

Introduction to Prutor

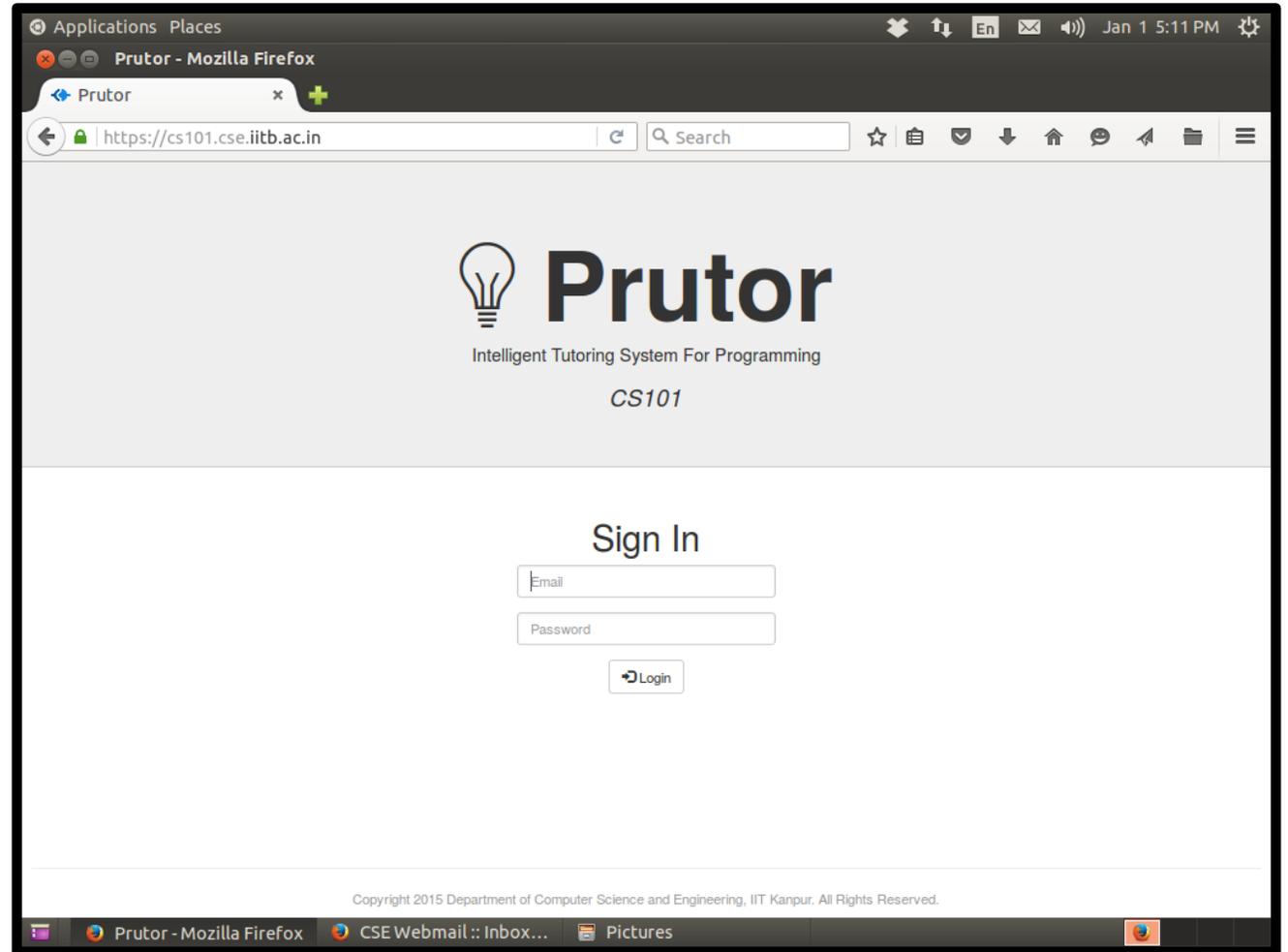
Online web-browser based IDE
for program
preparation and submission

About These Slides

- These slides describe **Prutor** which is a part of an *Intelligent Tutoring System (ITS)* developed by Amey Karkare at IIT Kanpur
- Slides prepared by Nisha Biju and Anshuman Dhuliya

