Acceptance Test

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Programming Contest Submission and Scoreboard

SEG

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Programming Contest Submission and Scoreboard Acceptance Test

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Section 1: Product Overview and Summary

Each school year the Siena College Computer Science Department hosts a programming contest for local High Schools. Teams made up of High School students are placed in separate locations and given problems to solve. When they have a solution it will be submitted to a board of judges. After the judges have reviewed the solution they will determine if it is correct and a message will be sent back to the students stating if the solution was accepted or not. This process was previously used as a web-based application that was poorly organized and very difficult to manage. Communication between teams and judges was done through email and teams were not able to re-submit incorrect solutions if a judge had opened a previous submission.

The Program Contest Submission and Scoreboard will not be using email as a way of communication. This will allow for messages to be sent smoothly between teams and judges. Teams and judges will use GUIs in order to navigate through the processes that they need when submitting a solution, clarifying a question, or sending a response. There will also be a scoreboard, which will update automatically showing rankings of the teams based on number of problems they answered correctly and the time they have spent.

Section 2: Development, Operating and Maintenance Environments

This system was developed on the workstations in the Siena College Software Engineering Lab. All data stores are in directories on the Turing server, any web page development and maintenance was done using Dream Weaver, and the Graphical User Interfaces were programmed in HTML with PHP using Dream Weaver.

The teams and the judges will mainly be using the Programming Contest Submission and Scoreboard software. Outside users may view the contest website to see past contest problems, to learn the history of the contest or during a current contest to see the up-to-date scoreboard. Both the teams and the judges will be given a set of GUIs to use during a contest. The teams set will include GUIs to submit solutions, ask questions to the judge and to view the updated scoreboard. The judges set will include GUIs to reply to the team with either a problem clarification or a response to the solution. The judges will be able to view a queue that will show the problems that have been graded or need to be graded, and the problems that need clarification. Everyone with access to the Internet will be able to view the scoreboard of the current contest. This program will be able to do this as well as have "hooks" to allow expansion in the future.

Section 3: Functional Requirements Review

The Programming Contest Submission and Scoreboard will serve four types of users, teams in the contest, judges facilitating the contest, outside users, and an administrator. The following is a list of functionality requirements that the system will perform for each user:

- Teams in the Contest:
 - 1. A Graphical User Interface will be displayed when the teams log into the system when the contest begins that has the status of all the teams submitted solutions, a link for the team to submit a solution and a link to submit a question, and a message board.
 - 2. The submission link will bring the team to another web page that allows teams to select the problem they are submitting, the language in which it was produced. A file based on what the team selected is sent to the judges when they submit. When the teams submit the problem, the file being submitted will be copied onto a directory called "Submitted but not Judged", on Oraserv.
 - 3. The clarification link will allow teams to select a problem and enter a question into a text box to be sent to the Judges.
 - 4. The Message Board will be a place where Teams can see the questions asked to the Judges by other teams, with the Judges clarification.
 - 5. The Scoreboard allows each team to see the standings of the contest, based on the number of problems that have been answered correctly and the cumulative time used.
- Judges of the Contest
 - 1. The judges GUI contains a web page that has a file browser that the judges will use to receive a teams submitted solutions and submitted questions.
 - 2. After the judges run and evaluate the solution file, they can automatically notify the team of the status of the solution.
 - 3. The file browser will enable them to receive text files with questions from the teams about specific problems. They can open these files and amend a response, which can be viewed by the teams.
 - 4. The judges will be able to send an amended response to either a public message board, or can be sent privately to the team who asked the question.
- Outside Users (including teams and judges before the contest)
 - 1. Outside users can view a website that will contain history of the contest, old contest problems, and how you sign up to join the contest.

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- 2. A Web-based Scoreboard will be created to allow any individual, in the contest or not, to view the standings of a contest at it is being run. Teams will be sorted based on their ranks, which are determined by the number of questions answered correctly and the cumulative about of time to answer those questions.
- Administrator:
 - 1. The Administrator must update all of the GUI's to make sure all of the correct information is there, including anything new for an upcoming contest (number of problems, programming language, judges responses, etc.).
 - 2. Update the website with more problems from previous contest and new winners from the contests.
 - 3. Insert the names of the teams on the scoreboard of an upcoming contest.
 - 4. Make sure all of the correct information is displayed on the message board and the scoreboard.
 - 5. Make sure the copying and moving of the files from directory to directory is being done correctly on Oraserv. This should be tested before the contest begins, as well as being monitored during the contest.

Functional Requirements Test:

1. When the Team logs in, does a GUI display that allows them to submit problem solutions and inquire about difficulties they run into?	✓ Yes □ No
2. Prior to submitting a solution, can the team select the proper problem number and language that the solution was written in?	✓ Yes □ No
3. Are the teams able to submit a question to the judges and specify which problem it corresponds to?	✓ Yes □ No
4. Does the message board display the questions asked to the judges by other teams with the judge's clarification?	✓ Yes □ No
5. Does the scoreboard allow each team to see the standings of the contest based on the number of problems that have been answered correctly?	✓ Yes □ No
6. Does the scoreboard rank the teams in the order?	□Yes ☑No
7. Does the judge's file browser receive a team's submitted solutions and submitted questions?	☑ Yes □ No
8. After the judge's run and evaluate the solution file can they automatically notify the team of the status of the solution?	✓ Yes □ No

9. Does the file browser enable the judges to receive text files with questions from teams about specific problems?	✓ Yes □ No
10. Can the judges open these files and amend a response that can be viewed by the teams?	✓ Yes □ No
11. Can the judge send an amended response to the public message board?	✓ Yes □ No
12. Can the judge send an amended response privately to the team who had asked the question?	□Yes ☑No
13. Can the outside users view a website that contains the history of the contest, old contest problems, and how to sign up to join the contest?	✓ Yes □ No
14. Can the outside user view the Web-based scoreboard that contains the standings of the contest as it is being run?	✓ Yes □ No
15.Can the administrator update all of the GUIs to make sure that the correct information is there, including anything new for an upcoming contest?	✓ Yes □ No
16. Can the administrator update the website with more problems from previous contests and new winners from the contests?	✓ Yes □ No
17. Can the administrator insert the names of the teams on the scoreboard of an upcoming test?	✓ Yes □ No
18. Can the administrator make sure that all of the correct information is displayed on the message board and the scoreboard?	☑ Yes □ No
19. Can the administrator make sure that the copying and moving of the files from directory to directory is being done correctly on Oraserv?	☑ Yes □ No

