Preliminary Design

Javanet

Clients:

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Phoenix Tech

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1.1 Product Overview and Summary

Our clients, Dr. Darren Lim and Mrs. Pauline White, have requested a web based application that will allow students enrolled in a Java based course to practice Java programming problems and take Java based quizzes and tests provided by their instructor. Our software program, Javanet, will also help instructors track their students' progress and provide students with a dynamic and interactive way of learning. Here at Phoenix Tech we believe we can offer our clients an efficient solution. A solution that will allow instructors to easily upload, assign and grade Java programming problems. Additionally, student progress will be able to be tracked both immediately and gradually, by both the students themselves and the instructors.

1.2 User Displays and Command Summary



1.2.1 Login Page

The login page is the first screen the user will see when attempting to login into Javanet. After entering a valid username and password combination, the user will be taken to the appropriate Welcome Page.

1.2.2 Reset Password Page

Javanet - Reset Password	
	User Name
	Email Address
	Email Address
	Security Question
	Security Question Answer
	Road Pastword

A user will be shown this page if the Forgot Password link is clicked from the Login Page. After entering a user name, email address, and selecting and answering a security question and answer, the user will be emailed a new password.

1.2.3 Student - Registration Page

First Name Last Name User Name Password Confirm Email Address	
First Name Last Name User Name Password Confirm Email Address	
First Name Last Name User Name Password Confirm Email Address	
First Name Last Name User Name Password Confirm Email Address	
Last Name User Name Password Confirm Email Address	
Last Name User Name Password Confirm Email Address	
User Name Password Confirm Email Address	
Password Confirm Email Address	
Confirm	
Email Address	
Email Address	
Choose Security Question	
Security Question Answer	
Pregister	

Students are required to self-enroll. The Student Registration Page will be shown after a Student clicks the Register link from the Login Page. The Student will be required to enter a first name, last name, user name, password, confirmed password, email address, and select a security question and enter an answer.

1.2.4 Student - Profile Page

Home		Profile: sh12wyyz Sign O
	2). 2).	- 1988. <u>2001</u>
	am17torr	
	Existing Information	Edit Information
	First Name	First Name
	Last Name	Last Name
	Tomes	-
	Password	Email Address
	Email Address	Change Password Old
	Security Question	New
	Favorite Pel? 🔹	Confirm
	Security Question Answer	Change Security Question
	Courses you are enrolled in:	Security Question Answer
	CSIS120-99 Fall 2008	Update
	Add a Course	
	Key Adol Course	

The Student Profile Page will be shown after clicking Register on the Student Registration Page, and anytime the user name link in the upper right corner is clicked. The Student Profile Page will allow a Student to view the existing profile information and edit the information available on this page: first name, last name, password, email address, security question, and security answer. The functionality for adding a course by entering a course key will also be available on this page.

1.2.5 Student - Welcome Page

vanet - Student Welcome - ab12wxyz	
	Profile: ab12wxyz Sign C
Hello, Anthony Torres!	
Select Course	

After logging in, a Student will be required to select which course (which they are currently or previously enrolled in) they would like to access.

1.2.6 Student - Home Page

Home	Prac	tice	Assignments	Gradebook	Profile: ab12wxyz Sign O
Annou New A	Incemer Issignment	n ts: Posted	- <u>Homework 3</u> Due	02/14/09	
Practic	æ	47/70) Completed		
Assignments		5/6 C	ompleted		
Grade	book	Weig	hted Average 89%		

The Student Home page will be shown anytime the *Home* tab is clicked, or after selecting a course on the Student Welcome Page. A Student user will see announcements that have been posted by the Instructor, the Course Coordinator, or the Administrator. A Student will also be able to click on a Practice link, an Assignments link, or a Gradebook link.

1.2.7 Student - Practice Page

Home	Practice	Assignments	Gradebook	Prof	ile: ab12wxyz Sign
Practice					
Warmup 1 √ Warmup 2 √ Warmup 3 √ Warmup 4 Warmup 5	Conditionals 1 Conditionals 2 Conditionals 2 Conditionals 3 Conditionals 4 Conditionals 5 Conditionals 6 Conditionals 7 Conditionals 8	S <u>Strings</u> Strings 1 Strings 2 Strings 3 Strings 4 Strings 5 Strings 6 Strings 7 Strings 8 Strings 9 Strings 10 Strings 11 Strings 12 Strings 13	Loops 1 Loops 2 Loops 3 Loops 4 Loops 5 Loops 6 Loops 7	Arrays 1 Arrays 2 Arrays 3 Arrays 4 Arrays 5 Arrays 6 Arrays 7 Arrays 8 Arrays 9 Arrays 10	Recursion 1 Recursion 2 Recursion 3 Recursion 4 Recursion 5 Recursion 6 Recursion 7 Recursion 8

This page can be accessed by a Student either clicking on the *Practice* tab, or clicking on the Practice link on the Home Page. The Student Practice Page displays the categories of questions available and lists questions sets underneath.

1.2.8 Student - Assignment Selection Page

Home Practice		Assignments	Gradebook			Profile: ab12wxyz Sign C			
Assig	Inmen	ts							
Hom	ework	Due	Q	uizzes	Due		Tests	Due	
Home	work_1	10/28		Quiz 1	10/14		Test 1	9/30	
Home	work 2	11/15	1	Quiz 2	11/30		Test 2	12/13	
Home	swork 3	12/05	10 10 10 10 10 10 10 10 10 10 10 10 10 1						
-									
	-		I <u> </u>			, in the second s			

This page can be accessed by a Student either clicking on the *Assignments* tab, or clicking on the Assignments link on the Home Page. The Student Assignment Selection Page displays three tables: homework, quizzes, and tests. Each assignment is listed with its corresponding due date. Each assignment is also an active link that will redirect to the Student Assignment Page.

1.2.9 Student - Assignment Page - for a specific assignment

wanet - Stude	ent Homework 2 -	ab12wxyz	i ii	
Home	Practice	Assignments	Gradebook	Profile: ab12wxyz Sign 0
Hom	owork 2.			
Ouertie	n 1: Make Checola	ta Completed		
Question	n 2: Blue Ticket - Ir	n progress		
Questio	n 3: <u>Split Array</u> - No	ot Started		

After clicking Homework 2, for example, from the Student Assignment Selection Page, a Student will be brought to this page. There are a list of questions, which are active links that will redirect to the Student Answer Question Page, that make up the assignment and a progress indicator.

1.2.10 Student - Answer Question Page

Home	Practice	Assignments	Gradebook		Profile	ab12wxyz Sig
Ques We war chocola and big number always -1 if it ca Method	tion 1: Make the make a packag te. We have small g bars (5 kilos of small bars to use big bars before an't be done. Signature:	e Chocolate ge of goal kilos of I bars (1 kilo each) each). Retum the use, assuming we a small bars. Retum	Time Rem Submission Show Hit Test Cases	aining: 02:34 ns Used: 3/5 		
Method Signs	dure		Input	Solution	Output	P/F
			1,10	3	3	P
			12,6	5	5	P
			3,5	6	6	P
			0,0	9	0	F
			-1,5	0	0	P
			Other Tes	ts		F
					< Prev	Next

After a question is selected from the Student Assignment Page, the student will see this page. The question will be displayed along with a provided method signature and a text box to write the question solution. In addition, a Student can see how many submissions are remaining and how much time is remaining. A Student may also click Show Hint to view any hints provided by the Instructor. A Student can also Save their source code by clicking on the Save button. Viewable Test Cases are also provided with results.

