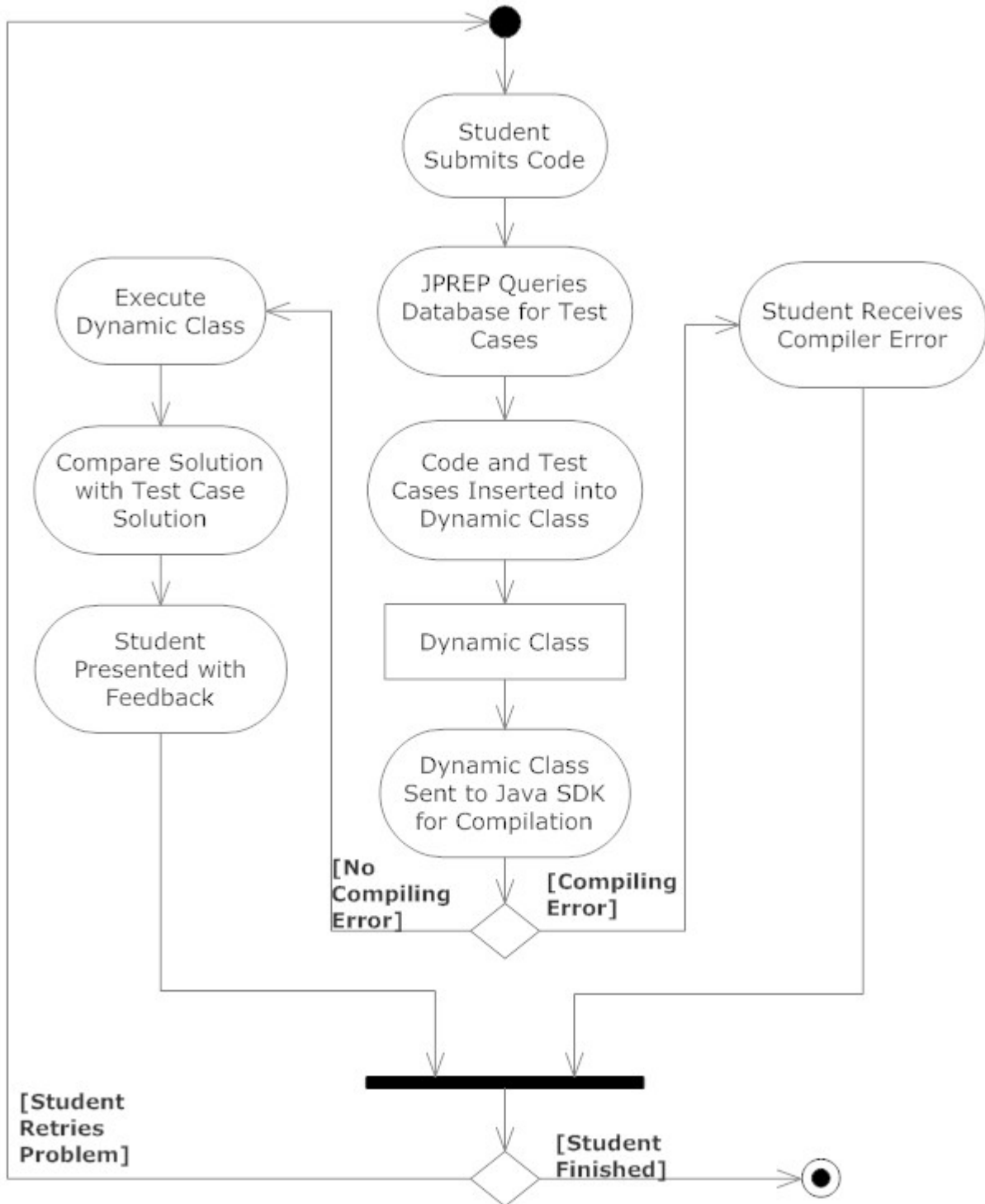
5.3 Activity Diagram – View Web Interface



5.4 Activity Diagram – Faculty Gradebook



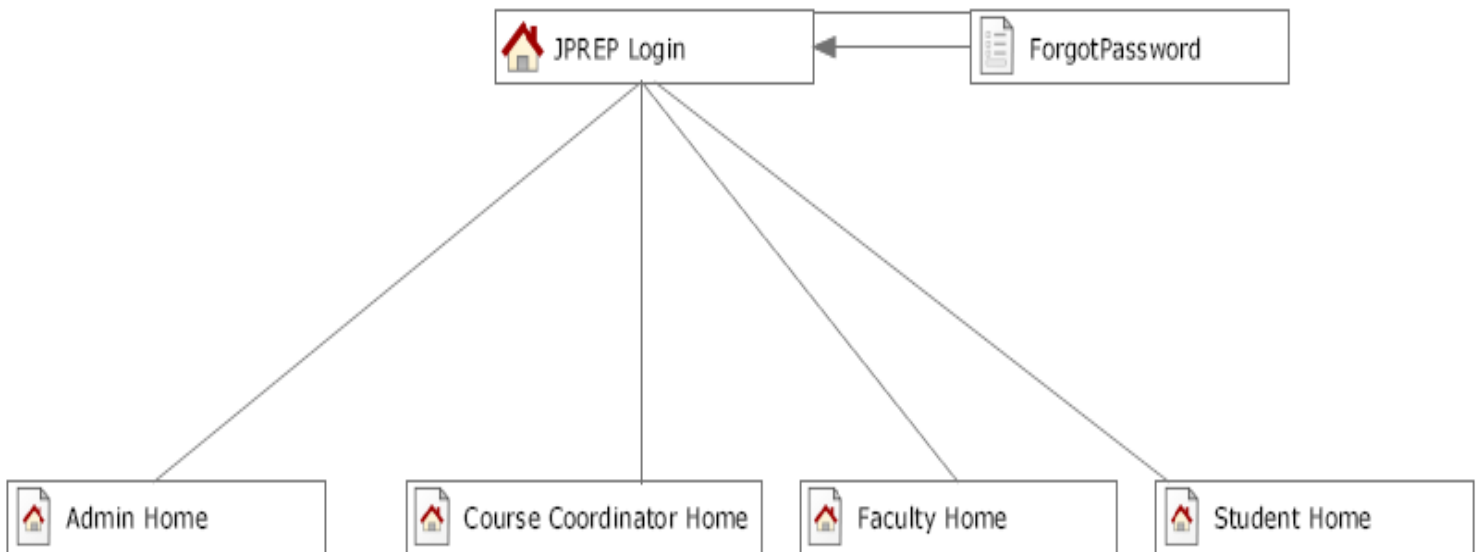
5.5 Activity Diagram – Answer Problem



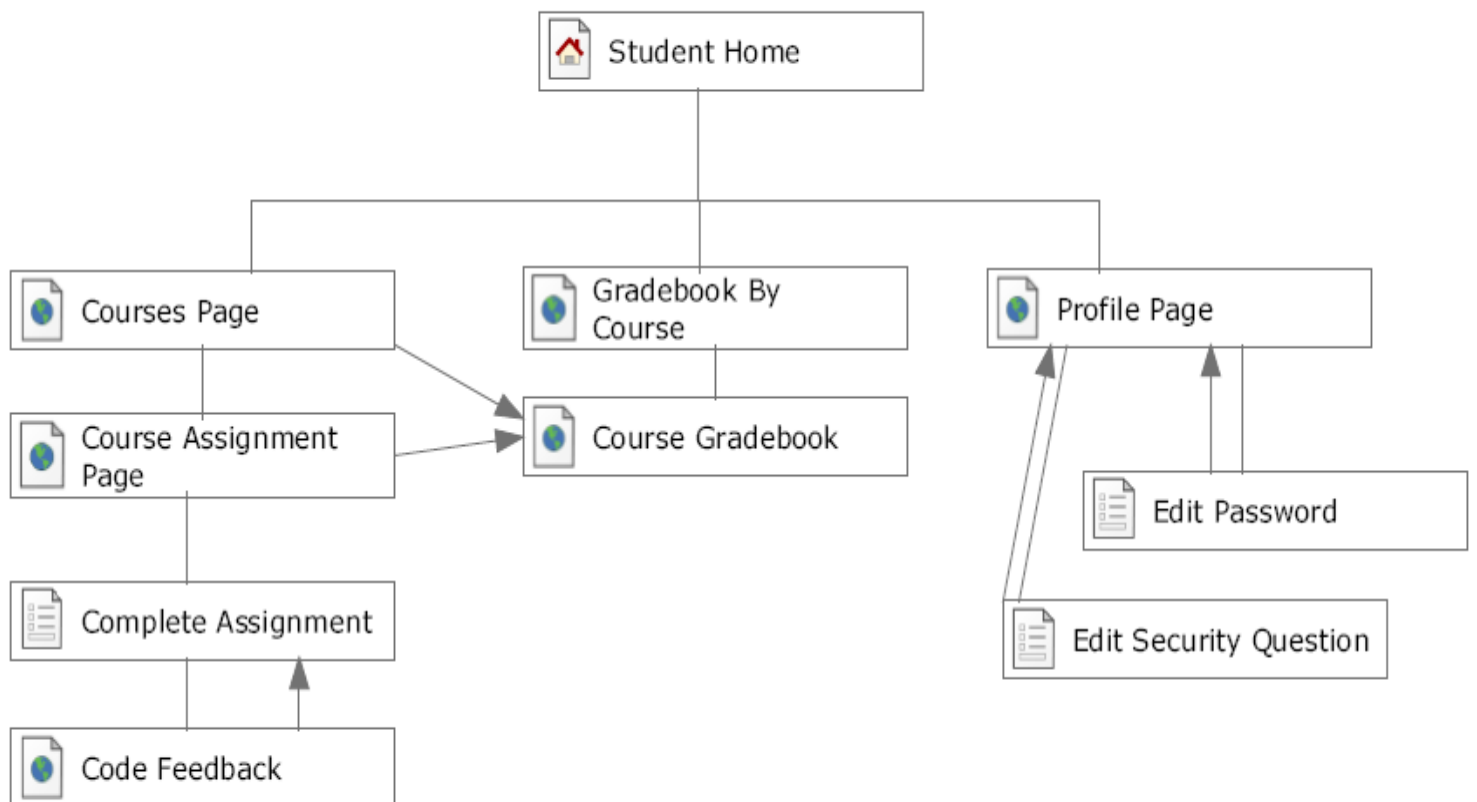
6 Website Map

The website map will show where a user can navigate to from a specific web page through a link. The boxes in the diagram represent web pages where a user can land. The links connecting each box represents a possible route to the web page.

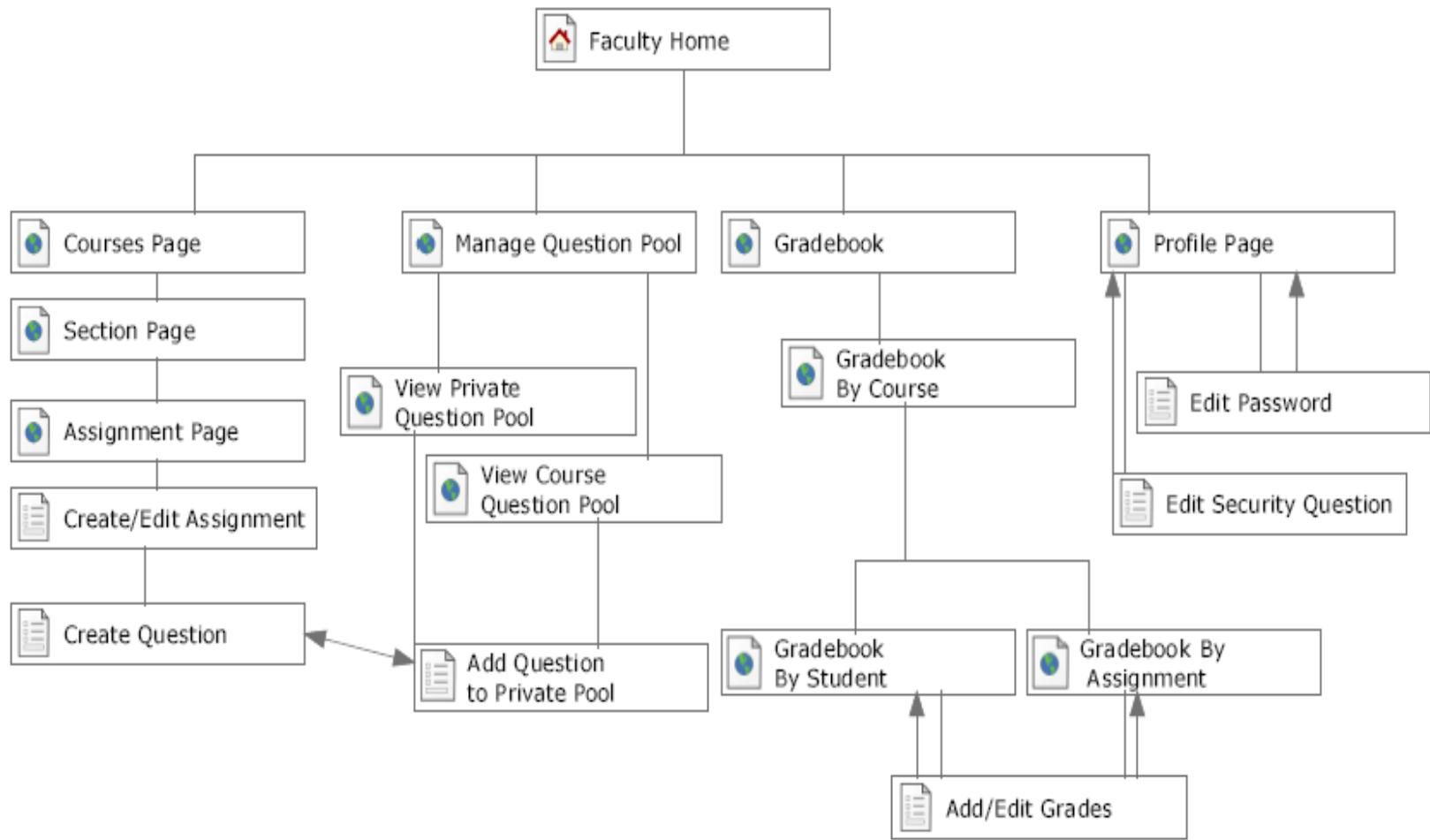
6.1 Home Page



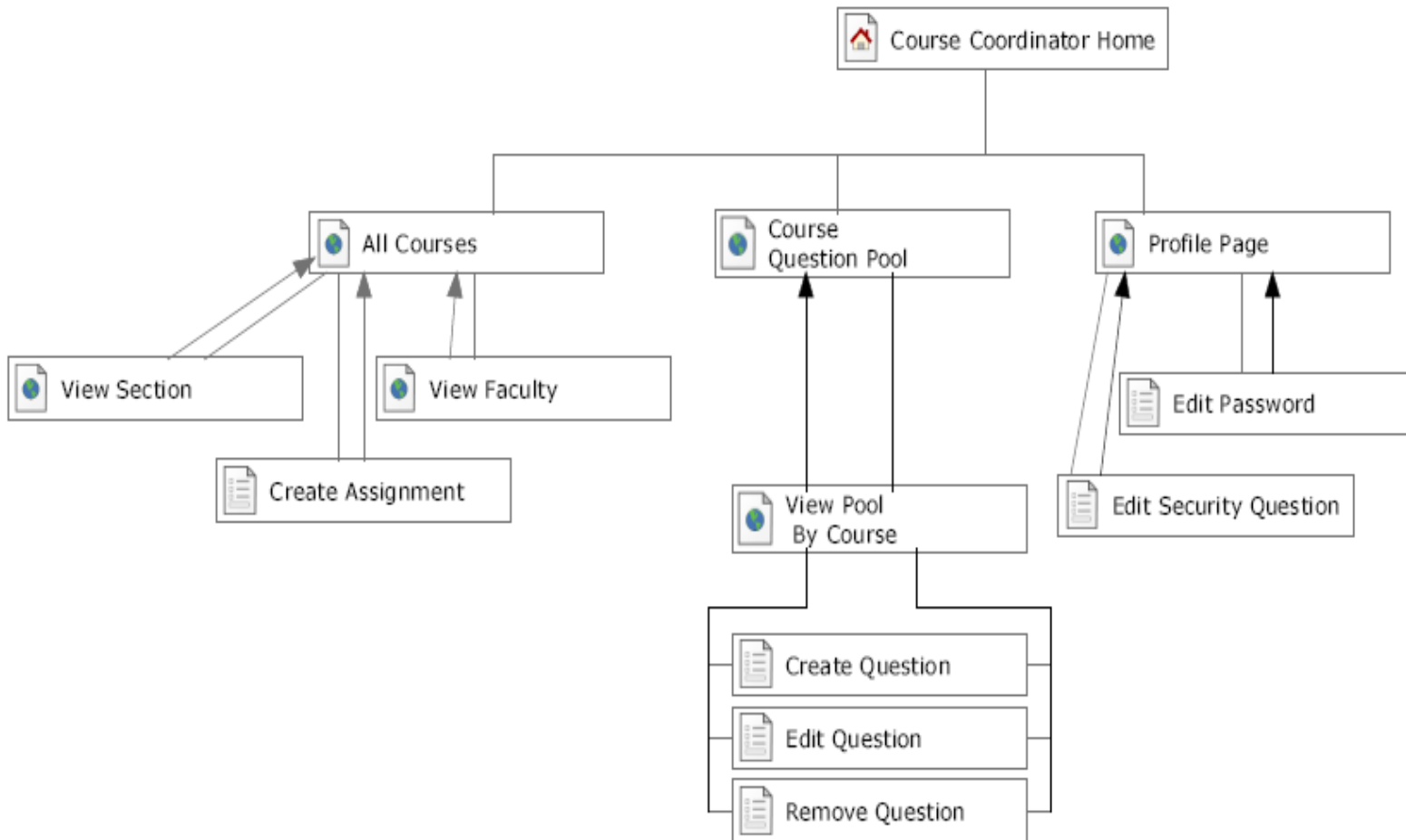
6.2 Student Page



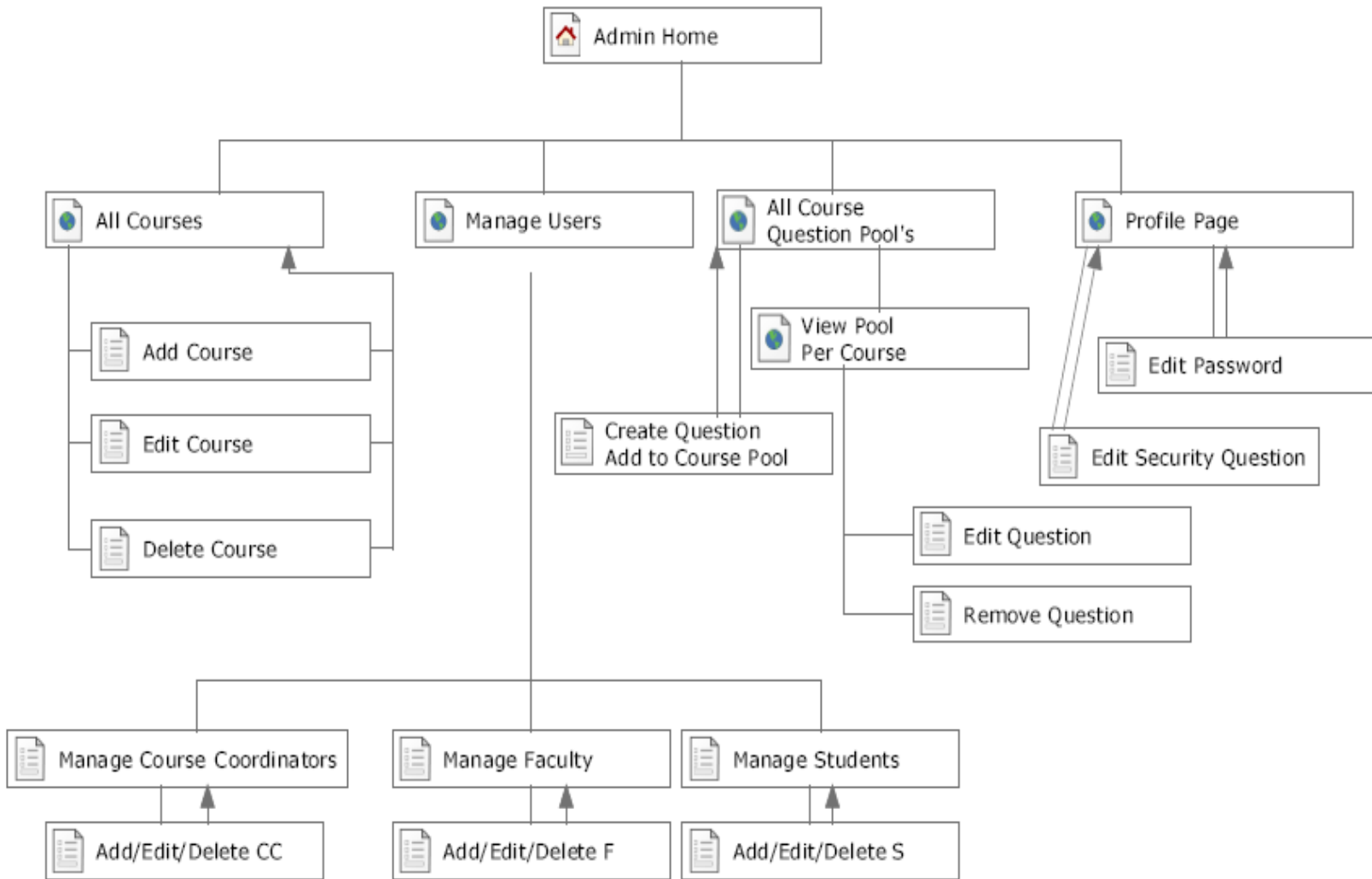
6.3 Faculty Page



6.4 Course Coordinator Page



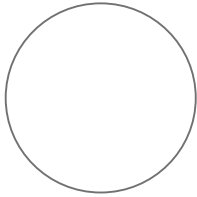
6.5 Administrator Page



7 Data Flow Diagram

A dataflow diagram is a graphical representation of the flow of data through a system.

7.1 Data Flow Diagram Legend



Process: Action where data is manipulated or transformed



Entity: A human, system, or subsystem where data goes to or originates from



Data Flow: The flow of information



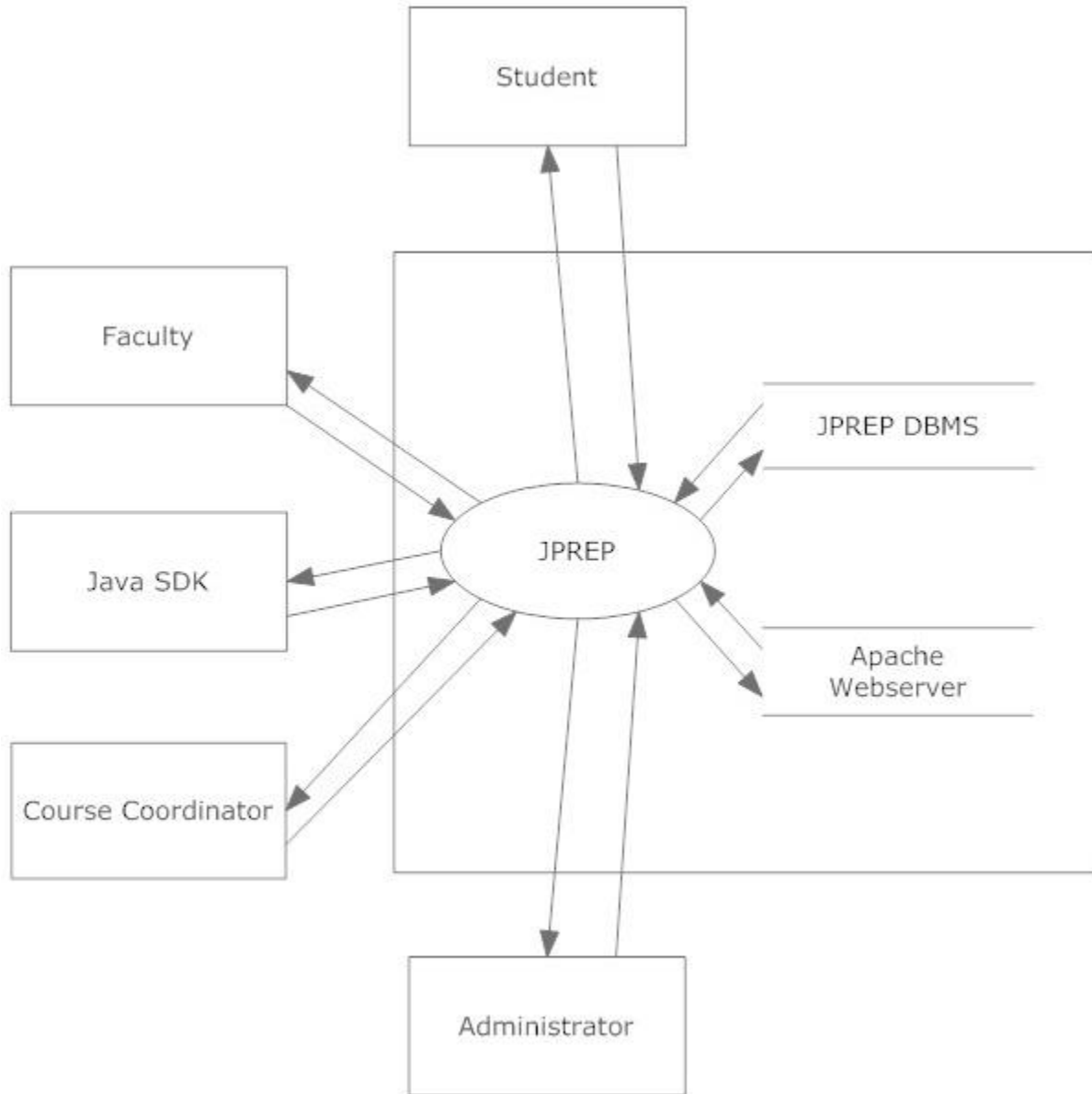
Data Store: Repository of information that is used by JPREP. Can either be contained within JPREP or be an external source of information.



System Boundary: Indicates edge of JPREP. Entities and Data Stores inside the boundary are directly controlled by JPREP and ones outside the boundary are not directly controlled by JPREP. The context diagram is the only data flow diagram that includes a system boundary.