Section 4: Acceptance Criteria Review

The Programming Contest Submission and Scoreboard will allow each user to complete the following tasks within the application:

- Teams to:
 - 1. Securely login to their team home page, ensuring a lower security risk.
 - 2. Select whether they want to submit a solution to a problem or ask a question about a problem to the judges.
 - 3. Submit a solution to the judges, for one particular problem, and also indicating which programming language it was developed with. Teams will be notified to use a specific naming convention when naming their solutions, which will allow the submission application to find the file and copy it into the judge's directory.

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- 4. Ask a question to the judges about any problem by selecting the problem they have a question about, and entering text describing their inquiry;
- 5. View a message board of all question asked by other teams, as well as the judges response, which should be ordered by the problem number;
- 6. View the scoreboard of the contest they are competing in, which ranks teams based on number of problems answered correctly and the amount of time used to produce their solutions.
- 7. View the website with history of the contest, previous problems, and previous winners, before the day of the contest;
- Judges to:
- 1. Select a solution to grade from a queue, check the correctness of the solution, and then send an automated response based on whether the solution was correct or not. If the response indicates that the solution is correct, the scoreboard will be automatically updated;
- 2. Select an inquiry from a team to clarify from a queue and answer the question. When answering the question, the judges may send an automated response by typing in text to respond to just the team that asked the question, or post it to the message board to allow it to be viewed by every team;
- 3. View the scoreboard to see the rankings of the team, as well as make sure all the information is correct;
- Outside Users to:
- 1. View the scoreboard of the current contest;
- 2. View the website with history of the contest, previous problems, and previous winners.
- Administrator to:
- 1. Make sure that the right information being posted to the message board and the scoreboard is accurate.
- 2. View files in the specific directories on the Oraserv machine, making sure they are being copied and moved correctly throughout the process.
- 3. Update the GUI's with anything new (new judge responses, number of problems in the contest, programming languages to be used, etc).
- 4. Update the website with previous problems from prior contests as well as update the winners on the website.
- 5. Insert new names of the teams on the scoreboard.

Acceptance Criteria Document

Teams To:

Course of action	Pass/Fail	Comments
Securely login to their team home page, ensuring a lower security risk?	<u>Р</u> F	
Select whether they want to submit a solution to a problem or ask a question about a problem to the judges?	<u>Р</u> F	
Submit a solution to the judges, for one particular problem, and also indicating which programming language it was developed with. Teams will be notified to use a specific naming convention when naming their solutions, which will allow the submission application to find the file and copy it into the judge's directory?	<u>Р</u> F	
Ask a question to the judges about any problem by selecting the problem they have a question about, and entering text describing their inquiry?	<u>P</u> F	
View a message board of all question asked by other teams, as well as the judges response, which should be ordered by the problem number?	<u>Р</u> F	
View the scoreboard of the contest they are competing in, which ranks teams based on number of problems answered correctly and the amount of time used to produce their solutions?	<u>Р</u> F	
View the website with history of the contest, previous problems, and previous winners, before the day of the contest?	<u>Р</u> F	

Judges To:

Course of action	Pass/Fail		Comments
Select a solution to grade from a queue, check the correctness of the solution, and then send an automated response based on whether the solution was correct or not. If the response indicates that the solution is correct, the scoreboard will be automatically updated?	<u>P</u>	F	

Select an inquiry from a team to clarify from a queue and answer the question. When answering the question, the judges may send an automated response by typing in text to respond to just the team that asked the question, or post it to the message board to allow it to be viewed by every team?	<u>P</u>	F	
View the scoreboard to see the rankings of the team, as well as make sure all the information is correct?	<u>P</u>	F	

Outside Viewers to:

Course of action	Pass/Fail		Comments
View the scoreboard of the current contest?	<u>P</u>	F	
View the website with history of the contest, previous problems, and previous winners?	<u>P</u>	F	

Administrator to:

Course of action	Pass/Fail	Comments
Make sure that the right information being posted to the message board and the scoreboard is accurate?	<u>Р</u> F	
View files in the specific directories on the Oraserv machine, making sure they are being copied and moved correctly throughout the process?	<u>Р</u> F	
Update the GUI's with anything new (new judge responses, number of problems in the contest, programming languages to be used, etc)?	P F	
Update the website with previous problems from prior contests as well as update the winners on the website?	<u>Р</u> F	
Insert new names of the teams on the scoreboard?	<u>P</u> F	

Section 5: Website Testing Document

In order for the Siena College High School Programming Contest Software System to be acceptable for delivery, SEG has rigorously tested each web page included in the system. The following documents (found on pages 7 - 10) detail the testing that we did.

<u>*Test One:*</u> Test to ensure that every entity in the team website works as expected, starting from the status bars showing the correct status to when a team chooses to view the scoreboard.