1.2.11 Student - Solution Page

Question 1: Make Chocolate We want make a package of goal kilos of chocolate. We have small bars (1 kilo each) and big bars (5 kilos each). Return the number of small bars to use, assuming we always use big bars before small bars. Return -1 if it can't be done. Working Solution: Working Solution: Working Solution: Working Solution: Working Solution: Working Solution:	Home Practice	Assignments	Gradebook	<		Profile: ab12wxyz	Sign C
	Question 1: Mak We want make a pack chocolate. We have sm and big bars (5 kilos number of small bars t always use big bars befor -1 if it can't be done. Working Solution:	e Chocolate age of goal kilos of all bars (1 kilo each) each). Retum the o use, assuming we re small bars. Retum	R Te To S	Results iest Cases Correct iotal Test Cases icore our Solution: wert Solution	10 10 100%		

This page can be accessed after an assignment has been completed. This page will provide a Student user with a read only version of his or her solution to the question being viewed. This page will also provide the percentage correct, test cases correct, and the total number of test cases (viewable and non-viewable).

1.2.12 Student - Gradebook Page

Home	Prac	tice	Assignments	Gradebook		Profile: ab12wxyz Sigr
Grad	lebook					
D	ate Due		Assignment	%Score	Points Earned	Points Possible
		Java	HW1			
		Java	HW2			
		lest	1		1	

This page can be accessed by a Student either clicking on the *Gradebook* tab, or by clicking on the Gradebook link on the Student Home Page. In this case, the gradebook is ordered by due date, as displayed by the blue background of the Due Date tab. The gradebook may also be sorted by any of the other columns: assignment, %score, points earned, or points possible, by simply clicking on the heading. The Gradebook will show the percentage, points possible and points earned on each assignment given.

1.2.13 Instructor - Profile Page

Home		Current View Instructor Profile: od34stuv Sig
	cd34stuv	
	Existing Information	Edit Information
	First Name	First Name
	Last Name	Last Name
	Torres	
	Password	Email Address
	Email Address	Change Password Old
	Security Question	New
	Envorite Fai?	Confirm
	Security Question Answer	Change Security Question
		See T
	Join Course Section	Security Question Answer
	Join Section	
	Copy Course Assignments	Lipclate
	Copy From Copy To	

The Instructor Profile Page will be shown anytime the user name link in the upper right corner is clicked. The Instructor Profile Page will allow an Instructor to view the existing profile information and edit the information available on this page: first name, last name, password, email address, security question, and security answer. Additionally, an Instructor has the ability to join a specific course section or to copy course information from a past semester on this page.

1.2.14 Instructor - Welcome Page

vanet - Instructor Welcome - cd34stuv	
	Current View Instructor · Profile: <u>cd34stuv</u> <u>Sign Or</u>
Hello, Instrutor Name!	
(SPER CORES)	

After logging in, an Instructor will be required to select which course they would like to access.

1.2.15 Instructor - Home Page

Home	Courses	Assignments	Question Pools	Gradebook	Current View Methodor ·
Announce	ments				
Adminis Mauris f Mauris a	trator Announceme ermentum viverra s auctor dignissim tel	nt 1: apien. Morbi nec ant lus, Eusce a quam a	e. Quísque orci du	ui, pellentesque quis, f	ermentum vel, porttitor ut, um
Announ Vestibul	cement 1: um dui ligula, viven	ra et, blandit vitae, fe	rmentum quis, tur	pis. Donec malesuada	leo at nisi.
Announ Mauris r	cement 2: nalesuada sagittis	turpis. Aliquam condi	mentum, lacus sit	edit de amet euismod ullamo	orper,
dolor ips	sum fringilla felis, e	u sagittis nibh purus i	ac quam.	ab. tiba.	lete
Post a new	Announcement				
i ootu non					
			Submit		

The Instructor Home page will be shown anytime the *Home* tab is clicked, or after selecting a course on the Instructor Welcome Page. An Instructor user will see the most recent announcements that have been posted by either themselves, the Course Coordinator, or the Administrator. An Instructor will also be able to edit or delete his or her own previous announcements.

1.2.16 Instructor - Create Question Page

Home	Courses	Assignments	Question Pools	Gradeboo	Current Profile:	View <u>Instructor</u> cd34stuv Sig
Create Qu	uestion		Cre	ate Questio	n	
Title			Visib	le Paron Tite	Poren Tito	Solution
Category	Calegory	-		Date Type 💌	Onla Type 🔹	
Difficulty	Difficulty		×	1	4	5
Question			V	2	0	4
Question:			<u>×</u>	10	40	7
			×.	*	21	2
			<u>×</u>	6	41	2
			<u>v</u>	23	4	4
				0	0	0
				-5	9	7
Solution:					AT	
			ŀ	lints:		Enable) ver 🖲

When creating a question, an Instructor will see this page. He or she can select a title, category, and difficulty for the question. An Instructor can then write the question and solution as well. An Instructor will also be able to add parameters for test sets and hints if it is desired. The arrows in the create test set section provide the functionality of creating more test sets and more parameters.

1.2.17 Instructor - Create Question Set Page

Home	Courses	Assignments	Question Pools	Gradebook	Current View Instructor Profile: cd34stuv Sign
Create Q	uestion Set			Question	Pools
				E	
Cotococc	~ .	-		Universal Pool *	Sort: Dero.# *
Difficulty	Lategory			Easy Question	on Title
Time	120 mins			Eary Quartie	view j
TITIO				Easy Questi	view
Question	s in Set			Fasy Questin	on Title
Title	Attem	otsPoints		Warmup	view
Easy Questi	on Title			Easy Questic	on Title
Warmup	2	f edit		Warmup	view
Easy Questi	on Title			Medium Que	stion Title
Strings	2	f edit		Arrays	view
Easy Questi	on Title			Medium Que	stion Title
Loops	2	edit		Arrays	view
Medium Que	stion Title			Hard Questic	on Title
Arrays	-	edit		Recursion	view
Medium Que	estion Title	10			
Arrays	an Title	EOII	2		
Pagemine	on tibe	15 odit			
Recuision		Jam -			

When creating a question set, an Instructor will see this page. An Instructor can create a title, select a category, select a difficulty level, and a time limit for completion. He or she will be able to edit each question in the set, as well as adjust the amount of attempts and, or points available. Instructors are able to build a question set with questions from any of their three pools.

1.2.18 Instructor - Pools Page

Home	Courses	Assignments	Question Pools	Grad	ebook	Current View Profile: _cd3	W Instructor Astuv Sigi
	Same	+					
Private Poo	de-	Course I	Pool:		Universal	Pool:	
						0.11	-
Question S	SOIL Dera.	Ouertion	SOFC Devour	-	Question	SOIL P	T 100
Category Ty	6L DB	edit Caternov	Тупа	view	Category Tr	261 /na	view
Easy Quest	tion Title	Easy Qu	estion Title		Easy Que	stion Title	112.0.
Warmup	don nuo	edit Warmup	obtion mile	view	Warmup		view
Medium Qu	estion Title	Medium	Question Title		Medium C	uestion Title	
Arrays		edit Arrays		view	Arrays		view
Hard Quest	tion Title	Hard Qu	estion Title		Hard Que	stion Title	
Recursion	-	edit Recursio	n	view	Recursion		view
Descent	antina faran 1 laturan						
+ Course F	Pool to add to private	pool + Dr	ag question from priva request course publica	ation	+ Drag to re	question from quest universal	private pool publication
New Quest	tion New Question	1 Set					-

Selecting the *Question Pools* tab will bring you an Instructor this page. On this page, an Instructor may drag and drop questions to and from certain pools. An Instructor can also search the pools by entering a search string. In addition, he or she can decide to create a new question or question set here.

