

# Detailed Design

## Smart Scheduling

Requested by:

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# Smart Scheduling

## Detailed Design

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# ***Review***

## **1.1 Product Overview**

Convenience is of the utmost importance in today's world. Dr. Yoder is looking for a product that can deliver this same experience in regards to his management of the Siena College Computer Science Department class schedule. Scheduling is currently done by hand and is extremely cumbersome, so our product (Smart Scheduling) seeks to apply the speed and automation of today's technology with the flexibility of an internet application. The product will aim to provide a convenient and familiar calendar-like interface that Dr. Yoder can use easily and efficiently to plan the use of the department's resources. Other users like students and faculty would also be able to take advantage of the Smart Scheduling software by being able to view current semester schedules to facilitate their own plan making should they need a room.

## **1.2 User Case Narratives**

### **Course Coordinator/Administrator:**

Course Coordinators will have the ability to log into the system via a unique username and password. System is defined as our (Empire Unlimited) application called Smart Scheduling. Once logged in, the Course Coordinator will have the ability to create new or edit existing schedules. The Course Coordinator will be able to assign classrooms, courses, and Faculty in the schedule. The Course Coordinator will have access to a database of past schedules which may be viewed or used as a template for a new schedule. The Course Coordinator will have the ability to view reports on classroom use and Faculty schedules.

The Course Coordinator is responsible for creating and managing schedules, and will submit them to the School Dean and all Faculty members for approval and viewing, respectively.

### **Faculty:**

Faculty will have access to the system via a unique username and password. Faculty can view all schedules submitted by the Course Coordinator, as well as be able to view classroom and

Faculty reports. Faculty will have the ability to add office hours and other meetings to their own schedule.

### **General User:**

General Users will have access to the system without any authorization. General users will be able to view faculty and classroom schedule reports. A general user will not have any rights to modify or add to a schedule.

In addition to being able to view faculty and classroom schedule reports, schedules will be printed out, and posted outside of classrooms and faculty offices. This will enable everyone, mostly general users, to see at a quick glance which classrooms are being used by which teacher.

## **1.3 Functional Requirements Inventory**

Smart Scheduling will be able to run on all popular browsers including but not limited to: Internet Explorer, Mozilla Firefox, as well as Google Chrome.

The following is the functional requirements for each user. The requirements are grouped by the user; there are 3 users for Smart Scheduling.

### Course Coordinator

- Will be able to find common time slots to schedule departmental meetings or new classes.
- Will be able to modify the schedule.
  - Will be able to delete previous schedules.
  - Will be able to delete classes
  - Will be able to modify classes.
- Will be able to add new classes.
- Will be able to securely log into the system using a registered username and password.
- Will be able to view the current schedule.
  - Will be able to filter the schedule by professor(s).
  - Will be able to filter the schedule by classroom(s).
- Will be able to create a faculty account, where faculty will be able to access the system.
- Will be able to view and print room reports.

## Faculty

- Will be able to securely log into the system using a registered username and password.
- Will be able to view the current schedule.
  - Will be able to filter the schedule by professor(s).
  - Will be able to filter the schedule by classroom(s).
- Will be able to view and print room reports.
- Will be able to add office hours or other meeting, where they will be available in order to meet with students or fellow teachers.

## General User

- Will be able to view and print room reports.
- Will be able to view the current schedule.
  - Will be able to filter the schedule by professor(s).
  - Will be able to filter the schedule by classroom(s).

This list is subject to change as more information is gathered about the project.

## **1.4 Non-Functional Requirements Inventory**

The non-functional requirement inventory is a list of non-functional system requirements. This list is composed of requirements that specify how the system *should* be. This list is subject to change as more information is gathered about the project.

- The system will be easily maintained.
- The system will be stable.
- The system will be viewable on multiple browsers.
- The system will be efficient.
- The system will be user friendly and easy to use.

# ***Preliminary Design***

## **2.1 Data Flow Diagrams**

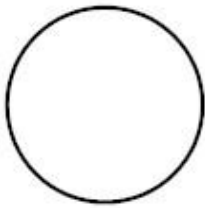
The purpose of Data Flow Diagrams is to show the “flow” and transformation of data through the system. These diagrams are used as a visualization tool to help the audience get a better idea of what exactly is going on in the system. The first image shown below will be a legend describing what each of the different items in the diagrams are and what they represent. A Context Diagram is shown next, which is the general overview of each of the different agents interacting with the system. The Level 0 Diagram shows some more details about which processes each of the agents will be interacting with. Arrows are drawn to show the flow of data between the agents and processes. Following the Level 0 Diagram are two Level 1 Diagrams, each for one of the processes of the system. Each Level 1 Diagram shows that individual process in greater detail and contains labeled arrows to indicate what information is flowing to and from the processes and agents. Following the Level 0 Diagram are Level 1, Level 2, Level 3 and Level 4 Diagrams. The purpose of these Diagrams is to further break down each of the processes that are involved with the system. The further down the level is the more detailed the diagram is.



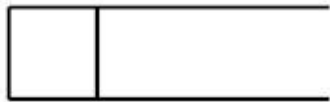
## 2.1.1 Data Flow Diagram Legend



**Entities/Sources/Sinks** of the system which represents the users. Data will flow between these entities.



**Processes** of the system which represents the functions. Data will flow from and to these processes.



**Stores** of the system which represent what stores the data. Data will flow into, be saved and be pulled from these data stores.

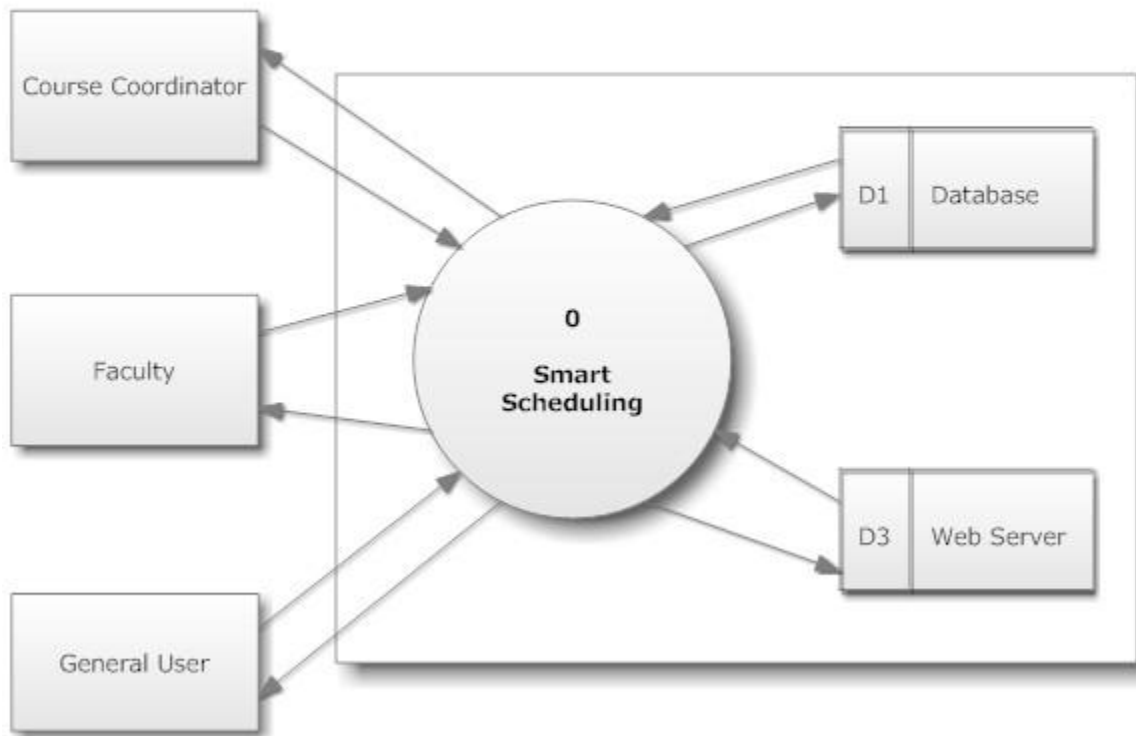


**The Flows** of the system which represent the chunk or packets of information going from one component to another.

This is a legend for the Data Flow Diagrams. This legend explains all objects used in the diagram and what they represent.