Course of action	Excepted Results	Pass/Fail	Comments
Enter Team 1	Team 1 should login	P F	
Username and	to Team 01 Home		
Password	Page		
Enter Team 2	Team 2 should login	P F	
Username and	to Team 02 Home		
Password	Page		
Enter Team 3	Team 3 should login	<u>P</u> F	
Username and	to Team 03 Home		
Password	Page		
Enter Team 4	Team 4 should login	P F	
Username and	to Team 04 Home		
Password	Page		
Enter Team 5	Team 5 should login	P F	
Username and	to Team 05 Home		
Password	Page		
Enter Team 6	Team 6 should login	<u>P</u> F	
Username and	to Team 06 Home		
Password	Page		

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Enter Team 7	Team 7 should login	<u>P</u>	F
Username and	to Team 07 Home	-	
Password	Page		
Enter Team 8	Team 8 should login	P	F
Username and	to Team 08 Home	—	
Password	Page		
Enter Team 9	Team 9 should login	Р	F
Username and	to Team 09 Home		
Password	Page		
Enter Team 10	Team 10 should	P	F
Username and	login to Team 10		
Password	Home Page		
Enter Team 11	Team 11 should	P	F
Username and	login to Team 11		
Password	Home Page		
Enter Team 12	Team 12 should	<u>P</u>	F
Username and	login to Team 12		
Password	Home Page		
Enter Team 13	Team 13 should	<u>P</u>	F
Username and	login to Team 13		
Password	Home Page		
Enter Team 14	Team 14 should	<u>P</u>	F
Username and	login to Team 14		
Password	Home Page		
Enter Team 15	Team 15 should	<u>P</u>	F
Username and	login to Team 15		
Password	Home Page		
Enter Team 16	Team 16 should	<u>P</u>	F
Username and	login to Team 16		
Password	Home Page		
Enter Team 17	Team 17 should	<u>P</u>	F
Username and	login to Team 17		
Password	Home Page		
Enter Team 18	Team 18 should	<u>P</u>	F
Username and	login to Team 18		
Password	Home Page		
Enter Team 19	Team 19 should	<u>P</u>	F
Username and	login to Team 19		
Password	Home Page		
Enter Team 20	Team 20 should	<u>P</u>	F
Username and	login to Team 20		
Password	Home Page		

Euton T 21	T	рт	
Enter Team 21	Team 21 should	<u>P</u> F	
Username and	login to Team 21		
Password	Home Page	6	
Enter Team 22	Team 22 should	<u>P</u> H	í -
Username and	login to Team 22		
Password	Home Page		
Enter Team 23	Team 23 should	<u>P</u> F	7
Username and	login to Team 23		
Password	Home Page		
Enter Team 24	Team 24 should	<u>P</u> F	7
Username and	login to Team 24		
Password	Home Page		
Enter Team 25	Team 25 should	<u>P</u> F	7
Username and	login to Team 25	—	
Password	Home Page		
Enter an incorrect	Login error is	P F	7
username or	received with a link	-	
password.	to go back to the		
pubbitoru.	login page.		
Enter a correct	Login error is	<u>P</u> H	7
username but no	received with a link	± *	
password	to go back to the		
pussword	login page.		
User tries to directly	Error page is	<u>P</u> F	7
access	displayed and	<u> </u>	
TeamHome.php	directs user to go		
without logging in.	back and log in.		
User closes team	User is logged out	P H	7
GUI	of the system.	<u>P</u> F	
Select "Submit a	Team solution page	<u>P</u> F	7
		<u>1</u>	
Solution" from	should be displayed.		
Home Page	Outre en e seu he	<u>р</u> т	,
Select radio button	Only one can be	<u>P</u> F	
on solutions page.	selected		
To submit a	Solution is sent to	<u>P</u> F	
solution:	the Judges panel and		
1. A	the page is refreshed		
language	with updated status		
and	bar.		
problem			
must be			
selected.			
2. Click on			

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If "Submit" is clicked without selecting a language	Error: You must select a language for your solution	Р	F	Page refreshes with an unsuccessful submission, but no error.
Select and submit P1.cpp	Status bar must update for each of the following events: Not Submitted Submitted Being Judged Correct Incorrect Incomplete Output Incorrect Output Incorrect Output	<u>P</u>	F	
	Runtime Error CPU Time Exceeded			
Select and submit P1.java	Status bar must update for each of the following events: Not Submitted Submitted Being Judged Correct Incorrect Incorrect Uncorrect Output Incorrect Output Incorrect Output Format Runtime Error CPU Time Exceeded	<u>P</u>	F	
Select and submit P2.cpp	Status bar must update for each of the following events:	<u>P</u>	F	

	Not Submitted Submitted Being Judged Correct Incorrect Incomplete Output Incorrect Output Incorrect Output Format		
	Runtime Error CPU Time Exceeded		
Select and submit P2.java	Status bar must update for each of the following events: Not Submitted	<u>Р</u> F	
	Submitted Being Judged Correct Incorrect Incomplete Output Incorrect Output Incorrect Output Format		
	Runtime Error CPU Time Exceeded		
Select and submit P3.cpp	Status bar must update for each of the following events:	<u>P</u> F	
	Not Submitted Submitted Being Judged Correct Incorrect Incomplete Output		
	Incorrect Output Incorrect Output		

	Format Runtime Error CPU Time Exceeded		
Select and submit P3.java	Status bar must update for each of the following events: Not Submitted Submitted Being Judged Correct Incorrect Incomplete Output Incorrect Output	<u>Р</u> F	
	Incorrect Output Format Runtime Error CPU Time Exceeded		
Select and submit P4.cpp	Status bar must update for each of the following events:	<u>Р</u> F	
	Not Submitted Submitted Being Judged Correct Incorrect Incomplete Output		
	Incorrect Output Incorrect Output Format Runtime Error CPU Time Exceeded		
Select and submit P4.java	Status bar must update for each of the following events:	<u>Р</u> F	

			· · · · · · · · · · · · · · · · · · ·
	Not Submitted Submitted Being Judged Correct Incorrect Incomplete Output Incorrect Output Incorrect Output Incorrect Output Format Runtime Error CPU Time Exceeded		
Select and submit		D E	
P5.cpp	Status bar must update for each of the following events:	<u>Р</u> F	
	Not Submitted Submitted Being Judged Correct Incorrect Incomplete Output Incorrect Output Incorrect Output Format Runtime Error CPU Time Exceeded		
Select and submit P5.java	Status bar must update for each of the following events: Not Submitted Submitted Being Judged Correct	<u>Р</u> F	
	Incorrect Incomplete Output Incorrect Output		