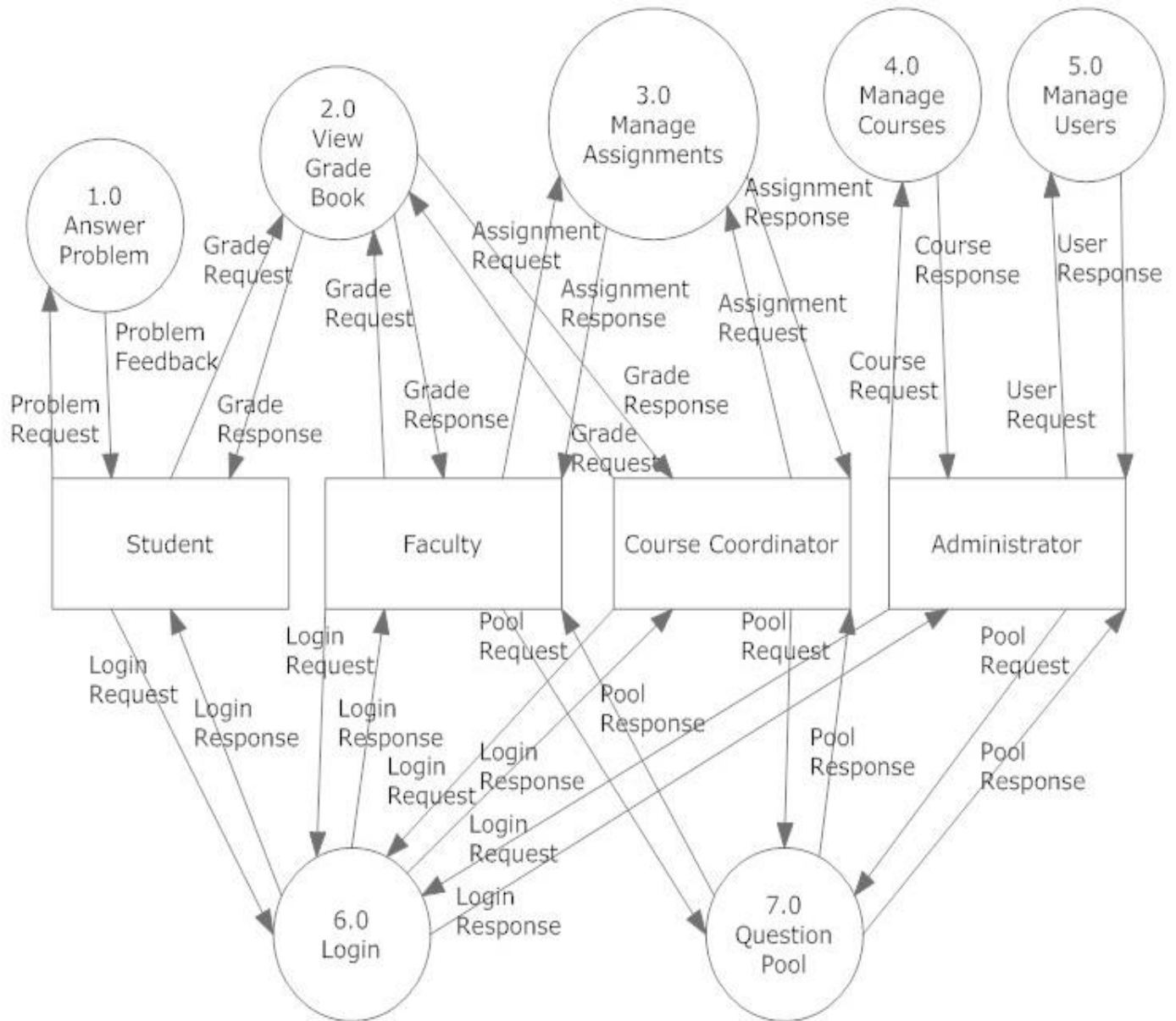
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7.2 Context Diagram



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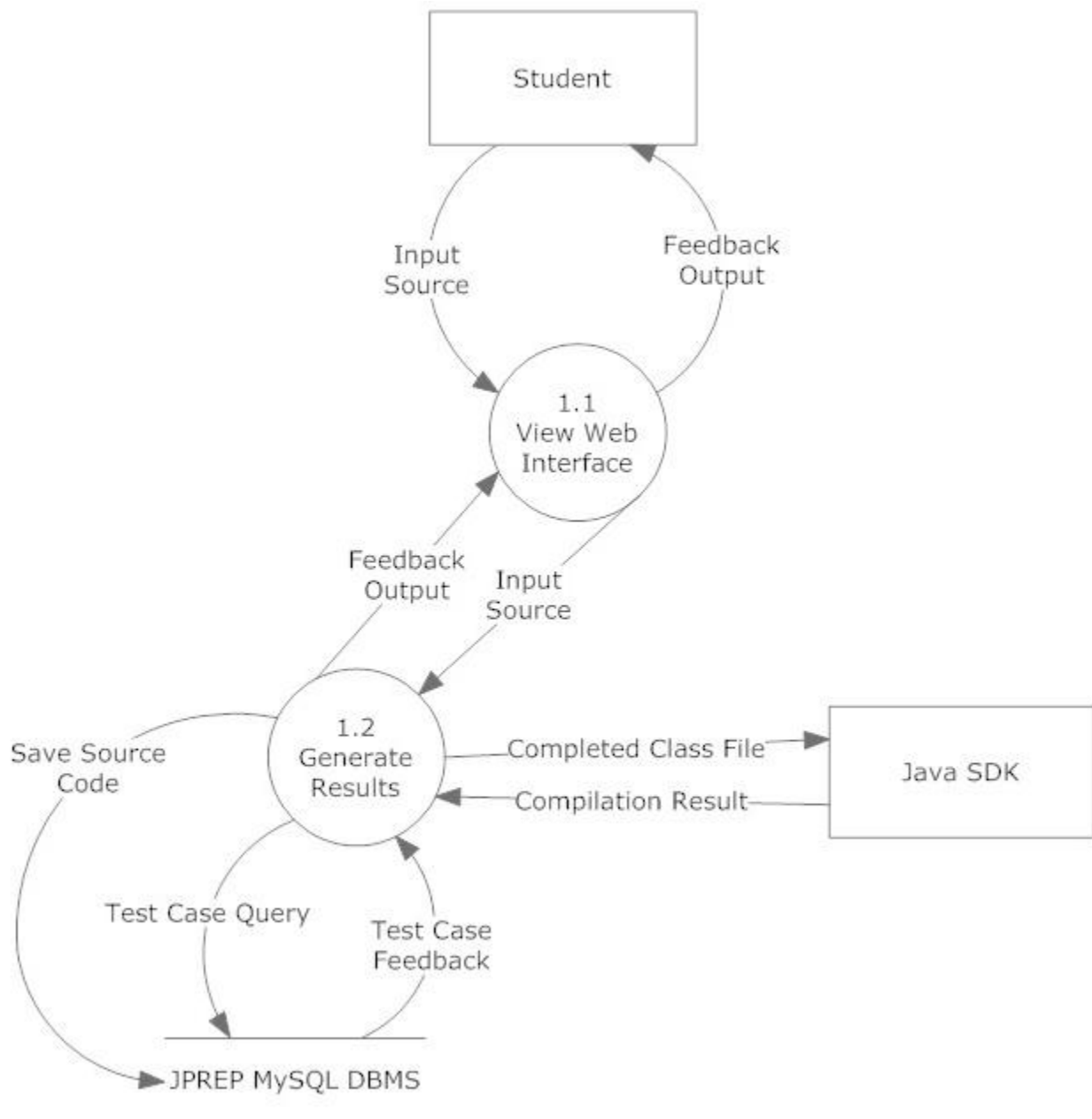
7.3 Level 0 Data Flow Diagram



7.4 Level 1 Data Flow Diagrams

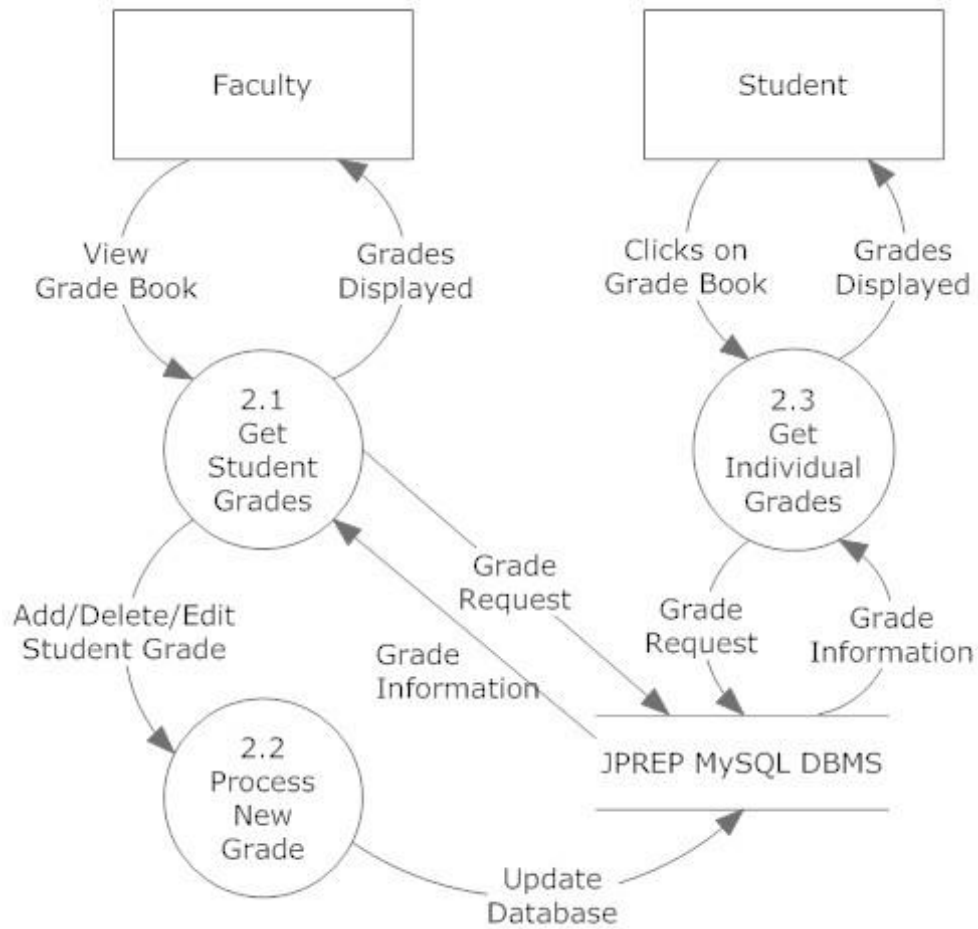
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7.4.1 Answer Problem Level 1 Data Flow Diagram



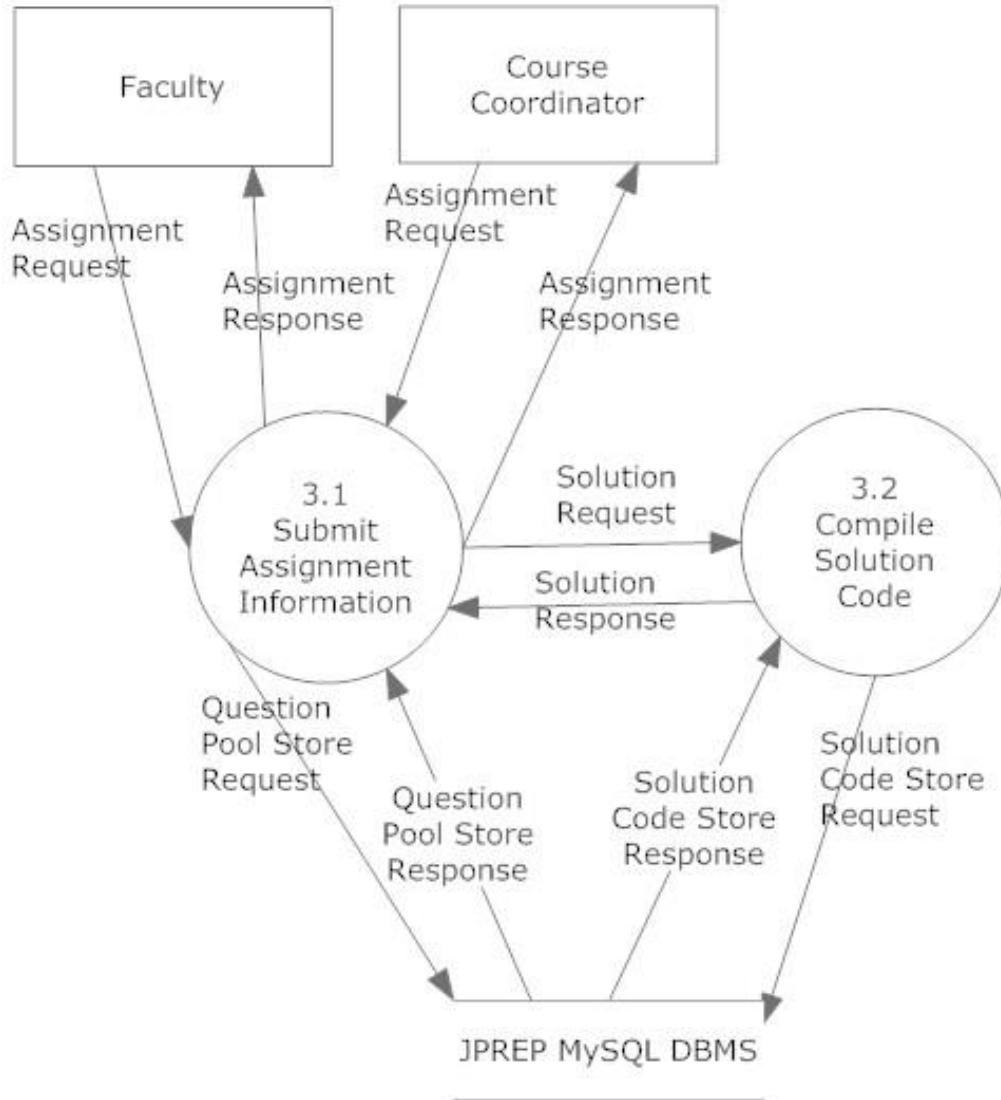
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7.4.2 View Grade Book Level 1 Data Flow Diagram



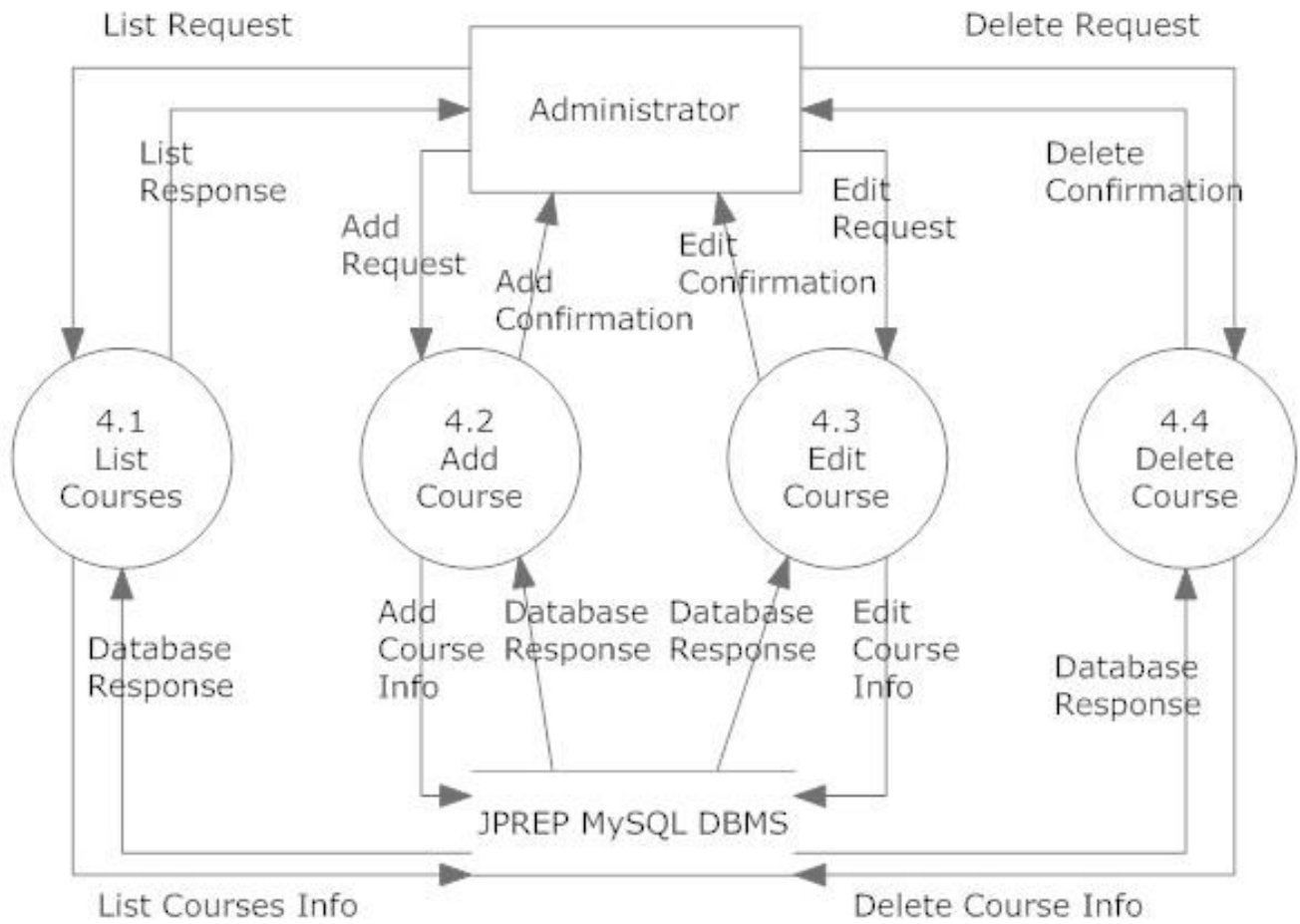
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7.4.3 Manage Assignments Level 1 Data Flow Diagram



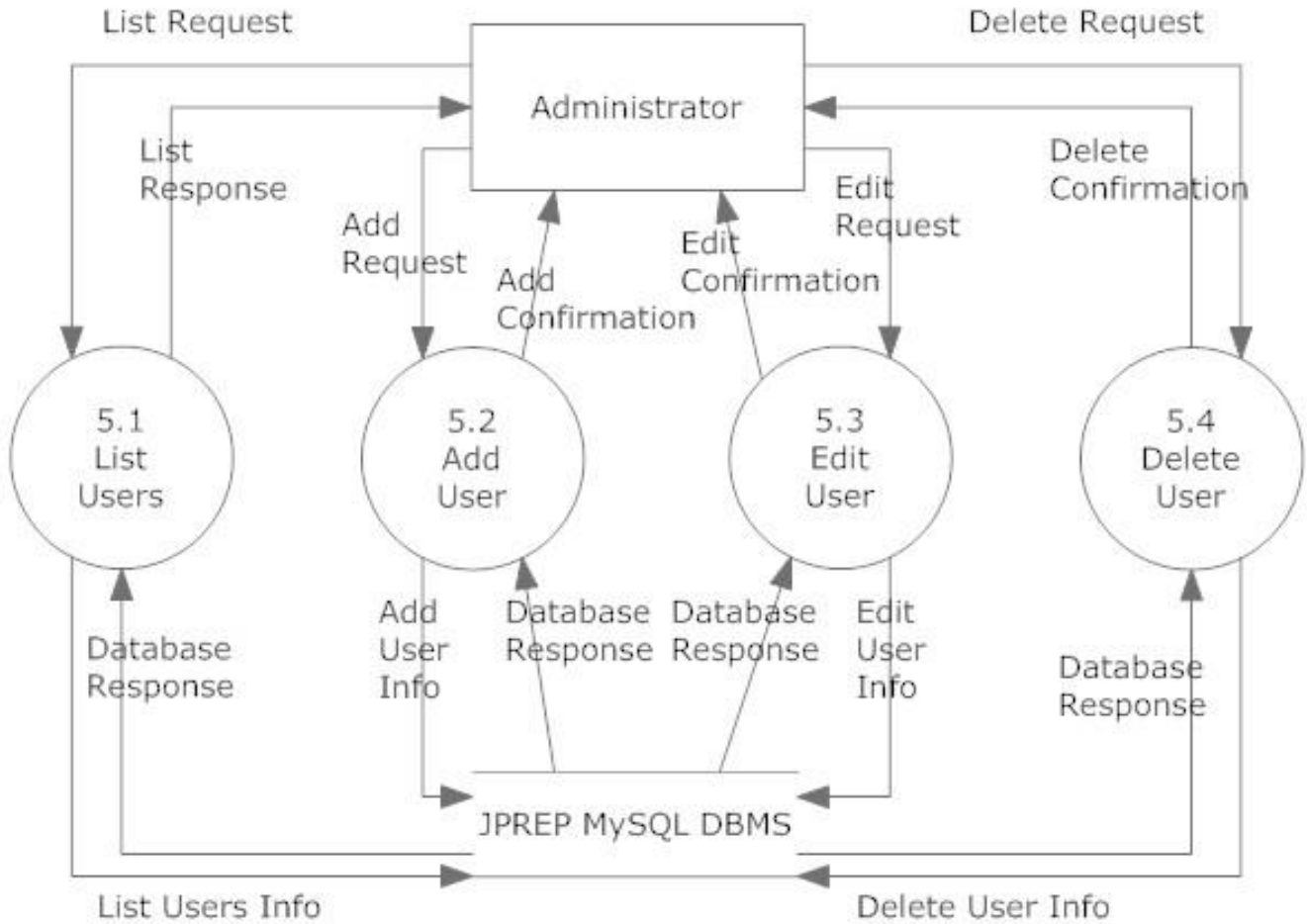
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7.4.4 Manage Users Level 1 Data Flow Diagram



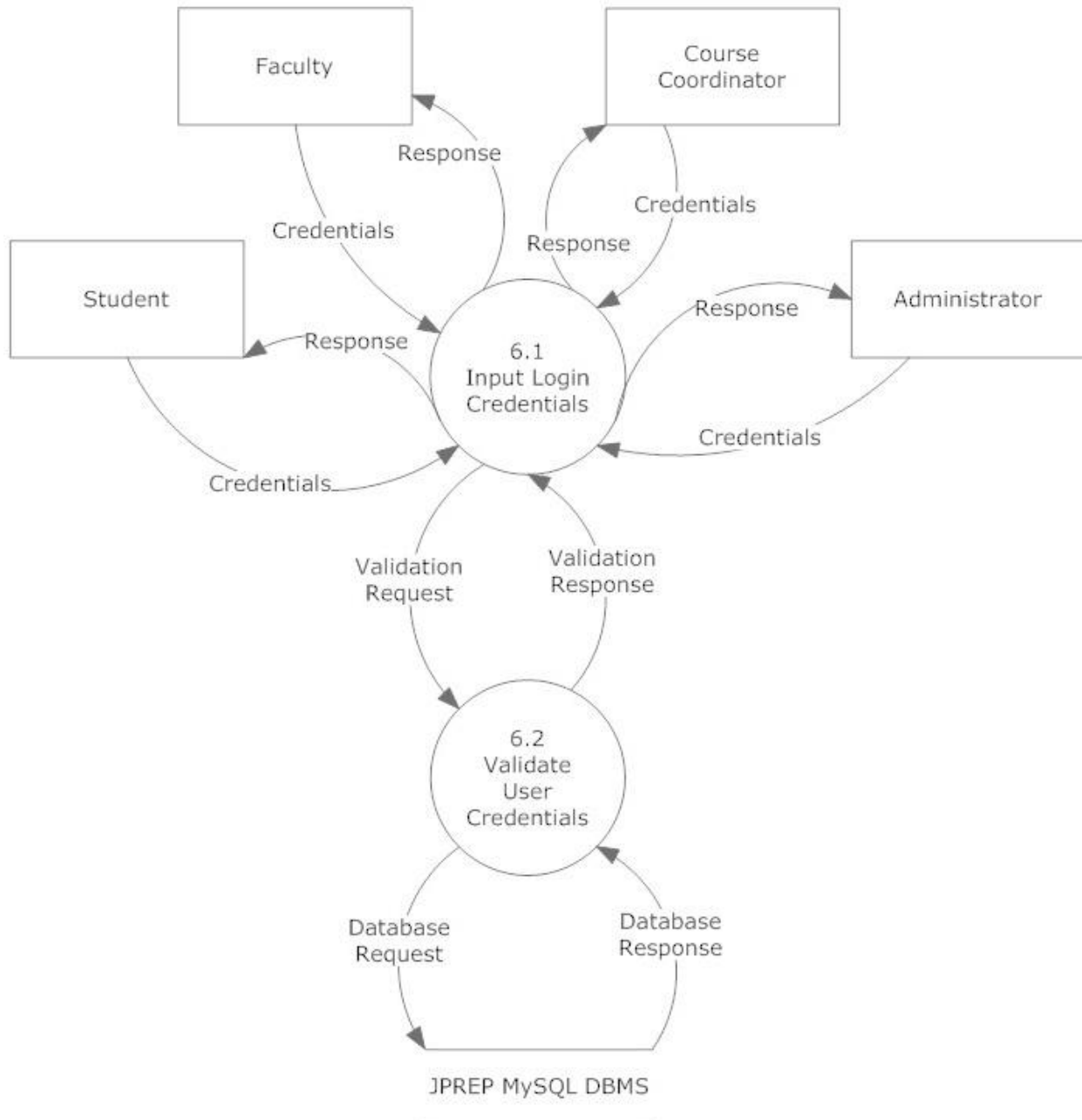
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7.4.5 Manage Users Level 1 Data Flow Diagram



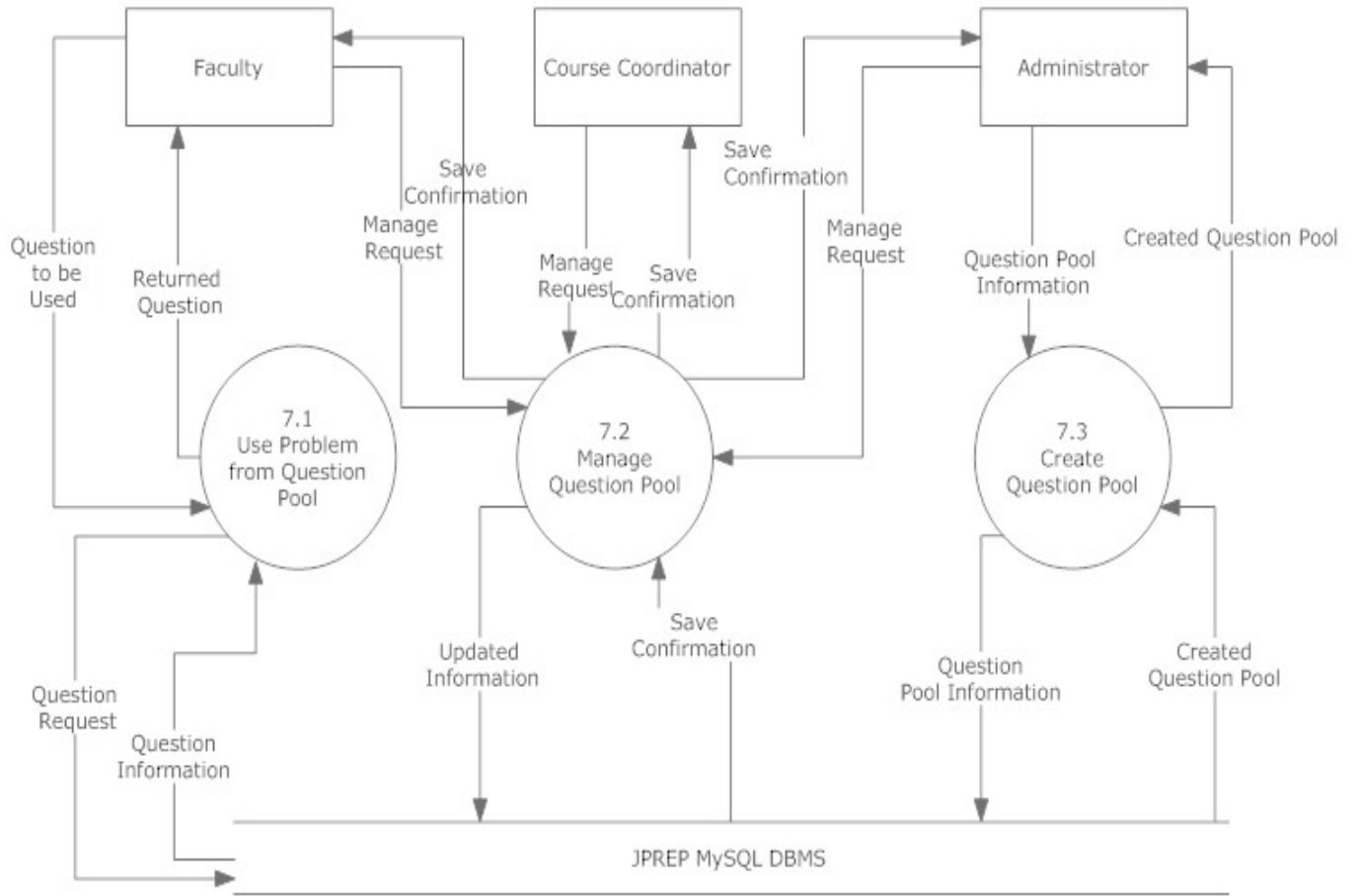
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7.4.6 Login Level 1 Data Flow Diagram