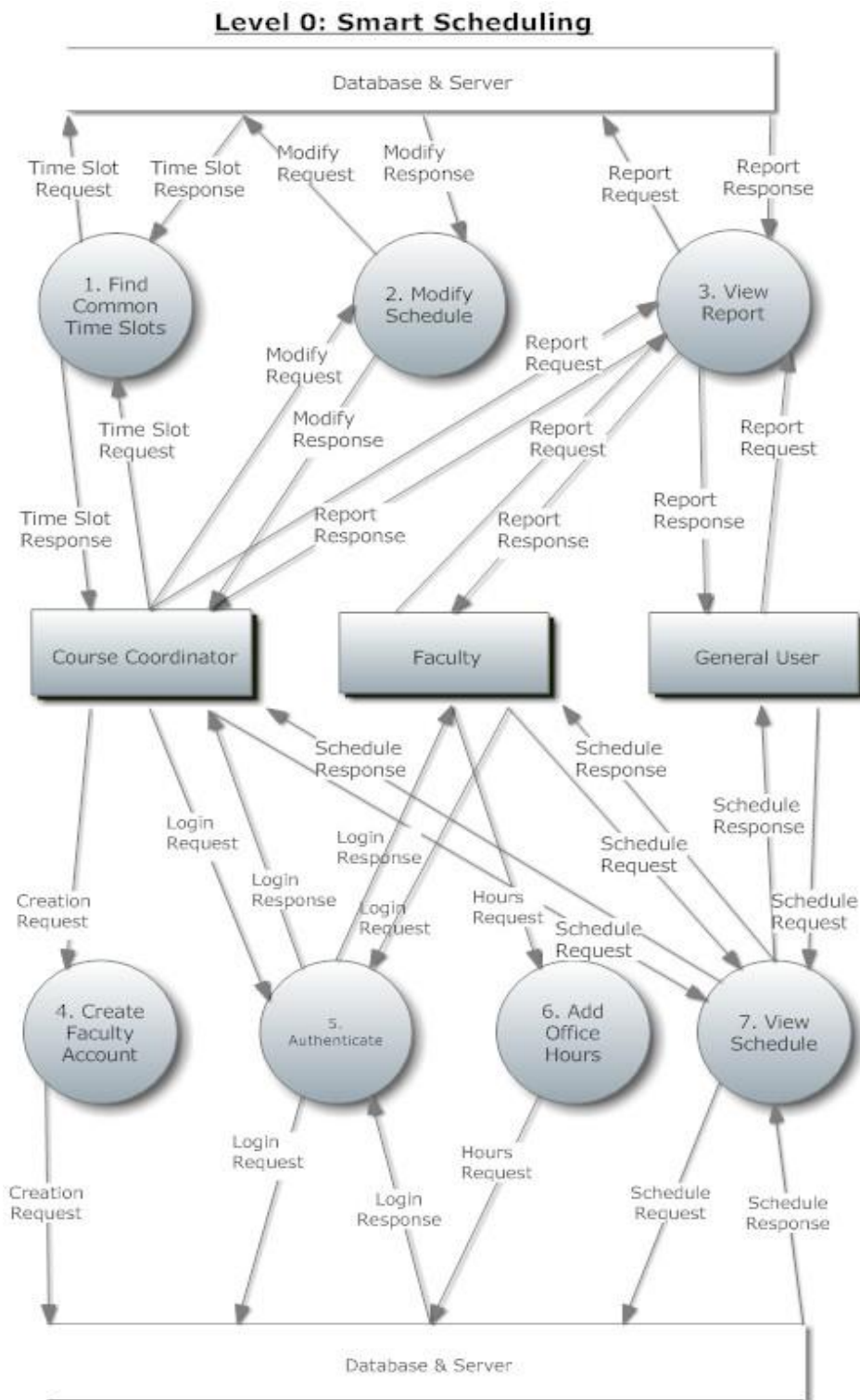
## 2.1.2 Context Diagram

### *Empire Unlimited* *Context Diagram*



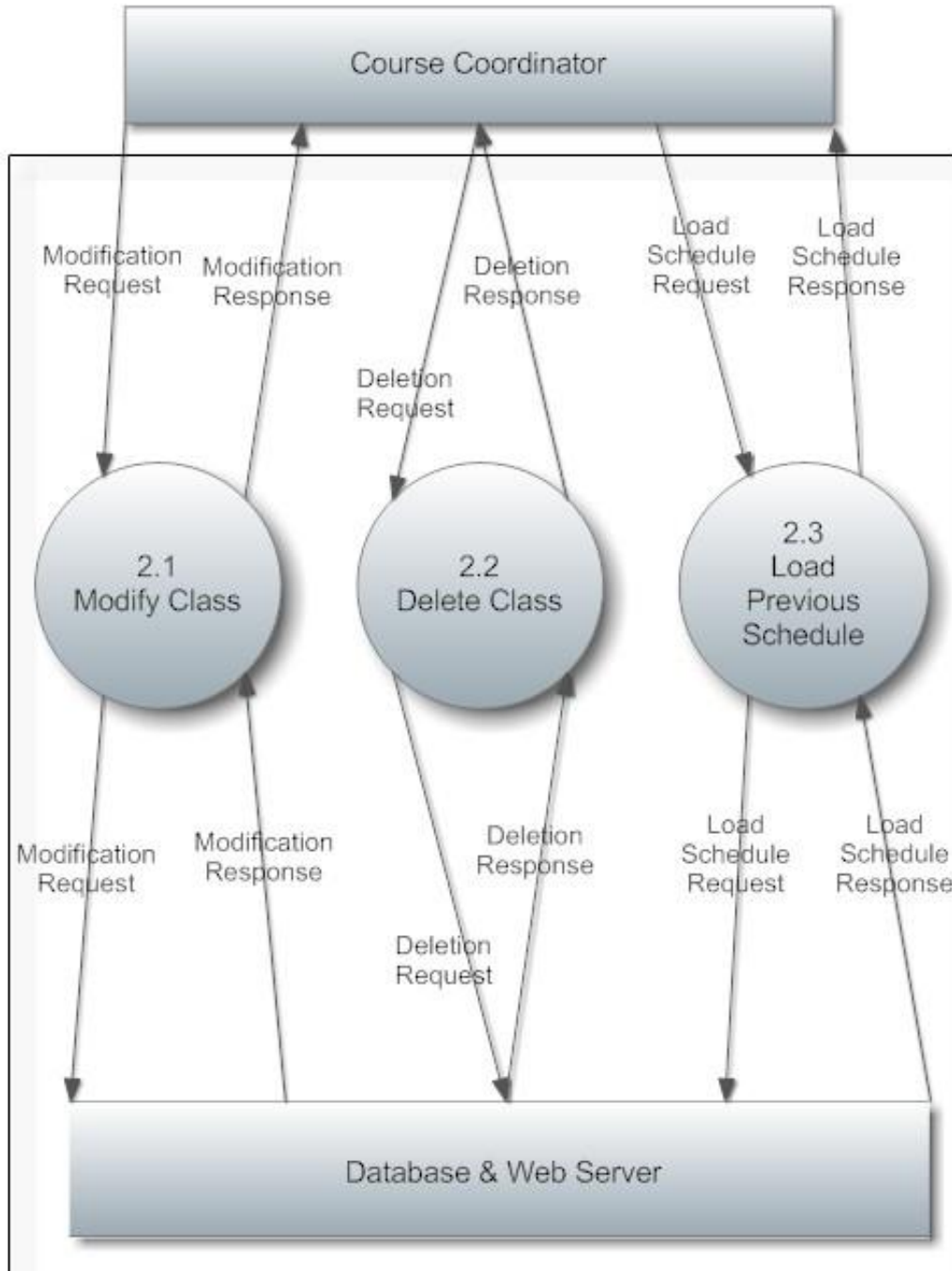
This diagram depicts a broad representation of the entities of the system and their interaction with the system.