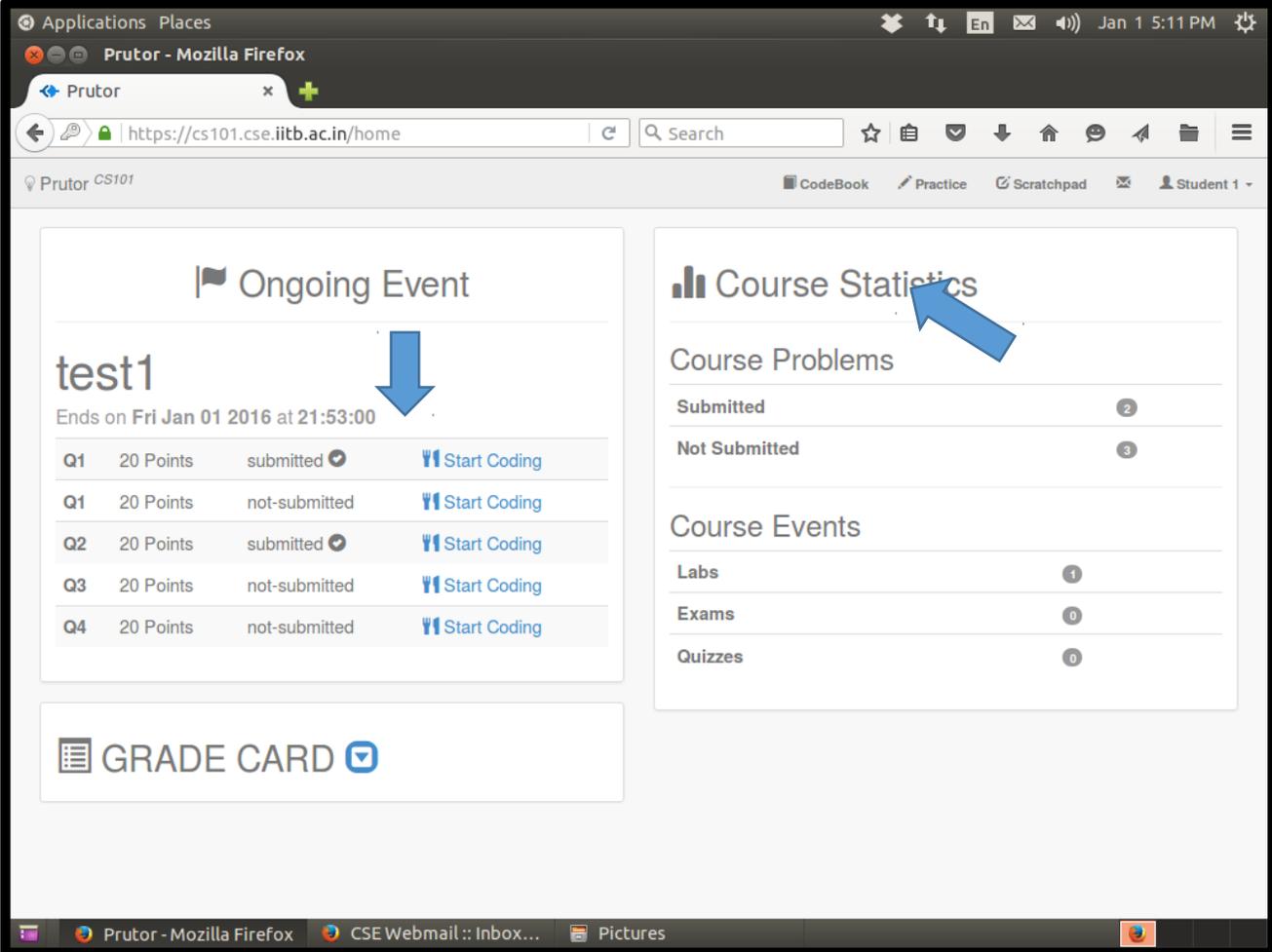
Login Page

- Login at <http://www.prutor.com>
- Enter your username and password to login
- Prutor will authenticate your credentials