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7.4.6 Question Pool Level 1 Data Flow Diagram

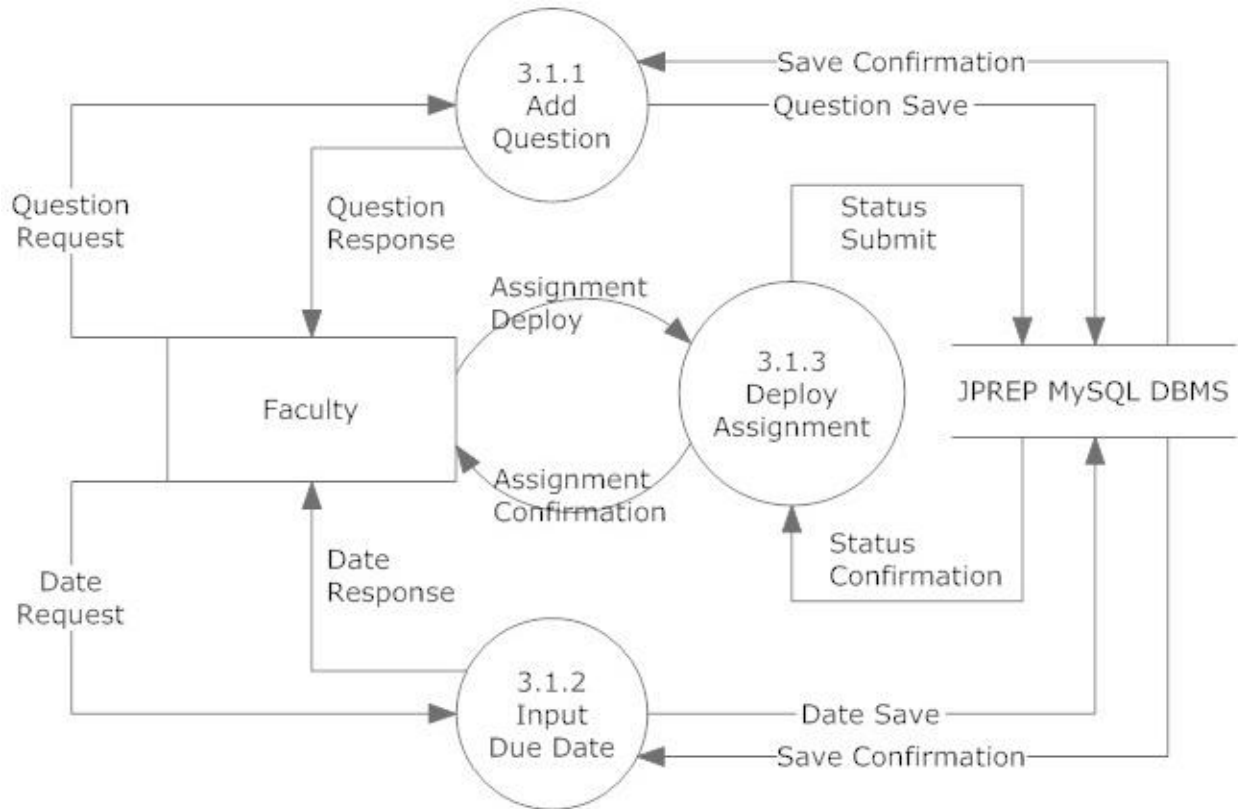


Question pool level 1

7.5 Level 2 Data Flow Diagrams

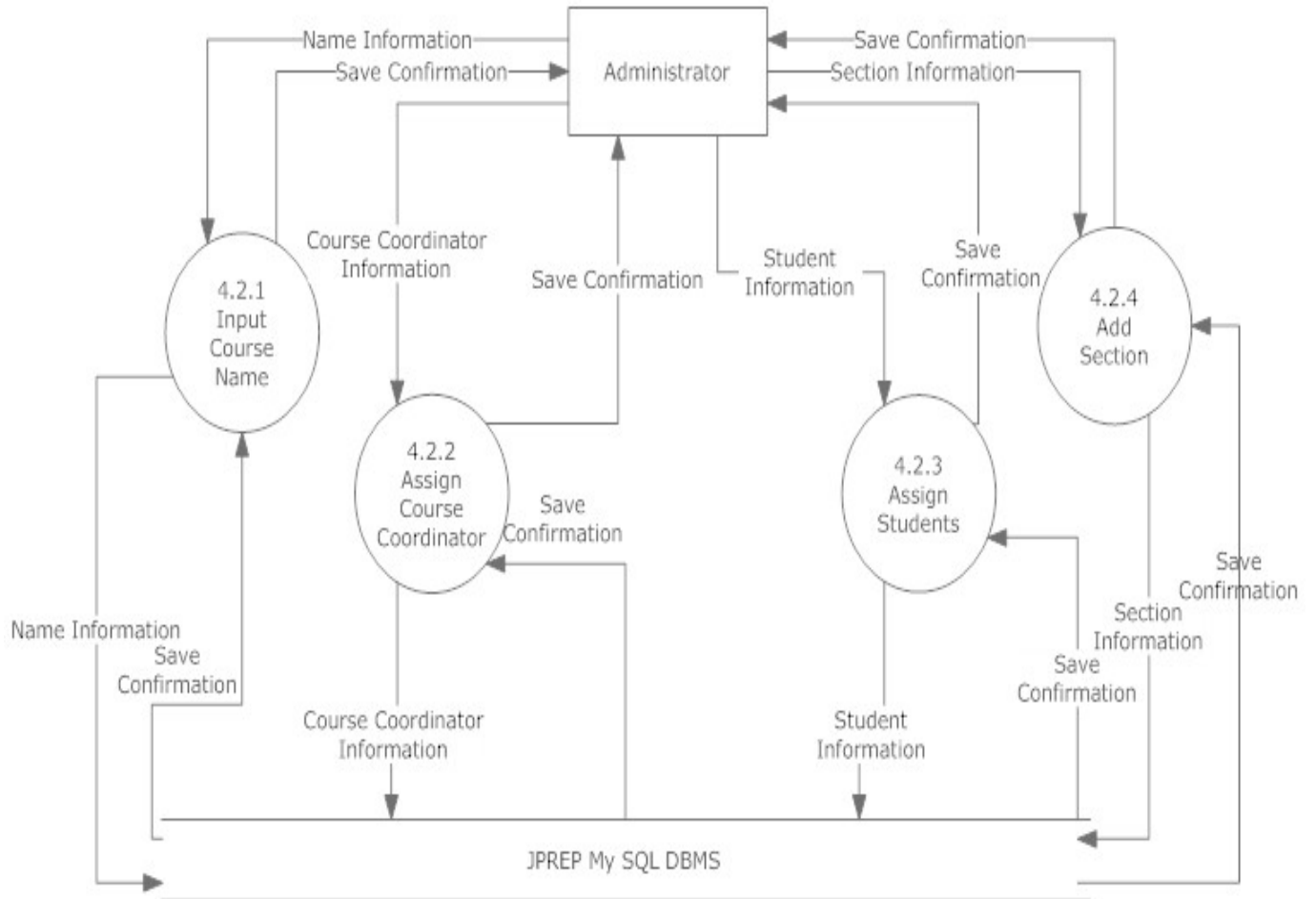
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7.5.1 Add Question Level 2 Data Flow Diagram



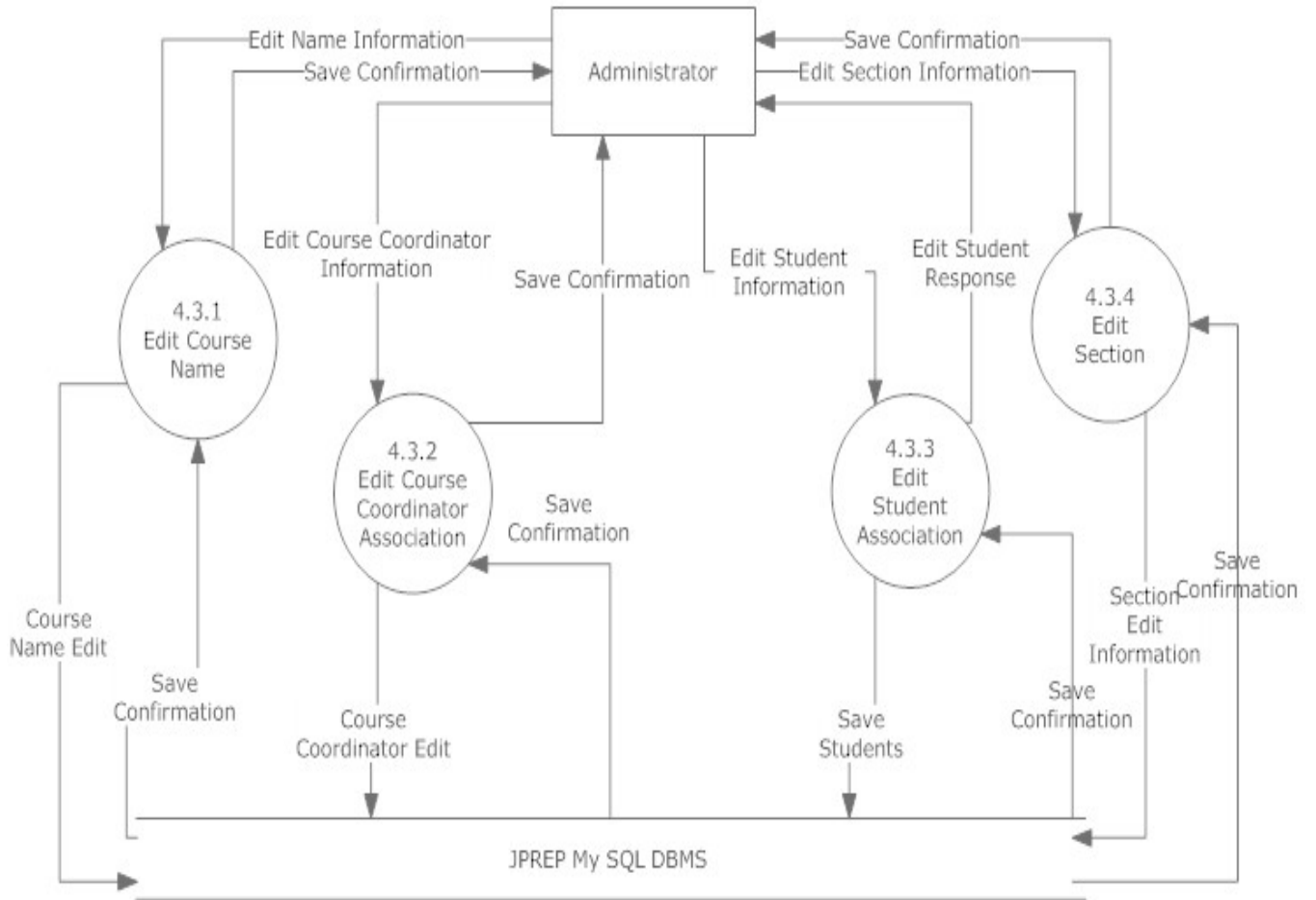
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7.5.2 Manage Course – Add Course Level 2 Data Flow Diagram



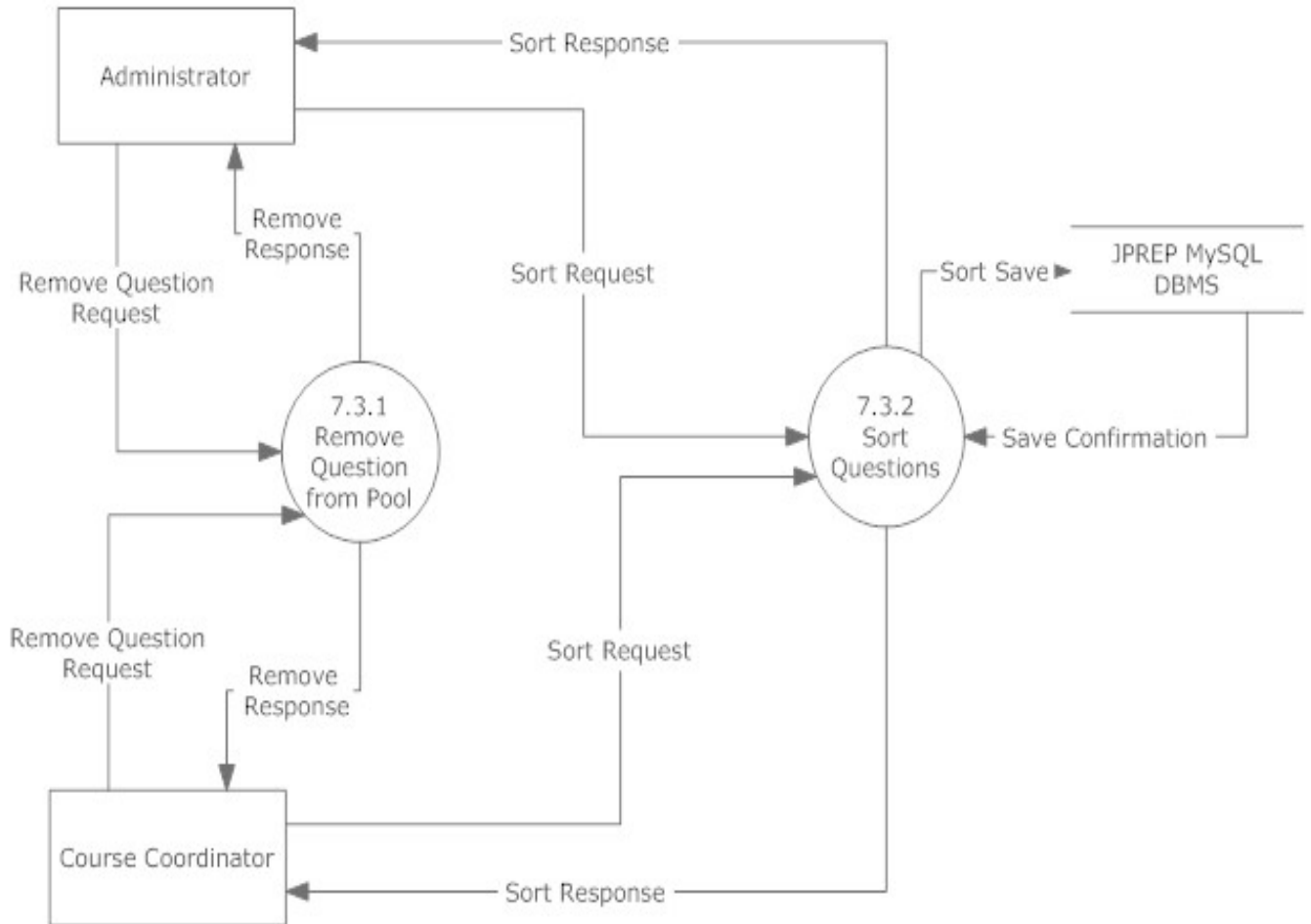
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7.5.3 Manage Course – Edit Course Level 2 Data Flow Diagram



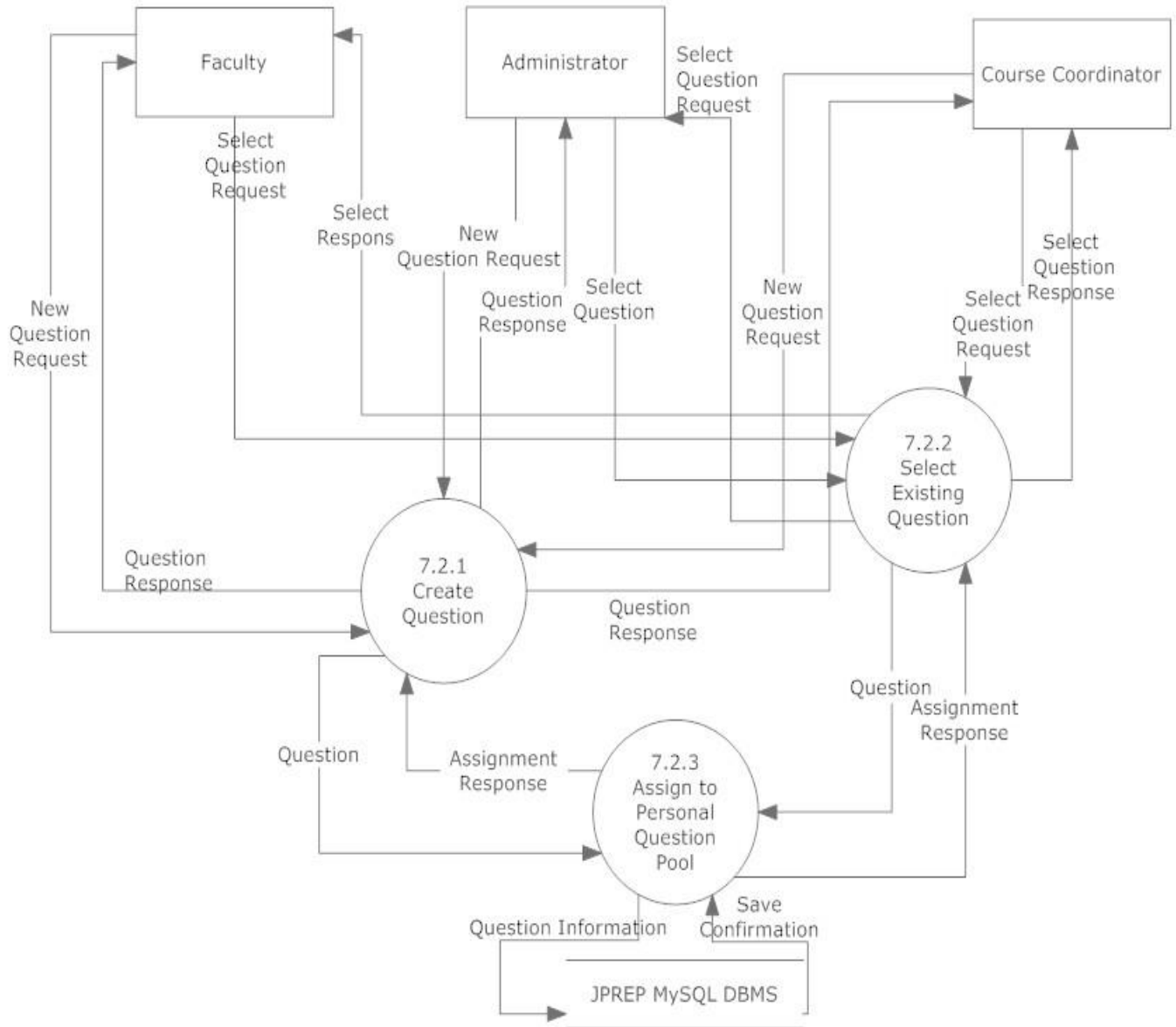
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7.5.4 Manage Question Pool – Edit Level 2 Data Flow Diagram



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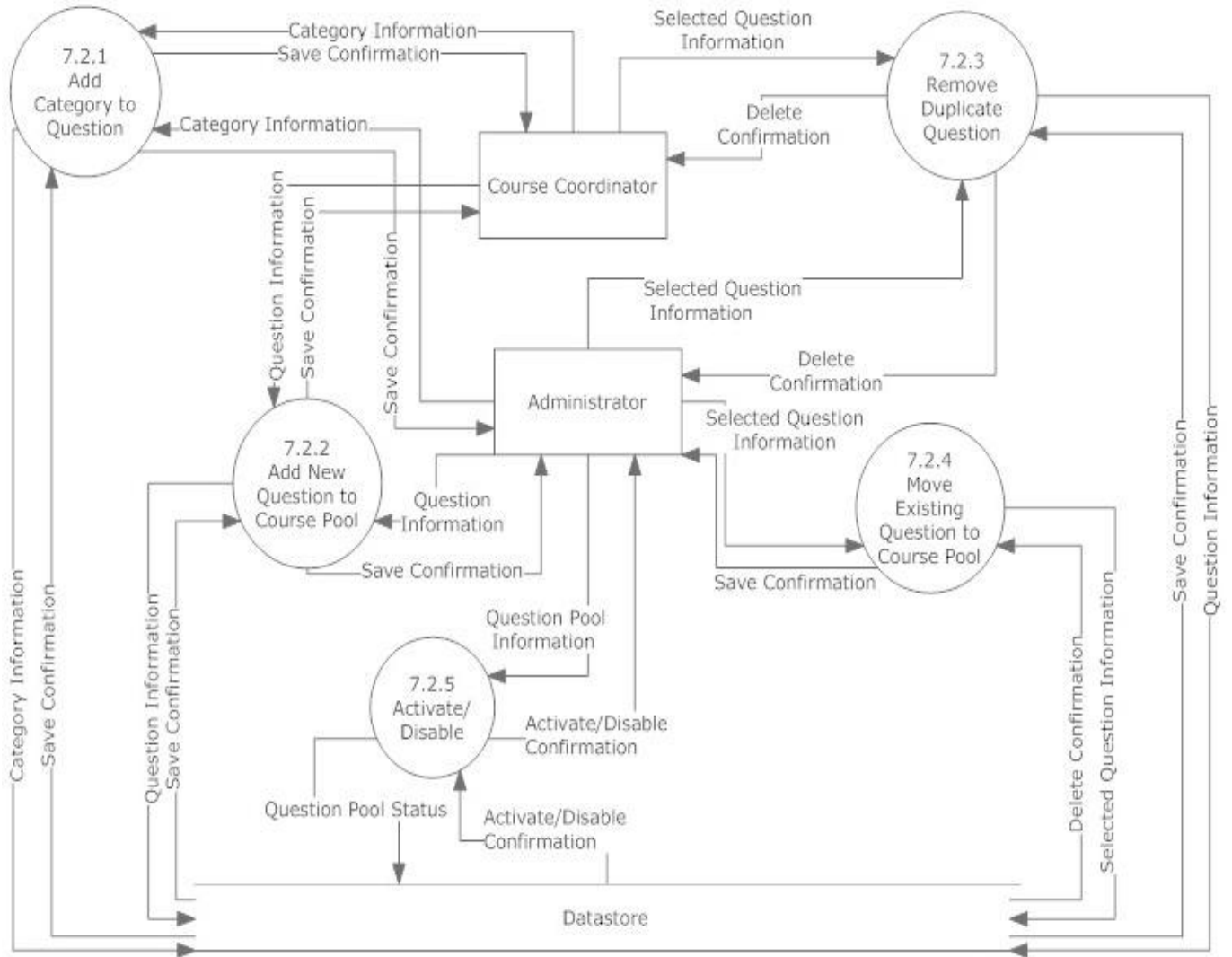
7.5.5 Manage Question Pool – Add Question to Personal Pool Level 2 Data Flow Diagram



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7.5.6 Manage Question Pool – Course Coordinator Level 2 Data Flow Diagram

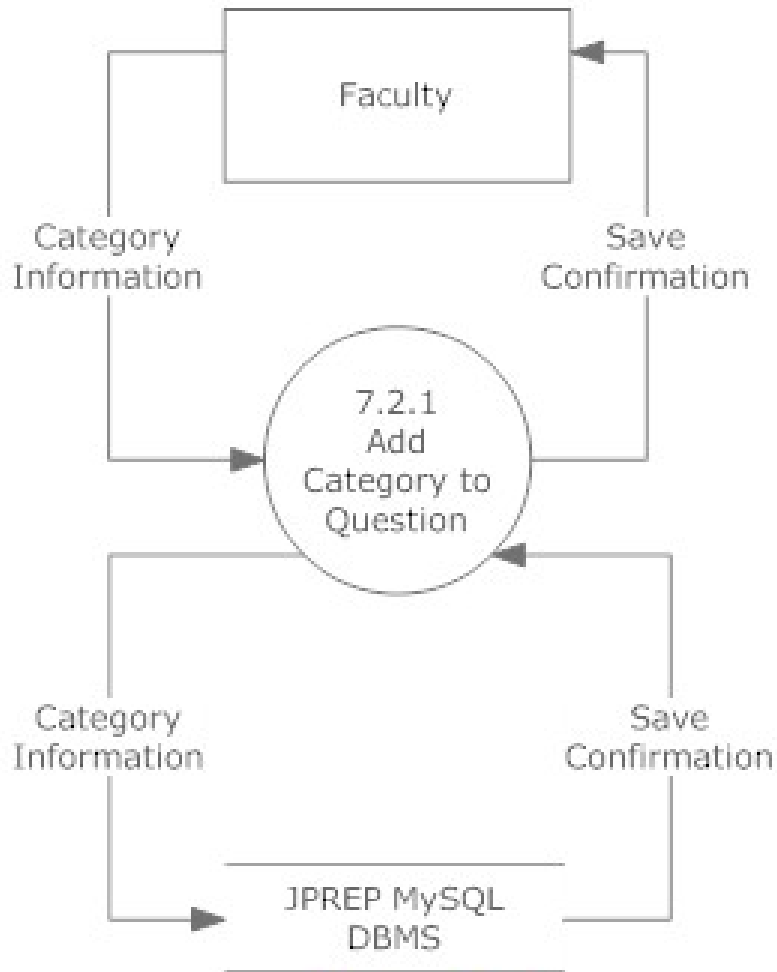
Manage Question Pool Level 2-Course Coordinator