## 2.1.3 Level 0 Diagram

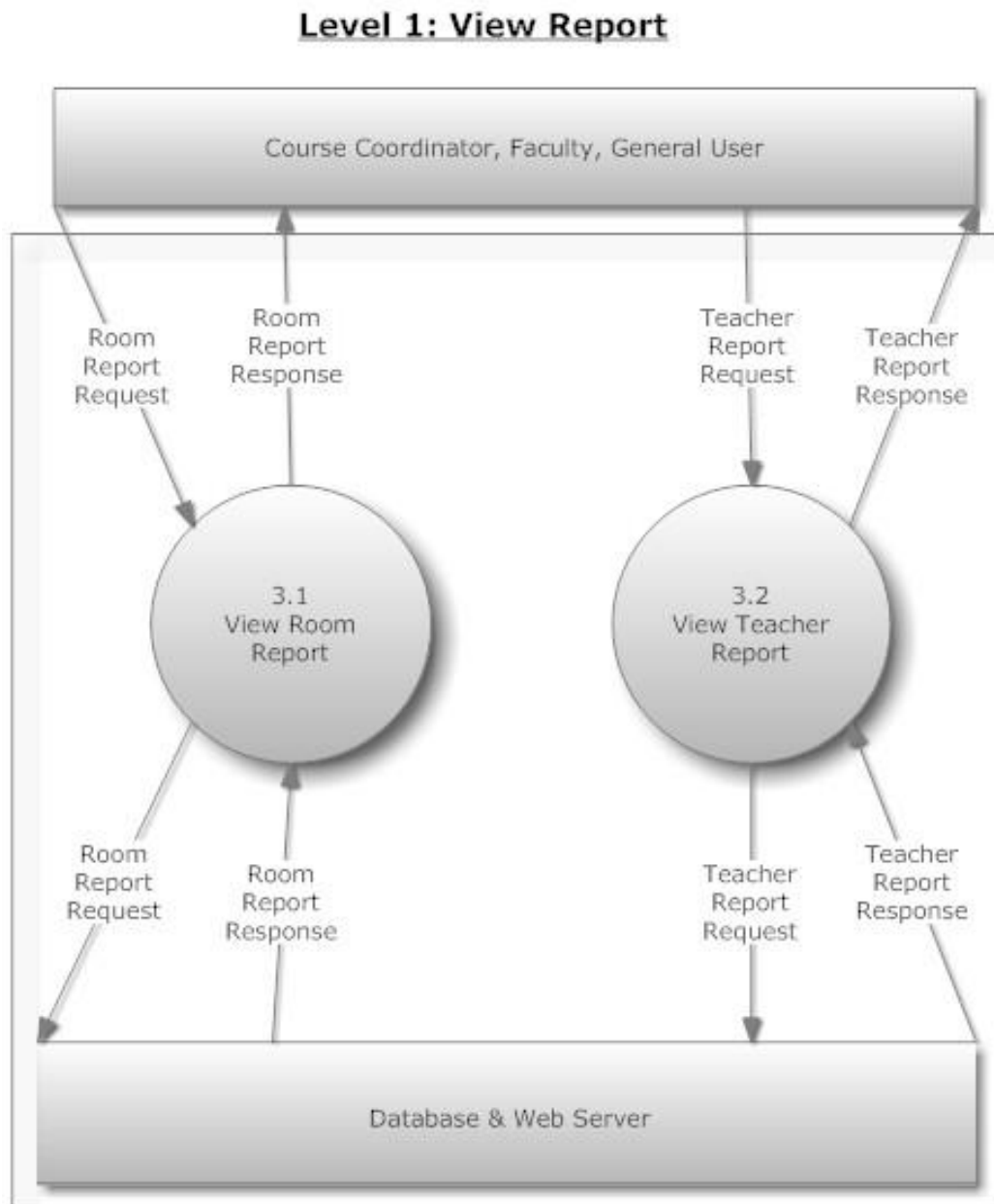


## 2.1.4 Level 1 Diagram: Modify Schedule

### Level 1: Modify Schedule

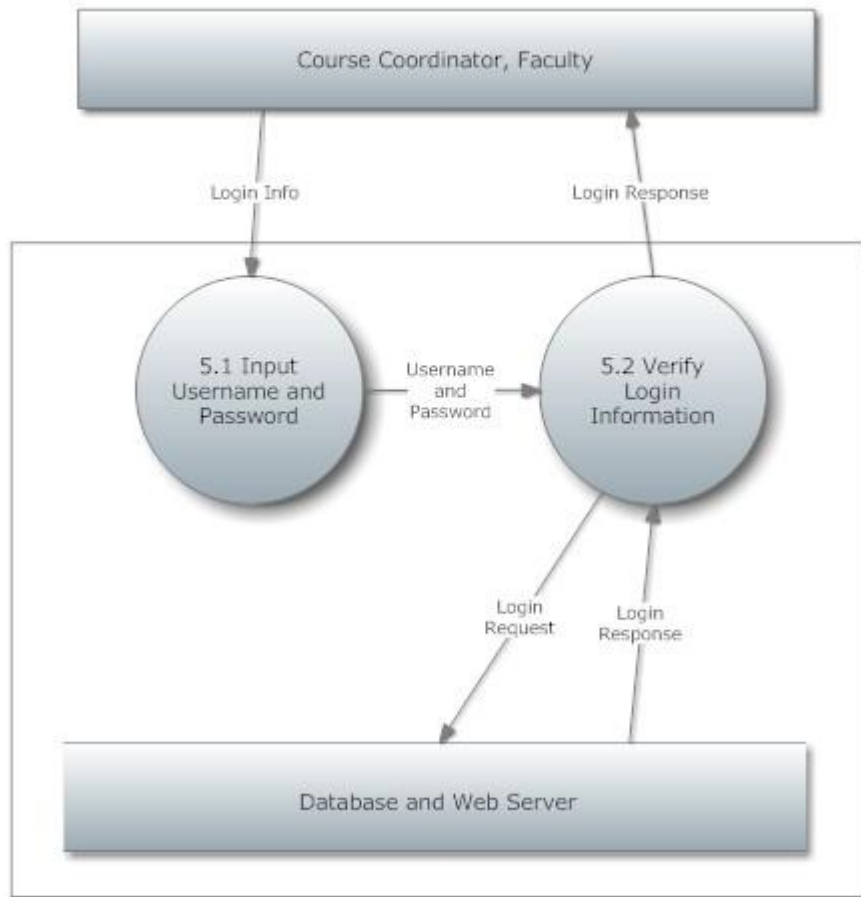


## 2.1.5 Level 1 Diagram: View Report



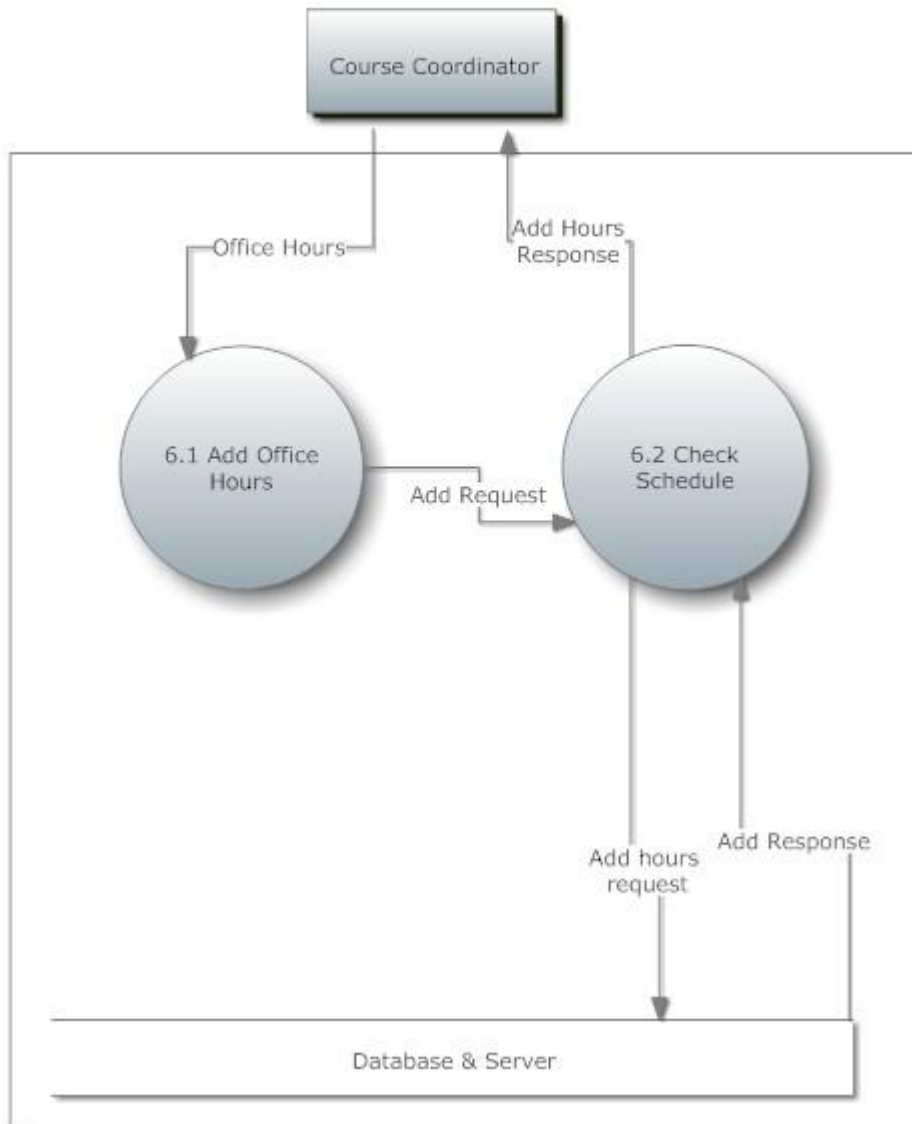
## 2.1.6 Level 1 Diagram: Authenticate

### Level 1: Authenticate

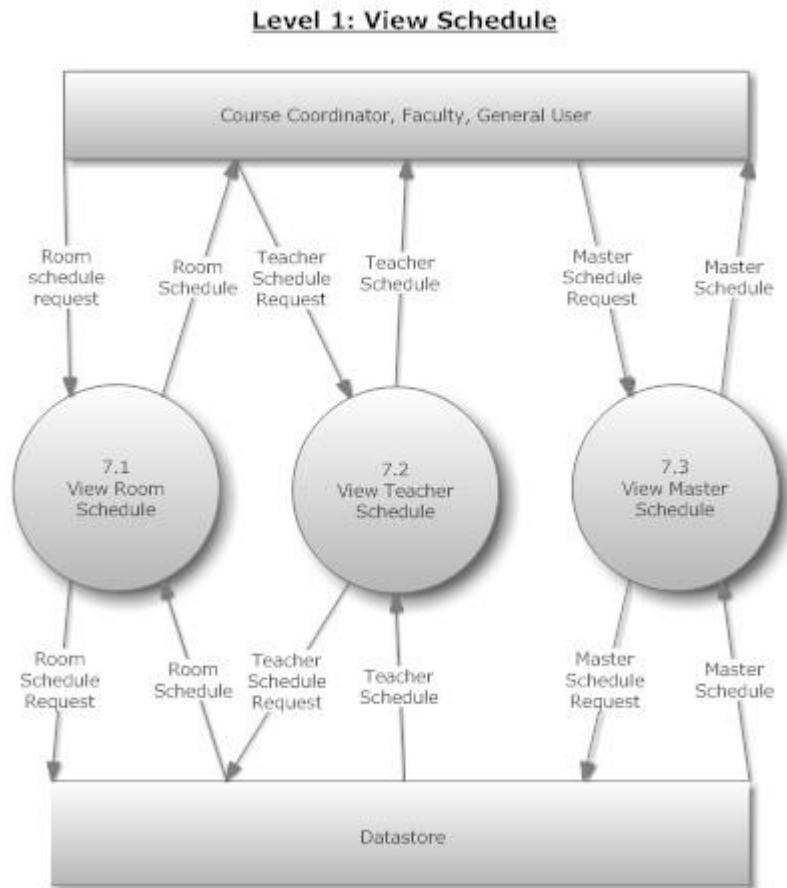


## 2.1.7 Level 1 Diagram: Add Office Hours

### Level 1.6: Add Office Hours

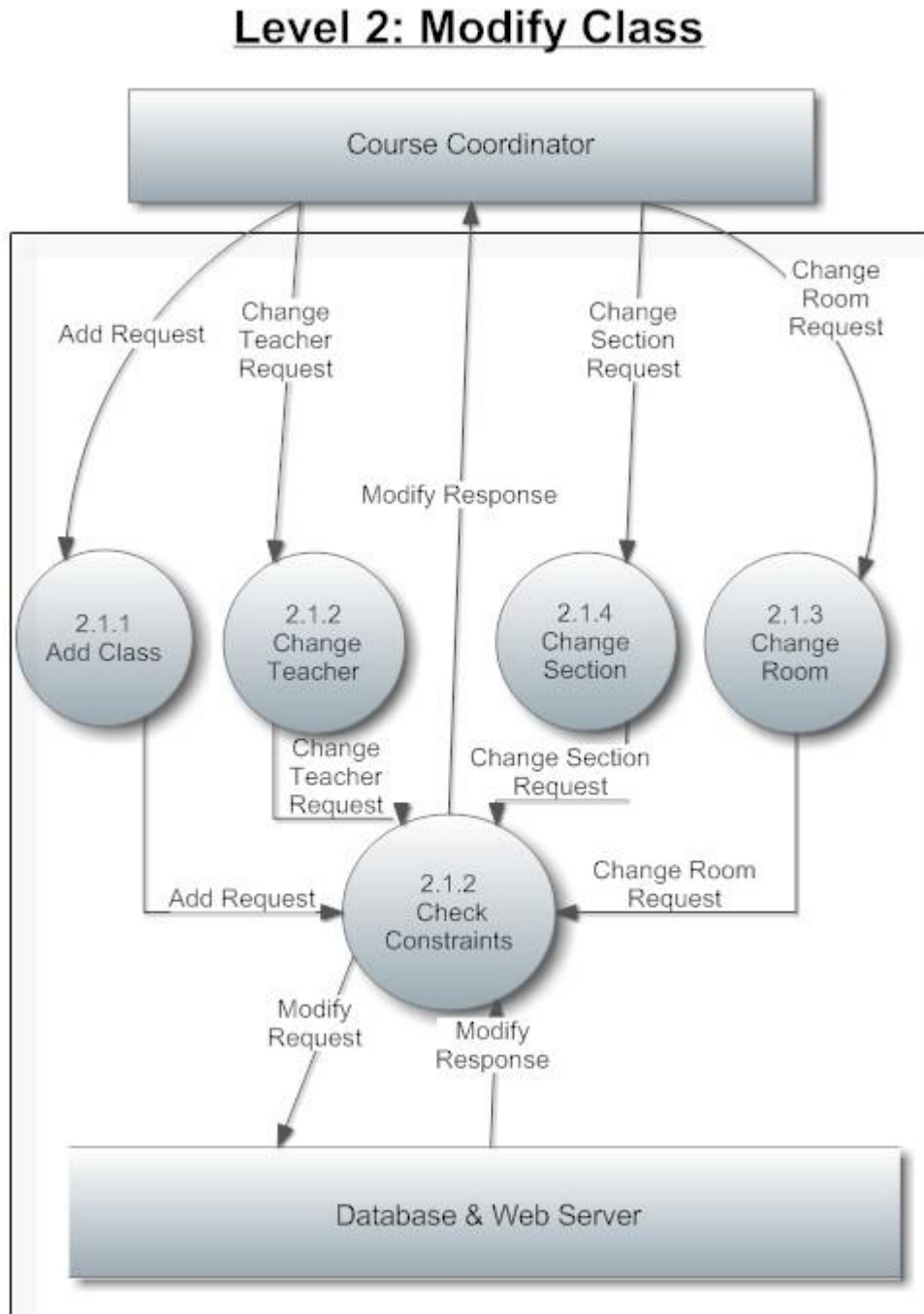


## 2.1.8 Level 1 Diagram: View Schedule



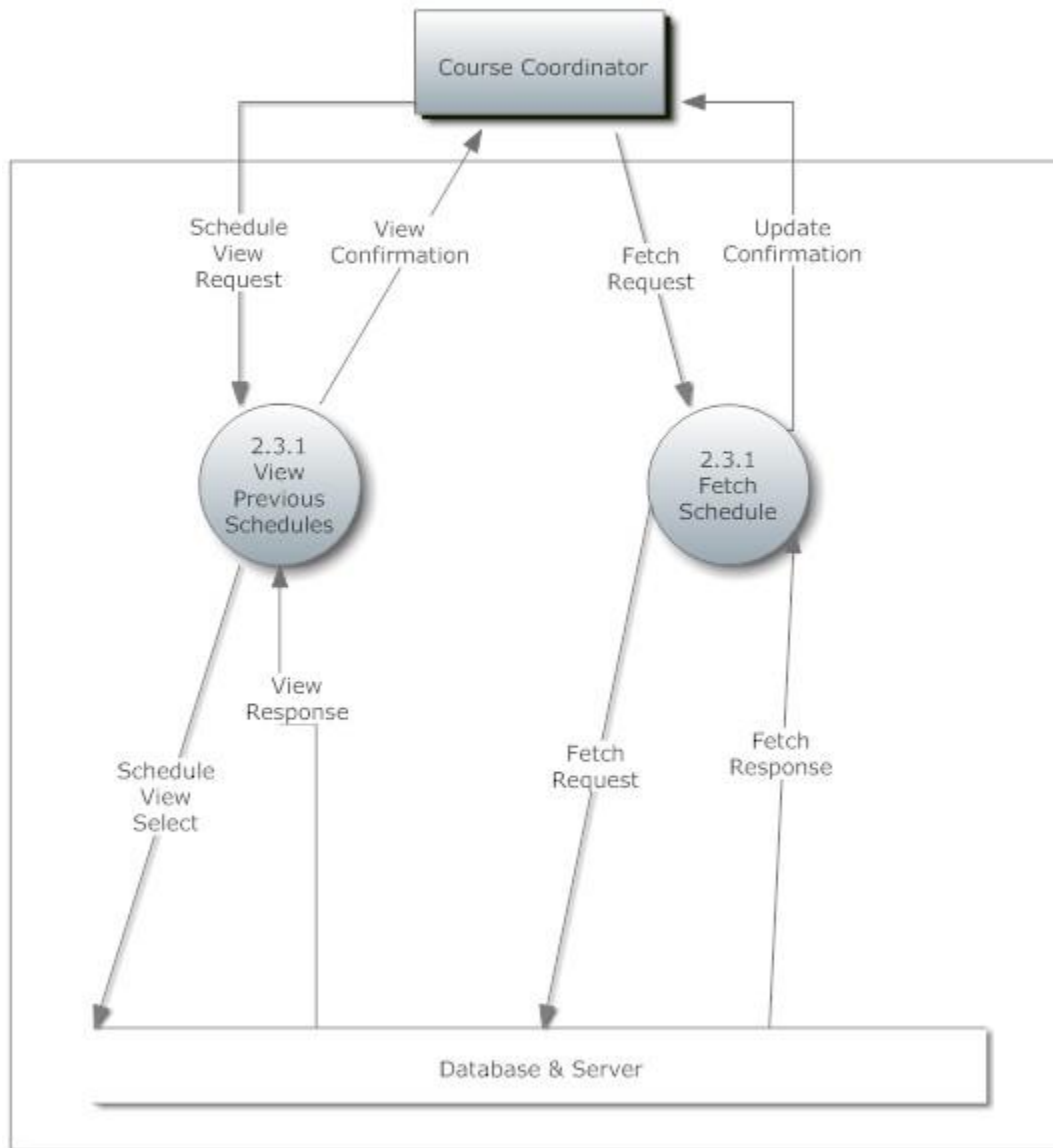


## 2.1.9 Level 2 Diagram: Modify Class



## 2.1.10 Level 2 Diagram: Load Previous Schedule

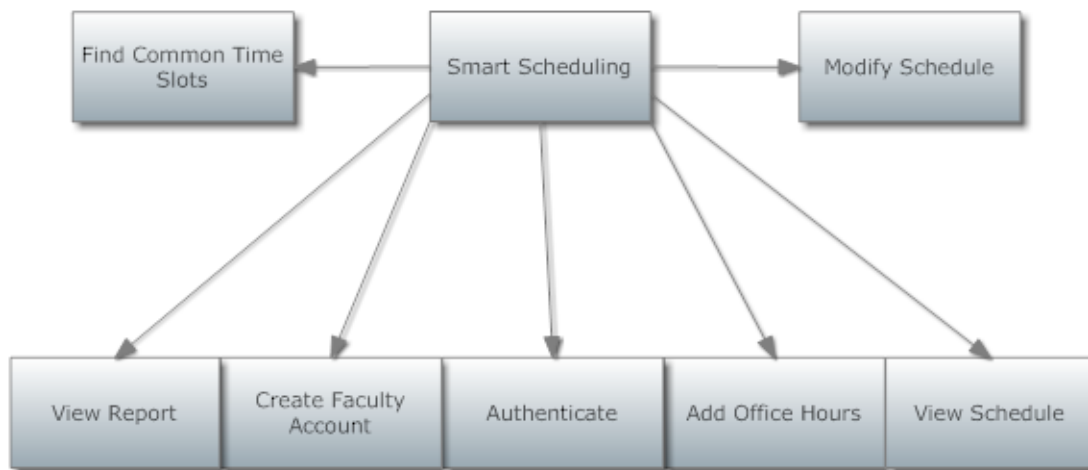