	Incorrect Output Format Runtime Error CPU Time Exceeded		
Select and submit P6.cpp	Status bar must update for each of the following events: Not Submitted Submitted Being Judged Correct Incorrect Incorrect Incorrect Output Incorrect Output Incorrect Output Format Runtime Error CPU Time Exceeded	<u>Ρ</u> F	
Select and submit P6.java	Status bar must update for each of the following events: Not Submitted Submitted Being Judged Correct Incorrect Incorrect Incorrect Output Incorrect Output Incorrect Output Format Runtime Error CPU Time Exceeded	<u>Р</u> F	
Select and submit	Status bar must	<u>P</u> F	
P7.cpp	update for each of		

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Select and submit	the following events: Not Submitted Submitted Being Judged Correct Incorrect Incorrect Incomplete Output Incorrect Output Incorrect Output Format Runtime Error CPU Time Exceeded Status bar must	<u>Р</u> F	
P7.java	update for each of the following events: Not Submitted Submitted Being Judged Correct Incorrect Incorrect Incomplete Output Incorrect Output Incorrect Output Format Runtime Error CPU Time Exceeded		
Click "Scoreboard" button on solutions page.	Scoreboard will be displayed in a new window.	P F	
Click "Home" button on solution	Team Home page should be displayed.	<u>Р</u> F	

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page.				
Click "Submit a Question" on team home page.	Team question page should be displayed.	<u>P</u>	F	
Select radio button on questions page.	Only one can be selected	<u>P</u>	F	
Use of text box.	User should be able to type a question into the text box.	<u>P</u>	F	
User browses links on message board.	There are no broken links and all messages that are on the server are displayed to the user.	<u>P</u>	F	
Submission of question	After user enters a question about a particular problem and selects corresponding radio button, question should be submitted to judges.	<u>P</u>	F	
Click "Home" button on question page.	Team Home page should be displayed.	<u>P</u>	F	
Click "Scoreboard" button on question page.	Scoreboard will be displayed in a new window.	<u>P</u>	F	
Click "Scoreboard" button on Team Home page.	Scoreboard will be displayed in a new window.	<u>P</u>	F	
Select problem in message board.	Window will show all responses to any questions relating to that problem	<u>P</u>	F	
Select a response.	Response and corresponding question will be displayed.	<u>P</u>	F	

<u>*Test 2*</u>: Test to ensure that every entity in the judge website works as expected, starting from viewing items in the queues to sending clarification answers to correct message board.

Course of action	Expected Result	Pass/Fail	Comments
Enter URL to access	Judges home page	<u>P</u> F	
main judge page.	should load showing a		
	link to solutions and		
	questions.		
Check problems queue	Clicking on link to	<u>P</u> F	
	"Problems" folder		
	should display		
	"submitted_not_judged" link, and links to go up		
	one level and back		
	home.		
	nome.		
Click	Clicking this folder	<u>P</u> F	
"submitted not judged"	should display all	-	
folder	solutions that have been		
	submitted, but not yet		
	judged. Also, "Being		
	Judged" folder should		
	be displayed.		
Select solution and	This action should prep	<u>P</u> F	
select "Being Judged"	the solution to be		
folder. Then select	judged by moving into		
"move".	the correct location.	D	
Select "Being Judged"	This should display all	<u>P</u> F	
folder.	solutions currently		
	being graded, and a list		
	of all correct/incorrect		
After judging, move	categorized folders. This will send a	<u>P</u> F	
solution to an incorrect	message to the team's	<u> </u>	
folder.	status bar and notify the		
101401.	team that their solution		
	is incorrect.		

After judging, move solution to a correct folder. Click on any categorized folder inside "Being Judged" Check questions queue	This will send a message to the team's status bar and notify the team that their solution is correct and will also update the scoreboard. Will display all judged solutions within that category. Click on link to "Questions" folder	P F P F P F P F	
	should display single folder "Questions to be Answered"	D	
Select "Questions to be Answered" link	Shows all questions that have not been responded to and the "Questions with Answer" folder.	<u>Р</u> F	
Select "E" (for edit) on an unanswered question.	Question is displayed in an editor window.	<u>P</u> F	
Type response to question beneath question in editor window and click the save button.	Response to question is saved beneath the question. The judge is returned to the page that lists of all the questions.	<u>Р</u> F	
Select checkbox for answered question and radio button for "Questions with Answer". Then click "Move"	Question is moved to "Question with Answer" Folder	<u>P</u> F	
After moving down to "Questions with Answer" folder, select checkbox for same question and radio button for corresponding problem number. Then click "Move"	Question is moved to problem number that is relates to. Teams can now see this in that problem's folder on the message board.	<u>Р</u> F	

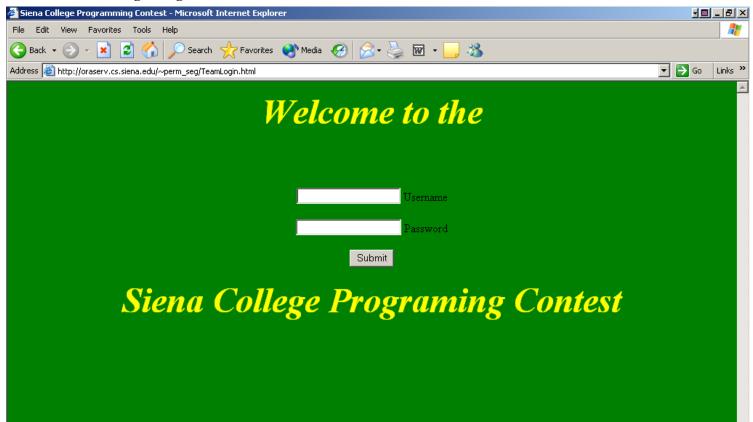
<u>*Test 3:*</u> Test to make sure that the scoreboard is viewable and the most importantly that the information in there is correct and accurate, starting from displaying the information in a two-dimensional array to ranking the teams in the correct standing order.