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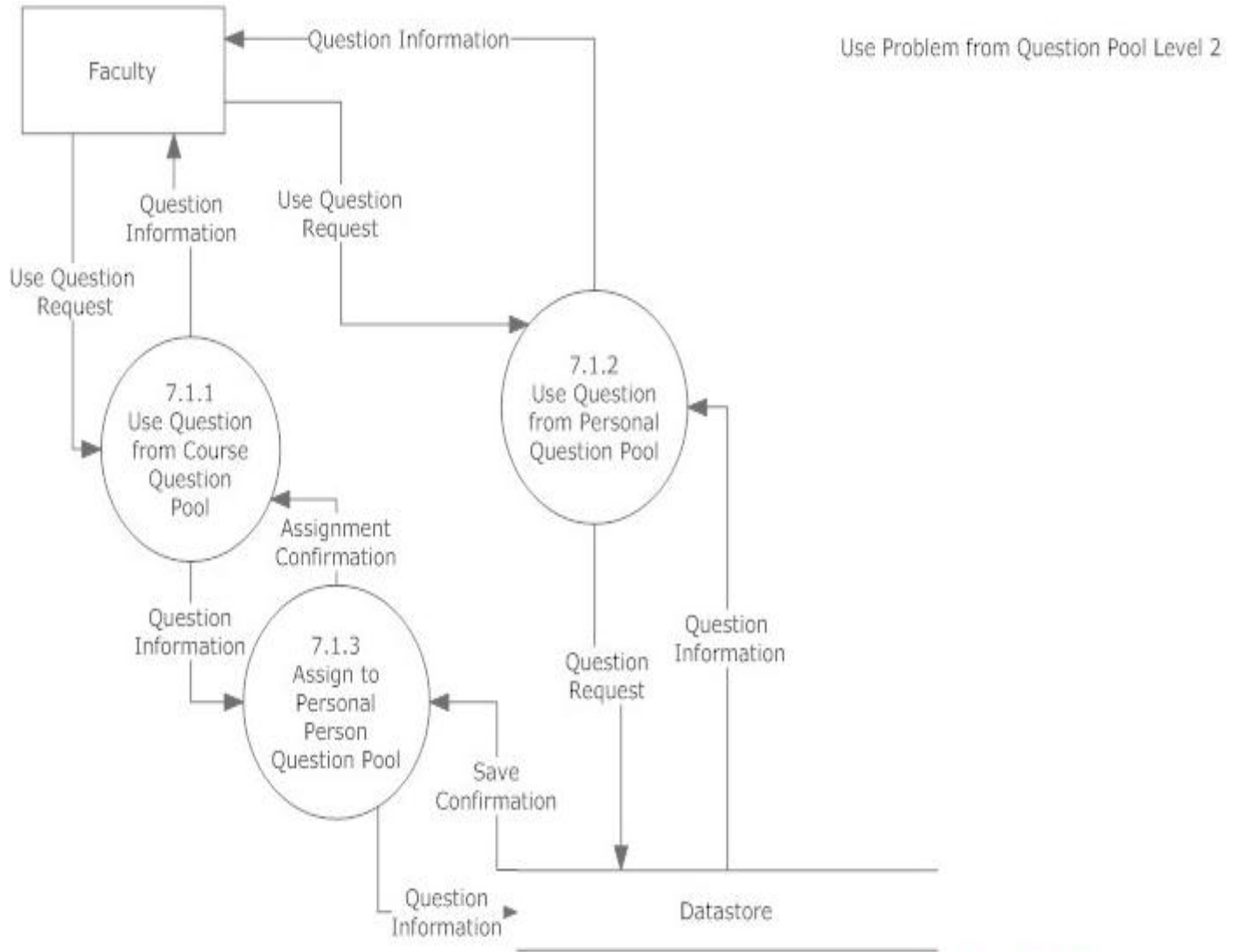
7.5.7 Manage Question Pool – Faculty Level 2 Data Flow Diagram

Manage Question pool level 2-Faculty



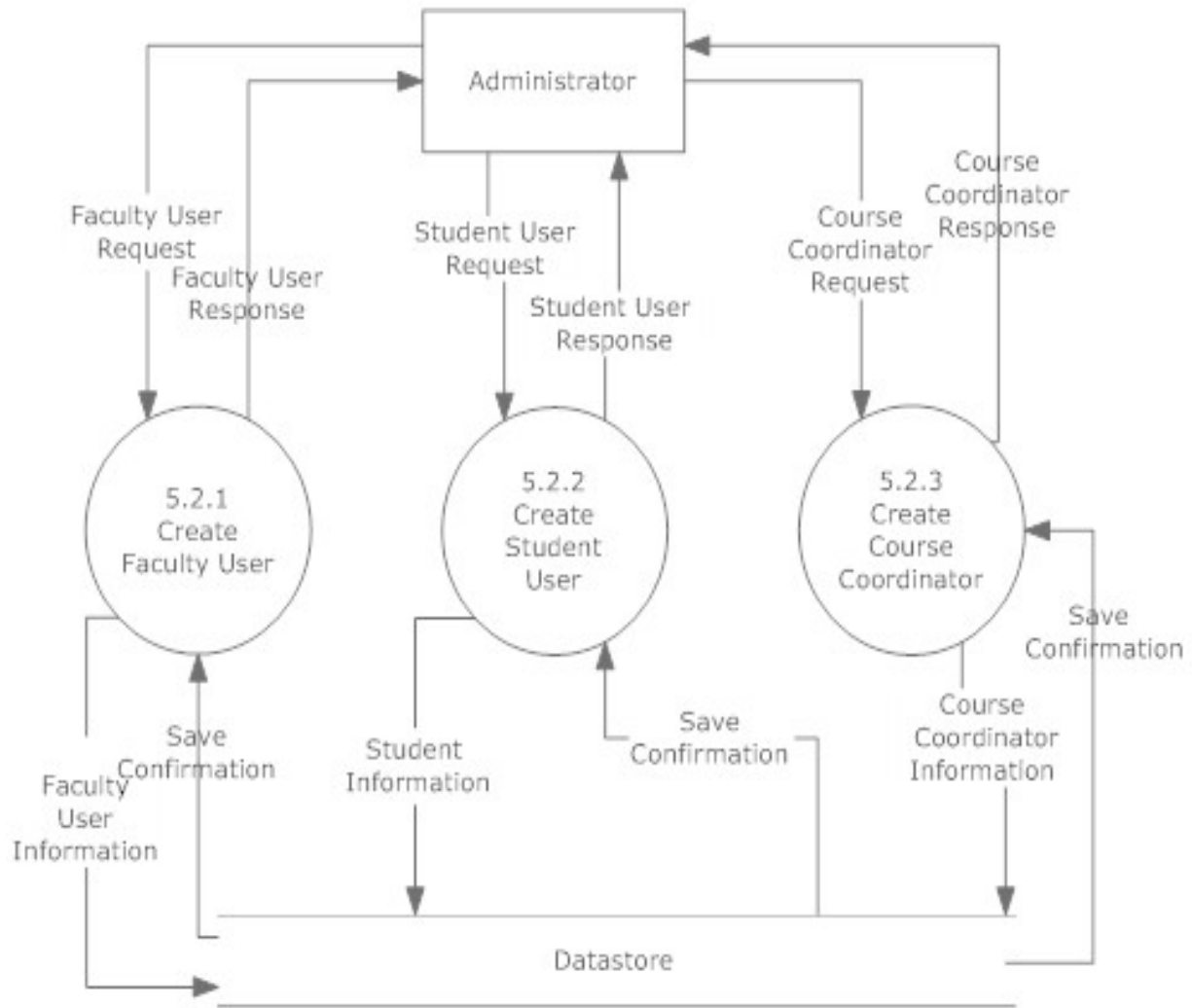
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7.5.7 Question Pool – Use Question Level 2 Data Flow Diagram



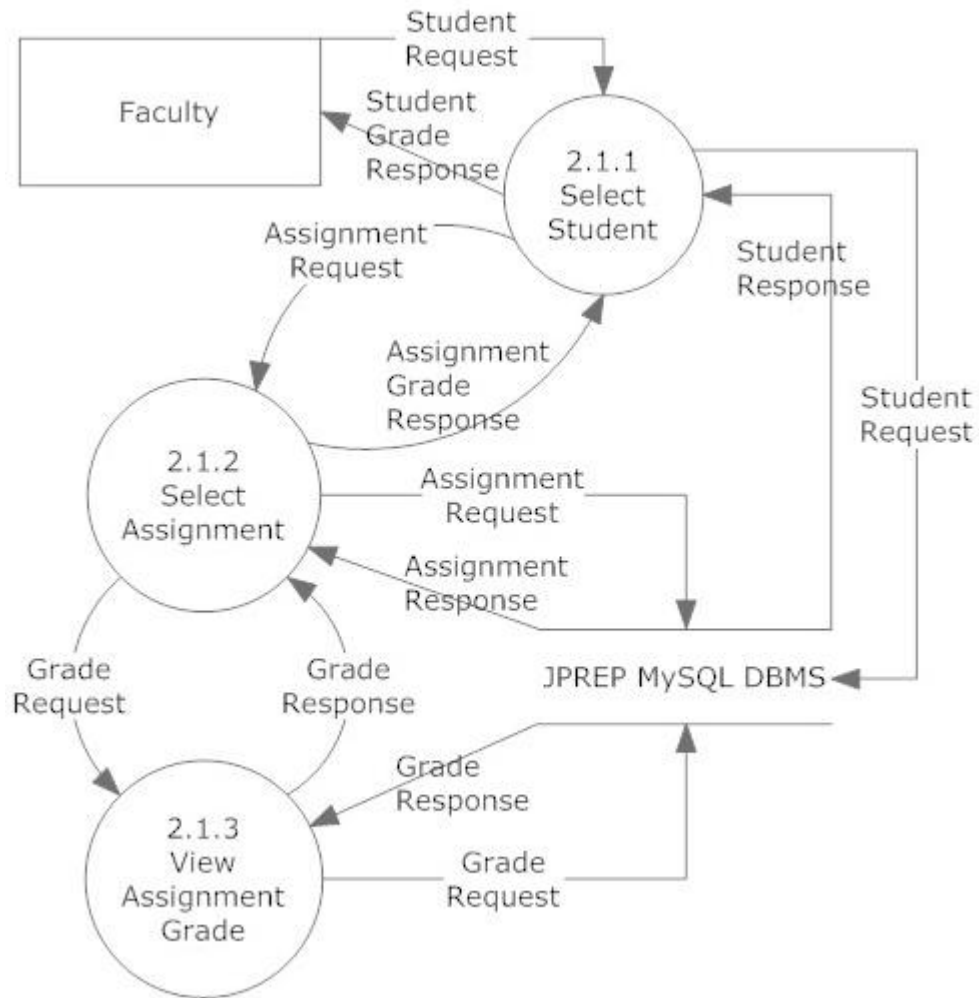
Java Problem Repository and Education Platform

7.5.6 Manage Users – Add User Level 2 Data Flow Diagram



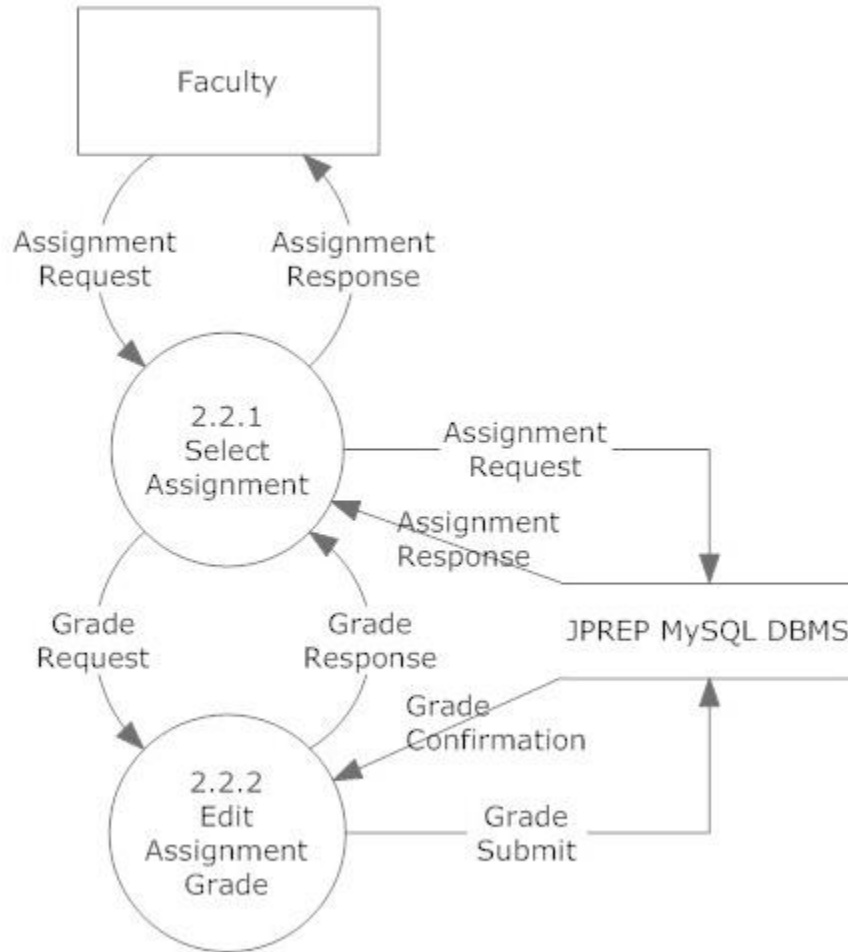
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7.5.7 View Grades –Students Level 2 Data Flow Diagram



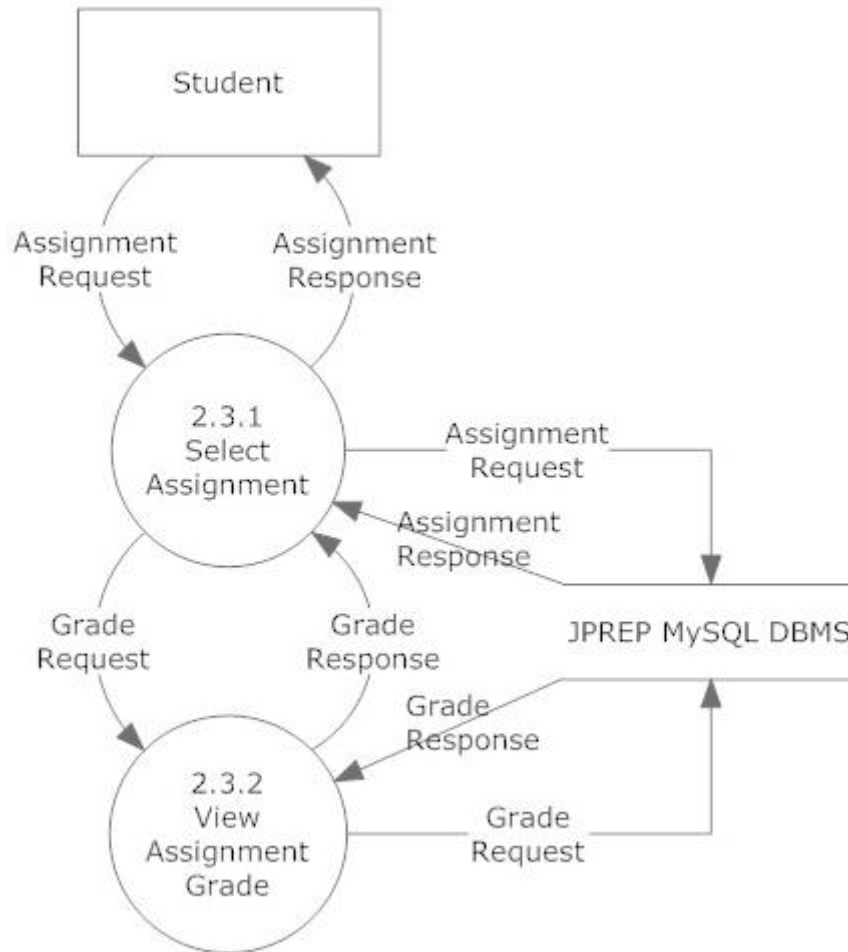
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7.5.8 Process Grades Level 2 Data Flow Diagram



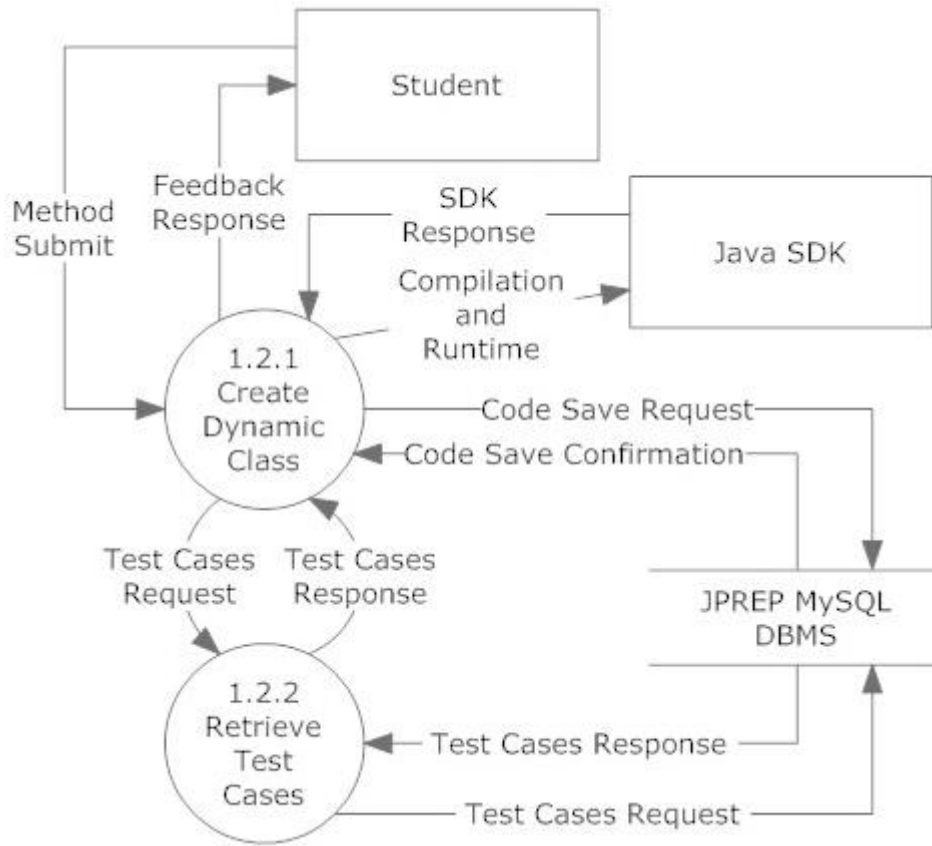
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7.5.9 Get Individual Grades Level 2 Data Flow Diagram



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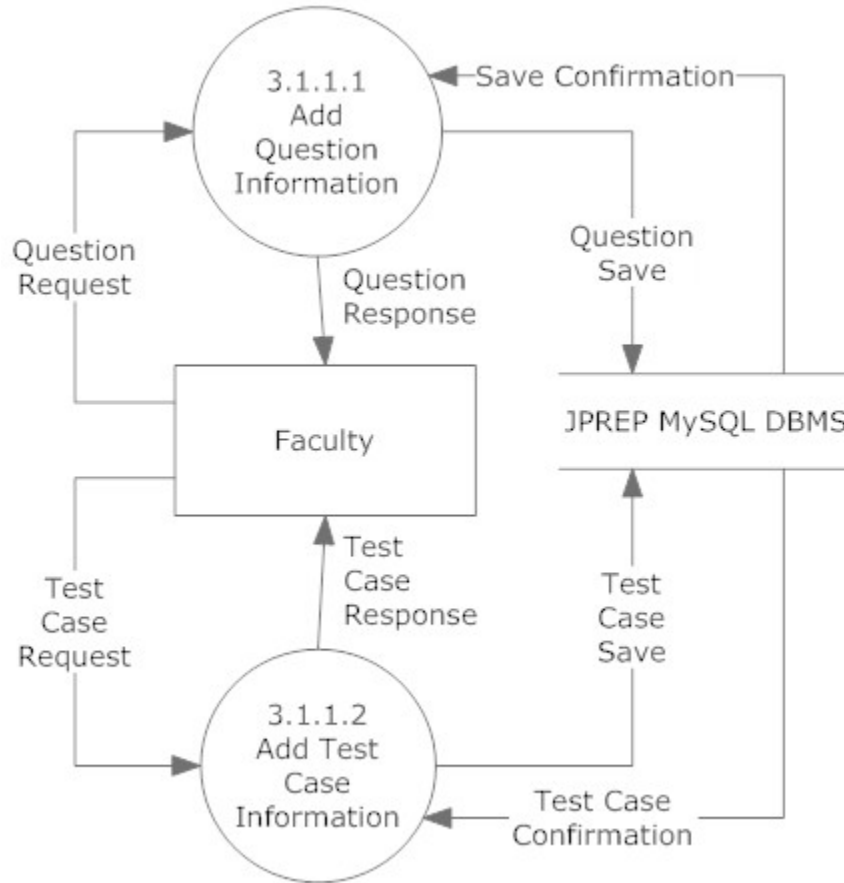
7.5.10 Generate Results Level 2 Data Flow Diagram



7.6 Level 3 Data Flow Diagrams

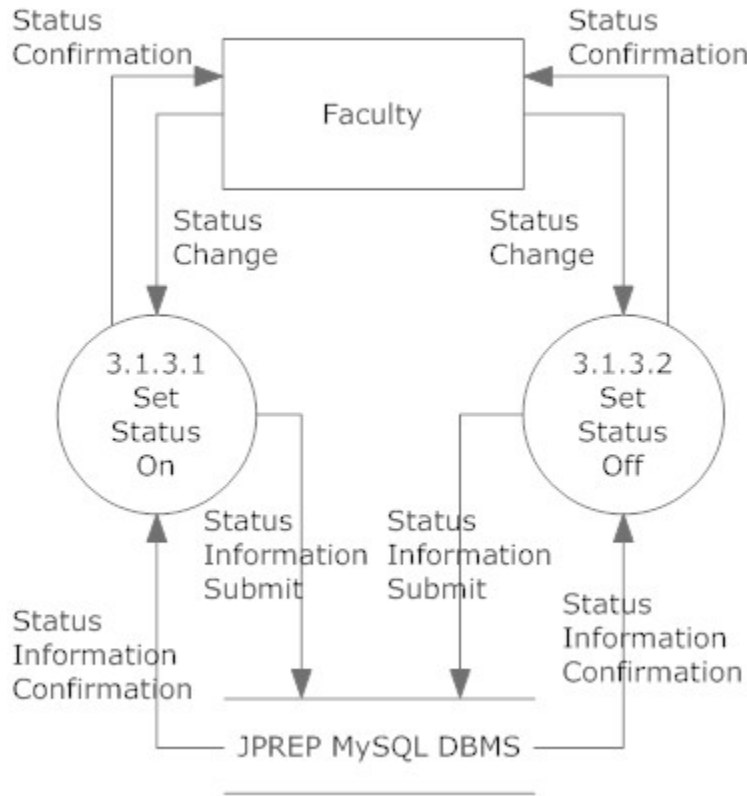
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7.6.1 Add Question Level 3 Data Flow Diagram



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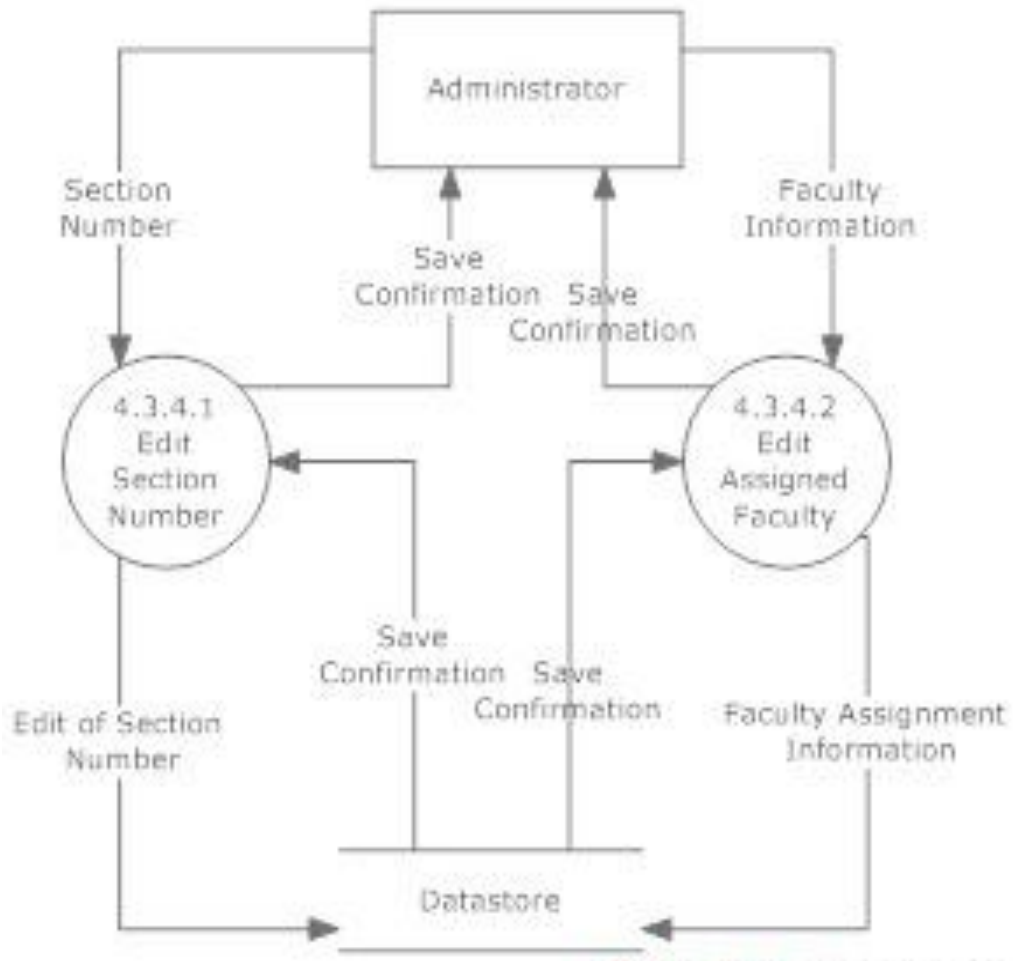
7.6.2 Deploy Assignment Level 3 Data Flow Diagram



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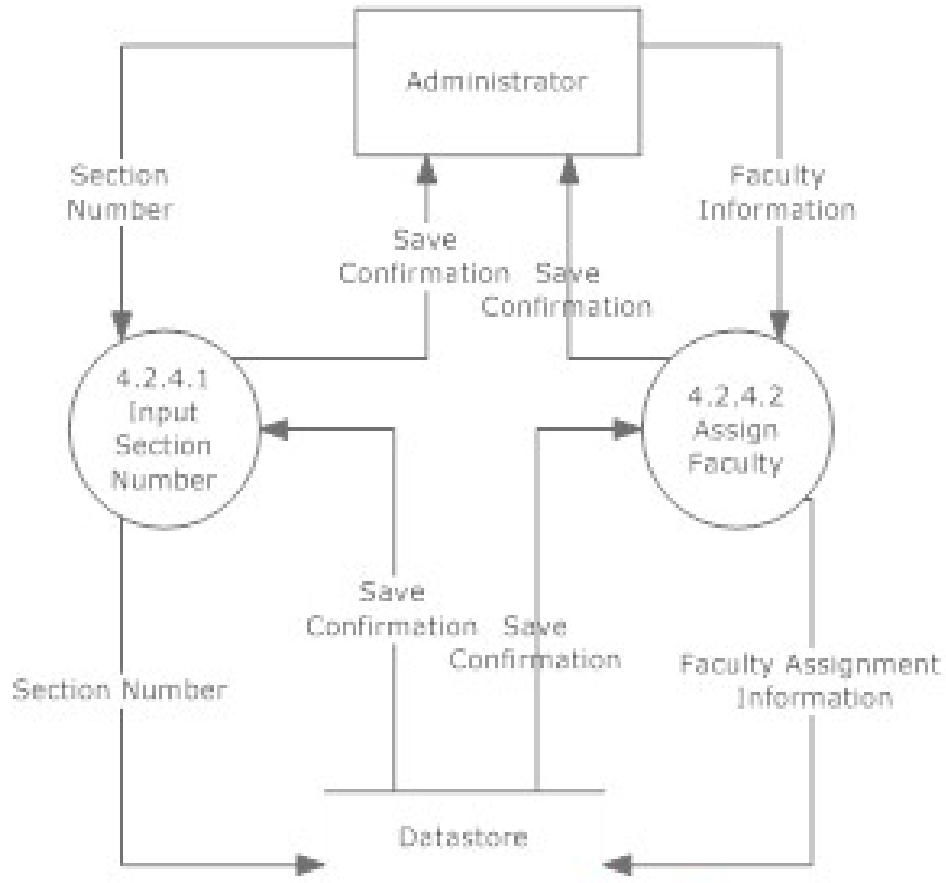
7.6.3 Manage Course – Edit Course – Edit Section Level 3 Data Flow Diagram