### Level 2: Load Previous Schedule



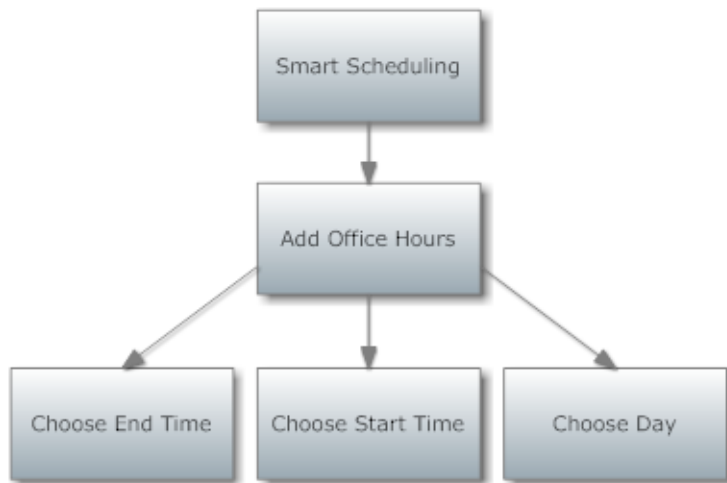
## 2.2 Structure Diagrams

A Structure Diagram in software engineering is a diagram, which shows the breakdown of the configuration system to the lowest manageable levels. It is used to show the hierarchical arrangement of the modules in a structured program. Each rectangular box represents a module. The names of the modules are written inside the box, and arrows are drawn between modules to show relationships.

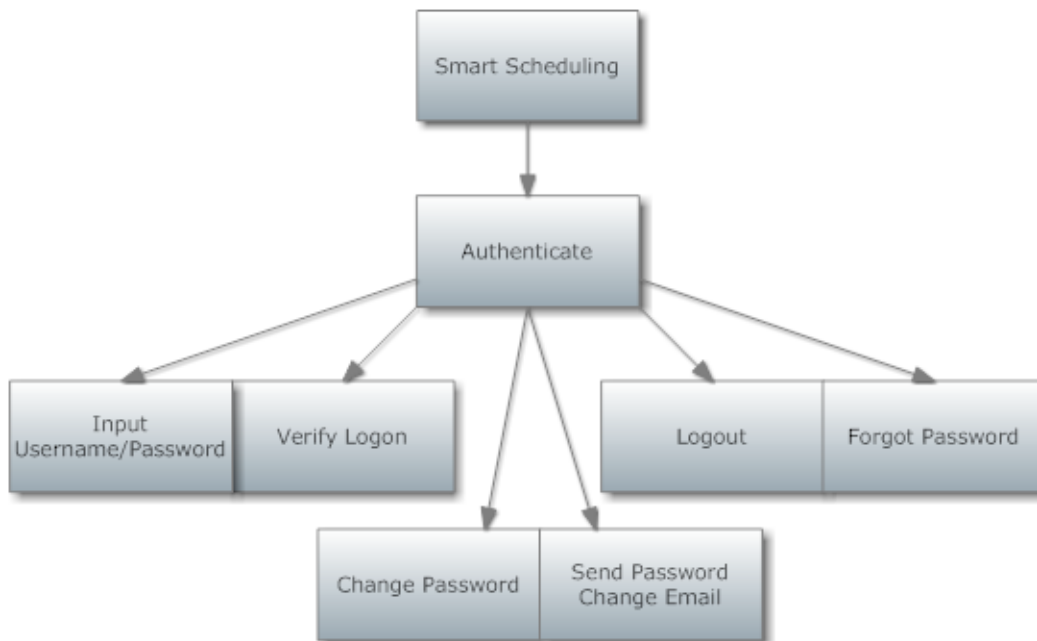
### 2.2.1 Structure Diagram



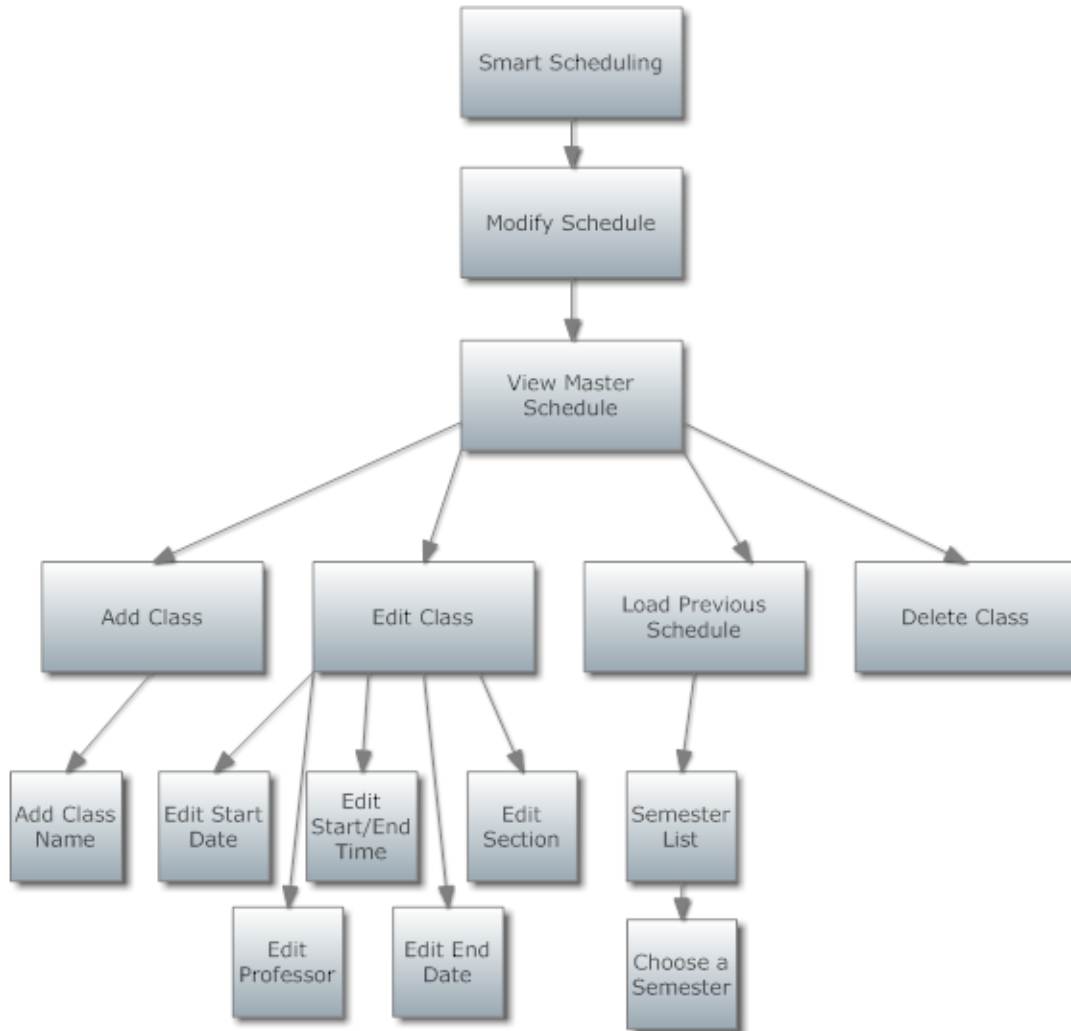
### 2.2.2 Structure Diagram: Add Office Hours