1.2.19 Instructor - Assignment Listing Page

Home	Со	urses	Assignments	Que: Po	stion ols	Gradebook	Curre Profile	nt View Instructor cd34stuv Sign
Assig	Inmen	ts						
Hom	ework	Due	Qu	izzes	Due		Tests	Due
Home	work_1	10/28	2	uiz 1	10/14		Test 1	9/30
Home	work 2	11/15	2	uiz 2	11/30		Test 2	12/13
Home	WORK 3	12/05						

This page can be accessed by an Instructor clicking on the *Assignments* tab. This page displays three tables: homework, quizzes, and tests. Each assignment is listed with its corresponding due date. Each assignment is also an active link that will redirect to the Gradebook.

1.2.20 Instructor – Gradebook Page – default view

Home	Co	ourses	Assigr	nments	Que Po	stion ols	Gradebook	Current View Instructor • Profile: cd34stuv Sign O
Cou	rse Gr	adeboo	k					
De	fault	Grades E	y Student	Grades by	/ Assignme	ent		
		HW1	HW2	HW3	Test 1	Test 2		
Stu	dent 2							
Stu	dent 3							
Stu	dent 4			-				
Stu	dent.5							
Stu	dent 6 rage							-
	-			<u>(a</u>				

An Instructor can access this page by selecting the *Gradebook*. This page serves as the default Gradebook. This page will display the students and their averages on each assignment given. Instructors may also choose to view the Gradebook by Student or by Assignment. Each Student name and each assignment are also active links.

1.2.21 Instructor - Gradebook Page - sorted by Students

Course Gradebook Default Grades By Student Grades by Assignment Student Assignment Score Points Earned Points Possible HW 1 80 8 10 HW 2 85 17 20 HW 3 78 7 9						
Default Grades By Student Grades by Assignment Student Assignment Score Points Earned Points Possible HW 1 80 8 10 HW 2 85 17 20 HW 3 78 7 9					adebook	Course G
Default Grades By Student Grades by Assignment Student Assignment Score Points Earned Points Possible HW 1 80 8 10 HW 2 85 17 20 HW 3 78 7 9						
Student Assignment Score Points Earned Points Possible HW 1 80 8 10 HW 2 85 17 20 HW 3 78 7 9		ment	rades by Assig	dent G	Grades By Stud	Default
HW1 80 8 10 HW2 85 17 20 HW3 78 7 9	1	Points Possible	Points Earn	Score	Assignment	Student
<u>HW 3</u> 78 7 9		10	8	80	HW 1	
<u>HW 3</u> 78 7 9		20	17	85	HW 2	
Tratid on on the		9	/	/8	HW 3	
Test 2 88 88 100		100	92	92	Test 2	
		100	00	00	LIBALZ	
Totals 87 205 239		239	205	87		Totals

This page can be accessed from the default Gradebook by clicking on a Student name, or by clicking on the Grades By Student tab in the Gradebook. This page shows an Instructor each assignment with its corresponding score, points possible and points earned, for one particular student.

1.2.22 Instructor - Gradebook Page - sorted by Assignments

12 12	Cour	ses /	Assignm	nents	Question Pools	Gradebook	Current View Instructor Profile: cd34stuv Sign O
Cour	se Grad	ebook					
000	00 0100	CDOOK			-		
Def	ault Gr	ades By	Student G	irades by	Assignment		
ł	HW 1.	Student	Score	Points	Earned Points Pos	ssible	1
	1	ab12wxy:	z				
	13	am17ton					
Tota	s						

This page can be accessed from the default Gradebook by clicking on a particular assignment, or by clicking on the Grades By Assignment tab in the Gradebook. This page shows an Instructor all of the Students with their corresponding scores, points possible and points earned, for one particular assignment.

1.2.23 Course Coordinator - Profile Page

Home	Requests	Assignments	Question Pools	Rep	orting	Current View Constantor • Profile: ef56opqr Sign Or
	ef56opar					
	Existing Informat	tion		Edit Infor	rmation	
	Elect Manage			Elect Mar		
	Anthony			First Nar	ne	R.
	Last Name			Last Nan	ne	
	Last Name					
	Password			Email Ad	ldress	
	Ernail Address			Change	Password	
	Security Questio	n		New		-
	Esvorite Pel?	•		Confirm		
	Security Questio	n Answer		Change	Security Quest	ion
				-Select-		·
				Security	Question Answ	ver
					Update	

The Course Coordinator Profile Page will be shown anytime the user name link in the upper right corner is clicked. The Course Coordinator Profile Page will allow a Course Coordinator to view his or her existing profile information and edit the information on this page: first name, last name, password, email address, security question, and security answer.

1.2.24 Course Coordinator - Welcome Page

Home	Requests	Assignments	Question Pools	Reporting	Current View coordinator • Profile: ef56opqr Sign Ou
Hello, Coo	ordinator Name!				
You har	ve 2 pending reques	ts for your review.			
Announor	monto				
Announce	ments strator Announceme	nt 1:			
Mauris	fermentum viverra s	apien. Morbi nec an	te. Quisque orci di	ui, pellentesque quis,	fermentum vel, porttitor ut, um
		un Europe a quere a	sanien commodo.	convallis	
Mauris	auctor dignissim tell	us. Fusce a quanta	aapion commodo	convolue.	
Mauris Annour Vestibu	auctor dignissim tell icement 1: lum dui ligula, vivert	a et blandit vitae, fe	ementum quie, tur	nie Donoc maleeuad	a lan at nizi
Mauris Annour Vestibu Lorem	auctor dignissim tell icement 1: lum dui ligula, viverr ipsum dolor sit amet	a et, blandit vitae, fe , consectetuer adipis	ermentum quis, tur scing elit.	pis. Donec malesuad	a leo at nisi.
Mauris Annour Vestibu Lorem i Annour	auctor dignissim tell icement 1: lum dui ligula, viverr ipsum dolor sit amet icement 2:	a et, blandit vitae, fe , consectetuer adipis	ermentum quis, tur scing elit.	pis. Donec malesuad	a leo at nisi.
Mauris Annour Vestibu Lorem Annour Mauris	auctor dignissim tell incement 1: lum dui ligula, viverr ipsum dolor sit amet incement 2: malesuada sagittis t	a et, blandit vitae, fe , consectetuer adipis	ermentum quis, tur scing elit. imentum, lacus sit	pis. Donec malesuad	a leo at nisi. corper,
Mauris Annour Vestibu Lorem i Annour Mauris dolor ip	auctor dignissim tell incement 1: lum dui ligula, viverr ipsum dolor sit amet incement 2: malesuada sagittis t sum fringilla felis, eu	a et, blandit vitae, fe , consectetuer adipis urpis. Aliquam cond u sagittis nibh purus	ermentum quis, tur scing elit. imentum, lacus sit ac quam.	pis. Donec malesuad amet euismod ullam edit d	a leo at nisi. corper, elete
Mauris Annour Vestibu Lorem i Annour Mauris dolor ip	auctor dignissim tell incement 1: lum dui ligula, viverr ipsum dolor sit amet incement 2: malesuada sagittis t sum fringilla felis, eu	a et, blandit vitae, fe , consectetuer adipi: urpis. Aliquam cond u sagittis nibh purus	ermentum quis, tur scing elit. imentum, lacus sit ac quam.	pis. Donec malesuad amet euismod ullam edit d	a leo at nisi. corper, elete
Mauris Annour Vestibu Lorem i Annour Mauris dolor ip Post a new	auctor dignissim tell incement 1: lum dui ligula, viverr ipsum dolor sit amet incement 2: malesuada sagittis t sum fringilla felis, eu w Announcement	a et, blandit vitae, fe , consectetuer adipis urpis. Aliquam cond u sagittis nibh purus	ermentum quis, tur scing elit. imentum, lacus sit ac quam.	pis. Donec malesuad amet euismod ullam _edit _d	a leo at nisi. corper, <u>elete</u>
Mauris Annour Vestibu Lorem Mauris dolor ip Post a new	auctor dignissim tell incement 1: lum dui ligula, viverr ipsum dolor sit amet incement 2: malesuada sagittis t sum fringilla felis, eu w Announcement	a et, blandit vitae, fe , consectetuer adipis urpis. Aliquam cond u sagittis nibh purus	ermentum quis, tur scing elit. imentum, lacus sit ac quam.	pis. Donec malesuad amet euismod ullam .edit .d	a leo at nísi. corper, elete
Mauris Annour Vestibu Lorem i Annour Mauris dolor ip Post a new	auctor dignissim tell incement 1: lum dui ligula, viverr ipsum dolor sit amet incement 2: malesuada sagittis t sum fringilla felis, eu w Announcement	a et, blandit vitae, fe , consectetuer adipis urpis. Aliquam cond u sagittis nibh purus	ermentum quis, tur scing elit. imentum, lacus sit ac quam.	pis. Donec malesuad amet euismod ullam edit d	a leo at nisi. corper, elete
Mauris Annour Vestibu Lorem i Annour Mauris dolor ip Post a new	auctor dignissim tell incement 1: lum dui ligula, viverr ipsum dolor sit amet incement 2: malesuada sagittis t sum fringilla felis, eu w Announcement	a et, blandit vitae, fe , consectetuer adipis urpis. Aliquam cond u sagittis nibh purus	ermentum quis, tur scing elit. imentum, lacus sit ac quam.	pis. Donec malesuad amet euismod ullam _edit _d	a leo at nisi. corper, elete