Course of action	Expected Result	Pass/Fail	Comments
Display Scoreboard	1. The information is viewable and is in a two-dimensional array (matrix)	<u>Р</u> F	
Scoring	Correct calculation	<u>P</u> F	
Timing	Correct calculation of timing	<u>P</u> F	
Ranking	Correct ranking based on timing and scoring	<u>P</u> F	
Updates	The scoreboard updates constantly and continues to rank teams accordingly.	<u>P</u> F	

Section 6: Prototypes

Team Web Sites

Team Login Page



This is the first page that a team will encounter on the programming contest system. *Team Home Page*

🕌 Siena College Progr	amming Contest - Microsoft Intern	et Explorer					- <u>-</u>	_ 8 ×
File Edit View F	avorites Tools Help							
Address 🙆 http://oras	erv.cs.siena.edu/~perm_seg/TeamHome	php.					•	🔁 Go
Problem	Status							
Problem 1	Not_Submitted							
Problem 2	Not_Submitted		<u>Submit a Solu</u>	<u>tion</u>				
Problem 3	Not_Submitted							
Problem 4	Not_Submitted		<u>Submit a Que</u>	<u>stion</u>				
Problem 5	Not_Submitted							
Problem 6	Not_Submitted							
Problem 7	Not_Submitted							
	Message Board							
	Question Clarificat	ions						
	Main folder 04-24-2005 23:16:55		🗖 Use regular e>	Search (pression				
Scoreboard	Sel To	Name	Size		Read Only	Action		
				04-24-	oniy			-
👫 Start 🗍 🛬 perm_se	eg@oraserv - Wi Dig Microsoft Powe	erPoint - [🎼 Siena College Pr	ogra				« 🕅 ⁄ य 1	1:44 PM

This is the first page the team sees upon logging in. From this page, the team can choose to <u>Submit a Solution</u> or <u>Submit a Question</u>. They can also view all questions that have been answered by the judges, and see the status of their submitted solution as it progresses through the judging process.

Team Submit Solution

Address @ http://oraserv.cs.sena.edu/-perm_seq/Teans/utmittreb.php Ianguage Problem Status Select a Solution to Submit Language Problem 1 Not_Submitted O C ++ Problem 2 Not_Submitted O Iava Problem 3 Not_Submitted O Java Problem 4 Not_Submitted O Submit Problem 5 Not_Submitted O Submit Problem 6 Not_Submitted O Problem Problem 7 Not_Submitted O Home Message Board Question Clarifications Main folder Use regular expression Scoreboard Sal Ta Norm Status Data	🔮 Siena Colleg	ge Programming Contest - Mic	rosoft Internet Explorer				J■_₽×
Problem Status Select a Solution to Submit Language Problem 1 Not_Submitted O C C ++ Problem 2 Not_Submitted O C Java Problem 3 Not_Submitted O Submit Problem 4 Not_Submitted O Submit Problem 5 Not_Submitted O Submit Problem 6 Not_Submitted O Home	File Edit	View Favorites Tools Help					
Froblem Status to Submit Language Problem 1 Not_Submitted O C C ++ Problem 2 Not_Submitted O Java Problem 3 Not_Submitted O Java Problem 4 Not_Submitted O Submit Problem 5 Not_Submitted O Submit Problem 6 Not_Submitted O Home Problem 7 Not_Submitted O Home Message Board Main folder Use regular expression Image Scoreboard Ed To Home Size Day Read Action	🛛 Address 🧃 hl	ttp://oraserv.cs.siena.edu/~perm_	seg/TeamSubmitProb.php				💌 🄁 Go
Problem 2 Not_Submitted O O Java Problem 3 Not_Submitted O Submitted O Problem 4 Not_Submitted O Submit Problem 5 Not_Submitted O Problem 6 Not_Submitted O Problem 7 Not_Submitted O Problem 7 Not_Submitted O Home Message Board Main folder Use regular expression Scoreboard Scoreboard	Problem	Status		Lan	guage		
Problem 3 Not_Submitted O Problem 4 Not_Submitted O Problem 5 Not_Submitted O Problem 6 Not_Submitted O Problem 7 Not_Submitted O Problem 7 Not_Submitted O Home Message Board Message Board Scoreboard Scorebo	Problem 1	Not_Submitted	0	c	C ++		
Problem 4 Not_Submitted C Submit Problem 5 Not_Submitted C Home Problem 6 Not_Submitted C Home Problem 7 Not_Submitted C Home Message Board Question Clarifications Main folder 04-24-2005 23:18:44 Use regular expression	Problem 2	Not_Submitted	0	0	Java		
Problem 5 Not_Submitted C Problem 6 Not_Submitted C Problem 7 Not_Submitted C Message Board Message Board Question Clarifications Main folder 04-24-2005 23:18:44 Scoreboard Size Data Read Action	Problem 3	Not_Submitted	0				
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Sol To Name Size Date Read Action			14	☐ Use regular ex			
04-24-	Scorebo		Name	Size	Date Only		

This page will be displayed when clicking on "Submit a Solution".

Team Submit Questions

	View Favorites Tools Help		
Problem	Status	Select a Question to Submit	
Problem 1	Not_Submitted	0	
Problem 2	Not_Submitted	o	
Problem 3	Not_Submitted	0	
Problem 4	Not_Submitted	0	
Problem 5	Not_Submitted	0	
Problem 6	Not_Submitted	0	Submit
Problem 7	Not_Submitted	C	Home
	Message Board		
	C Proble	em_4	2005 20:46:37
	C Proble	em_5	04-21- 2005 19:52:08
Scoreb	oard	em_6	04-21- 2005 19:52:08
	C Proble	em_7	04-21- 2005 19:52:08

This page will be displayed when clicking on "Submit a Question".

Not Logged In

🏄 No Login - Microsoft Internet Explorer	- <u>-</u> - <u>-</u> - <u>-</u> ×
File Edit View Favorites Tools Help	<u></u>
Address 🗃 http://oraserv.cs.siena.edu/~perm_seg/NoLogin.html	💌 🄁 Go
Error	×
You have not logged in.	
Please log in using your provided username and password.	
Login Page	

If a team maliciously tries to access the TeamHome.php file without logging in, they will encounter an error.