Events Arena

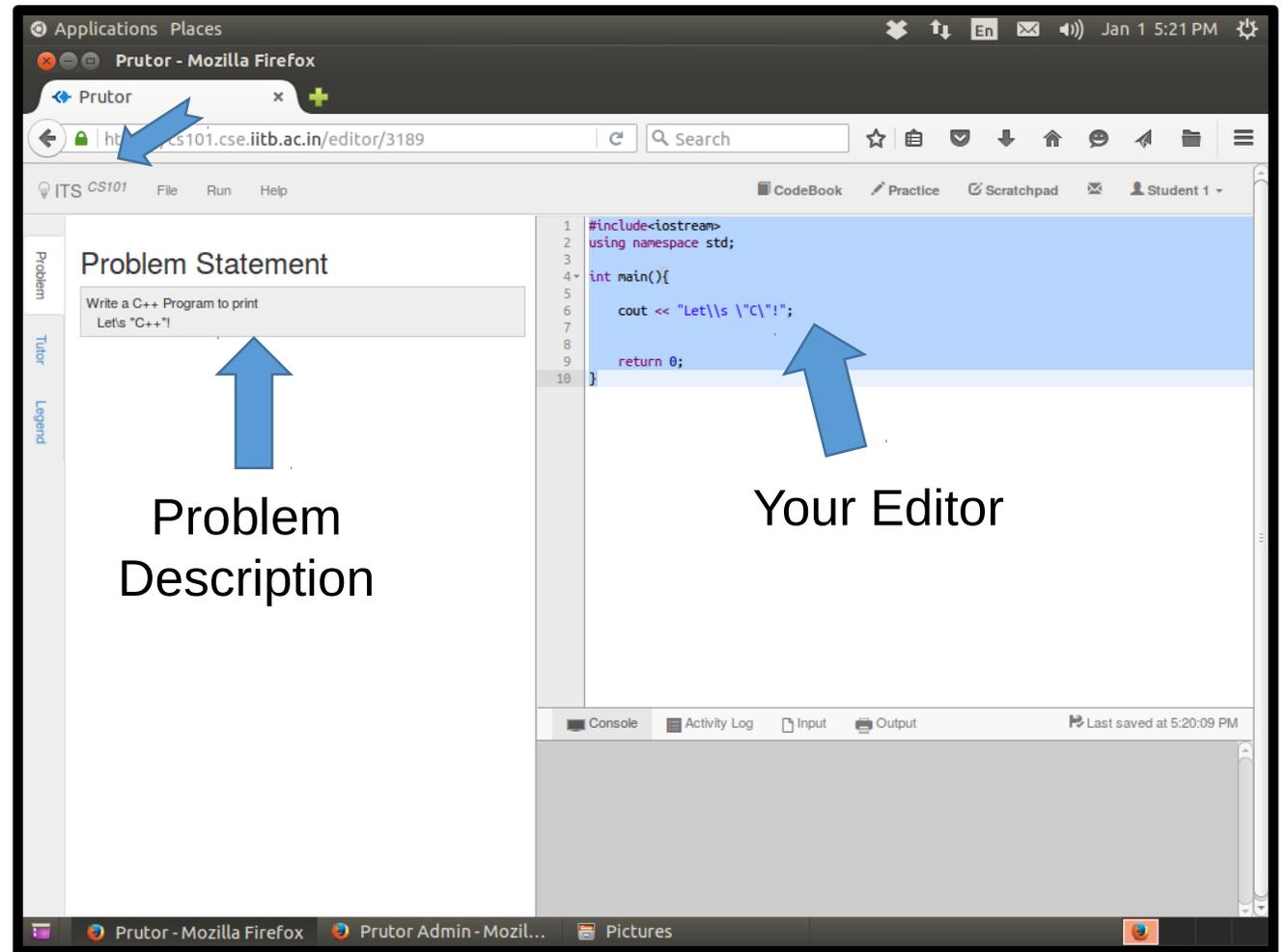
- An **Event** is visible only when it is **Ongoing**
- In the picture on the right, the ongoing event is **test1**, which has five questions with 20 marks each
- Click on the **Start Coding** link to start solving the questions
- The events in graded labs will contribute to your grades, and the events in regular labs will be for practice only
(We will have six graded labs)



The screenshot shows the Prutor CS101 interface. The main content area is titled "Ongoing Event" and features a "test1" event. The event details include "Ends on Fri Jan 01 2016 at 21:53:00" and a list of five questions (Q1 to Q4), each worth 20 points. The status of each question is shown as "submitted" or "not-submitted", and each has a "Start Coding" link. A blue arrow points to the "Start Coding" link for the first question. Below the event details is a "GRADE CARD" button. On the right side, there is a "Course Statistics" section with a bar chart icon and a blue arrow pointing to it. The statistics show "Submitted" (2) and "Not Submitted" (3) for "Course Problems", and "Labs" (1), "Exams" (0), and "Quizzes" (0) for "Course Events". The top navigation bar includes "CodeBook", "Practice", "Scratchpad", and "Student 1". The browser address bar shows "https://cs101.cse.iitb.ac.in/home".