After logging in, the Course Coordinator will be brought to this page. He or she will see any pending requests, the most recent announcements posted and be able to post a new announcement for that course. The Course Coordinator may also edit or delete any announcements that they have posted.

1.2.25 Course Coordinator - Pending Requests Page

Home	Requests	Assignments	Question Pools	Reporting	Current View commer ·
R M S A H S R	equest Pool: Sort edium Question Titl ubmitter rays ard Question Title ubmitter acursion	e edit	Quest Given of son target array follow (No k group group group	tion Preview: an array of ints, is it ne of the ints, such th with this additional o is chosen to be in the ving it in the array mu pops needed.) NoAdj(0, {2, 5, 10, 4} NoAdj(0, {2, 5, 10, 4} NoAdj(0, {2, 5, 10, 4}	possible to choose a group at the group sums to the given onstraint: If a value in the group, the value immediately st not be chosen. (12) \rightarrow true (14) \rightarrow false (7) \rightarrow false

The Pending Requests Page will show the specific pending requests that the Course Coordinator has. He or she can choose to approve, deny, or edit a question or question set.

1.2.26 Course Coordinator - Create Question Page

n		Cre	eate Questie	on	
		Visit	le Paran Tite	Poren Title	Solution
	•		Dete Type *	Onla Type 🔹	•••
	•	×	1	4	5
		v	2	0	4
		<u></u>	10	40	7
		~	*	21	2
		~	5	41	2
		~	23	4	4
			C	0	3
			-5	9	7
				AT	
		-	-lints:		Enable: ver
			Visib	▼ Visible Paren Tite ● □ □ □ ● <t< td=""><td>Visible Paren Tite Paren Tite ▼ Dete Type ▼ Data Type ▼ ✓ 1 4 ✓ 2 0 ✓ 10 4C ✓ 2 0 ✓ ✓ 10 0 0 0 0 ○ ○ ○ ○ ○ ● ✓ 10 ✓ 10 ✓ 10 ✓ ●</td></t<>	Visible Paren Tite Paren Tite ▼ Dete Type ▼ Data Type ▼ ✓ 1 4 ✓ 2 0 ✓ 10 4C ✓ 2 0 ✓ ✓ 10 0 0 0 0 ○ ○ ○ ○ ○ ● ✓ 10 ✓ 10 ✓ 10 ✓ ●

A Course Coordinator will see this page when creating a question. A Course Coordinator can select a title, category, and difficulty for the question. A Course Coordinator can then write the question and solution as well. A Course Coordinator will also be able to add parameters for test sets and hints if it is desired. The arrows in the create test set section provide the functionality of creating more test sets and more parameters.

1.2.27 Course Coordinator - Create Question Set Page

Home	Requests	Assignments	Question Pools	Reporting	Current View Coordinator Profile: ef56opqr Sign
Create C	uestion Set			Question	n Pools
Title				Litranscord Perol	· Sorti Data #
Category	Calegory .	•		Easy Ques	tion Title
Difficulty	Driculy	*		Warmup	view
Time	120 mins			Easy Ques	tion Title
				Warmup	view
Question	is in Set			Easy Ques	tion Title
Title	Attemp	otsPoints		Warmup	view
Easy Quest	ion Title			Easy Ques	tion Title
Warmup	2	f edit		Warmup	view
Easy Quest	ion Title			Medium Qu	Jestion Title
Strings	· · · · · · · · · · · · · · · · · · ·	edit		Arrays	view
Easy Quest	ion Title			Medium Qu	uestion Title
Loops		. eoit		Arrays	View
Medium Qu	estion little	10 and it		Hard Ques	tion Title
Medium Ou	estion Title	TAM		Recursion	Menty
Arrays	4	10 edit			
Hard Quest	ion Title	0		-	
Recursion	5	15 edit			

When creating a question set, a Course Coordinator will see this page. A Course Coordinator can create a title, select a category, select a difficulty level, and a time limit for completion. A Course Coordinator will be able to edit each question in the set, as well as adjust the amount of attempts and, or points available. Course Coordinators are able to build a question set with questions from any of their three pools.

1.2.28 Course Coordinator - Pools Page

Home	Requests	Assignments	Question Pools	Repo	orting	Current Vie Profile: ef5	W <u>Coordinato</u> 60pqr Sig
_	Sant						
Private Poo	ol:	Course P	pol:		Universa	l Pool:	_
	Sort	•	Sort; Default	-		Sort	isut +
Question S	Set	Question	Set		Question	n Set	
Category Ty	/pe	Category 1	Гуре	edit	Category	Туре	view
Easy Ques	tion Title	Easy Que	stion Title		Easy Qu	estion Title	
Warmup	<u>0</u>	tit Warmup		edit	Warmup		view
Medium Qu	uestion Title	Medium C	Juestion Title		Medium	Question Title	
Arrays	<u>.e</u>	dit Arrays		edit	Arrays		view
Hard Ques	tion Title	Hard Que	stion Title		Hard Qu	estion Title	
Recursion	<u>.</u>	tit Recursion		edit	Recursion	1	view
+ Drag qu Course	estion from Universal (Pool to add to private)	or + Dra pool to a	g question from prive	te pool	+ Dri	ag question from request universal	private poo

Selecting the *Question Pools* tab will bring a Course Coordinator to this page. On this page, a Course Coordinator may drag and drop questions to and from certain pools. A Course Coordinator can also search the pools by entering a search string. In addition, a course coordinator can decide to create a new question or question set by clicking links on this page.

1.2.29 Course Coordinator - Assignment Listing Page

Home	Reque	sts	Assignments	Question Pools	Repo	orting	Current View Profile: _ef56op	Coordinator opr _Sign_C
Assignn	nents							
Section	Homework	Due	e Section	Quizzes	Due	Section	Tests	Due
CSIS120-02	Homework 1	10/2	28 CSIS120-02	Quiz 1	10/14	CSIS120-02	Test 1	9/30
CSIS120-99	Homework 1	10/2	28 CSIS120-99	Quiz 2	11/30	CSIS120-99	Test 2	12/13
CSIS120-99	Homework 2	11/1	5			-		

This page can be accessed by clicking the *Assignments* tab. On this page, a Course Coordinator can view the assignments for a specific course. This page will display three lists: homework, quizzes, and tests. Each list will display the due date and the section for which the assignment has been assigned.