Incorrect Login

http://oraserv.cs.siena.edu/~perm_seg/login.php -	Microsoft Internet Explorer	· 페 _ 문 2
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ldress 🗃 http://oraserv.cs.siena.edu/~perm_seg/login.ph	p	💌 🔁 Go
	LOGIN ERROR	
	Invalid Username and/or Password	
	Back	

If a team does not enter their correct username and/or password, this error will be displayed.

Judges Websites

Judges Home

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A <u>d</u> dres	s 🙆	http://oraserv.cs.siena.edu/~perm_seg/ProgContest/Jud	geFileBrowser.php		•	<mark>→</mark> Go	Links »
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Sel	То	Name	Size	Date	Read Only	Action	
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	С	Questions		04-25-2005 19:18:31			
		2 directo	ries, 0 files (0 Kb)				
		S	Scoreboard				
							-
ど Jud	ge Hon	ne Page			🌍 Intern	et	//

When accessing the URL /JudgeFileBrowser.php, this page will be displayed.

Judges Next Page

🎒 Judge	e Hom	e Page - Microsoft Internet Explorer				
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A <u>d</u> dress	🙆 ht	tp://oraserv.cs.siena.edu/~perm_seg/ProgContest/JudgeFileBr	rowser.php?subdir=Problems&sortb	y=name	• 🗦	Go Links ×
Sub-f	older	Home Page : Problems 21:07:13	Sea Use regular expressio			
Sel	To	Name	Size	Date	Read Only	Action
	С	[Main folder]		04-21-2005 19:52:07	Yes	
	С	[Up one folder]		04-21-2005 19:52:07	Yes	
	C	Submitted_And_Not_Judged		04-25-2005 21:07:09		
		1 directories,	, 0 files (0 Kb)			
Selec	t the	file you want to move and the folder you want to move then cl				
🛐 Judge	Home				Internet	5

When clicking the "Problems" link, this page is displayed.

Judges Submitted and not Judged Page

Programming Contest Software

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uu	ye	nome rage				
		: Problems/Submitted_And_Not_Judged	Searc	:h		
4-25-:	2005	21:08:46	🗖 Use regular expression			
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	с	[Up one folder]		04-21-2005 19:52:06		
3	0	Being_Judged		04-25-2005 19:57:49		
3	С	Being_Judged T02P01.cpp	14			D
	С		14 14	19:57:49 04-25-2005		D
]	С	T02P01.cpp T02P0121:07.cpp		19:57:49 04-25-2005 21:07:09 04-25-2005		273) 1997
	С	T02P01.cpp T02P0121:07.cpp	14	19:57:49 04-25-2005 21:07:09 04-25-2005		273) 1997

When clicking the "Submitted_Not_Judged" folder, all submissions that have yet to be looked at by the judges are displayed.

Judges Move to being Judge Page

Programming Contest Software

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	20	p://oraserv.cs.siena.edu/~perm_seg/ProgContest/JudgeFileBrowser.	php?subdir=Problems%2FSubmi	tted_And_Not_Judg	_	Go Link
udg	ge I	Home Page				
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1202	.000	1.00.10	Use regular expression			
Sel	To	Name	Size	Date	Read Only	Action
ę	С	[Main folder]		04-21-2005 19:52:07	Yes	
	С	[Up one folder]		04-21-2005 19:52:06		
	c	Being_Judged		04-25-2005 19:57:49		
7		T02P01.cpp	14	04-25-2005 21:07:09		D
7		T02P0121:07.cpp	14	04-25-2005 21:07:09		D
-		1 directories, 2	files (0 Kb)			

The judges being the grading process by selecting the checkbox of the solution, then selecting the radio button for the "Being_Judged" directory, then clicking the "Move" button. This ensures only one judge will be working on the same file at a time.

Judges Move to Correct Page

ud	_	o://oraserv.cs.siena.edu/~perm_seg/ProgContest/JudgeFileBrowser.php?s	Search	_vot_Juugeu /szr being_juu		y-name	<u> </u>	o Link
roble	ems/S	ubmitted And Not Judged/Being Judged	e regular expression					
Sel	To	Name	Size	Date	Read Only	Action		
	С	[Main folder]		04-21-2005 19:52:07	Yes			
	c	[Up one folder]		04-25-2005 21:09:52				
1	с	CPU_Time_Limit_Exceeded		04-24-2005 20:53:26				
1	œ	Correct		04-25-2005 20:42:16				
1	С	Did_Not_Compile		04-25-2005 20:42:25				
1	С	Incomplete_Output		04-25-2005 20:42:30				
1	С	Incorrect_Output		04-25-2005 20:42:35				
1	С	Incorrect_Output_Format		04-24-2005 19:39:27				
1	С	Runtime_Error		04-24-2005 19:35:38				
7		T02P01.cpp	1	4 04-25-2005 21:07:09		D		
7		T02P0121:07.cpp	1	4 04-25-2005 21:07:09		D		
		7 directories	s, 2 files (0 Kb)					
elect	the fil	e you want to move and the folder you want to move it to, then	click: : Move					

Once the judge compiles and runs the solution file, they move the solution file to the folder which corresponds to its performance. If it is incorrect, they can essentially describe what it did wrong by placing it in that folder.

Judges View Main Question Page

🎒 Judge	e Hom	e Page - Microsoft Internet Explorer				
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A <u>d</u> dress	🙆 hti	p://oraserv.cs.siena.edu/~perm_seg/ProgContest/JudgeFile	Browser.php?subdir=Questions&sortby=name		- 🔁	
Jud	ge	Home Page				<u> </u>
		: Questions 21:19:52	Search Search Use regular expression			
Sel	To	Name	Size	Date	Read Only	Action
	С	[Main folder]		04-21-2005 19:52:07	Yes	
	С	[Up one folder]		04-21-2005 19:52:07	Yes	
	С	Questions_to_be_Answered		04-25-2005 20:02:03		
		1 directo	ories, 0 files (0 Kb)			
Sele	ct the	file you want to move and the folder you want to mo	coreboard			
🛃 Judge	Home	Page			Internet	

From the judge's home page, if the "Questions" link is clicked, this page will be displayed. To display a list of submitted questions, the judges must select the "Questions_To_Be_Answered" directory.