Manage Course-Edit Course- Edit section



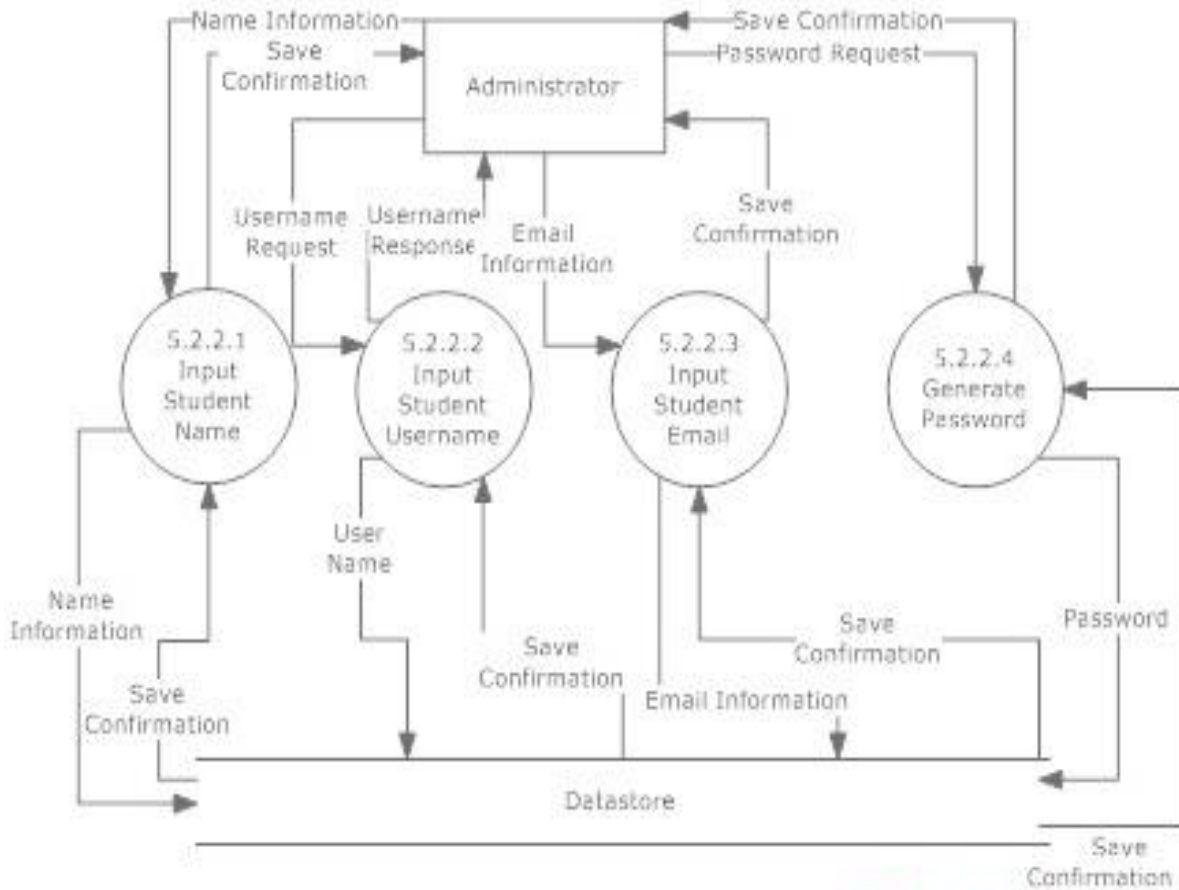
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7.6.4 Manage Course – Add Course – Edit Section Level 3 Data Flow Diagram



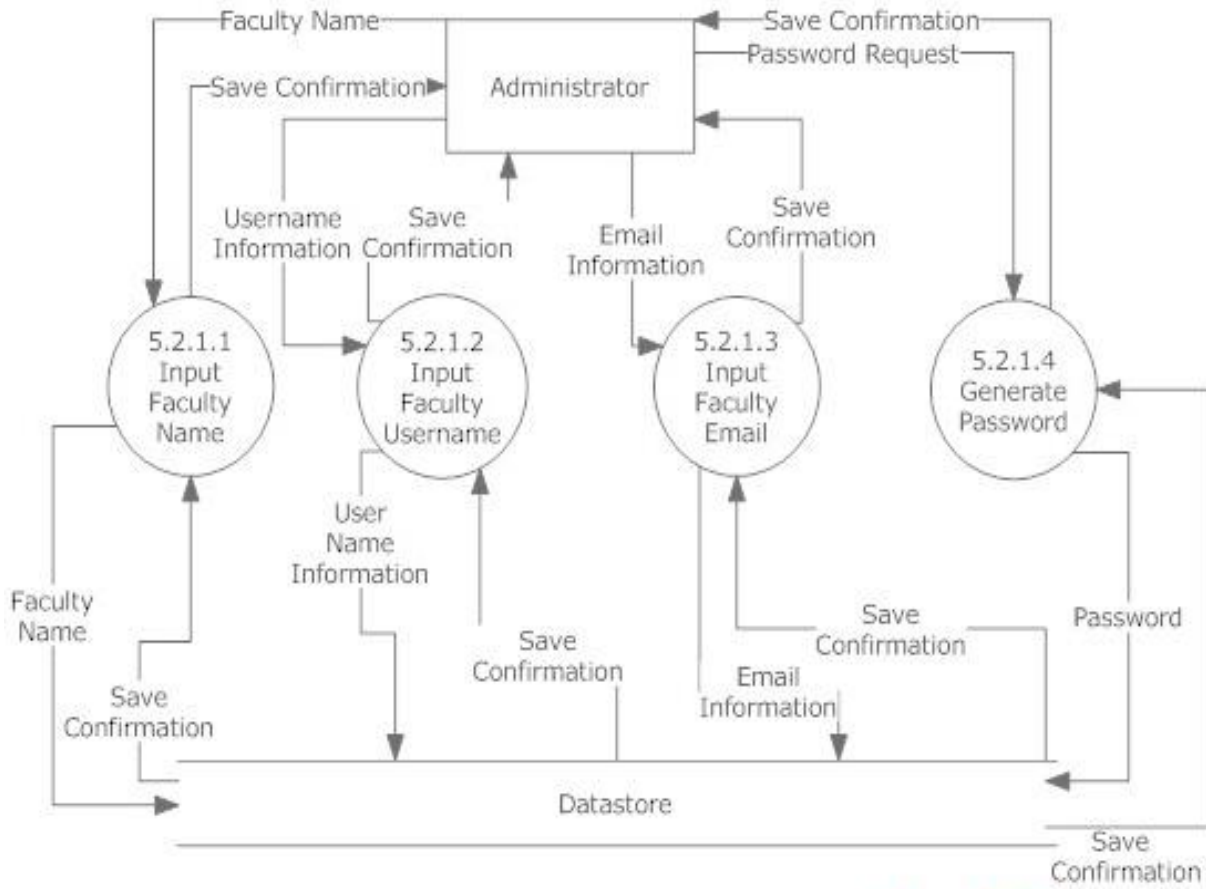
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7.6.5 Manage User – Add Student User Level 3 Data Flow Diagram



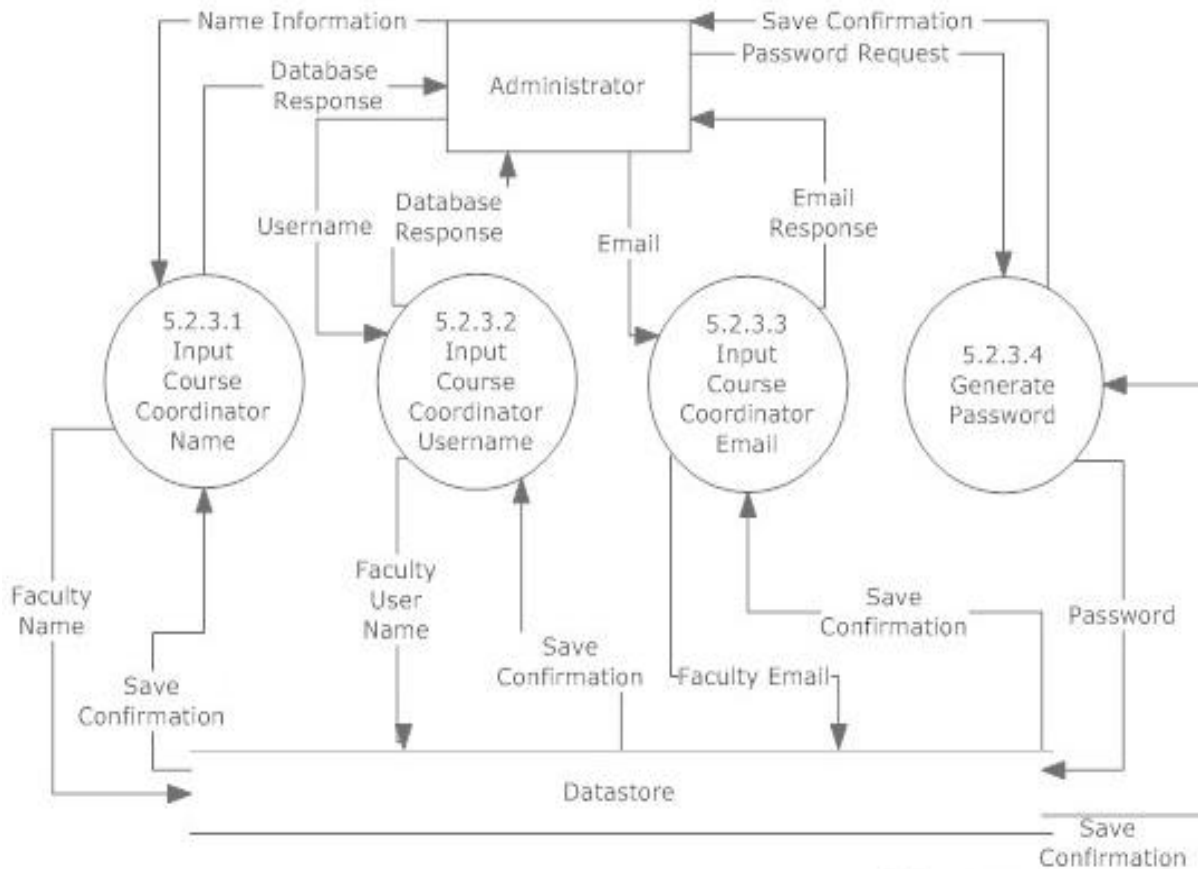
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7.6.6 Manage User – Add Faculty User Level 3 Data Flow Diagram



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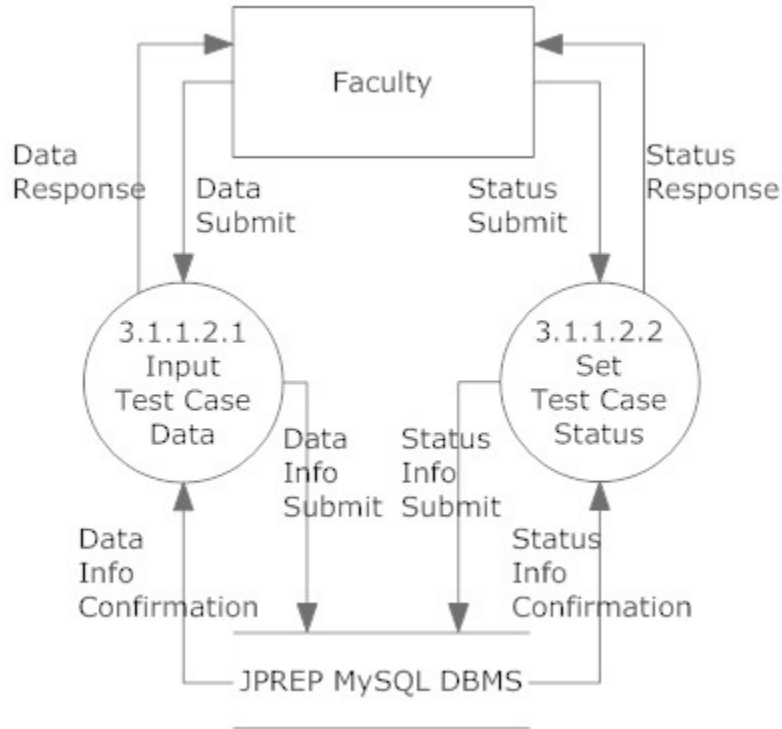
7.6.7 Manage User – Add Course Coordinator User Level 3 Data Flow Diagram



7.7 Level 4 Data Flow Diagrams

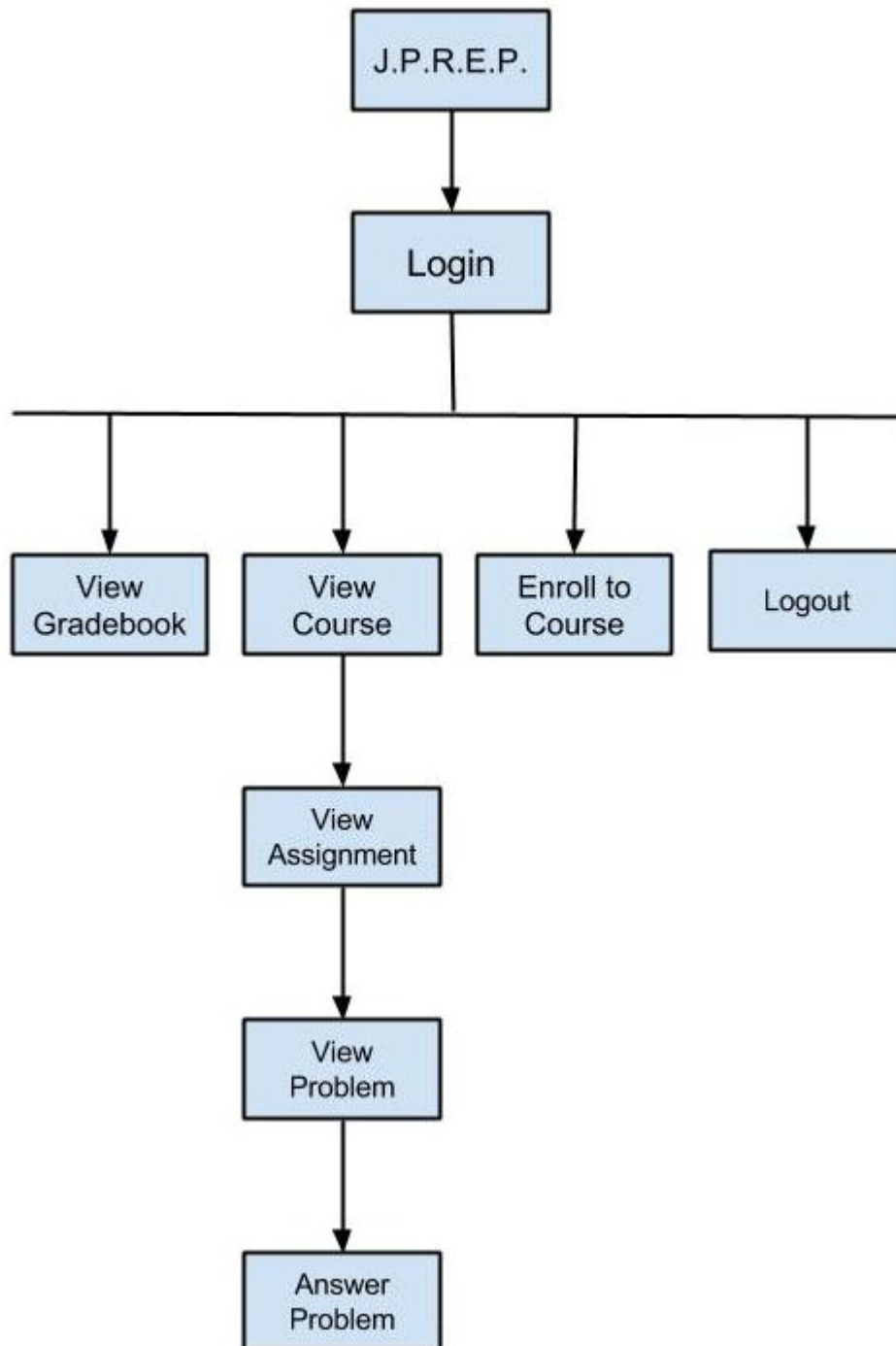
Java Problem Repository and Education Platform

7.7.1 Manage Assignments – Add Test Case Information User Level 3 Data Flow Diagram



8 Hierarchy Diagram

A hierarchy diagram is a diagram that is used to show the relationship between various units.



9 Functional Requirements Inventory

Student:

- Will be able to log into JPREP.
 - An incorrect login will display an error message
- Will be able to enroll in classes they are registered for
 - Will receive email with unique course code from professor
- Will be able to switch between classes that the student is currently enrolled in at any time
- Will be able to view assignments for each course they are in enrolled in
 - Will be able to view past and pending assignments
- Will be able to view problems in each assignment
- Will be able to submit solutions to individual problems using the Java™ programming language
 - Code will be compiled by JPREP
 - If they exist, the student will instantly receive feedback on compile errors
 - The student will instantly receive feedback on how their solution performed when run against the test cases
- Will be able to complete assignments
 - Will be able to work on any problem in the assignment; order does not matter
 - Will be able to save code for most recent problem
- Will be able to view grades for each class in a grade book
 - Will be able to view progress for each assignment
- Will be able to view all solutions that have been previously submitted
- Will be able to log out of JPREP

Faculty:

- Will be able to log into JPREP.
 - An incorrect login will display an error message
- Will be able to create and edit assignments
 - Will be able to import problems from the question pool to any assignment
 - Will be able to create a problem for an assignment
 - Will be able to delete a problem from an assignment
 - Will be able to edit a problem in an assignment
- Will be able to assign a grading rule for assignments
 - Will be able to assign different point values for problems in the assignments
- Will be able to administer assignments to any courses that the faculty instructs
 - Will be able to set due dates for each assignment
- Will be able to search the question pool for potential problems
- Will be able to view a grade book for each of the courses
 - Will be able to view student's progress for each assignment
- Will be able to modify grades for all students in each of the courses they are currently instructing
- Will be able to log out of JPREP

Course Coordinator:

The functionality of a course coordinator will include all of the functionality that a Faculty Member has.

- Will be able to manage question pool
 - Will create questions for the question pool
 - Will delete questions from the question pool
 - Will edit questions that exist in the question pool
- Will be able to switch to Faculty view without logging out

Administrator:

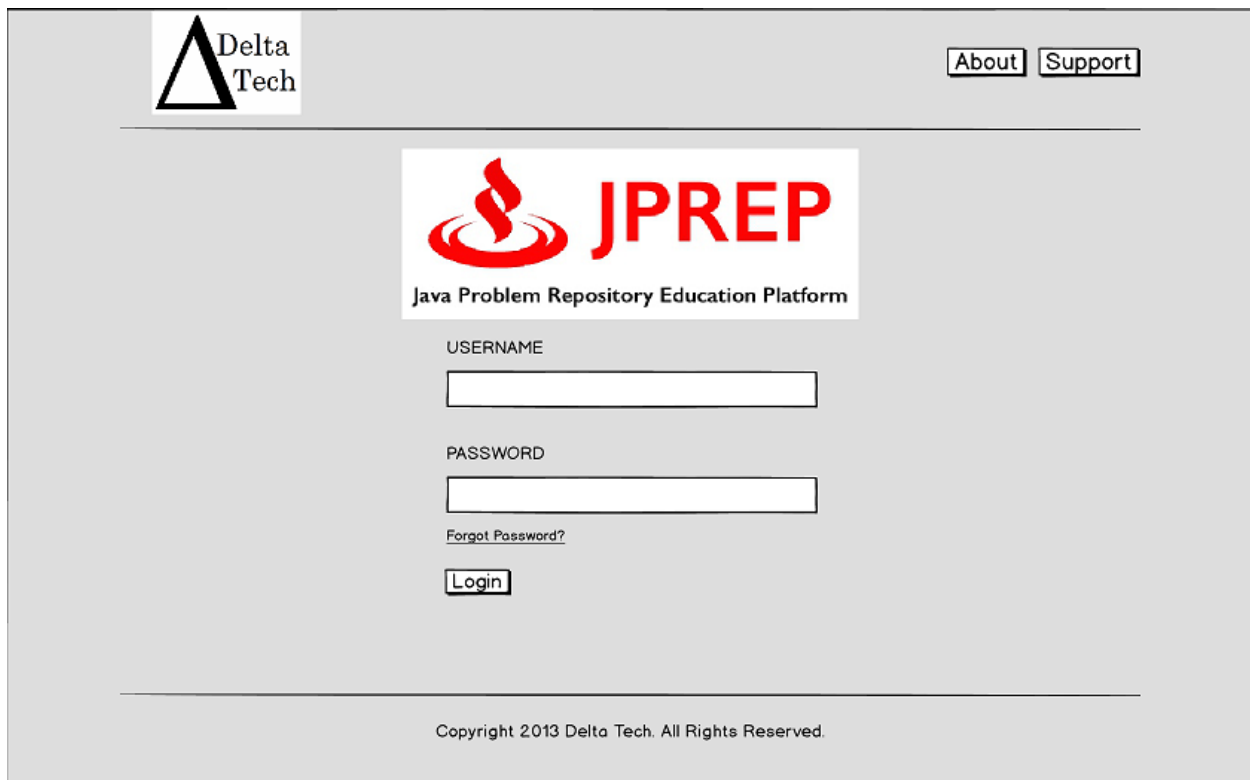
- Will be able to log into JPREP.
 - An incorrect login will display an error message
- Will be able to add and delete courses
- Will be able to manage all user accounts on JPREP
 - Will be able to modify all account information for any user
 - Will be able to delete accounts
 - Will be able to lock out expired students
- Will be able to manage question pool
 - Will create questions for the question pool
 - Will delete questions from the question pool
 - Will edit questions that exist in the question pool
- Will be able to create course coordinator and faculty accounts
 - Will be able to assign courses to faculty
- Will be able to log out

10 Prototypes

The following images represent current prototypes that are being used to develop JPREP further. The prototypes do not represent the final design of JPREP and are subject to change.

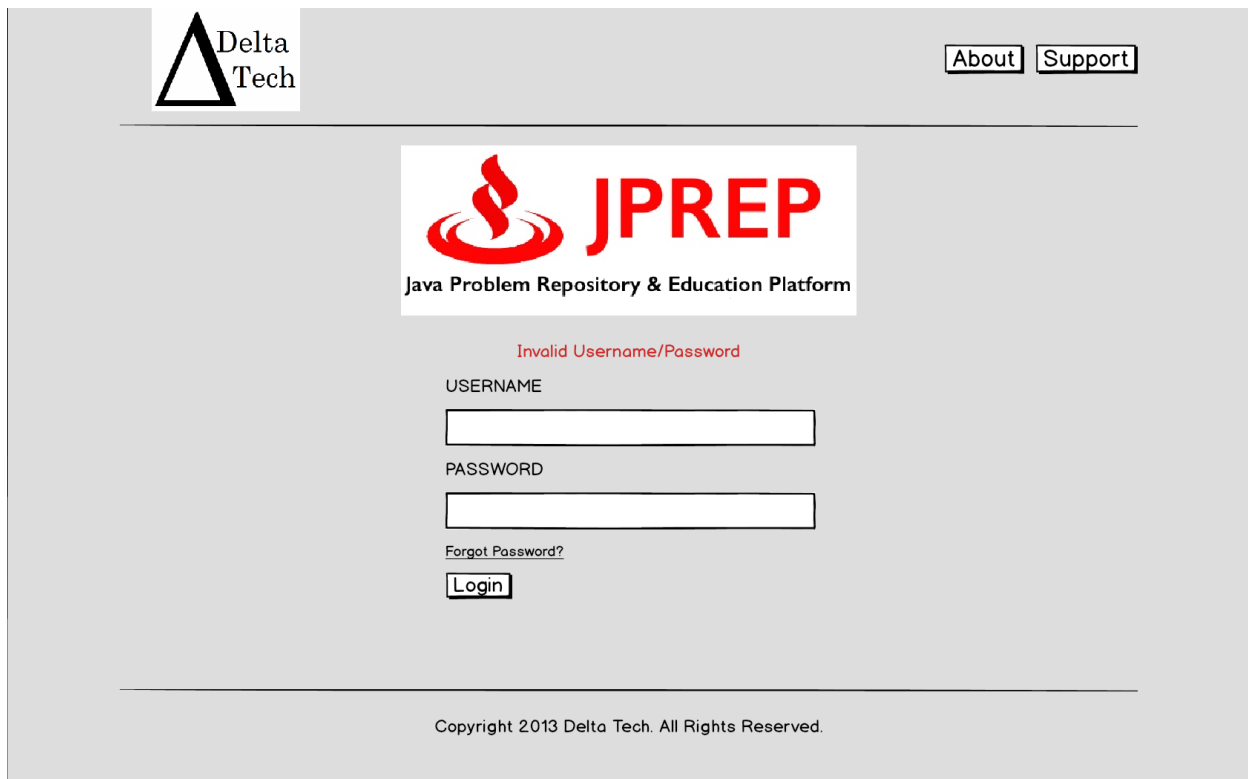
10.1 Prototype 1: Login Screen

This screen represents the login screen for JPREP. All users will be presented with this screen, in order to provide user credentials.




The screenshot shows a login screen for the Java Problem Repository Education Platform (JPREP). The page has a light gray background. In the top left corner, there is a logo for Delta Tech, consisting of a black triangle with the text "Delta Tech" to its right. In the top right corner, there are two buttons: "About" and "Support". A horizontal line separates the header from the main content area. In the center of the page, there is a white box containing the JPREP logo, which is a red flame-like shape next to the text "JPREP" in red. Below the logo, the text "Java Problem Repository Education Platform" is written in black. Underneath this, there are two input fields: one for "USERNAME" and one for "PASSWORD". Below the password field, there is a link that says "Forgot Password?". At the bottom of the input area, there is a "Login" button. A horizontal line is positioned below the input fields. At the very bottom of the page, there is a copyright notice: "Copyright 2013 Delta Tech. All Rights Reserved."

10.2 Prototype 2: Invalid Login Screen




The screenshot shows a web page with a grey background. In the top left corner, there is a logo for Delta Tech, consisting of a black triangle with the text "Delta Tech" to its right. In the top right corner, there are two buttons: "About" and "Support". A horizontal line separates the header from the main content area. In the center of the page, there is a white box containing the JPREP logo, which features a red flame icon and the text "JPREP" in red, with "Java Problem Repository & Education Platform" in black below it. Below the logo, the text "Invalid Username/Password" is displayed in red. Underneath, there are two input fields: "USERNAME" and "PASSWORD", each with a white box and a black border. Below the password field, there is a link "Forgot Password?" and a "Login" button. A horizontal line is positioned below the login area. At the bottom center of the page, the text "Copyright 2013 Delta Tech. All Rights Reserved." is displayed.