1.2.30 Administrator - Welcome Page

Home	Requests	Assignments	Question Pools	Reporting	Current View Administration
Hello, Adm	ninistrator Name!				
You hav	ve 4 pending reques	ts for your review.			
Announce	ments				
Adminis	trator Announceme	nt 1:			antonen extensione -
Mauris	termentum viverra s	apien. Morbi nec an	te. Quisque orci di	ui, pellentesque quis,	fermentum vel, portitor ut, um
Mauris	auctor dignissim tell	us. Eusce a quam a	sapien commodo	convallis for o	elete
Mauris Announ	auctor dignissim tell cement 1:	us. Fusce a quam a	sapien commodo	convallis. eou o	elete
Mauris Announ Vestibu	auctor dignissim tell cement 1: lum dui ligula, vivern	us. Fusce a quam a a et, blandit vitae, fe	sapien commodo	convallis. And di	elete a leo at nísi.
Mauris Announ Vestibu Lorem i	auctor dignissim tell cement 1: lum dui ligula, vivern psum dolor sit amet	us. Fusce a quam a a et, blandit vitae, fe , consectetuer adipis	sapien commodo rmentum quis, tur scing elit.	convallis. <u>enit</u> di pis. Donec malesuad	elete a leo at nisi.
Mauris Announ Vestibu Lorem i Announ Mauris	auctor dignissim tell icement 1: lum dui ligula, viverr psum dolor sit amet icement 2: malesuada sagittis t	us. Fusce a quam a a et, blandit vitae, fe , consectetuer adipis urpis. Aliquam condi	sapien commodo rmentum quis, tur scing elit. mentum, lacus sit	convallis. <u>edit</u> of pis. Donec malesuad amet euismod ullame	elete a leo at nisi. corper,
Mauris Announ Vestibul Lorem i Announ Mauris dolor ip	auctor dignissim tell icement 1: lum dui ligula, viverr psum dolor sit amet icement 2: malesuada sagittis t sum fringilla felis, eu	us. Fusce a quam a a et, blandit vitae, fe , consectetuer adipis urpis. Aliquam condi u sagittis nibh purus	sapien commodo rmentum quis, tur scing elit. mentum, lacus sit ac quam.	convallis. <u>edit di</u> pis. Donec malesuad amet euismod ullame	elete a leo at nísi. corper,
Mauris Announ Vestibu Lorem i Announ Mauris dolor ip	auctor dignissim tell icement 1: lum dui ligula, viverr psum dolor sit amet icement 2: malesuada sagittis t sum fringilla felis, eu	us. Fusce a quam a a et, blandit vitae, fe , consectetuer adipis urpis. Aliquam condi u sagittis nibh purus	sapien commodo rmentum quis, tur scing elit. mentum, lacus sit ac quam.	convallis. <u>eout o</u> pis. Donec malesuad amet euismod ullame	elete a leo at nisi. corper,
Mauris Announ Vestibul Lorem i Announ Mauris dolor ip	auctor dignissim tell icement 1: lum dui ligula, viverr psum dolor sit amet icement 2: malesuada sagittis t sum fringilla felis, eu v Announcement	us. Fusce a quam a a et, blandit vitae, fe , consectetuer adipis urpis. Aliquam condi u sagittis nibh purus	sapien commodo rmentum quis, tur scing elit. mentum, lacus sit ac quam.	convallis. <u>edit d</u> pis. Donec malesuad amet euismod ullame	elete a leo at nísi. corper,
Mauris Announ Vestibu Lorem i Announ Mauris dolor ip	auctor dignissim tell icement 1: lum dui ligula, viverr psum dolor sit amet icement 2: malesuada sagittis t sum fringilla felis, eu v Announcement	us. Fusce a quam a a et, blandit vitae, fe , consectetuer adipis urpis. Aliquam condi u sagittis nibh purus	sapien commodo rmentum quis, tur scing elit. mentum, lacus sit ac quam.	convallis. <u>eou</u> o pis. Donec malesuad amet euismod ullame	elete a leo at nisi. corper,
Mauris Announ Vestibul Lorem i Announ Mauris dolor ip	auctor dignissim tell icement 1: lum dui ligula, viverr psum dolor sit amet icement 2: malesuada sagittis t sum fringilla felis, eu v Announcement	us. Fusce a quam a a et, blandit vitae, fe , consectetuer adipis urpis. Aliquam condi u sagittis nibh purus	sapien commodo rmentum quis, tur scing elit. mentum, lacus sit ac quam.	convallis. <u>eou</u> o pis. Donec malesuad amet euismod ullame	elete a leo at nísi. corper,
Mauris Announ Vestibu Lorem i Announ Mauris dolor ip	auctor dignissim tell icement 1: lum dui ligula, viverr psum dolor sit amet icement 2: malesuada sagittis t sum fringilla felis, eu v Announcement	us. Fusce a quam a a et, blandit vitae, fe , consectetuer adipis urpis. Aliquam condi u sagittis nibh purus	sapien commodo irmentum quis, tur scing elit. mentum, lacus sit ac quam.	convallis. <u>edit d</u> pis. Donec malesuad amet euismod ullamo	elete a leo at nisi. corper,

After logging in, the Administrator will be brought to this page. The Administrator will see any pending requests, the most recent announcements posted and be able to post a new announcement for the entire system of Javanet users. The Administrator may also edit or delete any announcements that they have posted.

1.2.31 Administrator - Pending Requests Page

Home	Requests	Assignments	Question Pools	Reporting	Current View <u>Konnetsko</u> * Profile: <u>gh78klmn Sign Ou</u>
Rd Mu Su Arr Re	equest Pool: Sort edium Question Titl bmitter rays ard Question Title bmitter roursion	e edit	Quest Given of son target array follow (No k group group group	tion Preview: an array of ints, is it ne of the ints, such th with this additional c is chosen to be in the ving it in the array mu pops needed.) NoAdj(0, {2, 5, 10, 4} NoAdj(0, {2, 5, 10, 4} NoAdj(0, {2, 5, 10, 4}	possible to choose a group at the group sums to the given onstraint: If a value in the group, the value immediately st not be chosen. (12) \rightarrow true (14) \rightarrow false (7) \rightarrow false

The Pending Requests Page will show the specific pending requests that the Administrator has. The Administrator can choose to approve, deny, or edit a question or question set.

1.2.32 Administrator - Create Question Page

Home	Requests	Assignments	Question Pools	Reporting	Curren Profile	t View Administration
Create Q	uestion		Cre	eate Questio	n	
Title		_	Visib	le Paron Tite	Poren Tito	Solution
Category	Calegory	•		Date Type +	Dala Type 🔹	••
Difficulty	Difficulty		×	1	4	5
Question			×	2	0	4
Question			<u> </u>	10	40	7
			×.	۶	21	2
			<u>×</u>	5	41	2
			×.	23	4	4
				C	0	0
				-5	9	7
Solution:					AV	
			ł	lints:		Enableo 🕬 💿

The Administrator will see this page when creating a question. The Administrator can select a title, category, and difficulty for the question. The Administrator can then write the question and solution as well. The Administrator will also be able to add parameters for test sets and hints if desired. The arrows in the create test set section provide the functionality of creating more test sets and more parameters.