Judges Move Down One Directory

uug	eŀ	lome Page				
		Cuestions/Questions_to_be_Answered	Search se regular expression			
Sel 1	To	Name	Size	Date	Read Only	Action
c	0/	[Main folder]		04-21-2005 19:52:07	Yes	
c	0	[Up one folder]		04-25-2005 19:18:31		
	0	Questions_with_Answer		04-25-2005 20:02:32		
		T02P01-21:21.txt	46	04-25-2005 21:21:49		EVD
		1 directories, 1	files (0 Kb)			

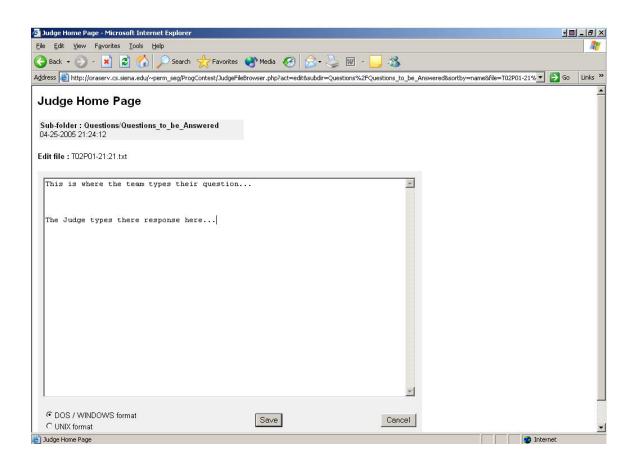
This page will display the list of all questions submitted by the teams.

Judges View Question

🖉 Judge Home Page - Microsoft Internet Explorer	
Elle Edit View Favorites Tools Help	
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Address 🙆 http://oraserv.cs.siena.edu/~perm_seg/ProgContest/JudgeFileBrowser.php?act=show&subdir=Questions%2FQuestions_to_be_An 🗾 🚦	So Links »
Judge Home Page	*
Sub-folder : Questions/Questions_to_be_Answered 04-25-2005 21:22:22	
View file : T02P01-21:21.txt	
This is where the team types their question	
Return to file list Scoreboard	
	Ŧ
🕘 Judge Home Page	t //

By selecting the "V" on the right hand side of the file, the judge can view the question.

Judges Edit Question



By selecting "E" on the right side of the file, the judge can edit and amend an answer to the team's question.

Judges Move to "Answered" Directory

🎒 Judge	e Home	e Page - Microsoft Internet Explorer				
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A <u>d</u> dress	🖲 htt	p://oraserv.cs.siena.edu/~perm_seg/ProgContest/JudgeFileBrowser.php	o?subdir=Questions%2FQuestions_	to_be_Answered&so		Go Links »
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Jud	gei	lonie i ugo				
		: Questions/Questions_to_be_Answered	Search			
04-25-	2005 .	21:24:48	Jse regular expression			
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	с	[Main folder]		04-21-2005 19:52:07	Yes	
	С	[Up one folder]		04-25-2005 19:18:31		
	œ	Questions_with_Answer		04-25-2005 20:02:32		
•		T02P01-21:21.txt	92	04-25-2005 21:24:48		EVD
		1 directories, ²	1 files (0 Kb)			
Seleo	ct the '	file you want to move and the folder you want to move it to, th click				
			17)			
		Scoreboa	ard			
🕘 Judge	Home	Page			Internet	1

After the judge saves the amended question, they must move it to the directory "Questions_With_Answer".

Judges Move to Problem Folder

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ddress	htt	p://oraserv.cs.siena.edu/~perm_seg/ProgContest/JudgeFileBrowser.php	?subdir=Questions%2FQuestions_to_be_Answered%2FQuestion:	s_with_An:	swer&sortby	/=name 🗾 🔁 Go	Links ×
Jud	ae I	Home Page					-
	3						
Sub-fe		: Questions to be Answered/Questions with Answer	Search				
		21:25:35	🗖 Use regular expression				
Sel	To	Name	Size Date	Read Only	Action		
	0	[Main folder]	04-21-2005 19:52:07	Yes			
	C	[Up one folder]	04-25-2005 21:25:34				
		MsgBoardFileBrowser.php	79125 04-17-2005 21:32:55	Yes	V D		
	œ	Problem_1	04-25-2005 20:01:21				
	0	Problem_2	04-25-2005 20:41:30				
	С	Problem_3	04-21-2005 19:52:08				
	С	Problem_4	04-25-2005 20:01:32				
	0	Problem_5	04-21-2005 19:52:08				
	0	Problem_6	04-21-2005 19:52:08				
	С	Problem_7	04-21-2005 19:52:08				
•		T02P01-21:21.txt	92 04-25-2005 21:24:48		EVD		
		7 directorie	es, 2 files (77 Kb)				
Select	t the fi	le you want to move and the folder you want to move it to, the	n click: Move				
			Quantaria				
			Scoreboard				-

Once in that folder, they must move it to the problem that it corresponds to.

Judges Can View Problem Folder

		e Page – Microsoft Internet Explorer				
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	C	[Main folder]		04-21-2005 19:52:07	Yes	
	С	[Up one folder]		04-25-2005 21:26:43		
		T02P01-21:21.txt	92	04-25-2005 21:24:48		EVD
		0 directories, 1 fi	les (0 Kb)			
Select	t the f	ile you want to move and the folder you want to move it to, then click: :	Move			
		Scoreboard	L			
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The judge can also view all questions and answers about a single problem by clicking on the link to that problem.