10.3 Prototype 3: Logout Screen

[About](#) [Support](#)

You have been succesfully logged out of



JPREP
Java Problem Repository & Education Platform

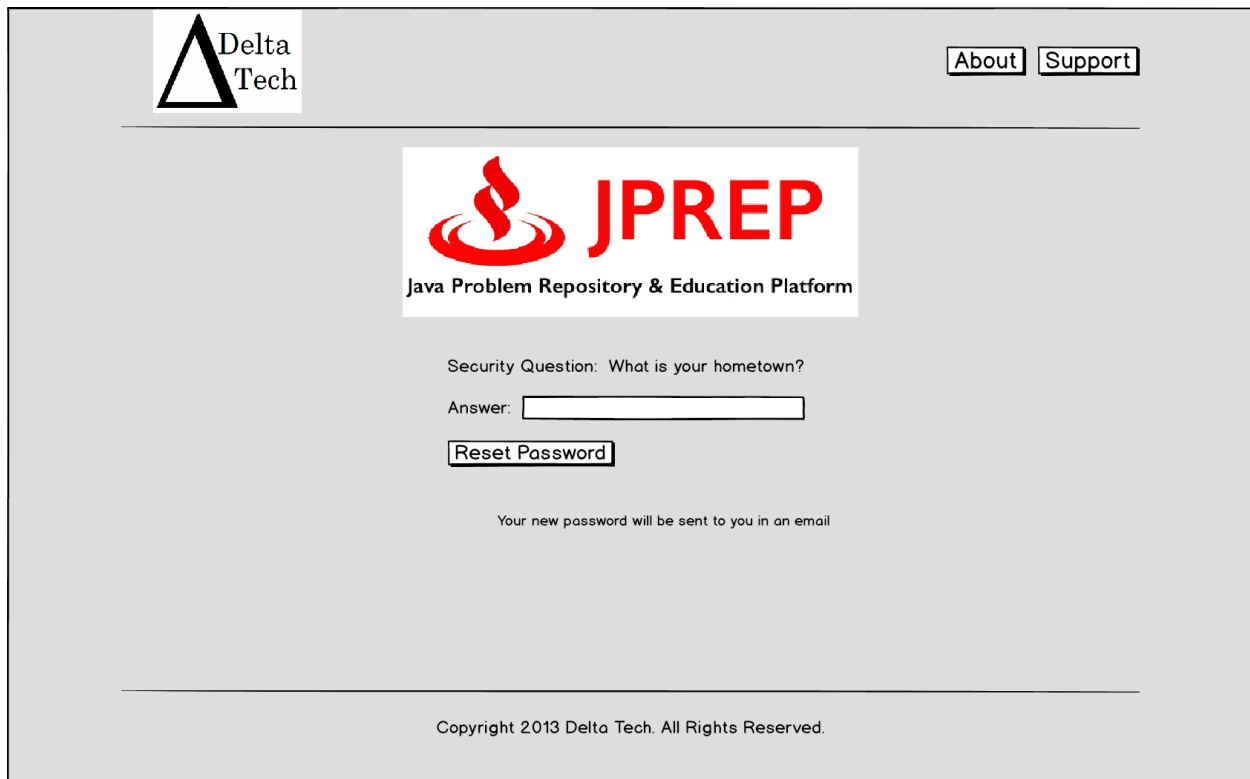
USERNAME

PASSWORD

[Forgot Password?](#)

10.4 Prototype 4: Forgot Password – Security Question

This screen represents the view a user will see when they have forgotten their password.



The screenshot shows a web interface for a password reset. At the top left is the Delta Tech logo, consisting of a black triangle with the text 'Delta Tech' to its right. At the top right are two buttons: 'About' and 'Support'. In the center is the JPREP logo, which features a red flame icon above the text 'JPREP' and 'Java Problem Repository & Education Platform' below it. Below the logo, the text 'Security Question: What is your hometown?' is displayed. Underneath is the label 'Answer:' followed by a text input field. Below the input field is a 'Reset Password' button. A message below the button states 'Your new password will be sent to you in an email'. At the bottom of the page, a horizontal line is followed by the copyright notice 'Copyright 2013 Delta Tech. All Rights Reserved.'


10.5 Prototype 5: Student Course View

This screen represents the view of a student when logged in. A list of courses and the respective course assignments and grade book are presented.

The screenshot displays the JPREP (Java Problem Repository & Education Platform) interface for a student. At the top left is the JPREP logo. The user is logged in as 'STUDENT', and the name 'John' is displayed with a 'Logout' link. A navigation bar contains 'Courses', 'Gradebook', and 'Profile' tabs, with 'Courses' selected. The main content is divided into 'Current Courses' and 'Previous Courses'. Each section lists 'Course 1' through 'Course 4'. Under 'Course 1' in both sections, there are links for 'View Assignments' and 'View Gradebook'. The footer includes the text 'Created by Delta Tech', the Delta Tech logo, and 'Copyright 2013 Delta Tech. All Rights Reserved.'

10.6 Prototype 6: Student Assignment View

This screen represents the view a student would have if an assignment was chosen under a certain course.

 **JPREP**
Java Problem Repository & Education Platform

You are currently logged in as STUDENT Welcome, John [Logout](#)

Courses | Gradebook | Profile


Course 1 **Professor: Dr. John Doe** **Semester: Fall 2013**

Pending Assignments

Assignment	Due Date	Status	
Assignment #1	10/10/13	Not Completed	Complete Now
Assignment #2	10/11/13	Completed	View Grade
Assignment #3	10/12/13	Not Completed	Complete Now


Past Assignments

Assignment	Due Date	Status	
Assignment #4	10/09/13	Completed	View Grade
Assignment #5	10/08/13	Completed	View Grade
Assignment #6	10/07/13	Completed	View Grade

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10.7 Prototype 7: Student Complete Assignment

This screen represents where a student will write, save and/or submit code.



You are currently logged in as STUDENT

Welcome, John [Logout](#)

Courses
Gradebook
Profile

Assignment #1

1	2	3	4	Total
0/25	0/25	0/25	0/25	0/100

Course 1

Due Date: 10/10/2013 11:59 PM

1. Problem Name **Type: String** **Points Earned: 0/25**

Question: This area is where the question and details for each assignment will be displayed.

2. Problem Name **Type: Int** **Points Earned: 0/25**

Question: This area is where the question and details for each assignment will be displayed.


3. Problem Name **Type: Int** **Points Earned: 0/25**

Question: This area is where the question and details for each assignment will be displayed.

4. Problem Name **Type: Float** **Points Earned: 0/25**

Question: This area is where the question and details for each assignment will be displayed.

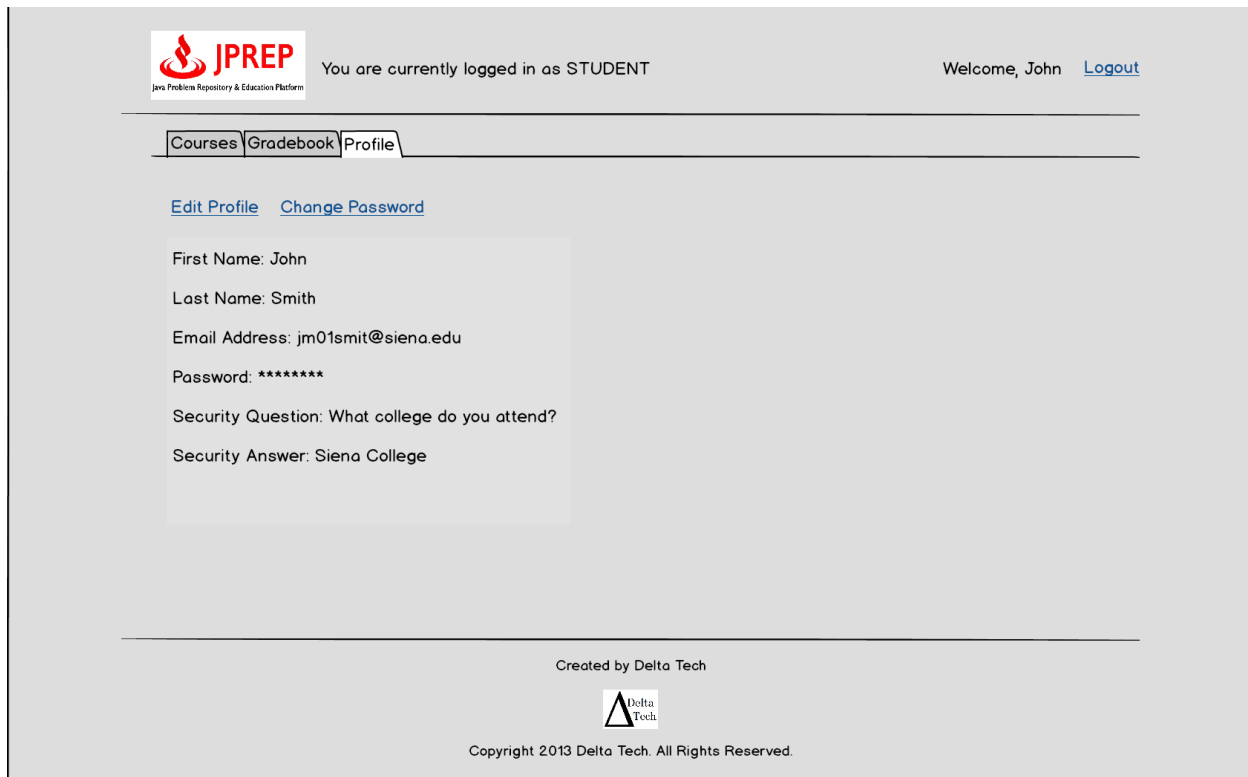
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10.8 Prototype 8: Student View Profile


This screen represents a student viewing the profile.



The screenshot displays the user interface for a student's profile. At the top left is the JPREP logo (Java Problem Repository & Education Platform). To its right, the text reads "You are currently logged in as STUDENT". Further right, a welcome message says "Welcome, John" with a [Logout](#) link. Below this is a navigation bar with three tabs: "Courses", "Gradebook", and "Profile", with "Profile" being the active tab. Underneath the navigation bar are two links: [Edit Profile](#) and [Change Password](#). The main content area is a light gray box containing the following information: "First Name: John", "Last Name: Smith", "Email Address: jm01smit@siena.edu", "Password: *****", "Security Question: What college do you attend?", and "Security Answer: Siena College". At the bottom of the page, it says "Created by Delta Tech" above the Delta Tech logo, and "Copyright 2013 Delta Tech. All Rights Reserved."

10.9 Prototype 9: Student Edit Profile

This screen represents a student editing the profile.

 You are currently logged in as STUDENT Welcome, John [Logout](#)

Courses Gradebook Profile

First Name:

Last Name:


Email Address: jm01smit@siena.edu

Password:

Security Question:

Security Answer:

Created by Delta Tech




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10.10 Prototype 10: Student Change Password View

This screen represents the student's ability to change the password.

The screenshot shows a web interface for a student to change their password. At the top left is the JPREP logo (Java Problem Repository & Education Platform). To its right, it says "You are currently logged in as STUDENT". Further right, it says "Welcome, John" with a "Logout" link. Below this is a navigation bar with three tabs: "Courses", "Gradebook", and "Profile". The "Profile" tab is active. The main content area contains three password input fields: "Old Password:", "New Password:", and "Confirm New Password:", each with a masked password of seven asterisks. Below these fields is a "Change Password" button. At the bottom of the page, it says "Created by Delta Tech" with the Delta Tech logo, and "Copyright 2013 Delta Tech. All Rights Reserved."


 You are currently logged in as STUDENT Welcome, John [Logout](#)

[Courses](#) [Gradebook](#) [Profile](#)

Old Password:

New Password:

Confirm New Password:

Created by Delta Tech

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10.11 Prototype 11: Student Course Grade Book Selection

This screen represents what courses the student can view the course grade book for.

The screenshot shows a web interface for a student. At the top left is the JPREP logo (Java Problem Repository & Education Platform). To its right, it says "You are currently logged in as STUDENT". Further right, it says "Welcome, John" with a "Logout" link. Below this is a navigation bar with three tabs: "Courses", "Gradebook", and "Profile". The "Courses" tab is selected. Below the navigation bar is a dropdown menu titled "Select a course to view your grade" with five options: "Course 1", "Course 2", "Course 3", "Course 4", and "Course 5". At the bottom of the page, it says "Created by Delta Tech" with the Delta Tech logo, and "Copyright 2013 Delta Tech. All Rights Reserved."

10.12 Prototype 12: Student Grade Book View

This screen represents the student's view of a course grade book.

 **JPREP**
Java Problem Repository & Education Platform


You are currently logged in as STUDENT Welcome, John [Logout](#)

CoursesGradebookProfile

Course 1Semester: Fall 2013


Assignment	Due Date	Grade	Percentage	Comments
Assignment 1	10/10/2013 11:59	90/100	90%	Great job!
Assignment 2	10/11/2013 11:59	100/100	100%	
Assignment 3	10/12/2013 11:59	75/100	75%	
Assignment 4	10/13/2013 11:59	84/100	84%	
Assignment 5	10/14/2013 11:59	80/100	80%	
Total		429/500	85%	Good work this semester

Created by Delta Tech


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10.13 Prototype 13: Faculty Courses

This screen represents the faculty's view of their courses.

 **JPREP**
Java Problem Repository & Education Platform

You are currently logged in as FACULTY

Welcome, John [Logout](#)


Current Courses

- ▽ Course 1
 - Create New Problem
 - Create New Assignment
 - Manage Assignments
 - View Question Pool
 - View Gradebook
- ▷ Course 2

Previous Courses

- ▽ Course 1
 - Manage Assignments
 - View Question Pool
 - View Gradebook
- ▷ Course 2
- ▷ Course 3
- ▷ Course 4


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10.14 Prototype 14: Faculty Course

This screen represents the faculty's view of a course they have selected.



You are currently logged in as FACULTY Switch Role ▾

Welcome, John [Logout](#)

Courses
Question Pool
Gradebook
Profile

[Create New Assignment](#)

Course 1

Semester: Fall 2013


Pending Assignments

Assignment	Due Date	
Assignment #1	10/10/13 11:59 PM	Edit
Assignment #2	10/11/13 11:59 PM	Edit
Assignment #3	10/12/13 11:59 PM	Edit

Previous Assignments

Assignment	Due Date	
Assignment #4	10/09/13 11:59 PM	Edit
Assignment #5	10/08/13 11:59 PM	Edit
Assignment #6	10/07/13 11:59 PM	Edit


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10.15 Prototype 15: Faculty Course Question Pool

This screen represents the faculty’s view of the course’s question pool.



You are currently logged in as FACULTY Switch Role ▾

Welcome, John [Logout](#)

Courses

Question Pool


Gradebook

Profile

Course 1 Question Pool

Name	Category	Course	
Problem 1	String	Course 1	Add to Private Pool Edit
Problem 2	Recursion	Course 1	Add to Private Pool Edit
Problem 3	Int	Course 3	Add to Private Pool Edit
Problem 4	String	Course 2	Add to Private Pool Edit
Problem 5	Boolean	Course 1	Add to Private Pool Edit
Problem 6	Recursion	Course 2	Add to Private Pool Edit
Problem 7	Recursion	Course 2	Add to Private Pool Edit
Problem 8	Int	Course 3	Add to Private Pool Edit
Problem 9	String	Course 1	Add to Private Pool Edit
Problem 10	Int	Course 3	Add to Private Pool Edit


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10.16 Prototype 16: Faculty Create Assignment

This screen represents the faculty's view of creating a question.



Java Problem Repository & Education Platform

You are currently logged in as FACULTY Switch Role ▼

Welcome, John [Logout](#)

Courses
Question Pool
Gradebook
Profile

Create New Assignment * - required field

Course 1

Title* Category* Select Category ▼ Due Date* 01 ▼ / 01 ▼ / 2013 ▼ 12 ▼ : 00 ▼

Description


Problems

[Create and Add New Problem](#)
[Add Problem from Private Question Pool](#)
[Add Problem from Global Question Pool](#)

	Problem Name	Category	Point Value		
Problem 1:	String Problem	String	<input type="text"/>	Edit	Remove
Problem 2:	String Problem	String	<input type="text"/>	Edit	Remove
Problem 3:	Int Problem	Int	<input type="text"/>	Edit	Remove
Total Points:			0		

Cancel
Save
Create


Created by Delta Tech



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10.17 Prototype 17: Faculty Create Problem

This screen represents the faculty's view of creating a problem.



You are currently logged in as FACULTY [Switch Role](#)

Welcome, John [Logout](#)

[Courses](#) [Question Pool](#) [Gradebook](#) [Profile](#)

Create New Problem * - required field

Title* Method Name* Category* [Select Category](#)

Question/Description*

Parameter Name

Parameter Type [Type](#) [Type](#) [Type](#) [Type](#)

Result Type* [Type](#)

[Add Parameter](#)


Test Case 1*	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Hidden <input checked="" type="checkbox"/>
Test Case 2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
Test Case 3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

[Add Test Case](#)

Solution Code*

[Cancel](#) [Save](#) [Create](#)

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10.18 Prototype 18: Faculty Cancel Problem

This screen represents the faculty's view of cancel a problem.

The screenshot shows a web interface for creating a new problem. At the top left is the JPREP logo (Java Problem Repository & Education Platform). The user is logged in as 'FACULTY' and can click 'Switch Role'. A welcome message 'Welcome, John' and a 'Logout' link are on the top right. Below the header is a navigation menu with 'Courses', 'Question Pool', 'Gradebook', and 'Profile'. The main section is titled 'Create New Problem' with a note '* - required field'. It contains several input fields: 'Title*', 'Method Name*', and 'Category*' (a dropdown menu). A large text area is labeled 'Question/Description*'. Below this are 'Parameter Name' and 'Parameter Type' (a dropdown menu with 'Type' selected). A link 'Add Parameter' is provided. There are three 'Test Case' rows, each with five input fields and a checkbox. A link 'Add Test Case' is below. A large text area is labeled 'Solution Code'. At the bottom right of the form are 'Cancel', 'Save', and 'Create' buttons. A modal dialog box is centered on the screen with the text 'Are you sure you want to cancel? All unsaved work will be lost' and 'Cancel' and 'OK' buttons.

10.19 Prototype 19: Faculty Profile

This screen represents the faculty's view of a profile.


The screenshot displays the Faculty Profile page. At the top left is the JPREP logo (Java Problem Repository & Education Platform). To its right, it says "You are currently logged in as FACULTY" with a "Switch Role" button. Further right, it says "Welcome, John" with a "Logout" link. Below this is a navigation bar with tabs for "Courses", "Question Pool", "Gradebook", and "Profile". Under the "Profile" tab, there are links for "Edit Profile" and "Change Password". The profile information is displayed in a light gray box:

- Prefix: Dr.
- First Name: John
- Last Name: Smith
- Email Address: jm01smit@siena.edu
- Username: jsmith
- Password: *****
- Security Question: What is your hometown?

At the bottom of the page, it says "Created by Delta Tech" with the Delta Tech logo, and "Copyright 2013 Delta Tech. All Rights Reserved."

10.20 Prototype 20: Faculty Profile

This screen represents the faculty's view of a profile.



You are currently logged in as FACULTY

Welcome, John [Logout](#)

Prefix:

First Name:

Last Name:


Email Address: jm01smit@siena.edu

Password: *****

Security Question:

Security Answer:


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10.21 Prototype 21: Faculty Change Password

This screen represents the faculty changing their password.



You are currently logged in as FACULTY


Welcome, John [Logout](#)

Old Password:

New Password:

Confirm New Password:

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10.22 Prototype 22: Faculty Question Pool

This screen represents the faculty's access to question pools.

The screenshot displays the Faculty Question Pool interface. At the top left is the JPREP logo (Java Problem Repository & Education Platform). To its right, the user is logged in as 'FACULTY' with a 'Switch Role' dropdown menu. Further right, a welcome message 'Welcome, John' and a 'Logout' link are visible. Below the header is a navigation bar with tabs for 'Courses', 'Question Pool', 'Gradebook', and 'Profile'. The 'Question Pool' tab is active. The main content area contains the instruction 'Click a link to view that question pool' followed by a 'Private' link. Below this are two sections: 'Current Courses' with links for 'Course 1' and 'Course 2', and 'Previous Courses' with links for 'Course 1', 'Course 2', 'Course 3', and 'Course 4'. At the bottom, it states 'Created by Delta Tech' with the Delta Tech logo and 'Copyright 2013 Delta Tech. All Rights Reserved.'

10.23 Prototype 23: Faculty Personal Private Question Pool

This screen represents the faculty's personal private question pool.



You are currently logged in as FACULTY


Welcome, John [Logout](#)

[Courses](#) [Question Pool](#) [Gradebook](#) [Profile](#)

Private Question Pool

Name	Category	Course		
Problem 1	String	Course 1	Edit	Remove
Problem 2	Recursion	Course 1	Edit	Remove
Problem 3	Int	Course 3	Edit	Remove
Problem 4	String	Course 2	Edit	Remove
Problem 5	Boolean	Course 1	Edit	Remove
Problem 6	Recursion	Course 2	Edit	Remove
Problem 7	Recursion	Course 2	Edit	Remove
Problem 8	Int	Course 3	Edit	Remove
Problem 9	String	Course 1	Edit	Remove
Problem 10	Int	Course 3	Edit	Remove

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10.24 Prototype 24: Faculty Gradebook Course selection

This screen represents the faculty's gradebook course selection.

The screenshot displays a web application interface for a faculty member. At the top left is the JPREP logo (Java Problem Repository & Education Platform). To its right, the user is logged in as 'FACULTY' with a 'Switch Role' dropdown menu. Further right, a welcome message 'Welcome, John' and a 'Logout' link are visible. Below the header is a navigation bar with four tabs: 'Courses', 'Question Pool', 'Gradebook', and 'Profile'. The 'Gradebook' tab is currently selected. The main content area is divided into two sections: 'Current Courses' and 'Previous Courses'. Each section contains a list of courses with expandable options. Under 'Current Courses', 'Course 1' is expanded to show 'View Students' and 'View Assignments', while 'Course 2', 'Course 3', and 'Course 4' are collapsed. The 'Previous Courses' section has the same structure. At the bottom of the page, it says 'Created by Delta Tech' with the Delta Tech logo and 'Copyright 2013 Delta Tech. All Rights Reserved.'

10.25 Prototype 25: Faculty Assignment Gradebook

This screen represents the faculty's assignment gradebook.



JPREP
Java Problem Repository & Education Platform

You are currently logged in as FACULTY Switch Role ▾

Welcome, John [Logout](#)

Courses

Question Pool

Gradebook

Profile

Course 1


Assignment 1

Due Date: 10/10/2013 11:59 PM

[Edit Grades](#)

Student Name	Grade	Percentage	Status
Student 1	90/100	90%	Complete
Student 2	60/100	60%	In Progress
Student 3	75/100	75%	Complete
Student 4	84/100	84%	Complete
Student 5	80/100	80%	Complete
Student 6	150/200	75%	Complete
Student 7	100/100	100%	Complete
Student 8	82/100	82%	Complete
Student 9	94/100	94%	Complete
Student 10	97/100	97%	Complete


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10.26 Prototype 26: Faculty All Student Gradebook

This screen represents the faculty's view of all as all students' gradebook.



JPREP
Java Problem Repository & Education Platform

You are currently logged in as FACULTY Switch Role ▾

Welcome, John [Logout](#)


Courses
Question Pool
Gradebook
Profile

All Students
Course 1

[Edit Grades](#)

Student Name	Assignment Name	Due Date	Grade	Percentage	Status
Student 1	Assignment 1	10/10/13 11:59 PM	90/100	90%	Complete
Student 1	Assignment 2	10/11/13 11:59 PM	60/100	60%	In Progress
Student 2	Assignment 1	10/10/13 11:59 PM	75/100	75%	Complete
Student 2	Assignment 2	10/11/13 11:59 PM	84/100	84%	Complete
Student 2	Assignment 3	10/12/13 11:59 PM	80/100	80%	Complete
Student 3	Assignment 1	10/10/13 11:59 PM	75/100	75%	Complete
Student 3	Assignment 2	10/11/13 11:59 PM	100/100	100%	Complete
Student 4	Assignment 1	10/10/13 11:59 PM	82/100	82%	Complete
Student 4	Assignment 2	10/11/13 11:59 PM	94/100	94%	Complete
Student 4	Assignment 3	10/12/13 11:59 PM	97/100	97%	Complete


Created by Delta Tech



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10.27 Prototype 27: Faculty Single Student's Gradebook

This screen represents the faculty's view of a single student's gradebook.



You are currently logged in as FACULTY [Switch Role](#)

Welcome, John [Logout](#)


[Courses](#) [Question Pool](#) [Gradebook](#) [Profile](#)

Student Name Assignment 1 Overall Grade: 90/100

[Edit Grades](#)

Problem Name	Points Earned	Possible Points	Status
Hello World	45	45	Complete
Fun with Recursion	45	45	Complete
Pinball Problem	0	10	Complete


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10.28 Prototype 28: Faculty Edit Student's Gradebook

This screen represents the faculty's view of editing a single student's gradebook.



You are currently logged in as FACULTY Switch Role ▾

Welcome, John [Logout](#)


Courses
Question Pool
Gradebook
Profile

Course 1
Assignment 1
Due Date: 10/10/2013 11:59 PM

Student Name	Grade	Percentage	Status
Student 1	<input type="text" value="90/100"/>	<input type="text" value="90%"/>	Complete
Student 2	<input type="text" value="60/100"/>	<input type="text" value="60%"/>	In Progress
Student 3	<input type="text" value="75/100"/>	<input type="text" value="75%"/>	Complete
Student 4	<input type="text" value="84/100"/>	<input type="text" value="84%"/>	Complete
Student 5	<input type="text" value="80/100"/>	<input type="text" value="80%"/>	Complete
Student 6	<input type="text" value="150/200"/>	<input type="text" value="75%"/>	Complete
Student 7	<input type="text" value="100/100"/>	<input type="text" value="100%"/>	Complete

Cancel
Submit Changes


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10.29 Prototype 29: Faculty Edit Student's Problem Grade

This screen represents the faculty's view of editing a single student's problem grade.



You are currently logged in as FACULTY Switch Role ▾

Welcome, John [Logout](#)


Courses
Question Pool
Gradebook
Profile

Student Name
Assignment 1
Overall Grade: 90/100

Problem Name	Points Earned	Possible Points	Status
Hello World	45	45	Complete
Fun with Recursion	45	45	Complete
Pinball Problem	0	10	Complete

Cancel
Submit Changes

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10.30 Prototype 30: Course Coordinator Courses

This screen represents the Course Coordinator's view of their courses.

The screenshot shows the user interface for a Course Coordinator. At the top left is the JPREP logo (Java Problem Repository & Education Platform). To its right, the user is logged in as 'COURSE COORDINATOR' with a 'Switch Role' dropdown menu. Further right, a welcome message 'Welcome, John' and a 'Logout' link are displayed. Below the header is a navigation bar with three tabs: 'Courses' (selected), 'Question Pool', and 'Profile'. The main content area is divided into two sections: 'Current Courses' and 'Previous Courses'. Under 'Current Courses', there is a dropdown for 'Course 1' which is expanded to show 'Create New Problem' and 'View Question Pool', followed by three expandable items for 'Course 2', 'Course 3', and 'Course 4'. The 'Previous Courses' section follows a similar structure with a dropdown for 'Course 1' expanded to show 'View Question Pool', and three expandable items for 'Course 2', 'Course 3', and 'Course 4'. At the bottom of the page, it says 'Created by Delta Tech' with the Delta Tech logo, and 'Copyright 2013 Delta Tech. All Rights Reserved.'

10.31 Prototype 31: Course Coordinator Profile

This screen represents the Course Coordinator's view of their profile.




