

User Manual

The website is currently live at programming-contest.bucknell.edu. Visit the [GitHub](#) repository to see instructions on how to setup, configure and run the web app. In addition, the walkthroughs for both the participant and the judge can be viewed in [this](#) Youtube video.

Website Usage

When a user goes to our website for the first time, they have the ability to register with a new username, or if they are a returning user, they can login to their account. When a user logs in they are taken to the website home page where they can see all contests that have been created. Users can click ‘Create Contest’ to make a new contest. Alternatively, users can choose a contest in the table to go to that contest’s home page. On a contest home page, the user can see information about that contest, contest rules, and have the ability to join that contest. To return to website homepage page at any time, users can click their username in the top right corner of the website.

yashLogout

Create Contest

Contest name	Admin	Status	Role
Contest for Senior Design Class	yash	Open	Creator
test	yash	Closed	Creator
test for correct submission	yash	Open	Creator
what is the reward	lol	Not started	None
The reward is glory	TheIronFist	Not started	None
The ultimate question	42	Not started	None
aadsnfs!dfjl	ryanstecher	Not started	None
Hello World!	zf002	Not started	None
Yeah	bkisthebest	Not started	None

Figure 1: Profile page for a user where they can see all contests

Judge Usage

Once a user creates a new contest they are taken to a page where they can enter the title of the contest, information about the contest, and the contest rules. Then they are able to add problems for their contest. To add a problem, they need a PDF of the problem prompt and text files for the input and expected output of the problem. The input and output files can be in the form of .in, and .out extensions, however they must be text files. The input and output files are used to test the participant's submissions. After adding a problem, the creator can view them as shown on the screenshot below. The creator can edit the files uploaded for each problem, by clicking in the respective upload box. The creator can add a new problem by choosing the plus icon on the problem navigation bar, and navigate between problems by clicking on the problem.

The screenshot displays the Judge's view of a problem. At the top, a blue navigation bar contains links: "Practice for class", "Problems", "ScoreBoard", and "Submissions". On the right of this bar are "admin" and "Logout" links. Below the navigation bar is a problem navigation bar with tabs labeled "1", "2", "3", and a "+" icon. The main content area is divided into two columns. The left column contains the problem details for "1: Simple Array Sum". The right column contains upload boxes for the input file, output file, and problem PDF, along with "Save" and "Delete" buttons.

1: Simple Array Sum
Given an array of N integers, can you find the sum of its elements?

Input Format
The first line contains an integer, N , denoting the size of the array.
The second line contains N space-separated integers representing the array's elements.
The end of the input is marked by a line containing just -1.

Output Format
Print the sum of the array's elements as a single integer.

Sample Input
6
1 2 3 4 10 11
-1

Sample Output
31

Click here to upload a new input file (must be a text file)

6 1 2 3 4 10 11 10 338 65 713 595 428 610 728 573 871 868 1000 456 124 752 746
782 492 741 171 752 295 2 56 725 961 135 654 697 328 112 992 922 816 519 997
751 268 378 276 209 842 805 348 587 105 61 449 590 616 442 347 665 231 429
721 145 213 645 8 846 211 586 738 967 903 392 847 240 916 594 478 195 443 914
921 285 272 449 32 217 95 765 830 340 279 949 32 591 563 458 19 963 105 784
548 229 62 474 331 639 545 923 513 116 573 375 43 345 314 426 915 589 928 72

Click here to upload a new output file (must be a text file)

31 5789 495619

Click here to upload a new problem PDF.

Save

Delete

Figure 2: Judge's view of problem once uploaded

Once finished with setting up the problems for the contest, the creator can click on the name of the contest. Here, the creator can open the contest up to participants. Warning: Once contest is opened, the creator cannot edit the meta information about the contest or add new problems; however they can still edit the problems already created.

Practice for class Problems ScoreBoard Submissions			admin Logout
			Broadcast
			user1
			testparticipant
			Cindy Lou
Team	Problem	Feedback	
Cindy Lou	Warmup	Awaiting feedback from judges...	
Cindy Lou	Warmup	Bad Format	
Cindy Lou	Warmup	Bad Math	
testparticipant	Warmup	Correct	
user1	Warmup	Correct	
testparticipant	Caesar Cipher	Correct	
testparticipant	Recursion	Correct	
Cindy Lou	Warmup	Correct	
Previous Page 1 of 1 Next			

Figure 3: Judge's submissions page

After participants submit code, a submissions table is generated as shown above. Here, the admin of the contest is able to view each submission as a row in the table. The feedback column starts as one of the following: Awaiting feedback for judges, Correct, Bad Format, Bad Math or compiler error. The judge can sort the table by team name, problem name, feedback or the time submitted. The judge can also type in a team name, problem name, feedback response, or date into the filter boxes located at the top of the table to search for specific results; even be able to filter by multiple options. This is helpful if the judge only wants to see submissions still awaiting feedback, or only judge one problem at a time. The judge can also chat with participants on this page. The judge is notified of a new message by a blue dot to the right of the user's name. The judge can also send messages to all participants of the contest by using the broadcast chat. To provide feedback on a submission, the judge can then click on a submission, and provide specific feedback, as shown on the screenshot below.