1.2.33 Administrator - Create Question Set Page

Home	Requests	Assignments	Question Pools	Reporting	Current View Connect to Profile: gh78kimn.Sign
Create C	uestion Set			Question	Pools
Title				Universal Pool -	Sort: Derout *
Category	Cologory	•		Easy Questi	on Title
Difficulty	Difficulty	*		Warmup	view
Course	Course	•		Easy Questi	on Title
Time	120 mins			Warmup	view
Question	ns in Set			Easy Questi	on Title
Title	Attemp	otsPoints		Warmup	view
Easy Quest	tion Title			Easy Quest	on Title
Warmup	2	tibe.		Warmup	view
Easy Quest	tion Title			Medium Qu	estion Title
Strings	·	edit		Arrays	view
Easy Quest		5 1 4 4 4		Medium Que	estion Title
Loops Madium Ou	ention Title	HILL		Arrays	Mew
Arrown	Subh Hue	10 orbit		Hard Quest	on Hitle
Medium Ou	estion Title			Repuision	. VIETN
Arrays	4	10 edit			
Hard Quest	ion Title	0			
Recursion	5	15 edit			

When creating a question set, the Administrator will see this page. The Administrator can create a title, select a category, select a difficulty level, and a time limit for completion. The Administrator will be able to edit each question in the set, as well as adjust the amount of attempts and, or points available. The Administrator is able to build a question set with questions from any of the pools.

1.2.34 Enhancements

We expect to further enhance these prototype screens throughout the Detailed Design phase to ensure that the screens meet the style and functionality requirements of our clients. Additionally, we will create more prototype screens if necessary. One particular instance of this being: functionality for Course Coordinators and the Administrator to generate reports is something that we would like to include, but has not been clearly defined at this time.

1.3 Data Flow Diagrams

Please refer to the separate Data Flow Diagrams document.

1.4 Logical Data Dictionary

1.4.1 Cross Reference Index

This Cross Reference Index serves as an Index to the column in the Data Dictionary that defines where each data entity can be found.

1	Login Page
2	Reset Password Page
3	Student - Registration Page
4	Student - Profile Page
5	Student - Welcome Page
6	Student - Home Page
7	Student - Practice Page
8	Student - Assignment Selection Page
9	Student - Assignment Page - for a specific assignment
10	Student - Answer Question Page
11	Student - Solution Page
12	Student - Gradebook Page
13	Instructor - Profile Page
14	Instructor - Welcome Page
15	Instructor - Home Page
16	Instructor - Create Question Page
17	Instructor - Create Question Set Page
18	Instructor - Pools Page
19	Instructor - Assignment Listing Page
20	Instructor - Gradebook Page - default view
21	Instructor - Gradebook Page - sorted by Students
22	Instructor - Gradebook Page - sorted by Assignments
23	Course Coordinator - Profile Page
24	Course Coordinator - Welcome Page
25	Course Coordinator - Pending Requests Page
26	Course Coordinator - Create Question Page
27	Course Coordinator - Create Question Set Page
28	Course Coordinator - Pools Page
29	Course Coordinator - Assignment Listing Page
30	Administrator - Welcome Page
31	Administrator - Pending Requests Page
32	Administrator - Create Question Page
33	Administrator - Create Question Set Page

1.4.2 Data Dictionary Key

The following abbreviations are used in the Data Dictionary: NN: Not Null U: Unique

1.4.3 Data Dictionary

Name	Туре	Restrictions	Description	Screens it Appears on
			an announcement posted to all welcome pages of	
announcement	text		author average grade on a specific assignment (question set) for all	6, 15, 24, 30
assignmentAvg	int(4)	numeric	users	20 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26,
cNumber	varchar(10)	alphaNumeric NN	the course name and number eg. CSIS220 number of assignments that have been completed	27, 28, 29, 30, 31, 32, 33
completedAssign	int(4)	numeric	by the student number of practice sets that have been completed	6
completedPracSets	int(4)	numeric	by the student id used to register for a	6
courseID	varchar(10)	alphaNumeric NN	specific course and section	4, 13, 29 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, 29, 30,
cSection	varchar(10)	alphaNumeric	course section	31, 32, 33 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26,
cSemester	varchar(6)	alphabetic NN	course semester eg. Fall	27, 28, 29, 30, 31, 32, 33 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26,
cYear	int(4)	numeric NN	year the course was taught	27, 28, 29, 30, 31, 32, 33

Javanet Data Dictionary

dueDate	date	alnhaNumeric	date a question set is due	6, 8, 12, 19, 29
email	varchar(64)	U NN alphabetic	users email address	2, 3, 4, 13, 23 3, 4, 5, 13, 14
firstName	varchar(32)	NN	users first name any hints including urls the instructor wants to	20, 21, 22, 23
hints	text	alphabetic	add	10, 16, 26, 32 3 4 5 13 14
lastName	varchar(32)	NN	users last name number of submissions allowed for a specific question in the question	20, 21, 22, 23
numAttempts	int(2)	numeric	set number of correct test	10, 17, 27, 33
numCorrectCases	int(4)	numeric	student code number of pending requests for a course	11
numPending	int(2)	numeric	administrator number of submissions the student has remaining	24, 30
numSubRemaining	int(2)	numeric	for a specific question in the question set output of the parameter after being run through	10
pActualOutput	varchar(32)	NN alphaNumeric	student source code	10, 16, 26, 32
password	varchar(32)	NN	users password expected data type of the	1, 3, 4, 13, 23
pDataType	varchar(16)	alphaNumeric NN	parameter eg. Int boolean array string student grade on the question set in the form of a percentage out of	16, 26, 32
percentScore	int(4)	numeric	100 expected output after the	11, 12, 20, 21, 22
pExpectedOutput	varchar(32)	NN	function is called the name of the	10, 25
pName	varchar(16)	alphaNumeric NN	paramater as its passed to the signature total number of points a student has earned on the	16, 25, 26, 31, 32
pointsEarned	int(4)	numeric	question set number of points possible for a specific	12, 21, 22
pointsPossible	int(4)	numeric	question in the question set	12, 17, 21, 22, 27, 33

Javanet Data Dictionary

practiceStatus	Boolean		status of a practice question set	7
pTestStatus	Boolean	NN	on whether the student passed or failed the specific test case	10
			true if the question or question set is approved to be published; false if	
publicationStatus	Boolean		denied	25, 31 10, 16, 25, 26
pValue	varchar(32)	NN	value of the parameter Determines whether the parameter is visible to	31, 32
pVisibility	Boolean	NN	the student users category of the question	16, 25, 26, 31, 32 16, 17, 18, 25,
qCategory	varchar(32)	alphanumeric NN	eg. Arrays, Loops, Recursion	26, 27, 28, 31, 32, 33 16, 17, 18, 25,
qDifficulty	varchar(32)	alphabetic NN	question difficulty eg. Easy, Medium, Hard category of the question	26, 27, 28, 31, 32, 33
qsetCategory	varchar(32)	alphaNumeric NN	set eg. Arrays, Loops Recursion difficulty of the question	17, 18, 25, 27, 28, 31, 33
qsetDifficulty	varchar(32)	alphabetic NN	set eg. Easy, Medium, Hard time allotted for the	17, 25, 27, 31, 33
qsetTime	time		question set	17, 27, 33
qsetTitle	varchar(32)	alphaNumeric NN	title of the question set	8, 9, 12, 17, 18, 19, 25, 27, 28, 29, 31, 33
qSolution	text		possible solution provided by instructor	11, 16, 26, 32 9, 10, 11, 16, 17,
qTitle	varchar(32)	alphanumeric NN	title of the question description of the problem the student is to	18, 25, 26, 27, 28, 31, 32, 33 10, 11, 16, 17, 18, 25, 26, 27
questionText	text	NN	solve string entered by a non- student user to find a	28, 31, 32, 33
searchString	varchar(32)	alphaNumeric	question in a pool user answer to the	18, 28
securityA	varchar(64)	alphaNumeric NN alphabetic	security question for identity validation question to be answered by users before resetting	2, 3, 4, 13, 23
securityQ showHint	varchar(64) Boolean	NN NN	a password are hints available	2, 3, 4, 13, 23 16, 26, 32
Phoenix Tech		Javanet Prelimin	nary Design	38