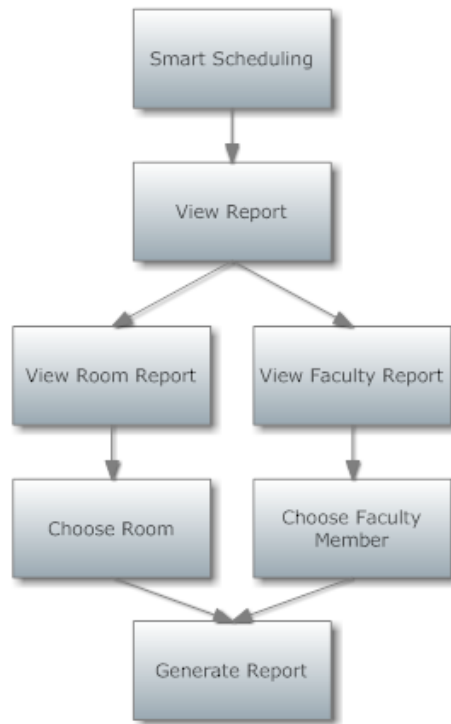
### 2.2.3 Structure Diagram: Authenticate



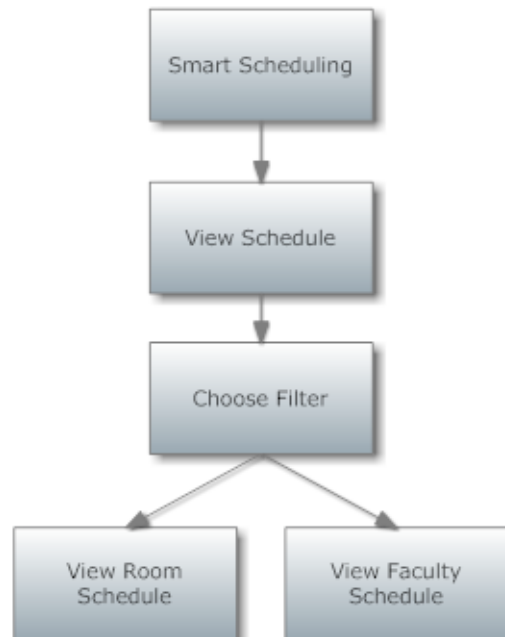
## 2.2.4 Structure Diagram: Modify Schedule



### 2.2.5 Structure Diagram: View Report



### 2.2.6 Structure Diagram: View Schedule



## 2.3 Logical Data Dictionary

Definition of a Data Dictionary: a "centralized repository of information about data such as meaning, relationships to other data, origin, usage, and format." - IBM Dictionary of Computing.

**KEY:**

**Data Name:** The name of the data entity being stored, whether it be in a database or not.

**Applicable To:** The screens that this data entity will be used for.

**Data Type:** The type of data for a data entity

**Data Size:** The size of the data in terms of it's data type.

**Description:** A description of what data this entity is storing.

**Acceptable Input:** What must be inputted by a user in order for the system to accept the data.

**Correct Example of Input:** An example of data that would be accepted by the system.

**Notes:** Additional information regarding the data.

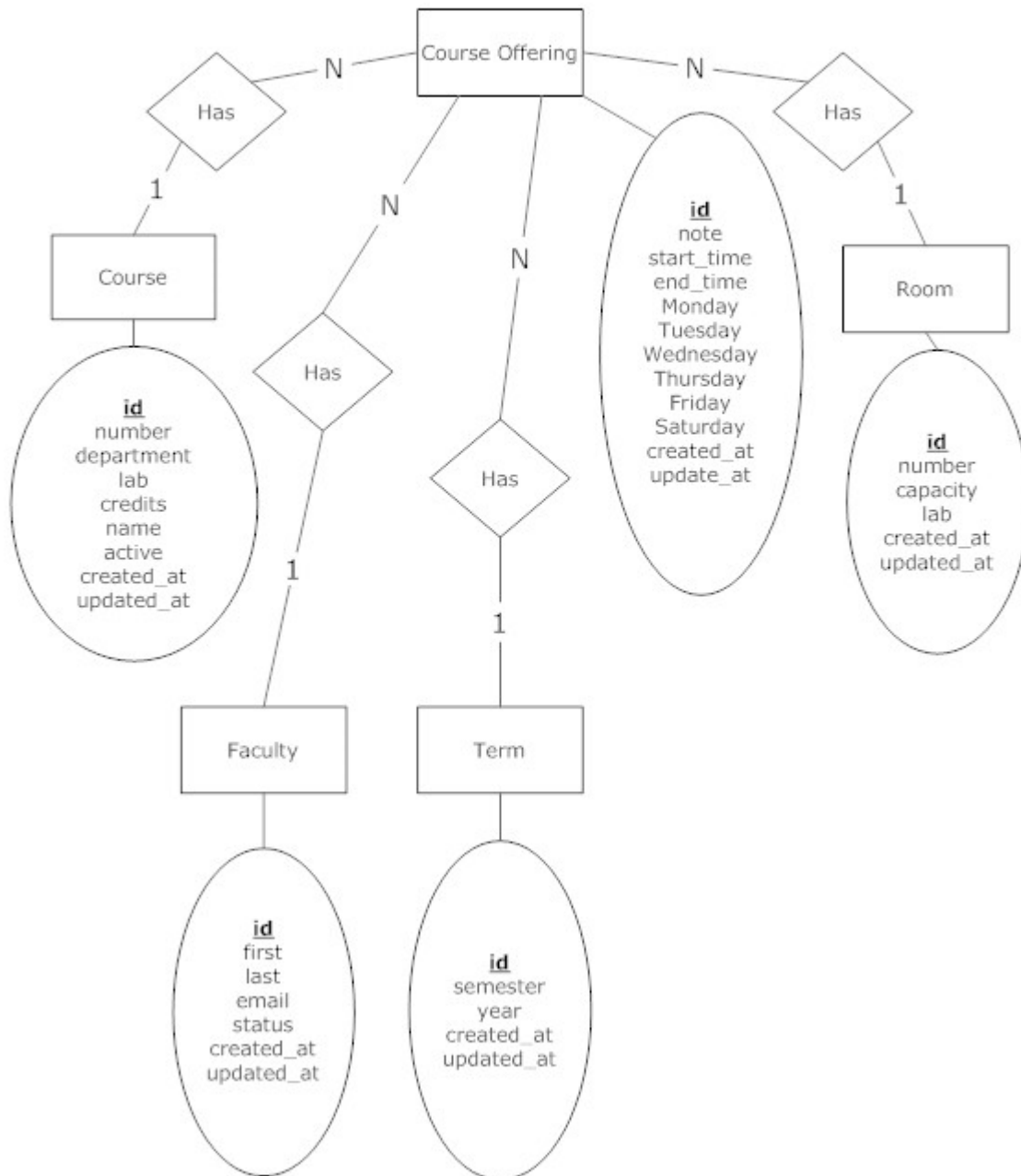
Below is a list of all data types available.

Name in Database	Data Type	Descrip.	Good Example	Bad Example	Rules/Comments	Table Name
first	Varchar(255)	First name of faculty member	John	null	not null	Faculty
last	Varchar(255)	Last name of faculty member	Smith	null	not null	Faculty
email	Varchar(255)	Email address of faculty member	jsmith@siena.edu	jsmith	text@siena.edu	Faculty
status	Varchar(255)	Status	Tenured	busy	ex. Tenured, Adjunct,	Faculty
number	Varchar(255)	Course number	CSIS415		415 must be formatted ##	Course
department	Varchar(255)	Department of the course	Computer Science	Bricks	must be a department	Course
lab	Boolean	Is the class a lab?	TRUE	maybe	TRUE if there is a lab	Course
credits	Integer	Number of credits	3		100 credit hours earned fo	Course
name	Varchar(255)	Name of course	Software Engineering II	null	name of the course, n	Course
active	Boolean	Is the course offered	FALSE	maybe	TRUE if course is offe	Course
note	Varchar(255)	Comments section	This class should meet Wednesday	none	a note about the clas	CourseOffering
start_time	Integer	start time of an instance of a course	815		200 must be Integer, using	CourseOffering
end_time	Integer	end time of an instance of a course	1700		2500 must be Integer, using	CourseOffering
m	Boolean	Does the course meet on Monday	TRUE	maybe	TRUE if class meets	CourseOffering
t	Boolean	Does the course meet on Tuesday	TRUE	maybe	TRUE if class meets	CourseOffering
w	Boolean	Does the course meet on Wednesday	TRUE	maybe	TRUE if class meets	CourseOffering
r	Boolean	Does the course meet on Thursday	TRUE	maybe	TRUE if class meets	CourseOffering
f	Boolean	Does the course meet on Friday	TRUE	maybe	TRUE if class meets	CourseOffering
s	Boolean	Does the course meet on Saturday	TRUE	maybe	TRUE if class meets	CourseOffering
number	Varchar(255)	Room number	RB301		301 Integer, not null	Room
capacity	Integer	Capacity of the room	30		1.23123E+21 Integer, not null	Room
lab	Boolean	Can the room support a lab	TRUE	maybe	TRUE if the room is c	Room
semester	Varchar(255)	Semester	Spring		1 Spring, Summer, or F	Term
year	Integer	Year	2010		1956 not null	Term



## 2.4 Entity Relationship Diagram

### Smart Scheduling Entity Relationship Diagram



## 2.5 Prototypes

### 2.5.1 Authenticate



## 2.5.2 Authentication Error

The screenshot displays the Smartscheduling login interface. At the top right, a dark navigation bar contains the site name "Smartscheduling" and links for "HOME", "TODO", and "SIGN IN". Below these links, the current session information "Viewing Term: Spring 2014 Default Term: Spring 2011" is visible. The main content area features a "Sign in" heading followed by input fields for "Email" and "Password". A "Remember me" checkbox is positioned below the password field. A "Sign in" button is located at the bottom of the form. A red error message, "Invalid email or password.", is displayed above the form fields. At the bottom of the page, there are two rows of navigation links: "Sign Up" and "Forgot your password?". The footer of the page includes a dark sidebar with categories: "Faculty" (View All Faculty, New Faculty), "Rooms" (View All Rooms, New Rooms), "Course Catalog" (View Current Courses, New Course), "Offerings" (View Current Offerings, New Offering), "Schedules" (This Week, Today), and "Terms" (View All, New Term), along with an "Info" link.