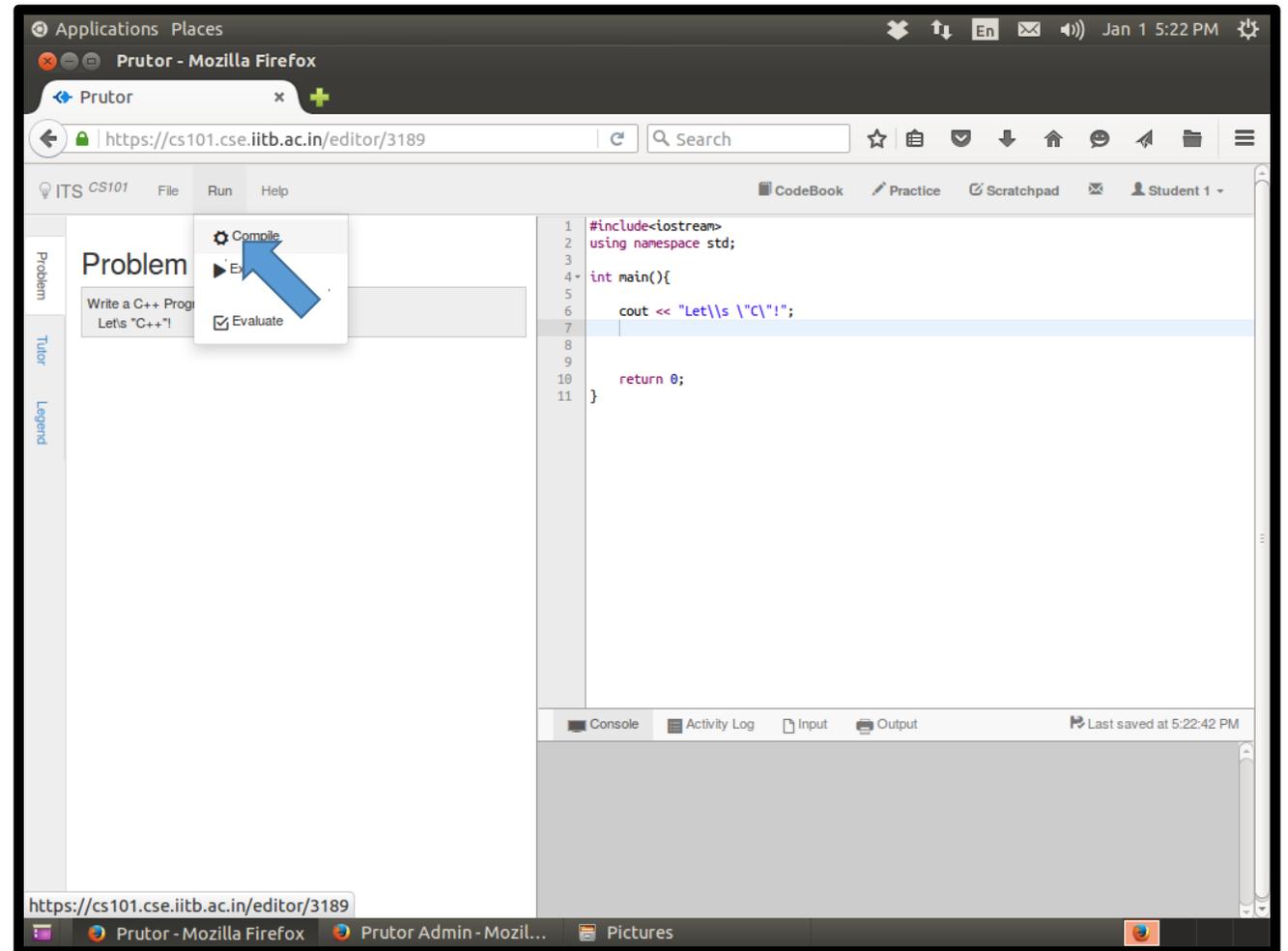
Code Editor

- You reach here by clicking the **Start Coding** link of a question
- The **Code Editor** saves your code every 5 seconds
- You can also save your code by pressing **Ctrl-s**
- Or you can save using the **Save** option of the **File** tab