Javanet Data Dictionary

sourceCode	text		student source code status of a question or	10, 11
		alphabetic	question set eg.	
status	varchar(10)	NN	Completed, In Progress time remaining for the	9
timeRemaining	time		question set total number of	10
totalAssign	int(4)	numeric	assignments student grade on all question sets in the form of a percentage out of	6
totalPercent	int(4)	numeric	100 total number of points a student has earned on all	6, 12, 21, 22
totalPointsEarned	int(4)	numeric	question sets total number of possible points a student could have earned on all	12, 21, 22
totalPointsPossible	int(4)	numeric	questions total number of practice	12, 21, 22
totalPracSets	int(4)	numeric	sets total number of test cases	6
totalTestCases	int(4)	numeric alphaNumeric	for a given question	11 all pages as text
userName	varchar(32)	U NN	users username	or input box

2.1 Structure Diagrams

A structure diagram is the hierarchical representation of how all users, processes, and data flow will take place.



A structure diagram for the Javanet system.



A structure diagram for the Student user.



A structure diagram for the Instructor user.





2.2 Use Case Narratives

<u>Student</u>

The Student user will have the ability to login to and log out of the application through a web interface with a username and password, once they have created an account. When creating an account the Student will be required to create a username and password. The Student will be able to change their password at any time. If the Student forgets their password, they will be able to click a link to an identity validation page to reset the password. The Student will also be able to edit various aspects of their account information at any time. The Student will then be required to enter their name and select what course they are enrolled in. Upon login the Student will be able to select what mode they would like to work in: practice, homework, guiz, or test. In practice mode, the Student will be able to select a category of problems to practice with. In homework mode, the Student will be able to complete the current homework assignment posted by their instructor. In both guiz and test mode, the Student will be able to complete the current quiz or test posted by their instructor. The Student will be required to compile and execute for submission in one step. In all cases, the Student will get instant feedback about their performance, on a category or set of questions, in the form of both a percentage of questions correct and the actual number of questions correct. Students will have the ability to look back at and practice with previous homework assignments, quizzes, and tests with the permission of the Instructor.

Instructor

The Instructor user will have the ability to login to and log out of the application through a web interface with a username and password. The Instructor accounts will be created by the Administrator user. The Instructor users will be given an initial password. The Instructor will have the ability to change their password at anytime. Upon login the Instructor will be able to select what course section page they would like to view. As Student users identify themselves as being enrolled in a specific course, they will appear on the appropriate course page for the corresponding Instructor. The Instructor will have the ability to create new folders/tabs of practice questions, homework assignments, guizzes, and tests. When creating a question, the Instructor will have the following options: including hints for the Students, viewing Student source code, selecting a category for the question, selecting a difficulty level for a question, and selecting the number of compilations allowed for a question or question set. Instructors will have the ability to compile their own private pool of questions. The Instructor may choose to create and publish question sets from their private pool for use by the students enrolled in their course. Instructors may send the Course Coordinator their questions or question sets from their private pool to be published to the Course Pool to share with other Instructors of the course they are teaching. An Instructor may also send the Course Coordinator their questions or question sets to be published to the Universal Pool to be available to all other Instructors. Instructors may also import questions and question sets to their private pool from both the Course and Universal pools. The Instructor will also have the option of how they would like to review results: they can select a Student and scroll through that Student's assignments, or they can select an assignment and scroll through all of the Students. The Instructor will be able to create a test set for the Student solution to be tested against. The Instructor will also have the ability to override a Student's grade when they think the automatically generated grade is inappropriate. After an exam is administered and completed, the Instructor will have the ability to see test statistics across all Instructor sections for the corresponding course. The Instructor will also be able to give permission to a particular Student to view previous assignments, guizzes, and tests. Additionally, the Instructor will be able to click to a Student view in order to best assist Students when they are in need of help.

Course Coordinator

The Course Coordinator will be able to log into and log out of the system. The Course Coordinator will be the coordinator of all sections of one specific course. The Course Coordinator will have the ability to submit statistical data to common content of the specific course that they are the coordinator for. This statistical data will be viewable to all Instructors. The Course Coordinator can switch into Instructor or Student view mode. The Course Coordinator will be able to create questions or question sets to go into the Course Pool. The Course Coordinator will be able to import questions or question sets sent by Instructors to the Course Pool to be shared with other Instructors of the course, and import questions or question sets sent by Instructors. If necessary, the Course Coordinator will have the ability to change the grades of the Students of the course that they coordinate. The Course Coordinator will be able to view the grade book sorted by assignment, or specific Student. Across the course they are coordinating, the Course Coordinator may also view Student progress.

Administrator

The Administrator user will have the ability to login to and log out of the application through a web interface using a username and password provided by the application developers. Once logged into the application, the Administrator will have the ability to create Instructor and Course Coordinator accounts. The Administrator will have the ability to deactivate user accounts, and manage and reset passwords. The Administrator can upload Instructor questions and question sets, upload Instructor test sets, and create questions and question sets to go into the Universal Pool. The Administrator will be able to submit statistical data to common content for all Instructors to see. Administrators will be able to switch into Instructor, Student, or Course Coordinator view mode. The Administrator will have the ability to view the grade book sorted by assignment, specific student, or course. Administrators will be able to view student progress and assignment statistics across all courses. If necessary, the Administrator will be able to change grades. The Administrator will be able to archive student information from the database.

2.3 Functional Requirements Inventory

The following list outlines the required functionality to be included in the final solution.

Javanet will be a web-based application viewable on the four major browsers. These browsers are Internet Explorer 7.0 and 8.0, the latest version of Firefox 2 and 3, and Safari 2.* or better.

- Index page displays a login screen common to all users.
- All other pages display a "logout" option for all users.

The requirements are listed according to user case, as follows:

Student:

- Will be able to self enroll by creating a username (Siena email based) and password.
- Will be able to log in with the confirmed username and password through a web interface:
 - An incorrect log in will display an appropriate error message.
 - A link to an identity validation page will be provided if password is forgotten.
- Will be able to view and edit various account information upon clicking username link.
- Will be able to enroll into their appropriate course.
- Will be able to select a "Practice" tab.
 - Will be able to select practice question sets under given categories.
 - A check mark will be rewarded once the questions in a question set are completed.
 - A smile face will be rewarded once a category is completed.
- Will be able to select an "Assignments" tab.
 - Will be able to choose from chronologically ordered assigned homework.
 - Will be able to choose from chronologically ordered assigned quizzes.
 - Will be able to choose from chronologically ordered assigned tests.
- Will be able to write, compile (or save) and submit solutions to questions.
 - If hints for questions have been enabled, the option to view those hints is available.
 - Test cases and their solutions can be seen on the right-hand side of the screen.
 - A read only version of Students' question solutions will be available once they have been submitted and graded.
 - Will be able to view their grades via a "Gradebook" tab.
 - Links for each assignment will redirect students to a summary page.
- Will be able to log out of the system.