## 2.5.3 View All Faculty

[HOME](#)   [TODO](#)   [SIGN IN](#)

 Viewing Term: Spring 2011 Default Term: Spring 2011

### SmartScheduling

### All Faculty Members

First Name	Last Name	Email	Status	Action
Kelly	Zulauf	example-2@faker.org	T	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
Barrett	Bins	example-3@faker.org	T	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
Dagnar	Kerluke	example-4@faker.org	T	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
Eliezer	Balistreri	example-5@faker.org	T	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
Judah	Brekke	example-6@faker.org	T	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
Berta	Beier	example-7@faker.org	T	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
Johan	Hirthe	example-8@faker.org	T	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>

**Faculty**

- View All Faculty
- New Faculty

**Rooms**

- View All Rooms
- New Rooms

**Course Catalog**

- View Current Coursess
- New Course

**Offerings**

- View Current Offerings
- New Offering

**Terms**

- View All
- New Term

**Schedules**

- This Week
- Today

**Info**

Info

## View a Faculty Member

[edit faculty](#) [delete faculty](#) [new](#)

**Name** Kelly Zilaurf

**Email** example-2@faker.org

**Status** T

## Currently Teaching

- CSIS 18 Marks, Weber and Hansen
- CSIS 8 Braltenberg Inc
- CSIS 7 Harvey, Rachel and Robel
- CSIS 0 Bayer, Johnston and Herman
- CSIS 6 Connolly-Lockman
- CSIS 14 Smith LLC
- CSIS 1 Towne Group
- CSIS 17 Maggio, Quitzon and Osinski
- CSIS 4 Sanford, Gislason and Kaebler
- CSIS 18 Marks, Weber and Hansen

**Faculty**

- View All Faculty
- New Faculty

**Rooms**

- View All Rooms
- New Rooms

**Course Catalog**

- View Current Courses
- New Course

**Offerings**

- View Current Offerings
- New Offering

## 2.5.4 View One Faculty

## 2.5.5 Edit a Faculty Member

SmartScheduling

HOME TODO SIGN IN  
Viewing Term: Spring 2011 Default Term: Spring 2011

### Editing Faculty

[Back](#)  
First   
Last   
Zulauf   
Email   
Status

<b>Faculty</b> <ul style="list-style-type: none"><li>View All Faculty</li><li>New Faculty</li></ul>	<b>Rooms</b> <ul style="list-style-type: none"><li>View All Rooms</li><li>New Rooms</li></ul>	<b>Course Catalog</b> <ul style="list-style-type: none"><li>View Current Coursecess</li><li>New Course</li></ul>	<b>Offerings</b> <ul style="list-style-type: none"><li>View Current Offerings</li><li>New Offering</li></ul>
<b>Terms</b> <ul style="list-style-type: none"><li>View All</li><li>New Term</li></ul>	<b>Schedules</b> <ul style="list-style-type: none"><li>This Week</li><li>Today</li></ul>	<b>Info</b> <ul style="list-style-type: none"><li>Info</li></ul>	

## 2.5.7

### Edit a Faculty Member with error

The screenshot displays the 'Smartscheduling' application interface. At the top right, there are navigation links: HOME, TODO, and SIGN IN. Below these, it indicates the current viewing term: 'Viewing Term: Spring 2011 Default Term: Spring 2011'. The main heading is 'Editing Faculty', with a 'Back' link above it. A prominent red error message box states: '1 error prohibited this item from being saved: • First can't be blank'. Below the error, there are four input fields: 'First' (empty), 'Last' (containing 'Zulauf'), 'Email' (containing 'example-2@faker.org'), and 'Status' (containing 'T'). An 'Update Faculty' button is located at the bottom of the form. On the left side, there is a dark sidebar with four menu categories: 'Faculty' (with links for 'View All Faculty' and 'New Faculty'), 'Rooms' (with links for 'View All Rooms' and 'New Rooms'), 'Course Catalog' (with links for 'View Current Coursess' and 'New Course'), and 'Offerings' (with links for 'View Current Offerings' and 'New Offering').

## 2.5.8 Delete faculty member with confirmation

The screenshot displays the 'View a Faculty Member' page in the Smartscheduling application. A confirmation dialog box is overlaid on the page, asking 'Are you sure?' with 'OK' and 'Cancel' buttons. The background page shows a list of faculty members under the heading 'Currently Teaching'. The top navigation bar includes 'HOME', 'TODO', and 'SIGN IN' links, along with the current term information: 'Viewing Term: Spring 2011 Default Term: Spring 2011'. The left sidebar contains navigation links for 'Faculty', 'Rooms', 'Course Catalog', and 'Offerings'.

**Smartscheduling**

HOME TODO SIGN IN  
Viewing Term: Spring 2011 Default Term: Spring 2011

### View a Faculty Member

The page at simple-sword-779.herokuapp.com says:

Are you sure?

OK Cancel

**edit faculty** **delete faculty**

**Name** Kelly Zulauf  
**Email** example-2@elkanyg  
**Status** T

### Currently Teaching

- CSIS 18 Marks, Weber and Hansen
- CSIS 8 Breitenberg Inc
- CSIS 7 CSIS 7
- Harvey, Reichel and Robel CSIS 0
- Bayer, Johnston and Herman CSIS 6
- CSIS 14 Connelly-Lockman
- CSIS 1 Smith LLC
- Towme Group CSIS 17
- Maggio, Quitzon and Osinski CSIS 4
- Santford, Gislason and Keebler CSIS 18
- Marks, Weber and Hansen

**Faculty**

- View All Faculty
- New Faculty

**Rooms**

- View All Rooms
- New Rooms

**Course Catalog**

- View Current Courses
- New Course

**Offerings**

- View Current Offerings
- New Offering



## 2.5.9 Create a faculty member

# SmartScheduling

HOME TODO SIGN IN  
Viewing Term: Spring 2011 Default Term: Spring 2011

## Make a New Faculty Member

[Back](#)

First

Last

Email

Status

### Faculty

- View All Faculty
- New Faculty

### Rooms

- View All Rooms
- New Rooms

### Course Catalog

- View Current Coursess
- New Course

### Offerings

- View Current Offerings
- New Offering

### Schedules

- This Week
- Today

### Terms

- View All
- New Term

### Info

- Info

## 2.5.10

## Creating a New Faculty Member with errors

The screenshot shows a web form titled "Make a New Faculty Member" in the SmartScheduling application. The form contains four input fields: "First", "Last", "Email", and "Status". A red error message box is displayed, stating "4 errors prohibited this item from being saved:" followed by a bulleted list of errors: "First can't be blank", "Last can't be blank", "Email can't be blank", and "Status can't be blank". A "Create Faculty" button is located at the bottom of the form. The page header includes "SmartScheduling" and navigation links for "HOME", "TODO", and "SIGN IN". The footer shows "Viewing Term: Spring 2011 Default Term: Spring 2011".

SmartScheduling

HOME TODO SIGN IN

Viewing Term: Spring 2011 Default Term: Spring 2011

### Make a New Faculty Member

[Back](#)

**4 errors prohibited this item from being saved:**

- First can't be blank
- Last can't be blank
- Email can't be blank
- Status can't be blank

First

Last

Email

Status

## 2.5.11 View all rooms

HOME    TODO    SIGN IN
Viewing Term: Spring 2011 Default Term: Spring 2011

# Smartscheduling

### All Rooms

Room Number	Capacity	Lab?	Action
RB 0	25	true	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
RB 1	25	true	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
RB 2	25	true	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
RB 3	25	true	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
RB 4	25	true	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
RB 5	25	true	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
RB 6	25	true	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
RB 7	25	true	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
RB 8	25	true	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
RB 9	25	true	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>

**Faculty**

- View All Faculty
- New Faculty

**Rooms**

- View All Rooms
- New Rooms

**Course Catalog**

- View Current Course
- New Course

**Offerings**

- View Current Offerings
- New Offering

**Terms**

- View All
- New Term

**Schedules**

- This Week
- Today

**Info**

Info

## 2.5.12 View a Room

**Smartscheduling**

HOME TODO SIGN IN  
Viewing Term: Spring 2011 Default Term: Spring 2011

### View a Room

[edit room](#) [delete room](#) [new](#)

**Room Number** RB 0

**Capacity** 25

**Lab** true

- Faculty**
  - View All Faculty
  - New Faculty
- Rooms**
  - View All Rooms
  - New Rooms
- Course Catalog**
  - View Current Coursess
  - New Course
- Offerings**
  - View Current Offerings
  - New Offering
- Schedules**
  - This Week
  - Today
- Terms**
  - View All
  - New Term
- Info**
  - Info

## 2.5.13 Editing a room

**Smartscheduling**

HOME TODO SIGN IN

Viewing Term: Spring 2011 Default Term: Spring 2011

### Editing Room

[Back](#)

Number  
RB 0

Capacity  
25

Lab

- Faculty**
  - View All Faculty
  - New Faculty
- Rooms**
  - View All Rooms
  - New Rooms
- Course Catalog**
  - View Current Coursecs
  - New Course
- Offerings**
  - View Current Offerings
  - New Offering
- Schedules**
  - This Week
  - Today
- Terms**
  - View All
  - New Term
- Info**
  - Info

## 2.5.14 Creating a new room

**Smartscheduling** HOME TODO SIGN IN  
Viewing Term: Spring 2011 Default Term: Spring 2011

### New Room

[Back](#)

Number

Capacity

Lab

- Faculty**
  - View All Faculty
  - New Faculty
- Rooms**
  - View All Rooms
  - New Rooms
- Course Catalog**
  - View Current Courses
  - New Course
- Offerings**
  - View Current Offerings
  - New Offering
- Schedules**
  - This Week
  - Today
- Terms**
  - View All
  - New Term
- Info**
  - Info

## 2.5.15 Creating a new room with errors

The screenshot displays the 'New Room' form in the SmartScheduling application. The form includes input fields for 'Number', 'Capacity', and 'Lab', along with a 'Create Room' button. A red error message box is overlaid on the form, stating '3 errors prohibited this item from being saved:' and listing three specific errors: 'Number can't be blank', 'Capacity can't be blank', and 'Capacity is not a number'. The application's navigation menu is visible on the left, and the top header contains the 'SmartScheduling' logo and user navigation links.

**SmartScheduling**

HOME TODO SIGN IN

Viewing Term: Spring 2011 Default Term: Spring 2011

### New Room

[Back](#)

**3 errors prohibited this item from being saved:**

- Number can't be blank
- Capacity can't be blank
- Capacity is not a number

Number

Capacity

Lab

**Faculty**

- View All Faculty
- New Faculty

**Rooms**

- View All Rooms
- New Rooms

**Course Catalog**

- View Current Courseess
- New Course

**Offerings**

- View Current Offerings
- New Offering

## All Courses

Course Number	Department	Lab?	Credits	Name	Action
CSIS 0	CSIS	true	3	Bayer, Johnston and Herman	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 1	CSIS	true	3	Towne Group	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 2	CSIS	true	3	Bradke, Lubowitz and Walsh	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 3	CSIS	true	3	Kuvais Group	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 4	CSIS	true	3	Sanford, Glasason and Keabler	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 5	CSIS	true	3	Borer, Hills and Adams	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 6	CSIS	true	3	Connelly-Lockman	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 7	CSIS	true	3	Harvey, Reichel and Robel	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 8	CSIS	true	3	Brettenberg Inc	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 9	CSIS	true	3	Blick-Lubowitz	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 10	CSIS	true	3	Spinka-Rippin	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 11	CSIS	true	3	Stehr-Jast	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 12	CSIS	true	3	Gerlach, Schinner and Feil	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 13	CSIS	true	3	Shields and Sons	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 14	CSIS	true	3	Smith LLC	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 15	CSIS	true	3	Monahan Group	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 16	CSIS	true	3	Borer-Crooks	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 17	CSIS	true	3	Maggio, Quitzon and Osinski	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 18	CSIS	true	3	Marks, Weber and Hansen	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>
CSIS 19	CSIS	true	3	Swanawski, Becker and Feest	<a href="#">show</a> - <a href="#">edit</a> - <a href="#">delete</a>

**Faculty**

[View All Faculty](#)

**Rooms**

[View All Rooms](#)

**Course Catalog**

[View Current Course](#)

**Offerings**

[View Current Offerings](#)