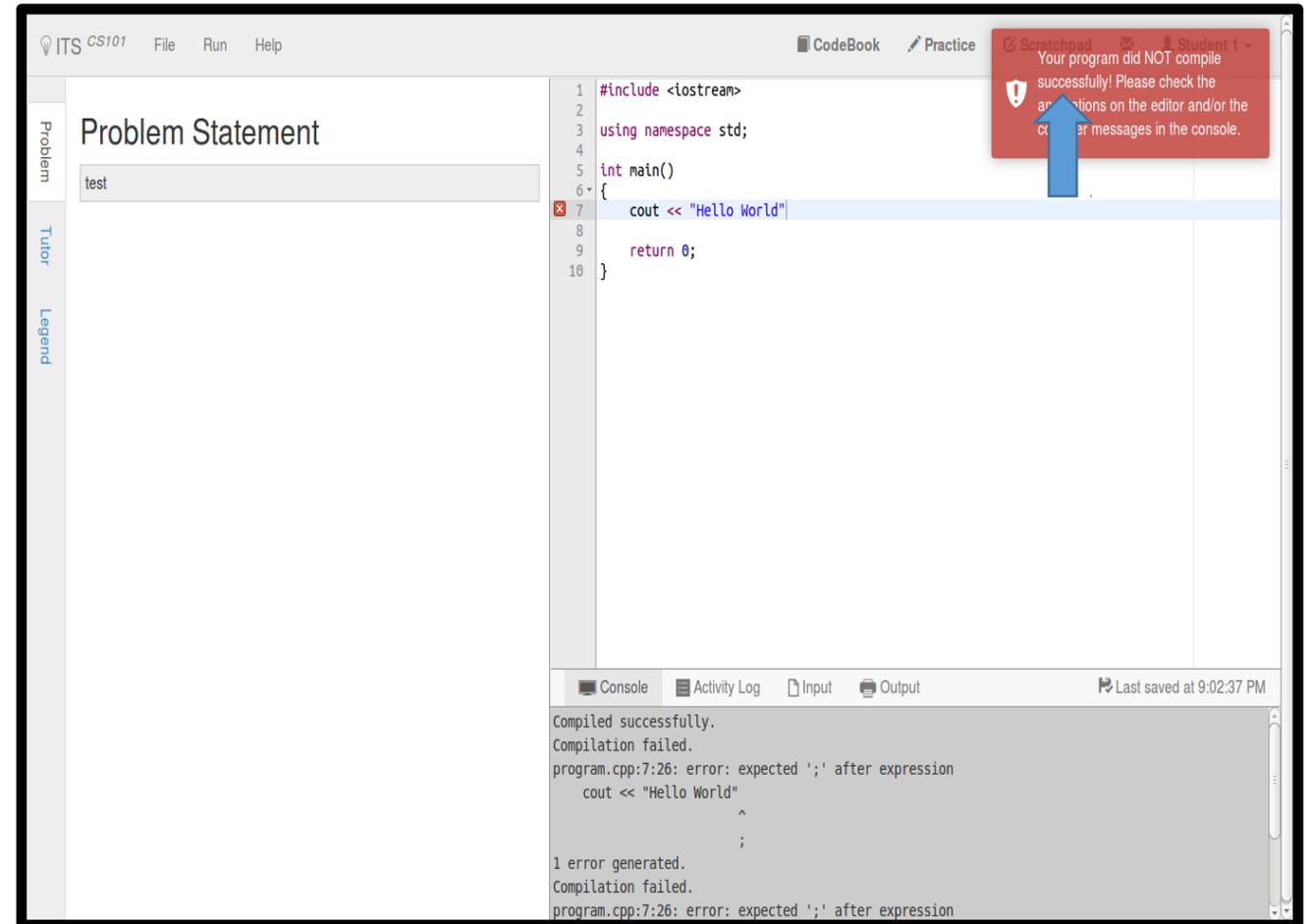
Compiling Code

- After writing the code, choose the **Compile** option in the **Run** tab



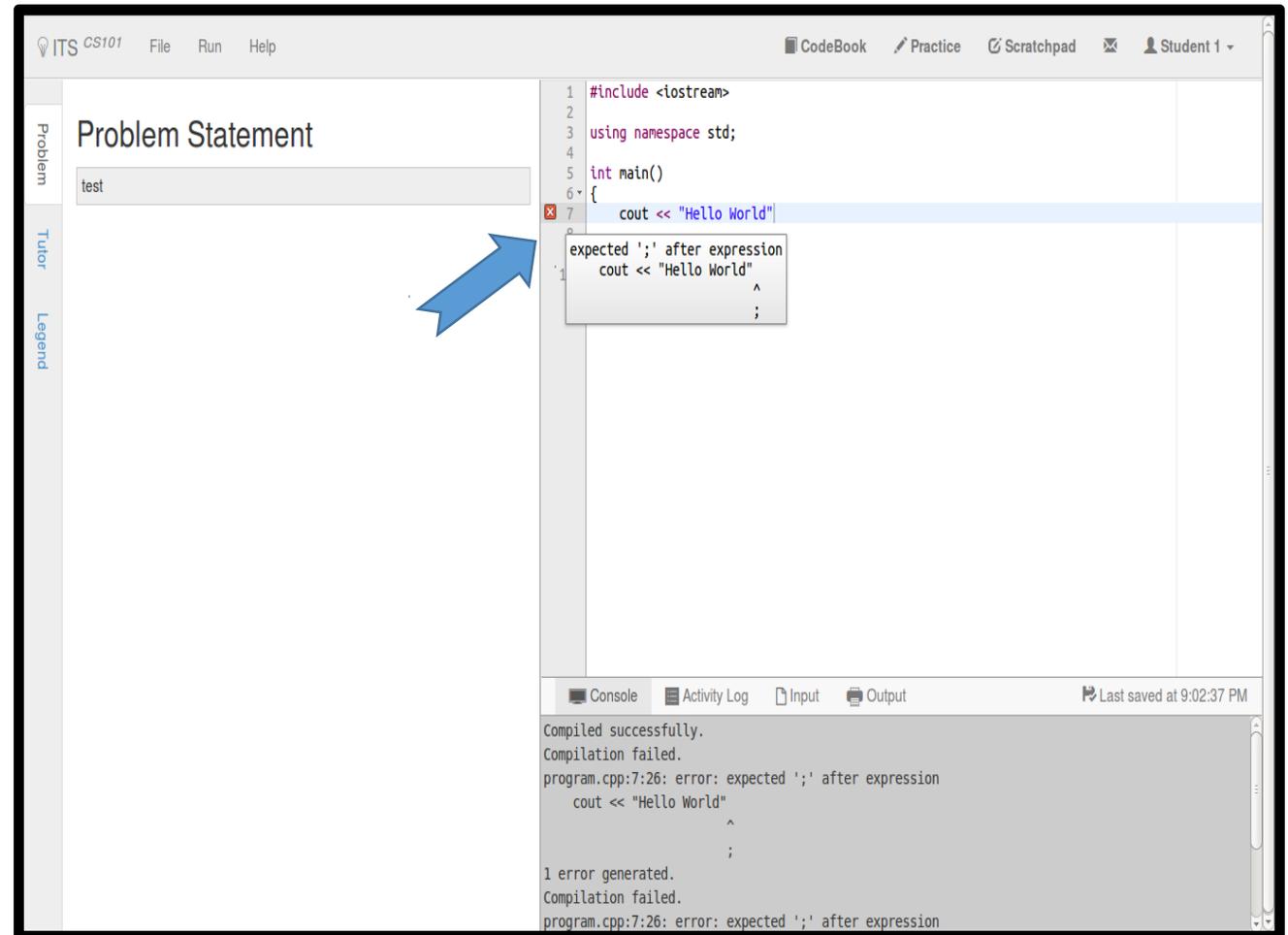
Compiler Messages

- You can view the compilation results below the **Code Editor** in the gray area, which is your virtual console
- Also a **floating notification** is shown on top-right corner for few seconds
- In the picture on the right, the compilation has failed as can be easily inferred from the message in **red blob of the floating notification**



Error Messages

- The compiler also issues messages about errors in specific lines
- We can see the error in the box if we take the mouse pointer towards the left side of the editor
- Read the compiler message at the bottom carefully and correct your error



The screenshot shows an IDE window titled "ITS CS101" with a menu bar (File, Run, Help) and a toolbar (CodeBook, Practice, Scratchpad, Student 1). The main editor area is split into two panes. The left pane, titled "Problem Statement", contains a text input field with the word "test". The right pane shows C++ code with a tooltip pointing to line 7. The tooltip text is "expected ';' after expression" and "cout << \"Hello World\"". The code in the editor is:

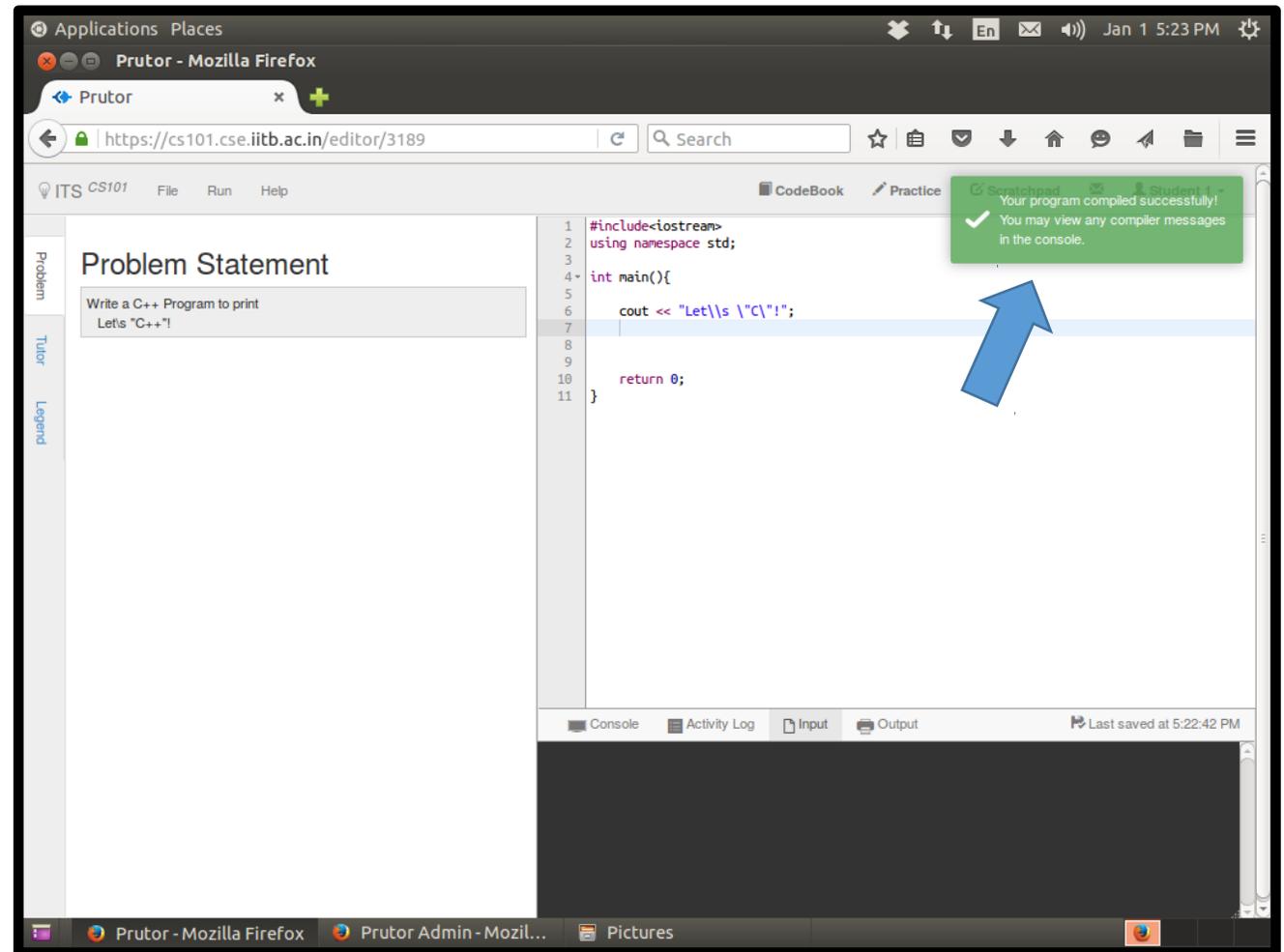
```
1 #include <iostream>
2
3 using namespace std;
4
5 int main()
6 {
7     cout << "Hello World"
```

The console window at the bottom shows the following output:

```
Compiled successfully.
Compilation failed.
program.cpp:7:26: error: expected ';' after expression
    cout << "Hello World"
                          ^
                          ;
1 error generated.
Compilation failed.
program.cpp:7:26: error: expected ';' after expression
```

Successful Compilation

- The floating notification on top-right corner will notify you when your compilation is successful
- The color of the floating notification would be green



Executing Your Program

- If your program requires input data, then you need to provide it before executing the program.
- For providing the input, click on the **Input** tab below the **Code Editor** and enter the input as you expect it to be
- Click on **Execute** option in the **Run** tab to execute the program
- Note: Before executing make sure that your program has compiled successfully