You are currently logged in as COURSE COORDINATOR [Switch Role](#) Welcome, John [Logout](#)

[Courses](#) [Question Pool](#) [Profile](#)

[Edit Profile](#) [Change Password](#)

Prefix: Dr.
First Name: John
Last Name: Smith
Email Address: jm01smit@siena.edu
Password: *****
Security Question: What is your hometown?
Security Answer: Loudonville


Created by Delta Tech



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10.32 Prototype 32: Course Coordinator Edit Profile

This screen represents the Course Coordinator's view of editing their profile.

 You are currently logged in as COURSE COORDINATOR Welcome, John [Logout](#)

Prefix:

First Name:

Last Name:


Email Address: jm01smit@siena.edu

Password: *****

Security Question:

Security Answer:


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10.33 Prototype 33: Course Coordinator Change Password

This screen represents the Course Coordinator's view of changing their password.




You are currently logged in as COURSE COORDINATOR Welcome, John [Logout](#)

Old Password:

New Password:

Confirm New Password:

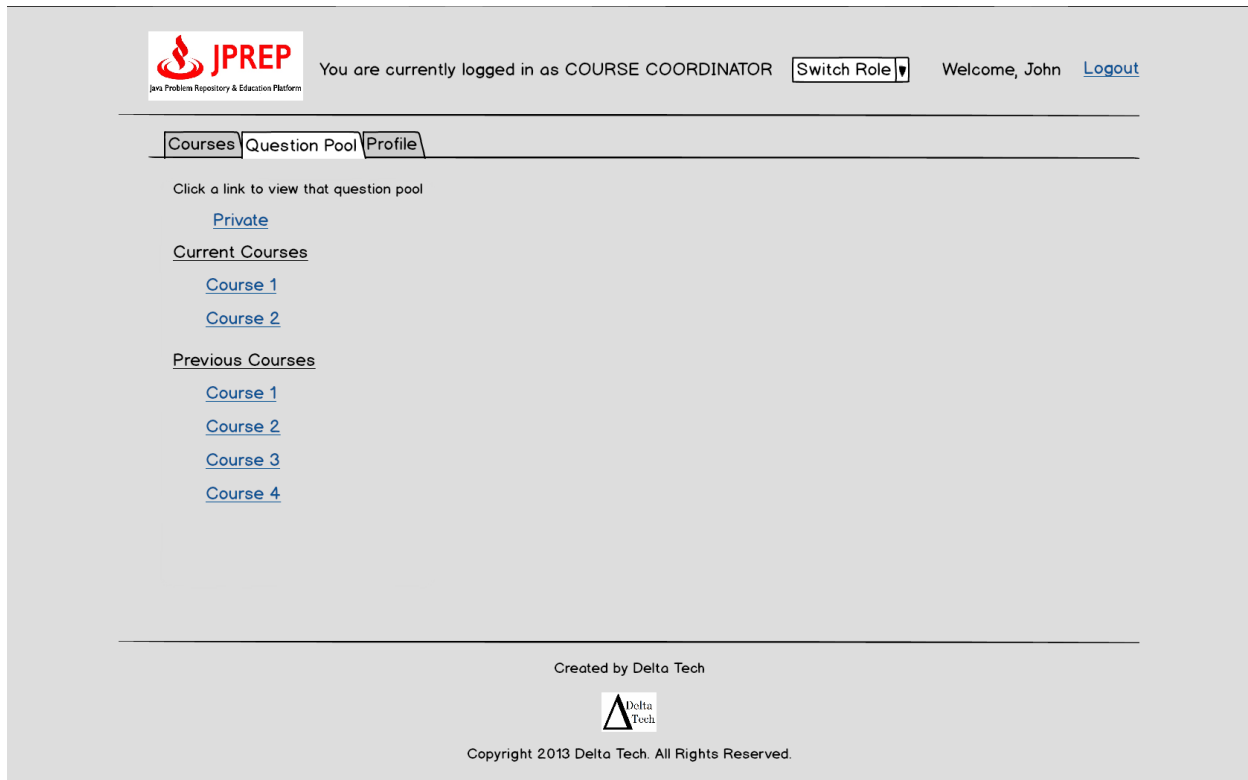
Created by Delta Tech



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10.34 Prototype 34: Course Coordinator Courses' Question Pools


This screen represents the Course Coordinator's ability to select which course question pool they want to view.



The screenshot displays the JPREP (Java Problem Repository & Education Platform) interface for a Course Coordinator. At the top left is the JPREP logo. The user is logged in as 'COURSE COORDINATOR' and can click 'Switch Role'. A welcome message 'Welcome, John' and a 'Logout' link are visible. Below the header is a navigation menu with 'Courses', 'Question Pool', and 'Profile' tabs. The 'Question Pool' tab is active, showing a prompt to 'Click a link to view that question pool' with a 'Private' link. Below this are two sections: 'Current Courses' with links for 'Course 1' and 'Course 2', and 'Previous Courses' with links for 'Course 1', 'Course 2', 'Course 3', and 'Course 4'. The footer includes the text 'Created by Delta Tech', the Delta Tech logo, and 'Copyright 2013 Delta Tech. All Rights Reserved.'

10.35 Prototype 35: Course Coordinator Course Question Pool

This screen represents the Course Coordinator’s view of the course question pool.



You are currently logged in as COURSE COORDINATOR

[Switch Role](#)

Welcome, John [Logout](#)

Courses

Question Pool


Profile

Course 1 Question Pool

[Create New Problem](#)

Name	Category		
Problem 1	String	Add to Private Pool	Edit Remove
Problem 2	Recursion	Add to Private Pool	Edit Remove
Problem 3	Int	Add to Private Pool	Edit Remove
Problem 4	String	Add to Private Pool	Edit Remove
Problem 5	Boolean	Add to Private Pool	Edit Remove
Problem 6	Recursion	Add to Private Pool	Edit Remove
Problem 7	Recursion	Add to Private Pool	Edit Remove
Problem 8	Int	Add to Private Pool	Edit Remove
Problem 9	String	Add to Private Pool	Edit Remove
Problem 10	Int	Add to Private Pool	Edit Remove


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10.36 Prototype 36: Course Coordinator Create Problem

This screen represents the Course Coordinator's view of creating a problem.



You are currently logged in as COURSE COORDINATOR [Switch Role](#) Welcome, John [Logout](#)

[Courses](#) [Question Pool](#) [Profile](#)

Create New Problem

* - required field

Title* Method Name* Category* [Select Category](#) Course* [Course 1](#)

Question/Description*

Parameter Name

Parameter Type [Type](#) [Type](#) [Type](#) [Type](#)

Result Type* [Type](#)

[Add Parameter](#)


						Hidden
Test Case 1*	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Test Case 2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
Test Case 3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

[Add Test Case](#)

Solution Code*

[Cancel](#) [Save to Private Pool](#) [Create](#)

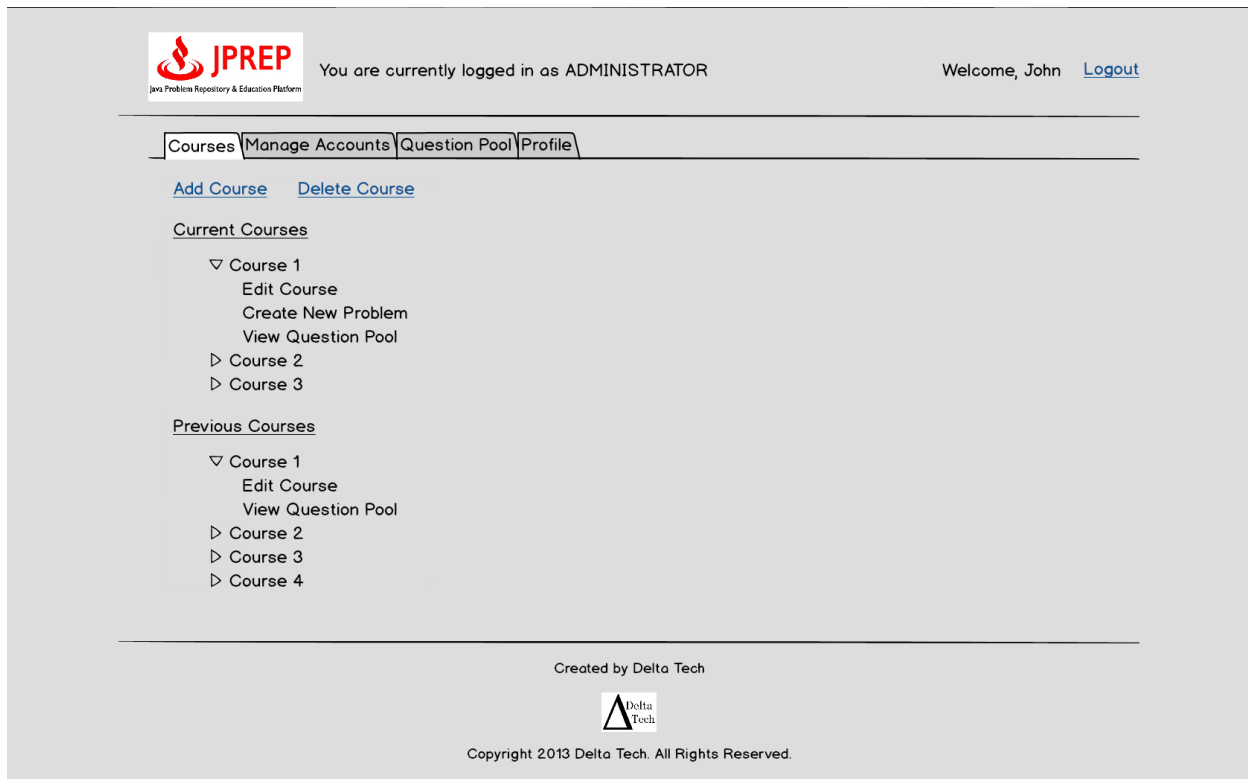
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10.37 Prototype 37: Admin Courses

This screen represents the administrator's view of courses.



The screenshot displays the administrator's view of courses in the JPREP system. At the top left is the JPREP logo (Java Problem Repository & Education Platform). To its right, the user is logged in as ADMINISTRATOR. Further right, a welcome message for John and a [Logout](#) link are visible. Below the header is a navigation menu with tabs for [Courses](#), [Manage Accounts](#), [Question Pool](#), and [Profile](#). The [Courses](#) tab is active. Underneath the navigation menu, there are two links: [Add Course](#) and [Delete Course](#). The main content area is divided into two sections: **Current Courses** and **Previous Courses**. Under **Current Courses**, there are three course entries: Course 1 (expanded to show [Edit Course](#), [Create New Problem](#), and [View Question Pool](#)), Course 2, and Course 3. Under **Previous Courses**, there are four course entries: Course 1 (expanded to show [Edit Course](#) and [View Question Pool](#)), Course 2, Course 3, and Course 4. At the bottom of the page, it says "Created by Delta Tech" with the Delta Tech logo, and "Copyright 2013 Delta Tech. All Rights Reserved."

10.38 Prototype 38: Admin Create Course

This screen represents the administrator's ability to add a course

The screenshot shows the 'Admin Create Course' form. At the top left is the JPREP logo (Java Problem Repository & Education Platform). To its right, it says 'You are currently logged in as ADMINISTRATOR'. Further right, it says 'Welcome, John' with a 'Logout' link. Below this is a navigation bar with tabs for 'Courses', 'Manage Accounts', 'Question Pool', and 'Profile'. The 'Courses' tab is active. The main heading is 'Create New Course'. The form contains the following fields: 'Course Number: CSIS-' followed by a text input, 'Section Number:' followed by a text input, 'Course Name:' followed by a text input, and 'Description:' followed by a large text area. Below these are three dropdown menus: 'Semester:' with 'Fall 2013' selected, 'Assign Faculty Member:' with 'Select Faculty' selected, and 'Assign Course Coordinator:' with 'Select Course Coordinator' selected. At the bottom of the form are two buttons: 'Cancel' and 'Create Course'. At the very bottom of the page, it says 'Created by Delta Tech' with the Delta Tech logo and 'Copyright 2013 Delta Tech. All Rights Reserved.'


10.39 Prototype 39: Admin Disable Course

This screen represents the administrator's ability to disable a course

The screenshot shows the JPREP Admin interface. At the top left is the JPREP logo (Java Problem Repository & Education Platform). To its right, it says "You are currently logged in as ADMINISTRATOR". Further right, it says "Welcome, John" with a "Logout" link. Below this is a navigation bar with tabs: "Courses" (selected), "Manage Accounts", "Question Pool", and "Profile". The main content area is titled "Select the course(s) to be deleted". It is divided into two sections: "Current Courses" and "Previous Courses". Each section lists "Course 1", "Course 2", "Course 3", and "Course 4", each with an unchecked checkbox. At the bottom of the main area are two buttons: "Cancel" and "Delete Courses". At the very bottom of the page, it says "Created by Delta Tech" with the Delta Tech logo, and "Copyright 2013 Delta Tech. All Rights Reserved."

10.40 Prototype 40: Admin Create Student

This screen represents the administrator's ability to create a student account.



JPREP
Java Problem Repository & Education Platform

You are currently logged in as ADMINISTRATOR

Welcome, John [Logout](#)

Courses
Manage Accounts
Question Pool
Profile

Create Student Account

First Name:

Last Name:

Email Address:

Confirm Email Address:

Password:

Confirm Password:


Security Question: Select a question ▼

Security Answer:

Course Number	Course Name	Enroll
CSIS-120-01	Intro to Programming	<input type="checkbox"/>
CSIS-120-02	Intro to Programming	<input type="checkbox"/>
CSIS-120-03	Intro to Programming	<input type="checkbox"/>
CSIS-120-04	Intro to Programming	<input type="checkbox"/>
CSIS-120-05	Intro to Programming	<input type="checkbox"/>
CSIS-120-06	Intro to Programming	<input type="checkbox"/>
CSIS-120-07	Intro to Programming	<input type="checkbox"/>
CSIS-225-01	Object Oriented	<input type="checkbox"/>
CSIS-225-02	Object Oriented	<input type="checkbox"/>
CSIS-225-03	Object Oriented	<input type="checkbox"/>
CSIS-225-04	Object Oriented	<input type="checkbox"/>
CSIS-225-05	Object Oriented	<input type="checkbox"/>

Cancel
Create Account


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10.41 Prototype 41: Admin Create Faculty

This screen represents the administrator’s ability to create a faculty account.



JPREP
Java Problem Repository & Education Platform

You are currently logged in as ADMINISTRATOR

Welcome, John [Logout](#)

Courses
Manage Accounts
Question Pool
Profile

Create Faculty Account

Prefix:

First Name:

Last Name:

Email Address:

Confirm Email Address:

Password:


Confirm Password:

Security Question:

Security Answer:

Course Number	Course Name	Assign
CSIS-120-01	Intro to Programming	<input type="checkbox"/>
CSIS-120-02	Intro to Programming	<input type="checkbox"/>
CSIS-120-03	Intro to Programming	<input type="checkbox"/>
CSIS-120-04	Intro to Programming	<input type="checkbox"/>
CSIS-120-05	Intro to Programming	<input type="checkbox"/>
CSIS-120-06	Intro to Programming	<input type="checkbox"/>
CSIS-120-07	Intro to Programming	<input type="checkbox"/>
CSIS-225-01	Object Oriented	<input type="checkbox"/>
CSIS-225-02	Object Oriented	<input type="checkbox"/>
CSIS-225-03	Object Oriented	<input type="checkbox"/>
CSIS-225-04	Object Oriented	<input type="checkbox"/>
CSIS-225-05	Object Oriented	<input type="checkbox"/>


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10.41 Prototype 41: Admin Create Course Coordinator

This screen represents the administrator's ability to create a course coordinator account.



You are currently logged in as ADMINISTRATOR

Welcome, John [Logout](#)

[Courses](#) [Manage Accounts](#) [Question Pool](#) [Profile](#)

Create Course Coordinator Account

Prefix:

First Name:

Last Name:

Email Address:

Confirm Email Address:

Password:


Confirm Password:

Security Question:

Security Answer:

Course Number	Course Name	Assign
CSIS-120	Intro to Programming	<input type="checkbox"/>
CSIS-210	Data Structures	<input type="checkbox"/>
CSIS-220	Assembly Language	<input type="checkbox"/>
CSIS-225	Object Oriented	<input type="checkbox"/>


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10.42 Prototype 42: Admin Edit Student

This screen represents the administrator’s ability to edit a student account.



You are currently logged in as ADMINISTRATOR

Welcome, John [Logout](#)

Courses
Manage Accounts
Question Pool
Profile

Edit Student Account

First Name:

Last Name:

Email Address:

Confirm Email Address:

Password:

Confirm Password:


Security Question:

Security Answer:

Course Number	Course Name	Enroll
CSIS-120-01	Intro to Programming	<input type="checkbox"/>
CSIS-120-02	Intro to Programming	<input type="checkbox"/>
CSIS-120-04	Intro to Programming	<input type="checkbox"/>
CSIS-120-05	Intro to Programming	<input type="checkbox"/>
CSIS-120-06	Intro to Programming	<input type="checkbox"/>
CSIS-120-07	Intro to Programming	<input type="checkbox"/>
CSIS-225-01	Object Oriented	<input type="checkbox"/>
CSIS-225-03	Object Oriented	<input type="checkbox"/>
CSIS-225-04	Object Oriented	<input type="checkbox"/>
CSIS-225-05	Object Oriented	<input type="checkbox"/>

Current Courses	Lockout
CSIS-120-03	<input type="checkbox"/>
CSIS-225-02	<input type="checkbox"/>


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10.43 Prototype 43: Admin Edit Faculty

This screen represents the administrator’s ability to edit a faculty account.



You are currently logged in as ADMINISTRATOR

Welcome, John [Logout](#)

Courses
Manage Accounts
Question Pool
Profile

Edit Faculty Account

Prefix:

First Name:

Last Name:

Email Address:

Confirm Email Address:

Password:

Confirm Password:


Security Question:

Security Answer:

Course Number	Course Name	Enroll
CSIS-120-01	Intro to Programming	<input type="checkbox"/>
CSIS-120-02	Intro to Programming	<input type="checkbox"/>
CSIS-120-04	Intro to Programming	<input type="checkbox"/>
CSIS-120-05	Intro to Programming	<input type="checkbox"/>
CSIS-120-06	Intro to Programming	<input type="checkbox"/>
CSIS-120-07	Intro to Programming	<input type="checkbox"/>
CSIS-225-01	Object Oriented	<input type="checkbox"/>
CSIS-225-03	Object Oriented	<input type="checkbox"/>
CSIS-225-04	Object Oriented	<input type="checkbox"/>
CSIS-225-05	Object Oriented	<input type="checkbox"/>

Current Courses	Unassign
CSIS-120-03	<input type="checkbox"/>
CSIS-225-02	<input type="checkbox"/>


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10.44 Prototype 44: Admin Edit Course Coordinator

This screen represents the administrator’s ability to edit a course coordinator account.


You are currently logged in as ADMINISTRATOR
Welcome, John [Logout](#)

Courses
Manage Accounts
Question Pool
Profile

Edit Course Coordinator Account

Prefix:

First Name:

Last Name:

Email Address:

Confirm Email Address:

Password:

Confirm Password:


Security Question:

Security Answer:

Course Number	Course Name	Assign
CSIS-210	Data Structures	<input type="checkbox"/>
CSIS-220	Assembly Language	<input type="checkbox"/>

Current Courses	Unassign
CSIS-120	<input type="checkbox"/>
CSIS-225	<input type="checkbox"/>


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10.45 Prototype 45: Admin Manage Students

This screen represents the administrator's ability to manage student accounts.



You are currently logged in as ADMINISTRATOR

Welcome, John [Logout](#)


[Courses](#) [Manage Accounts](#) [Question Pool](#) [Profile](#)

Manage Student Accounts

[Create Student Account](#)

First Name *	Last Name *	Edit	Delete
Mario	Speedwagon	Edit	Delete
Petey	Cruiser	Edit	Delete
Anna	Sthesia	Edit	Delete
Cliff	Hanger	Edit	Delete
Monty	Carlo	Edit	Delete
Sue	Vaneer	Edit	Delete
Walter	Melon	Edit	Delete
Robin	Banks	Edit	Delete
Don	Stairs	Edit	Delete
Otto	Matic	Edit	Delete
Polly	Tech	Edit	Delete
Tara	Zona	Edit	Delete
Barry	Cade	Edit	Delete
Will	Power	Edit	Delete
Mary	Christmas	Edit	Delete
Ty	Tanic	Edit	Delete


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10.46 Prototype 46: Admin Manage Faculty

This screen represents the administrator’s ability to manage faculty accounts.



JPREP
Java Problem Repository & Education Platform

You are currently logged in as ADMINISTRATOR

Welcome, John [Logout](#)


Courses
Manage Accounts
Question Pool
Profile

Manage Faculty Accounts

[Create Faculty Account](#)

Prefix	First Name *	Last Name *	Edit	Delete
Dr.	Louis	Ville	Edit	Delete
Dr.	Vic	Tory	Edit	Delete
Mr.	Bobby	Pin	Edit	Delete
Dr.	Luke	Warm	Edit	Delete
Dr.	Lou	Tenant	Edit	Delete


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10.47 Prototype 47: Admin Manage Course Coordinators

This screen represents the administrator’s ability to manage course coordinator accounts.



JPREP
Java Problem Repository & Education Platform

You are currently logged in as ADMINISTRATOR

Welcome, John [Logout](#)


Courses
Manage Accounts
Question Pool
Profile

Manage Course Coordinators Accounts

[Create Course Coordinator Account](#)

Prefix	First Name *	Last Name *		
Dr.	Nick	Knack	Edit	Delete
Dr.	Patty	Whack	Edit	Delete
Mr.	Cliff	Diver	Edit	Delete
Dr.	Val	Adictorian	Edit	Delete

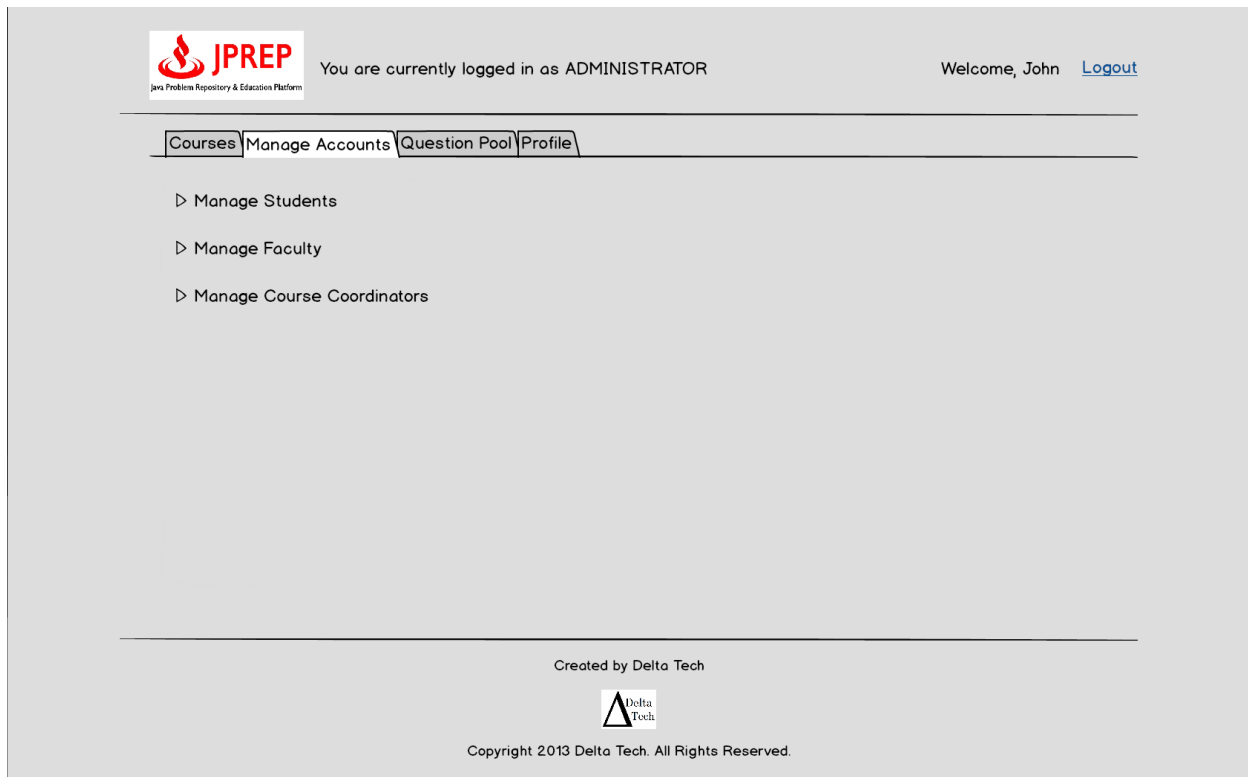
Created by Delta Tech



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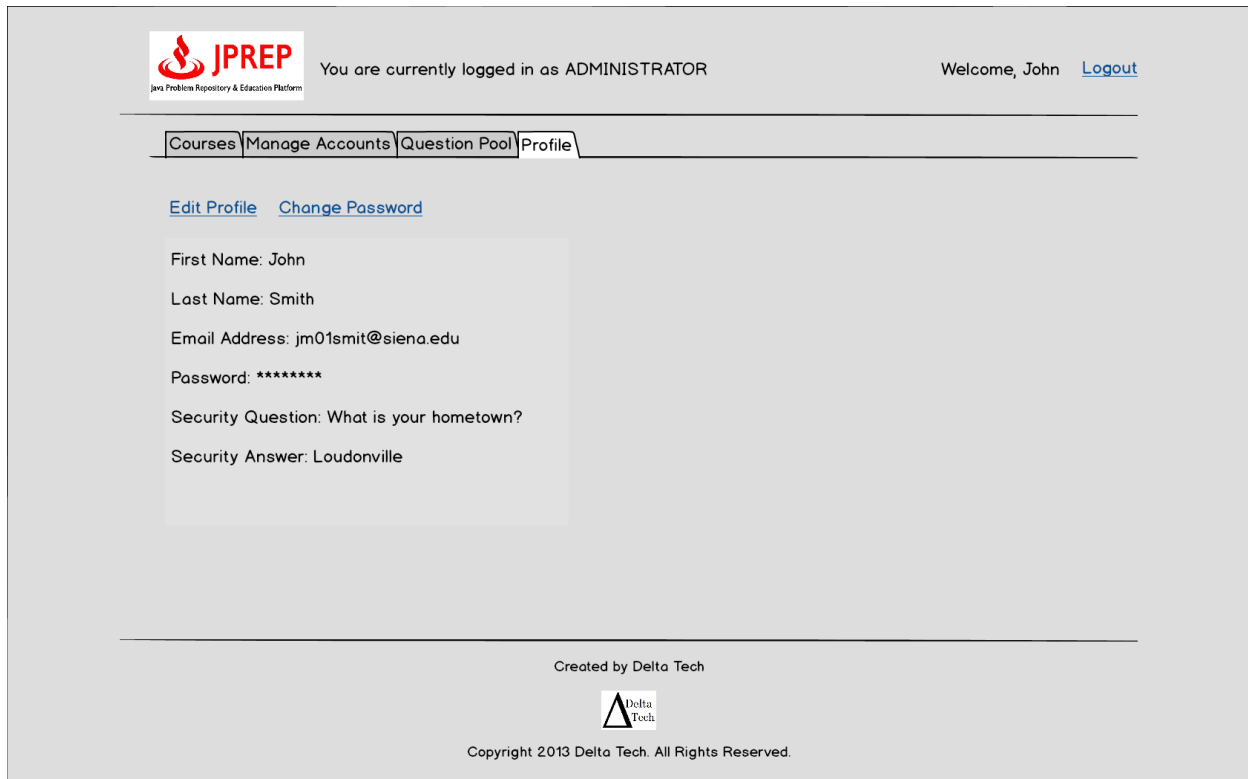
10.48 Prototype 48: Admin Manage Accounts

This screen represents the administrator's ability to manage accounts.