Scoreboard:

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	1	2	3	4	5	6	7	Correct Solutions	To	tal Elapsed Tir (hours)	ne
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Mechanicville			9:20 0:20					1	0:20	
Guilderland								0		
Shaker								0		
Troy								0		
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Scoreboard Update 2

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Section 7: User Manual

Administrator: The administrator must follow the steps below to setup for the programming contest.

- 1. Open up the file called "Scoreboard.php". This is where the team names must be entered in the variables, labels, \$TeamName##. In this file, the start time of the contest is entered into the variable \$StartTime. Also, in this file you can change the size of the scoreboard as needed with a maximum of 25 teams. To do this, you go to the line that contains the team number that you don't need. In front of the HTML code put the following, <!--, then right before the end of the table close tag put the following, -->. Then, for each line of PHP code in between the two comments above, comment out each of the echo statements by putting two forward slashes (//) in front of echo.
- 2. Now team passwords have to be set by opening "passwords.txt" and entering the password the want each team to use. Then give each password to the corresponding team to log in with.
- Instruct teams the correct path to save their files to and what name to give each file following our naming convention. //home/perm_seg/public_html/team##/[filename]

How Teams Login

- 1. Type the following URL in your web browser and hit Enter: http://oraserv.cs.siena.edu/~perm_seg/TeamLogin.html
- The Username is "team" followed by the number of your team. For instance, if your team number is 05, then your Username is team05.
 Note: login is case sensitive. Everything has to be in lower case.
- 3. Your team Password will be provided to you.

Team Side

- 1. In your team homepage click on "Submit a Solution" and a new page should open with all the problems on it with two groups of radio buttons: one to select a solution to submit to a specific problem and the other to select a language. The team then clicks on submit to send the information to the judges. After clicking on submit the team will be sent back to their home page.
- 2. In your team homepage click on "Submit a Question" and a new page should open with all the problems with a set of radio buttons to select a question and then a team types in their question into the text box and clicks on submit to send their question to the judges. After clicking on submit the team will be sent back to their home page.

Note: Before submitting a solution, you must first make sure you use the special naming convention for your .cpp or .java file. The naming convention is as follows: Team 1 submits their solution for problem number 5 using C++. They will save their file as T01P05.cpp. If this were a Java file, it would be T01P05.java. These files will be saved on your specified folder on the *Oraserv* server.

- 3. Teams can see the status of their submitted solution by looking at the status bar on each Team page.
- 4. Teams can see if their question was answered by the judge by looking at the message board on each team page which is separated by Problem number. Teams click on the Problem number then the file they want to view.

Judge

- Judges start judging the contest by going to <u>http://oraserv.cs.siena.edu/~perm_seg/JudgeFileBrowser.php</u>
- 2. Judges then have two directories to choose from either Problems or Questions.
- 3. If judges click on Problems there is then a sub directory called Submitted and Not Judged where the Teams submitted solutions are waiting to be judged.
- 4. Judges then click on this directory to see the Teams files that are submitted.
- 5. The Judges will then have to select the file they want using the checkboxes next to the files and then click the radio button next to Being Judged and then click the Move button on the button of the screen.

Note: When teams submit their solutions, **two** files will be sent, one with a timestamp and one without. When moving the files along the judging process, both files must be moved together. When viewing, compiling, and running the solution, you must only use the file with the timestamp. The other file is only used for tracking the solutions on the team's status bar and need not be opened.

- 6. Judges then run the Teams file using a compiler through x-term and determine the team's solution is correct or has errors.
- 7. The Judge then moves the file to the appropriate directory.
- 8. Judge can then maneuver back to the main directory of the file browser and click on the Questions Directory.
- 9. A judge then clicks on Questions to be Answered Directory and then selects a question file to answer by clicking on the E all the way to the right of the file.
- 10. The teams question file then opens up in a text box for editing where a judge can type their answer to the teams question and then saving it.
- 11. A judge then moves that file to the Questions with Answer Directory.
- 12. A judge then moves the answered question file to the appropriate problem number directory

Section 8: Source Listing

See attached source code.

Programming Contest Software

Section 9: Glossary of Terms

Computer Science Programming Contest – A programming contest administered by the Computer Science Department for local high school teams to come to Siena and compete.

DFD – Data Flow Diagram – A graphical representation that depicts information flow and the transformations that occur as data moves from input to output.

Directories – Folders on Turing in which files will be stored, as well as being moved from and to them.

DreamWeaver – A program that will be used to develop all needed websites.

Gantt Chart - A chart that depicts progress in relation to time, often used in planning and tracking a project.

GUI – Graphical User Interface – The screens that users will see while using the Programming Contest Submission Software.

HTML - A markup language used to structure text and multimedia documents and to set up hypertext links between documents, used extensively on the World Wide Web.

Internet - An interconnected system of networks that connects computers around the world via the TCP/IP protocol.

Java- Programming language that our program will possibly be built in.

Linear Sequential Model / Classic Waterfall Model – A systematic, sequential approach to software development that begins at the system level and progresses through analysis, design, coding, testing, and support.

Scoreboard - A web-based list of teams, in ranked order, based on the number of problems each team has answered correctly, and the time used to answer the questions.

Turing – The Unix Server that every PC in the Computer Science Department Connects to. It is under the administration of Mr. Ken Swarner.

Web-based – A software that uses the World Wide Web on the Internet as a user interface

Programming Contest Software

Acceptance Test

Team ranking – Teams in the contest are placed in an order based on the number of correct solutions and the about of time taken to submit those solutions.

Array - An arrangement of memory elements in one or more planes.

PHP – **PHP Hypertext Processor** – In an HTML document, <u>PHP script</u> (similar syntax to that of <u>Perl</u> or <u>C</u>) is enclosed within special PHP tags. Because PHP is embedded within tags, the author can jump between HTML and PHP (similar to <u>ASP</u> and <u>Cold Fusion</u>) instead of having to rely on heavy amounts of code to output HTML. And, because PHP is executed on the <u>server</u>, the <u>client</u> cannot view the PHP code.