Practice for class Problems ScoreBoard Submissions			admin Logout
Cindy Lou: Warmup			
Previous feedback: Awaiting feedback from judges...			
Please Select ⌵ Send Copy code			
Expected Output	Actual Output	Diff	
31 5789 495619	31	31 5789 495619	

Figure 4: Judge's view of a single submission

The judge can see the expected output for the problem, the actual output from this solution, and the diff between the two. In the diff, grey indicates output that matches, red indicates output that was expected but not in the user's actual output, and green indicates extra output in the user's output. The judge can then use the drop down menu to select the correct feedback (correct, bad math, bad formatting, compiler error, or delete submission). In order for a submission to appear in the scoreboard, it needs to be either explicitly marked correct by the judge on this page or be automatically marked correct by the system. The judge can also copy the submitted code to their clipboard if desired. Finally, the judge can submit the chosen feedback. The participant will get a message in their chat window displaying the feedback for that problem and the scoreboard will be updated if the submission is marked correct. After sending the feedback, the judge is taken back to the submissions table.

The scoreboard is shown in the screenshot below. The scoreboard shows the number of problems solved by each participant, and it shows the score each team has once the judge hovers over it. The judge can always see the scoreboard once submissions are sent in, but can hide or show the scoreboard to participants by using the toggle buttons at the bottom of the page.

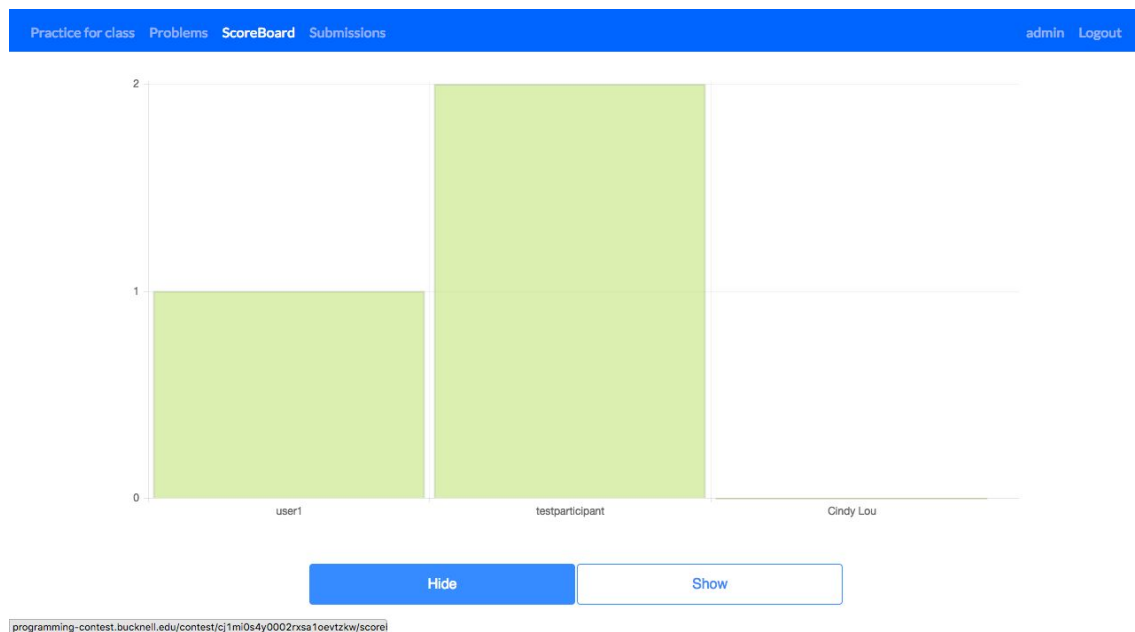


Figure 5: Scoreboard page

Participant Usage

When a user joins a contest, they are presented with information about the contest and then they are redirected to the problem page. Participants can navigate to see all problems in the contest by

using the numerated navigation at the top of the page. They can code in the code editor on the right side of the page. Users can pick from a variety of languages by using the drop down menu. The syntax highlighting in the editor will automatically update to reflect the language chosen. Code in the participant's editor will be preserved if the user goes to a different problem or page; however if the participant logs out of the website, the code will not be preserved.

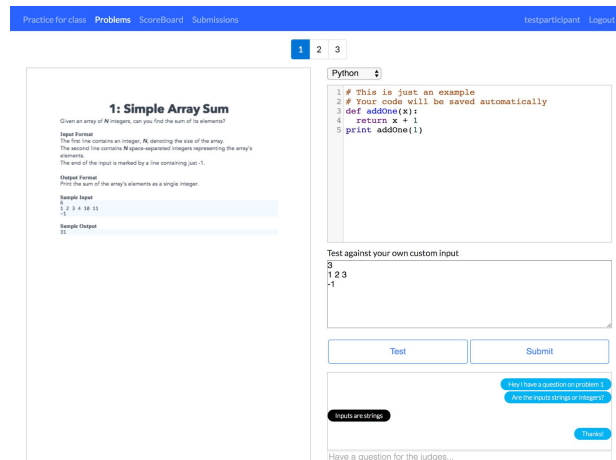


Figure 6: Participant's view of the problem page

Participants can enter custom input and test their solution before submitting. Console output from testing, messages from the judge, and submission feedback for that problem will be displayed in the chat window at the bottom-right of the page. In addition to receiving messages, participants can also send messages to the judge.

To see their previous submissions, the participant must go to the submission page by using the top navigation bar, where they can see the judge's feedback on each of their submission. Here, by clicking on the particular submission, they can also copy their code from that submission.