10.48 Prototype 48: Admin Profile

This screen represents the administrator's ability to manage their profile.



The screenshot displays the Admin Profile page. At the top left is the JPREP logo (Java Problem Repository & Education Platform). To its right, it says "You are currently logged in as ADMINISTRATOR". Further right, it says "Welcome, John" with a [Logout](#) link. Below this is a navigation bar with tabs for "Courses", "Manage Accounts", "Question Pool", and "Profile". Under the "Profile" tab, there are two links: [Edit Profile](#) and [Change Password](#). The profile information is displayed in a light gray box:

- First Name: John
- Last Name: Smith
- Email Address: jm01smit@siena.edu
- Password: *****
- Security Question: What is your hometown?
- Security Answer: Loudonville

At the bottom of the page, it says "Created by Delta Tech" with the Delta Tech logo (a triangle with "Delta Tech" inside) and "Copyright 2013 Delta Tech. All Rights Reserved."

10.49 Prototype 49: Admin Edit Profile

This screen represents the administrator's ability to manage edit their profile.

The screenshot shows the 'Admin Edit Profile' page. At the top left is the JPREP logo (Java Problem Repository & Education Platform). To its right, it says 'You are currently logged in as ADMINISTRATOR'. Further right, it says 'Welcome, John' with a 'Logout' link. Below this is a navigation bar with tabs for 'Courses', 'Manage Accounts', 'Question Pool', and 'Profile'. The 'Profile' tab is active. The main content area contains a form with the following fields: 'First Name' (John), 'Last Name' (Smith), 'Email Address' (jm01smit@siena.edu), 'Password' (*****), 'Security Question' (What is your hometown?), and 'Security Answer' (Loudonville). A 'Save Changes' button is located below the form. At the bottom of the page, it says 'Created by Delta Tech' with the Delta Tech logo, and 'Copyright 2013 Delta Tech. All Rights Reserved.'

JPREP
Java Problem Repository & Education Platform

You are currently logged in as ADMINISTRATOR

Welcome, John [Logout](#)

Courses | Manage Accounts | Question Pool | Profile

First Name:

Last Name:


Email Address: jm01smit@siena.edu

Password: *****

Security Question:

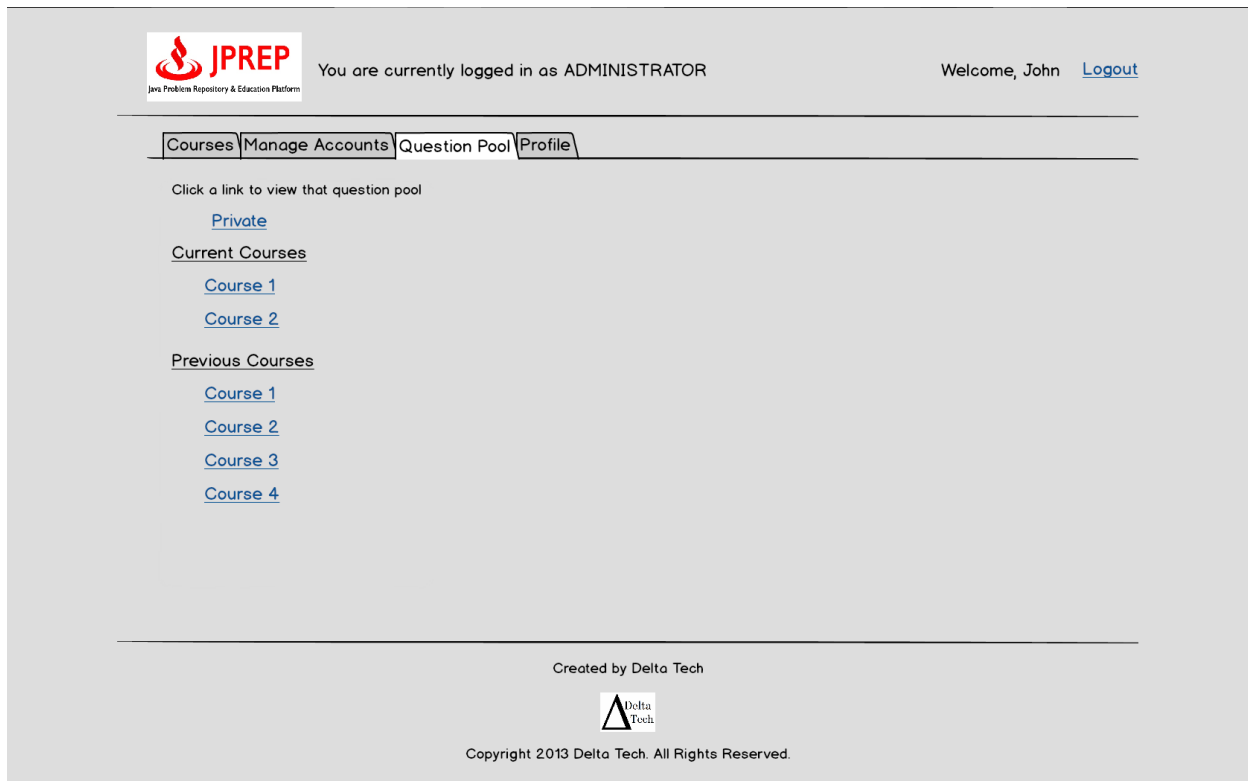
Security Answer:

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10.50 Prototype 50: Admin Course Question Pools


This screen represents the administrator's view of course question pools



The screenshot displays the administrator's view of course question pools. At the top left is the JPREP logo (Java Problem Repository & Education Platform). To its right, the user is logged in as ADMINISTRATOR. On the top right, a welcome message for John and a Logout link are visible. Below the header is a navigation menu with tabs for Courses, Manage Accounts, Question Pool, and Profile. The 'Question Pool' tab is active. The main content area contains a link to view a question pool, followed by a 'Private' link. Below this are sections for 'Current Courses' and 'Previous Courses', each listing 'Course 1' and 'Course 2'. The footer includes the text 'Created by Delta Tech', the Delta Tech logo, and the copyright notice 'Copyright 2013 Delta Tech. All Rights Reserved.'

10.51 Prototype 51: Admin Course's Question Pool

This screen represents the administrator's view of a course's question pool.



You are currently logged in as ADMINISTRATOR
Welcome, John [Logout](#)

Courses
Manage Accounts
Question Pool
Profile

Course 1 Question Pool
[Create New Problem](#)

Name	Category		
Problem 1	String	Add to Private Pool	Edit Remove
Problem 2	Recursion	Add to Private Pool	Edit Remove
Problem 3	Int	Add to Private Pool	Edit Remove
Problem 4	String	Add to Private Pool	Edit Remove
Problem 5	Boolean	Add to Private Pool	Edit Remove
Problem 6	Recursion	Add to Private Pool	Edit Remove
Problem 7	Recursion	Add to Private Pool	Edit Remove
Problem 8	Int	Add to Private Pool	Edit Remove
Problem 9	String	Add to Private Pool	Edit Remove
Problem 10	Int	Add to Private Pool	Edit Remove

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11 Functional Requirements Inventory

Student:

- Will be able to log into JPREP.
 - An incorrect login will display an error message
- Will be able to enroll in classes they are registered for
 - Will receive email with unique course code from professor
- Will be able to switch between classes that the student is currently enrolled in at any time
- Will be able to view assignments for each course they are in enrolled in
 - Will be able to view past and pending assignments
- Will be able to view problems in each assignment
- Will be able to submit solutions to individual problems using the Java™ programming language
 - Code will be compiled by JPREP
 - If they exist, the student will instantly receive feedback on compile errors
 - The student will instantly receive feedback on how their solution performed when run against the test cases
- Will be able to complete assignments
 - Will be able to work on any problem in the assignment; order does not matter
 - Will be able to save code for most recent problem
- Will be able to view grades for each class in a grade book
 - Will be able to view progress for each assignment
- Will be able to view all solutions that have been previously submitted
- Will be able to log out of JPREP

Faculty:

- Will be able to log into JPREP.
 - An incorrect login will display an error message
- Will be able to create and edit assignments
 - Will be able to import problems from the question pool to any assignment
 - Will be able to create a problem for an assignment
 - Will be able to delete a problem from an assignment
 - Will be able to edit a problem in an assignment
- Will be able to assign a grading rule for assignments
 - Will be able to assign different point values for problems in the assignments
- Will be able to administer assignments to any courses that the faculty instructs
 - Will be able to set due dates for each assignment
- Will be able to search the question pool for potential problems
- Will be able to view a grade book for each of the courses
 - Will be able to view student's progress for each assignment
- Will be able to modify grades for all students in each of the courses they are currently instructing
- Will be able to log out of JPREP

Course Coordinator:

The functionality of a course coordinator will include all of the functionality that a Faculty Member has.

- Will be able to manage question pool
 - Will create questions for the course question pool
 - Will disable questions from the course question pool
 - Will edit questions that exist in the course question pool
- Will be able to switch to Faculty view without logging out

Administrator:

- Will be able to log into JPREP.
 - An incorrect login will display an error message
- Will be able to add and delete courses
- Will be able to manage all user accounts on JPREP
 - Will be able to modify all account information for any user
 - Will be able to delete accounts
 - Will be able to lock out expired students
- Will be able to manage question pool
 - Will create questions for the course question pools
 - Will delete questions from the course question pools
 - Will edit questions that exist in the course question pools
- Will be able to create course coordinator and faculty accounts
 - Will be able to assign courses to faculty
- Will be able to log out

12 Non-Functional Requirements Inventory

The following list contains non-functional requirements that identify whether properties are not specific features in the software and have no definitive way of measuring:

- The system will have an intuitive user interface.
- The system will run efficiently
- The system will be stable

13 Testing Plan

13.1 Overview & Strategy

Delta Tech will ensure that JPREP meets all functional and non-functional requirements, as stated in sections 1.5 and 1.6 in this document. The functional requirements will be directly tested, while the non-functional requirements will be tested as thoroughly as possible. JPREP will also need to be tested in all four major browsers: Google Chrome, Mozilla Firefox, Safari and Internet Explorer. Unit tests will be used to test the separate parts of the system. A system test will be implemented after all unit tests have passed. The system test will ensure all units work together properly. A more detailed testing plan will be further developed in the Detailed Design.

13.2 Exception Handling

DeltaTech will handle exceptions in an appropriate manner once DeltaTech knows the system next semester.

13.3 Acceptance Test

The acceptance criteria for JPREP will be the previously stated functional requirements and non-functional requirements of the system defined throughout the Requirements specification document. JPREP's ability to satisfy the functional requirements will be verified through testing and data analysis. The non-functional requirements describe how JPREP should behave under a given condition and cannot be tested. If a functional or non-functional requirement is not met upon final testing and delivery, there must be an acceptable justification for the decision to leave the requirement out of the final version of JPREP.

13.4 Unit Test

Each unit will be tested on its own. If it passes all individual tests, then Delta Tech will run a full system test. A system test will ensure all units work together appropriately. Unit tests for JPREP can be found in Appendix C. The excel file of JPREP's unit tests will also be on the Delta Tech website.

13.5 Test Cases

The protocol and requirements needed to test JPREP will be created by *DeltaTech* using the Functional Requirements. Computers running Windows Vista and Mac OS X will be used to test JPREP along with the web browsers: Mozilla Firefox, Apple Safari, Internet Explorer, and Google Chrome.

14 Development, Operating, and Maintenance Environments

The development environment listed below is the hardware and the software that *DeltaTech* plans to use during the production phase of JPREP.

Server:

Server Name: oraserv.cs.siena.edu
Operating System: CentOS 5.2, Kernel 2.6.18-92e15
Processor: Intel Xeon
Speed: 2.66 GHz
Memory (RAM): 8.00 GB

Windows Machine:

Dell Optiplex 760
Operating System: Microsoft Windows Vista Enterprise Service Pack 2
Processor: Intel® Core™2 Duo CPU
Model: E7500
Speed: 2.93 GHz
System Type: 32-bit
Memory (RAM): 4.00 GB

Macintosh Machine:

Operating System: Apple Mac OS X Lion Version 10.7.5
Processor: Intel core i5
Model: iMac 21.5 mid 2011
Speed: 2.5 GHz
System Type: 64-bit
Memory (RAM): 4.00 GB

15 Logical Data Dictionary

The logical data dictionary will show details regarding the data that will be used in JPREP. The data dictionary can be found in the Appendix D.

Appendices

Appendix A – Glossary of Terms

Appendix B – Project Timeline

Appendix C – Unit Tests

Appendix D– Logical Data Dictionary

Appendix A – Glossary of Terms

DFD – **Data Flow Diagram** – used to show the flow of data in the system.

HTML – **Hypertext Markup Language** – The language used to describe the information on websites.

Java – the programming language in which students will be asked to respond to questions in, designed by Sun Microsystems

Java SDK (Software Development Kit) - The Java Development Kit (JDK) is an implementation of either one of the Java SE, Java EE or Java ME platforms [1] released by Oracle Corporation in the form of a binary product aimed at Java developers on Solaris, Linux, Mac OS X or Windows.

JPREP – **Java Problem Repository & Education Platform**, the application being developed for the client, Dr. Darren Lim

Mac – a type of computer made by Apple that runs on the operating system Mac OS

MySQL – language that will be used to easily access data from a database

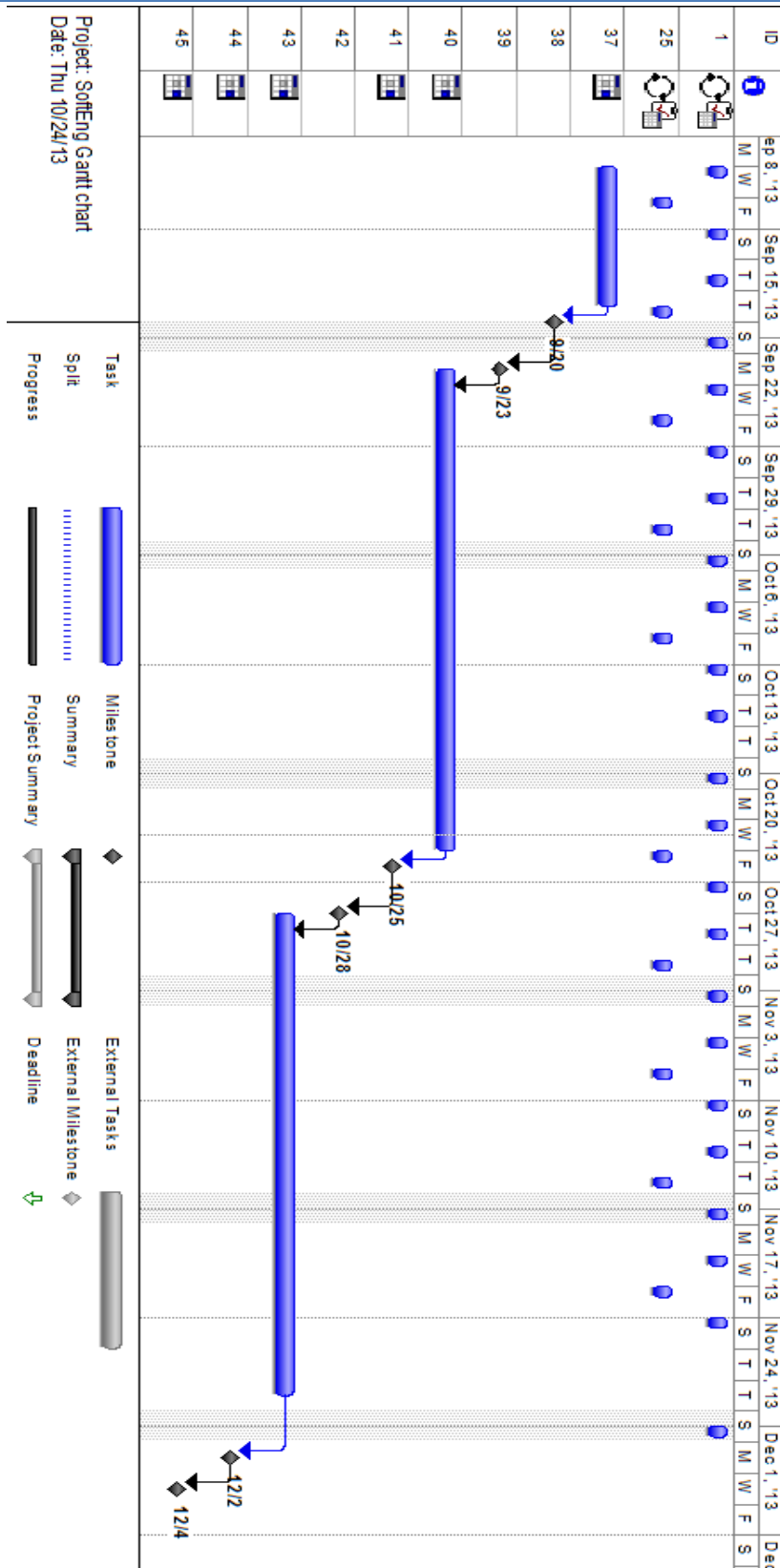
Oracle SQL Server – a database management system used to store and retrieve information from databases

SQL – **Structured Query Language** – used to manage data in a relational database management system

UML – **Unified Modeling Language** is a standardized, general-purpose modeling language in the field of software engineering

Use Case Diagram – Graphical representation of how users interact with the system.

Appendix B - Project Timeline



Appendix C – Unit Tests

System Test - Test Results for All Unit Tests						
Team Name: DeltaTech						
Project: JPREP						
Client: Dr. Lim						
Directory of <i>Unit Tests</i> (note: this could also be called an <i>Index</i> or a <i>Catalog</i>)						
Pass/Fail Status	Unit Number	Unit Test Name	Date Last Tested	Comments or brief description	Integrated with these units	
P	100%	1	Login	01/00/00	Tests login abilities of users	
P	100%	2	Edit Profile	01/00/00	Tests user's ability to edit their profile	1
P	100%	3	Change Password	01/00/00	Tests user's ability to change their password	1,2

Team Name: DeltaTech

Unit Test 1

Description: Test of the user login process

Test Cases										
Pass/Fail Status	Test Number	Description	Action to perform test (input)	Steps to be Executed	State Before Test	Expected result	Observed result	Comments	Tested By	Test Date
P	1.001	Null input for username	Submit form with no username input	Leave username field empty, fill out rest of form correctly	Empty form	Login error, "Incorrect username"				
P	1.002	Invalid username	Submit form with username not in database	fill out form with invalid username, correctly fill out other fields	Empty form	Login error, "Incorrect username"				
p	1.003	Valid username-password check	Check if password is valid for that username	submit form with correct username password combo	Empty form	Login successful, redirect to correct username page		Manually check data base to see if submitted username and password are correctly associated to each other		
p	1.004	Null password	Submit form with null password field	Leave password field blank, correctly fill other fields	Empty form	Login error, invalid password but valid username				
p	1.005	Forgot password Link	Click Forgot Password link	Correctly fill out username field, enter incorrect/null password, click link	form with valid username	redirect to the forgot password page		may be different version of same page		
p	1.006	Security question selection, correct answer	Pick a Security question from list	Select Security question, correctly input answer	Empty Forgot Password Form	Error message if wrong question selected		Should be repeated for each security question available		
p	1.007	Security Question Answer (valid)	Answer security question with correct input	Correctly select security question, input valid answer	Empty Forgot Password Form	Email sent to correct user email with new password information		Check JPREP DBMS to ensure new password information has been updated		
p	1.008	Security Question Answer (non-valid)	Answer security question with incorrect input	Correctly select security question, input invalid answer	Empty Forgot Password Form	Error message, invalid/null answer for question		Incorrect input includes null or input that user did not fill out for security question, no specific formatting of answers stated		
P	= Unit Summary			100% passing		8 passed			Date of last test =	1/0/00
	8	tests				0 failed				

Team Name: DeltaTech										
Unit Test 2: Edit Profile										
Discription: Test functionality of Edit Profile page										
Test Cases										
Pass/Fail Status	Test Number	Description	Action to perform test (input)	Steps to be Executed	State Before Test	Expected result	Observed result	Comments	Tested By	Test Date
P	1.001	Edit Profile link	Clicking Edit Profile Link from User Profile page	Click Link	User Profile page	Correct Edit Profile page				
P	1.002	Null first name	Enter null first name field	Leave first name field blank, correctly fill out all other fields	Empty Form	Error message "User must have first name"				
P	1.003	Null last name	Enter null last name field	Leave last name field blank, correctly fill out all other fields	Empty Form	Error message "User must have last name"				
P	1.004	Null security answer	Null security answer field	Leave security answer field blank, correctly fill out the rest of the form	Empty Form	Error Message "Security question must have answer"				
P	1.005	Save Changes	Click Save Changes	Correctly fill out form, click save changes	Complete Form	Redirect to User Profile page with fields updated		Manually check JPREP DBMS to see if results saved poperly		
P	= Unit Summary		100% passing		5 passed		Date of last test =		1/0/00	
	5	tests			0 failed					

Team Name: DeltaTech										
Unit 3: Change Password										
Description: Testing the ability of the user to change the user's password										
Test Cases										
Pass/Fail Status	Test Number	Description	Action to perform test (input)	Steps to be Executed	State Before Test	Expected result	Observed result	Comments	Tested By	Test Date
P	1.001	Correctly Linked Pages	Click Change Password link	Click Link	User Profile page	Change Password page				
P	1.002	Invalid old password	Input invalid password	Input invalid password into old password field, correct input for all other fields	Empty Form	Error message "Invalid old password"				
P	1.003	Invalid new password	Input invalid password	Input invalid password into new password field, correct inputs for all other fields	Empty Form	Error message "Invalid new password"		An example of an invalid password is a null password		
P	1.004	Matching password	Input non-matching passwords into new password and confirm new password fields	Input two different passwords into new password and confirm new password fields and correct input for all other fields	Empty Form	Error message "Passwords do not match"				
P	1.005	Correctly saving password change	Enter all fields correctly	Input correct inputs for old, new, and confirm password, click save changes	Empty Form	New error messages, correctly redirects to user profile page		Manuall check JPREP DBMS for updated information		
P	= Unit Summary		100% passing		5 passed		Date of last test =		1/0/00	
	5 tests				0 failed					

Appendix D – Logical Data Dictionary

Data Name	Applicable To	Data Type	Data Size	Description	Acceptable Input	Example
userName	All screens	String	5-20 Characters	Username of user	A-Z, a-z, 0-9	am20blah
password	Login, Change Password, User Profile	String	5-20 Characters	Password of user	ASCII Characters from Dec 32 to Dec 126 inclusive	ofAd45#\$
verifyPassword	Change Password	String	5-20 Characters	Password of user used to confirm identical entries	ASCII Characters from Dec 32 to Dec 126 inclusive	ofAd45#\$
firstName	Profile	String	1-20 Characters	First name of user	ASCII Characters from Dec 32 to Dec 126 inclusive	Pat
lastName	Profile	String	1-20 Characters	Last name of user	ASCII Characters from Dec 32 to Dec 126 inclusive	White
email	User Profile	String	5-20 Characters	Email of user	Input in the form of email	lc29grei@siena.edu
courseName	Student Home Page, Faculty Home Page, Course Coordinator Home Page, Grade Book, Create Course, Edit Course	String	1-50 Characters	Name of course	A-Z, a-z, 0-9	CSIS 120
sectionFaculty	Create Course, Edit Course, Add Section, Student Course Home Page, CC Course Home Page	String	1-40 Characters	Faculty that is instructing a section of a course	ASCII Characters from Dec 32 to Dec 126 inclusive	Dr Lim

Data Name	Applicable To	Data Type	Data Size	Description	Acceptable Input	Example
sectionID	Add Section, Gradebook, Faculty Home Page	String	1-10 Characters	Unique identifier of a course	ASCII Characters from Dec 32 to Dec 126 inclusive	01M
courseCoord	Create Course, Edit Course	String	1-40 Characters	Name of course coordinator	ASCII Characters from Dec 32 to Dec 126 inclusive	Dr Lim
problemName	Create Problem, Edit Problem, Student Answer Problem, Question Pool,	String	1-25 Characters	Name of problem	ASCII Characters from Dec 32 to Dec 126 inclusive	String1
problemDescription	Question Pool, Create Question, Edit Question, Student Answer Problem	String	1-2000 Characters	Description of problem	ASCII Characters from Dec 32 to Dec 126 inclusive	This problem will work on strings
problemMethodName	Create Problem, Edit Problem, Student Answer Problem	String	1-25 Characters	Name of problem's method	A-Z, a-z, 0-9	stringPractice
parameterName	Create Problem, Edit Problem, Student Answer Problem	String	1-20 Characters	Name of parameter	A-Z, a-z, 0-9	str1
parameterType	Create Problem, Edit Problem, Student Answer Problem	String	1-20 Characters	Type of parameter	A-Z, a-z, 0-9	int

Data Name	Applicable To	Data Type	Data Size	Description	Acceptable Input	Example
resultType	Create Problem, Edit Problem, Student Answer Problem	String	1-20 Characters	Type of return value that is output from problem	A-Z, a-z, 0-9	int
testCase	Create Problem, Edit Problem, Student Answer Problem	String	1-20 Characters	A parameter used for used for input to a test method	ASCII Characters from Dec 32 to Dec 126 inclusive	9
testCaseResult	Create Problem, Edit Problem, Student Answer Problem	String	1-20 Characters	Result of the function	ASCII Characters from Dec 32 to Dec 126 inclusive	18
solutionCode	Student Answer Problem	String	1-4000 Characters	Java source code that a user inputs	ASCII Characters from Dec 32 to Dec 126 inclusive	String str1 = "test";
problemStatus	Student Assignment Page, Student Answer Problem, Faculty Assignment Grade Book	String	1-20 Characters	The current status of a problem	A-Z, a-z, 0-9	Incomplete
assignmentStatus	Student Assignment Page, Faculty Assignment Grade Book	String	1-20 Characters	The current status of an assignment	A-Z, a-z, 0-9	In Progress
isActive	Manage Users	boolean	4-5 Characters	Determines if a user's account is active	TRUE/FALSE	TRUE

Data Name	Applicable To	Data Type	Data Size	Description	Acceptable Input	Example
dueDate	Create Question, Edit Question, Student Assignment Page, Faculty Assignment Page	String	1-20 Characters	The date an assignment is due	0-9, /	3/15/2014
assignmentGrade	Student Grade Book, Faculty Grade Book, Faculty Assignment Grade Book	int	1-20 Characters	The grade of an assignment	0-9	80
studentAverage	Student Grade Book, Faculty Grade Book	int	1-20 Characters	The average grade of a student	0-9	85
securityQues	Forgot Password, Profile	String	1-50 characters	A question that is used to recover a user's password	ASCII Characters from Dec 32 to Dec 126 inclusive	What is your middle name?
securityAnswer	Forgot Password, Profile	String	1-50 Characters	An answer that is provided to the appropriate security question to recover a user's password	ASCII Characters from Dec 32 to Dec 126 inclusive	John