## 2.5.17 View a course

**Smartscheduling**

HOME TODO SIGN IN  
Viewing Term: Spring 2011 Default Term: Spring 2011

### View a Course

[edit course](#) [delete course](#) [new](#)

**Course Number** CSIS 0

**Department** CSIS

**Lab** true

**Department** 3

**Name** Bayer, Johnston and Herman

- Faculty**
  - View All Faculty
  - New Faculty
- Rooms**
  - View All Rooms
  - New Rooms
- Course Catalog**
  - View Current Courses
  - New Course
- Offerings**
  - View Current Offerings
  - New Offering
- Schedules**
  - This Week
  - Today
- Terms**
  - View All
  - New Term
- Info**
  - Info

## 2.5.18 Edit a course

**Smartscheduling**

HOME TODO SIGN IN  
Viewing Term: Spring 2011 Default Term: Spring 2011

### Editing Course

[Back](#)  
Number  
CSIS 19

Department  
CSIS

Lab

Credits  
3

**Faculty**

- View All Faculty
- New Faculty

**Rooms**

- View All Rooms
- New Rooms

**Course Catalog**

- View Current Courses
- New Course

**Offerings**

- View Current Offerings
- New Offering

## 2.5.19 Edit a course with errors

The screenshot shows the 'SmartScheduling' interface. At the top right, there are navigation links: HOME, TODO, and SIGN IN. Below these, the current session information is displayed: 'Viewing Term: Spring 2011 Default Term: Spring 2011'. The main heading is 'Editing Course', with a 'Back' link. A red error message box states: '2 errors prohibited this item from being saved:'. The errors listed are: 'Number can't be blank' and 'Department can't be blank'. Below the error message are form fields for 'Number', 'Department', 'Lab', and 'Credits'. The 'Credits' field contains the value '3'. An 'Update Course' button is located at the bottom of the form. A dark sidebar on the left contains navigation menus for 'Faculty', 'Rooms', 'Course Catalog', and 'Offerings', each with sub-links for viewing and creating new items.

SmartScheduling

HOME TODO SIGN IN

Viewing Term: Spring 2011 Default Term: Spring 2011

### Editing Course

[Back](#)

**2 errors prohibited this item from being saved:**

- Number can't be blank
- Department can't be blank

Number

Department

Lab

Credits

**Faculty**

- View All Faculty
- New Faculty

**Rooms**

- View All Rooms
- New Rooms

**Course Catalog**

- View Current Courses
- New Course

**Offerings**

- View Current Offerings
- New Offerings

## Viewing Courses for the Term (Spring 2011)

Course #	Faculty	Room	Action
CSIS 6	Hermiston, Gilbert	RB 8	<a href="#">View - Edit</a>
CSIS 12	Tromp, Hope	RB 5	<a href="#">View - Edit</a>
CSIS 8	Pacocha, Ashly	RB 4	<a href="#">View - Edit</a>
CSIS 10	Smitham, Robert	RB 5	<a href="#">View - Edit</a>
CSIS 12	McClure, Nola	RB 2	<a href="#">View - Edit</a>
CSIS 17	Hermiston, Gilbert	RB 2	<a href="#">View - Edit</a>
CSIS 9	Feast, Maxwell	RB 6	<a href="#">View - Edit</a>
CSIS 3	Feast, Maxwell	RB 6	<a href="#">View - Edit</a>
CSIS 11	Pacocha, Ashly	RB 1	<a href="#">View - Edit</a>
CSIS 1	Tromp, Hope	RB 1	<a href="#">View - Edit</a>
CSIS 6	Tromp, Hope	RB 5	<a href="#">View - Edit</a>
CSIS 6	McClure, Nola	RB 2	<a href="#">View - Edit</a>
CSIS 4	Smitham, Robert	RB 5	<a href="#">View - Edit</a>
CSIS 0	Lemke, Agustin	RB 2	<a href="#">View - Edit</a>
CSIS 17	Feast, Maxwell	RB 6	<a href="#">View - Edit</a>
CSIS 17	Feast, Maxwell	RB 3	<a href="#">View - Edit</a>
CSIS 15	Hermiston, Gilbert	RB 5	<a href="#">View - Edit</a>
CSIS 11	Lemke, Agustin	RB 3	<a href="#">View - Edit</a>
CSIS 8	McClure, Nola	RB 2	<a href="#">View - Edit</a>
CSIS 3	Pacocha, Ashly	RB 5	<a href="#">View - Edit</a>
CSIS 11	Tromp, Hope	RB 2	<a href="#">View - Edit</a>
CSIS 14	Pacocha, Ashly	RB 7	<a href="#">View - Edit</a>
CSIS 9	Hermiston, Gilbert	RB 5	<a href="#">View - Edit</a>
CSIS 14	Feast, Maxwell	RB 8	<a href="#">View - Edit</a>

## 2.5.20

## View all course offerings

## 2.5.21

## Edit a course offering

**Smartscheduling**

HOME TODO SIGN IN  
Viewing Term: Spring 2011 Default Term: None Set

### Edit Course Offering

**Faculty**  
Herrnston, Gilbert ▾

**Room**  
RB 8 ▾

**Course**  
CSIS 6 ▾

**Logistics**

Monday	<input checked="" type="checkbox"/>
Tuesday	<input type="checkbox"/>
Wednesday	<input checked="" type="checkbox"/>
Thursday	<input type="checkbox"/>
Friday	<input checked="" type="checkbox"/>
Saturday	<input type="checkbox"/>

**Start time**  
1453

**End time**  
1653

Faculty Rooms Course Catalog Offerings

## 2.5.22

## Edit a course offering with errors

# Smartscheduling

HOME    TODO    SIGN IN  
Viewing Term: Spring 2011 Default Term: None Set

### Edit Course Offering

**1 error prohibited this item from being saved:**

- Start time can't be blank

**Faculty**  
Herriston, Gilbert

**Room**  
RB 7

**Course**  
CSIS 1

**Logistics**

Monday	<input checked="" type="checkbox"/>
Tuesday	<input type="checkbox"/>
Wednesday	<input checked="" type="checkbox"/>
Thursday	<input type="checkbox"/>
Friday	<input checked="" type="checkbox"/>
Saturday	<input type="checkbox"/>

Start time

### New Course Offering

5 errors prohibited this item from being saved:

- Faculty can't be blank
- Room can't be blank
- Course can't be blank
- Start time can't be blank
- End time can't be blank

#### Faculty

Please select

#### Room

Please select

#### Course

Please select

#### Logistics

Monday	<input type="checkbox"/>
Tuesday	<input type="checkbox"/>
Wednesday	<input type="checkbox"/>
Thursday	<input type="checkbox"/>
Friday	<input type="checkbox"/>
Saturday	<input type="checkbox"/>

Start time

End time

## 2.5.23 Create a new course offering with errors

## 2.5.24 View all terms, Set a current term

The screenshot displays the SmartScheduling interface. At the top right, the text "SmartScheduling" is visible. Below it, a navigation bar contains the links "HOME", "TODO", and "SIGN IN". A status bar at the bottom right indicates "Viewing Term: Fall 2011 Default Term: None Set". The main content area shows a list of terms with a "Current term set to Fall 2011" indicator. The terms listed are:

- [Spring 2011 - Use this term](#)
- [Fall 2011 - Use this term](#)
- [Summer 2011 - Use this term](#)
- [Spring 2010 - Use this term](#)
- [Fall 2010 - Use this term](#)
- [Summer 2010 - Use this term](#)
- [Spring 2009 - Use this term](#)
- [Fall 2009 - Use this term](#)
- [Summer 2009 - Use this term](#)
- [Spring 2008 - Use this term](#)
- [Fall 2008 - Use this term](#)
- [Summer 2008 - Use this term](#)
- [Spring 2007 - Use this term](#)



## 2.5.25 Editing a term

The screenshot shows the 'Smartscheduling' interface for editing the Spring 2011 term. The page has a dark header with the title 'Smartscheduling' and navigation links: HOME, TODO, and SIGN IN. Below the header, the current page title is 'Editing Spring 2011'. The main content area includes a 'Year' dropdown menu set to '2011', a 'Semester' dropdown menu set to 'Spring', and a checkbox labeled 'Make default Term?' which is checked. A note below the checkbox states 'This will define the term for every student'. An 'Update Term' button is located at the bottom of the main content area. On the left side, there is a dark sidebar with four menu categories: 'Faculty' (View All Faculty, New Faculty), 'Rooms' (View All Rooms, New Rooms), 'Course Catalog' (View Current Courses, New Course), and 'Offerings' (View Current Offerings, New Offering).

## 2.5.26 Create a new term

# Smartscheduling

HOME TODO SIGN IN  
Viewing Term: Fall 2011 Default Term: Spring 2011

## Create New Term

Year

Semester

Make default Term?  This will define the term for every student

### Faculty

- View All Faculty
- New Faculty

### Rooms

- View All Rooms
- New Rooms

### Course Catalog

- View Current Courses
- New Course

### Offerings

- View Current Offerings
- New Offering

## 2.5.27

## Create a new term with errors

The screenshot displays the 'Smartscheduling' interface. At the top right, there are navigation links: HOME, TODO, and SIGN IN. Below these, it indicates the current view: 'Viewing Term: Fall 2011 Default Term: None Set'. The main heading is 'Create New Term'. A red error box contains the message: '1 error prohibited this item from being saved:' followed by a bullet point: 'Year can't be blank'. Below the error box, there are input fields for 'Year' (empty), 'Semester' (a dropdown menu currently showing 'Summer'), and a checkbox labeled 'Make default Term?' which is checked. A 'Create Term' button is located at the bottom of the form. On the left side, there is a dark sidebar with four menu categories: 'Faculty' (with links for 'View All Faculty' and 'New Faculty'), 'Rooms' (with links for 'View All Rooms' and 'New Rooms'), 'Course Catalog' (with links for 'View Current Courses' and 'New Course'), and 'Offerings' (with links for 'View Current Offerings' and 'New Offering').

## 2.5.28 Calendar view for a week

Smartscheduling
HOME    TODO    SIGN IN
Viewing Term: Spring 2012 Default Term: Spring 2012

	Monday	Tuesday	Wednesday	Thursday	Friday
8:00 AM					
8:30 AM	<a href="#">CSIS.0</a> 8:15 AM - 9:20 AM		<a href="#">CSIS.0</a> 8:15 AM - 9:20 AM		<a href="#">CSIS.0</a> 8:15 AM - 9:20 AM
9:00 AM					
9:30 AM					
10:00 AM	<a href="#">CSIS.3</a> 10:00 AM - 11:00 AM		<a href="#">CSIS.3</a> 10:00 AM - 11:00 AM		<a href="#">CSIS.3</a> 10:00 AM - 11:00 AM
10:30 AM					
11:00 AM					
11:30 AM					
12:00 PM					
12:30 PM					
1:00 PM					
1:30 PM					
2:00 PM		<a href="#">CSIS.1</a> 1:00 PM - 2:20 PM		<a href="#">CSIS.1</a> 1:00 PM - 2:20 PM	
2:30 PM					
3:00 PM					

**Faculty**

- View All Faculty
- New Faculty

**Rooms**

- View All Rooms
- New Rooms

**Course Catalog**

- View Current Courses
- New Course

**Offerings**

- View Current Offerings
- New Offering

## 2.6 Development Environment and Production Environment

For our development environment, Empire Unlimited will be using the Windows and Macintosh computers provided by Siena College located on the 3rd floor of Roger Bacon in the Software Engineering lab. The reason for detailing the development and production environments is to try and complete a high level of compatibility across as many platforms as possible. If an error in compatibility arises, this listing will act as a reference to help narrow down potential version conflicts.