Instructor User:

- Will be able to login to the application through a web interface with a username and password.
- Will be able to select what course section page to view on login.
- Will be able to view and edit various account information upon clicking username link.
- Will be able to post a new announcement for students of that course to see upon login.
- Will be able to select "Courses" tab to switch into another course.
- Will be able to select an "Assignments" tab.
 - Will be able to choose from chronologically ordered assigned homework redirecting to the gradebook.
 - Will be able to choose from chronologically ordered assigned quizzes redirecting to the gradebook.
 - Will be able to choose from chronologically ordered assigned tests redirecting to the gradebook.
- Will be able to select a "Question Pool" tab.
 - A search function will be available to filter through the Universal, Course, and Private pools.
 - Will be able to drag and drop questions from Universal and Course pools to Private pool.
 - Will be able to drag and drop questions from Private pool to Universal or Course pools to request publication from Administrator.
 - Links under private pool will allow creation of a new question and or question set.
- Will have the following options when creating a question set:
 - Creating a title.
 - Selecting a category for the question set.
 - Selecting a difficulty level for a question set.
 - Creating a time limit.
 - Editing each question in the question set or dragging into trash bin for unwanted questions.
 - Adjusting the number of attempts allowed and points for each question.
- Will have the following options when creating a question:
 - Creating a title.
 - Selection a category for the question set.
 - Selecting a difficulty level for a question set.
 - Text box to enter question.
 - Text box to enter solution.
 - Entering and selecting parameter types and their solutions.
 - Enabling hints.
- Will be able to select a "Gradebook" tab.
 - Sub tabs will include: "Default", "Grades By Student", and "Grades By Assignment".
- Will be able to override a Student's grade when the automatically generated grade is inappropriate.
- Will be able to see statistics across all Instructor sections for the corresponding course after an exam is administered and completed.

- Will be able to see statistics across all Instructor sections for the corresponding course after a homework assignment is administered and completed.
- Will be able to give permission to a particular Student to view previous assignments, quizzes, and tests.
- Will be able to click to a Student view in order to best assist Students when they are in need of help.
- Will be able to log out of the system.

Course Coordinator User:

- Will be able to log into the system.
- Will be able to switch into Instructor and Student view mode.
- Will be able to create questions or question sets to go into the Course pool.
- Will be able to import questions or question sets sent by Instructors to the Course pool to be shared with other Instructors of the course.
- Will be able to import questions or question sets sent by Instructors to the Universal pool to be available to all other Instructors.
- Will be able to change grades for students of the course that they are the coordinator for, if needed.
- Will be able to view grade book sorted by assignment.
- Will be able to view grade book sorted by specific student.
- Will be able to view student progress across the course that they are the coordinator for.
- Will be able to log out of the system.

Administrative User:

- Will be able to log into system.
- Will be able to create Instructor and Course Coordinator accounts.
- Will be able to change current view mode to Course Coordinator, Instructor, or Student.
- Will be able to edit Course Coordinator, Instructor, and Students account information while in their own view mode.
- Will be able to select a "Requests" tab.
 - Will be able to edit, approve, or deny questions pending publication.
 - A question preview will be displayed on the right-hand side.
- Will be able to select a "Question Pool" tab.
 - A search function will be available to filter through the Universal, Course, and Private pools.
 - Will be able to drag and drop questions from Universal and Course pools to Private pool.
 - Will be able to drag and drop questions from Private pool to Universal or Course pools to request publication from Administrator.
 - Links under private pool will allow creation of a new question and or question set.
- Will have the following options when creating a question set:
 - Creating a title.
 - Selecting a category for the question set.
 - Selecting a difficulty level for a question set.
 - Creating a time limit.
 - Editing each question in the question set or dragging into trash bin for unwanted questions.
 - Adjusting the number of attempts allowed and points for each question.
- Will have the following options when creating a question:
 - Creating a title.
 - Selection a category for the question set.
 - Selecting a difficulty level for a question set.
 - Text box to enter question.
 - Text box to enter solution.
 - Entering and selecting parameter types and their solutions.
 - Enabling hints.
 - Will be able to create questions and question sets to go into the Universal pool.
 - Will be able to change grades, if needed.
 - Switching view modes to either a Course Coordinator or Instructor.
 - Will be able to archive student information from the database.
 - Will be able to deactivate accounts.
 - Will be able to log out of the system.

3.1 Testing Overview

Javanet will undergo extensive unit testing during the Acceptance Test phase of our project. This testing will ensure Javanet meets all functional and non-functional requirements as stated in the functional requirements inventory section of this document, Section 2.3. The acceptance test will be presented to demonstrate our software's compliance with the needs of the clients. The Unit Test Catalog and accompanying Unit Tests are provided in the accompanying Test Plan Document.

Appendix



4.1 Enlarged Timeline (Gantt Chart)

4.2 Glossary of Terms

All glossary definitions provided by Wikipedia.org.

API

An application programming interface (API) is a set of functions, procedures or classes that an operating system, library or service provides to support requests made by computer programs.

Classic Waterfall Model

The waterfall model is a sequential software development model (a process for the creation of software) in which development is seen as flowing steadily downwards (like a waterfall) through the phases of requirements analysis, design, implementation, testing (validation), integration, and maintenance.

Course Pool

Collection of question sets that an Instructor of the Pool's specific course has published to the pool. These published questions are then given permission to join the pool of existing question sets in the pool by the Course Pool Administrator.

CSS

Cascading Style Sheets (CSS) is a style sheet language used to describe the presentation of a document written in a markup language. The most common application of CSS is to style web pages written in HTML and XHTML, but the language can be applied to any kind of XML document, include SVG and XUL.

Gantt Chart

A Gantt chart is 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.

GUI

A graphical user interface (GUI) is a type of user interface which allows people to interact with electronic devices like computers, hand-held devices (MP3 Players, Portable Media Players, Gaming devices), household appliances and office equipment.

Hardware

Hardware is a general term that refers to the physical artifacts of a technology. It may also mean the physical components of a computer system,

Java

Java refers to a number of computer software products and specifications from Sun Microsystems that together provide a system for developing application software and deploying it in a cross-platform environment.

Linear Sequential Model

The Linear Sequential Model is a software process model that involves a systematic progression through analysis, design, coding, testing and maintenance phases. It is also referred to as the "waterfall model".

Mac OS X version 10.4 "Tiger" was the fifth major release of Mac OS X, Apple's desktop and server operating system for Macintosh computers. Tiger was released as the successor to Mac OS X v10.3 "Panther"

MySQL

MySQL is a relational database management system (RDBMS) which has more than 11 million installations. The program runs as a server providing multi-user access to a number of databases.

Operating System

An operating system (commonly abbreviated OS and O/S) is the software component of a computer system that is responsible for the management and coordination of activities and the sharing of the resources of the computer.

PHP

PHP is a computer scripting language. Originally designed for producing dynamic web pages, it has evolved to include a command line interface capability and can be used in standalone graphical applications.

Private Instructor Pool

A specific Instructor's own personal collection of questions and question sets that they have created/uploaded to their private pool, which Students and other Instructors do not have access to.

Software

Software is a general term used to describe a collection of computer programs, procedures and documentation that perform some tasks on a computer system.

Source Code

In computer science, source code (commonly just source or code) is any sequence of statements or declarations written in some human-readable computer programming language. Source code is written in a programming language, which is usually a simplified form of the English language to reduce ambiguity. Source code allows the programmer to communicate with the computer using a reserved number of instructions.

Universal Pool

The Universal Pool is a collection of question sets that may have been published by any Instructor of any course. The question sets are added to the pool only when they Universal Pool Administrator has granted permission.

Workstation

A workstation, or *engineering workstation*, is a high-end microcomputer designed for technical or scientific applications. Workstations are intended primarily to be used by one person at a time, although they are commonly connected to a local area network and run multi-user operating systems.

Windows Vista

Windows Vista is a line of operating systems developed by Microsoft for use on personal computers, including home and business desktops, laptops, Tablet PCs, and media center PCs.

XHTML

The *Extensible Hypertext Markup Language*, or XHTML, is a markup language that has the same depth of expression as HTML, but also conforms to XML syntax.