### Server

Web Server: Apache version 2.2.9

Programming Language: PHP version 5.2.6

Database: MySQL 5.0.45

### Windows Machine:

- Operating System: Microsoft Windows Vista Enterprise (32 bit)
  - ❖ Service Pack 2
- Hardware
  - ❖ Processor: Intel Core 2 Duo, 2.93 GHz
  - ❖ Memory: 4.00 GB RAM
- Software Installed:
  - ❖ Microsoft Office 2007
  - ❖ Macromedia Dreamweaver : Version 7.0.1
  - ❖ Macromedia Fireworks : Version 7.0.2.295
  - ❖ Internet Explorer : Version 9.0.7930.16406
  - ❖ Mozilla Firefox : Version 3.6.12
  - ❖ Google Chrome : Version 7.0.517.44

### Macintosh Machine:

- Operating System: Apple Mac OS X
  - Version 10.6.4
- Model: iMac5
- Processor: Intel Core2 Duo
  - Speed: 2 GHz
- Memory (RAM): 1.00 GB

## **Appendices**

The information presented in this document was gathered through meetings held with the client, Dr. Robert Yoder. Information was also taken from class lectures held with Dr. Lederman and from documents written by past Software Engineering groups.

### **Appendix A: Glossary of Terms**

**Ajax (Asynchronous JavaScript and XML)** - A group of web development techniques used on the client-side to create interactive web applications.

**Apache HTTP Server (Web Server)** - Referred to as Apache, it is web server software notable for playing a key role in the initial growth of the World Wide Web.

**Cascading Style Sheets (CSS)** - A style sheet language used to describe the presentation semantics (the look and formatting) of a document written in a markup language.

**Chrome** – Internet browser designed by Google.

**Conflict and Constraint** – When an activity can't be scheduled due to room use, weekend, and one resource being currently in use.

**Database** - An organized collection of data for one or more uses, typically in digital form.

**Dreamweaver** – A web development application.

**Dropbox** - A Web-based file hosting service operated by Dropbox, Inc. which uses cloud computing to enable users to store and share files and folders with others across the Internet using file synchronization.

**Firefox** – Internet browser designed by Mozilla.

**Gantt Chart** - A type of bar chart that illustrates a project schedule. Gantt charts illustrate the start and finish dates of the terminal elements and summary elements of a project.

**HTML (HyperText Markup Language)** - The predominant markup language for web pages. It is written in the form of HTML elements consisting of "tags" surrounded by angle brackets within the web page content. It is the building blocks of all basic websites.

**Internet** - A global system of interconnected computer networks that use the standard Internet Protocol Suite (TCP/IP) to serve billions of users worldwide. It is a *network of networks* that

consists of millions of private, public, academic, business, and government networks, of local to global scope, that are linked by a broad array of electronic and optical networking technologies.

**Internet Explorer (IE)** – Internet browser designed by Microsoft.

**JavaScript** - An implementation of the ECMAScript language standard and is typically used to enable programmatic access to computational objects within a host environment.

**MySQL** - A relational database management system that runs as a server providing multi-user access to a number of databases.

**PHP (Hypertext Preprocessor)** - A widely used, general-purpose scripting language that was originally designed for web development to produce dynamic web pages.

**Ruby** - A dynamic, reflective, general purpose object-oriented programming language that combines syntax inspired by Perl with Smalltalk-like features.

**Room Report** – Schedule of times when a room, lab, or the Computer Science Library is booked, by a class or group, on a given day of the week.

**Spiral Model** - A software development process combining which elements of both design and prototyping-in-stages, in an effort to combine advantages of top-down and bottom-up concepts.

**Waterfall Model (Classic)** - The Classic Waterfall Model is a sequential software development model in which development is seen as flowing steadily downwards (similar to a waterfall) through the phases of requirements analysis, design, implementation, testing, integration, and maintenance.

**WinZip** - A proprietary file archiver and compressor for Microsoft Windows,

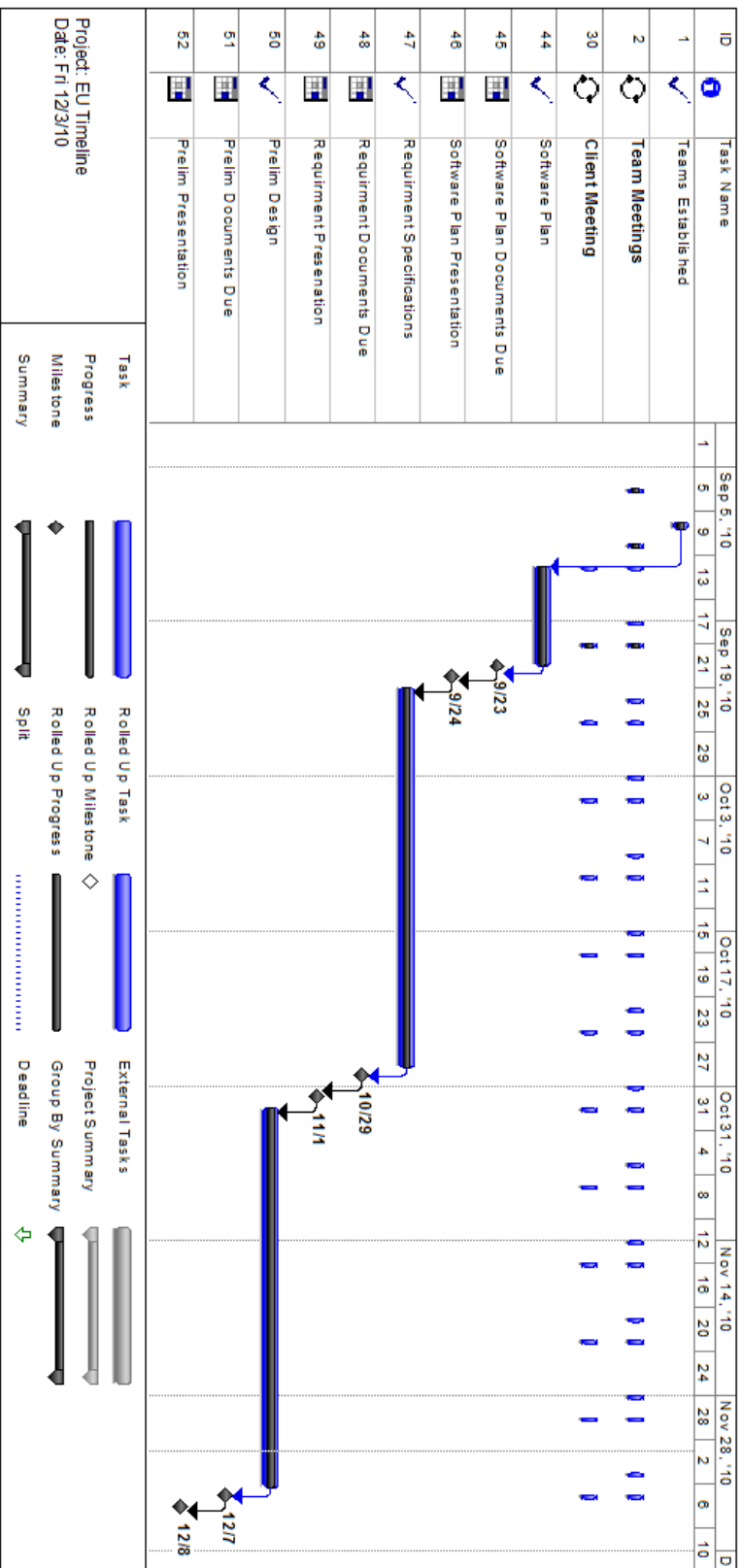
**XHTML (eXtensible Hypertext Markup Language)** - A family of XML markup languages that mirror or extend versions of the widely used Hypertext Markup Language (HTML), the language in which web pages are written.

**XML (Extensible Markup Language)** - A set of rules for encoding documents in machine-readable form.

**Appendix B: Project Timeline: Gantt Chart**

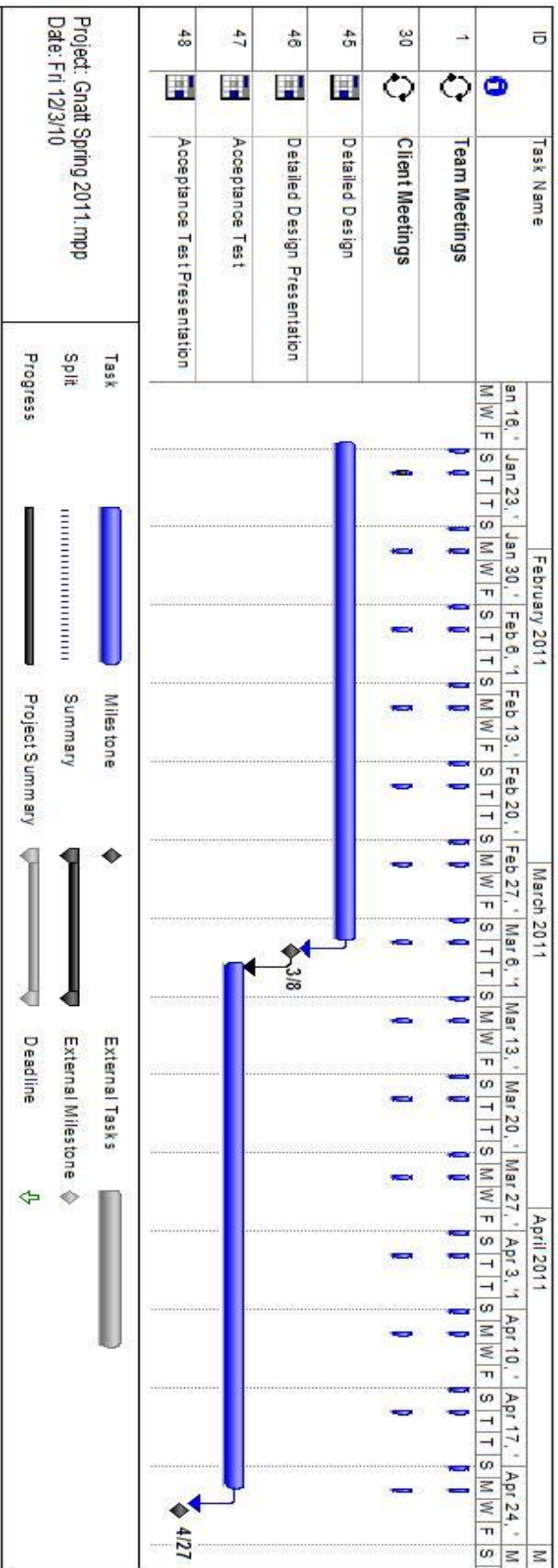


# Timeline - Gantt Chart



**The Gantt Chart displays our timeline for the semester, showing team meetings, client meetings and milestones.**

# Timeline - Gantt Chart



**The Gantt Chart displays our timeline for the semester, showing team meetings, client meetings and milestones.**

**Appendix C : Test Plan**