Enter Input before executing

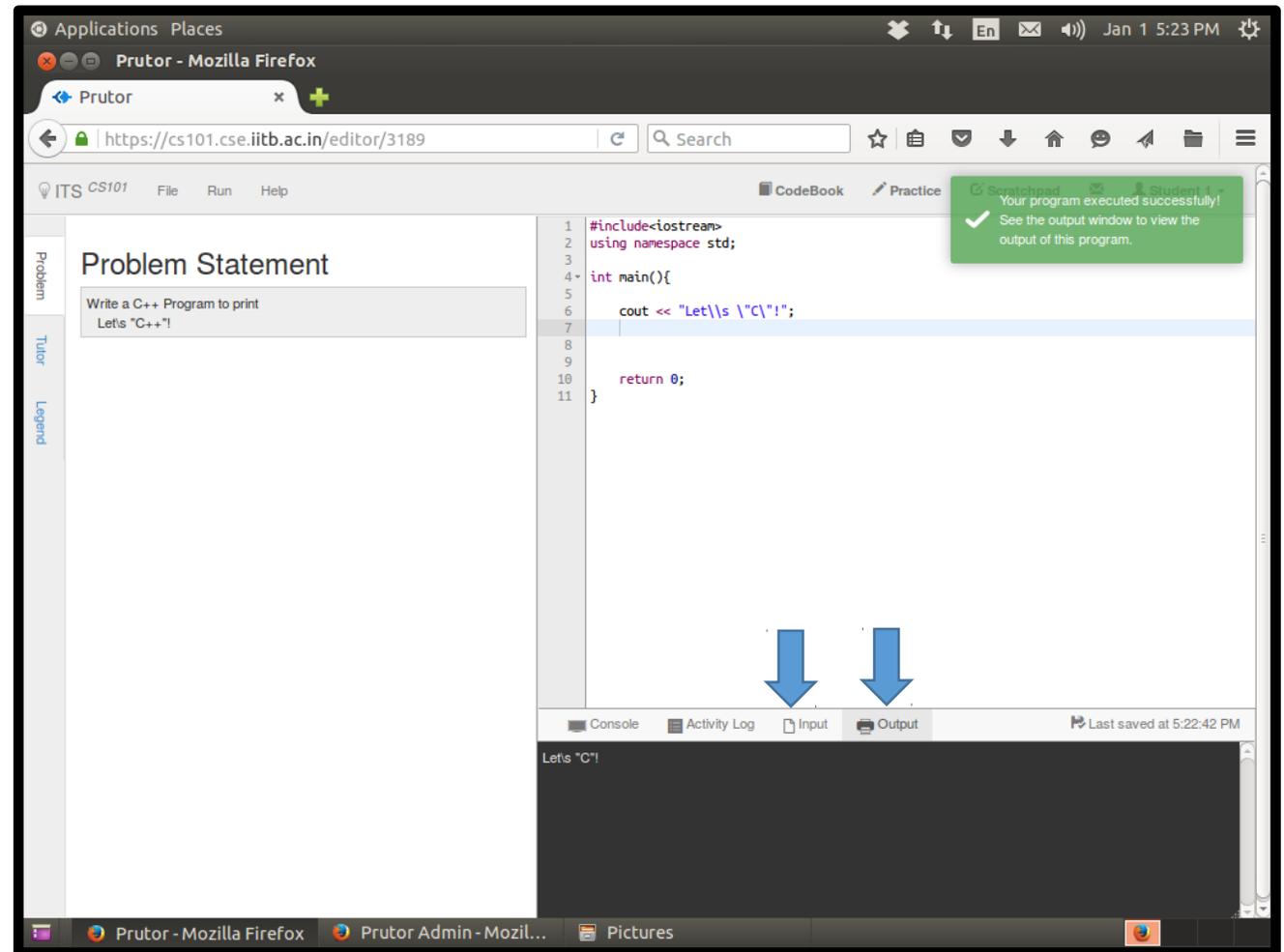
```
1 #include<iostream>
2 using namespace std;
3
4 int main(){
5
6     cout << "Let\\s \\\"C\\\"!";
7
8
9
10
11     return 0;
12 }
```

Scratchpad
✓ Your program executed successfully!
See the output window to view the output of this program.

Console Activity Log Input Output
Let's "C!"
Last saved at 5:22:42 PM

Viewing the Output

- After successful execution, a **green floating notification** will appear on the **top-right corner** and the output will be shown at the **bottom**



Evaluating Your Program

- **Evaluation** refers to running the program on the given test cases
- You can see some test case but there may be some hidden test cases
- Click on the **Evaluate** option in the **Run** tab
- We may evaluate your program on additional test cases created after submission
- Evaluation Results are displayed on the left column heading **Tutor**
- Note: You can submit your code even if it does not pass all the test cases.

The screenshot shows the Prutor web interface in a Mozilla Firefox browser. The address bar displays the URL <https://cs101.cse.iitb.ac.in/editor/3189>. The interface is divided into several sections:

- Problem:** Displays the title "Tutor" with a blue arrow pointing to the "Tutor" tab in the left sidebar.
- Tutor:** Shows the current time as 5:23:51 PM and an "Evaluation Results" table.
- Legend:** Contains a message: "Your program passed 1 out of 1 hidden test case(s). NOTE: These may not be the only hidden test cases that your program be evaluated upon."
- Code Editor:** Contains the following C++ code:

```
1 #include<iostream>
2 using namespace std;
3
4 int main(){
5
6     cout << "Let\\s \\\"C\\\"!";
7
8
9
10    return 0;
11 }
```
- Console/Output:** Shows the output: "Let\\s \\\"C\\\"!".
- Notification:** A green box in the top right corner says: "Congratulations! Your program has passed all test cases. You can now submit this program."
- Footer:** Shows "Compiled successfully. Execution succeeded. Program accepted." and "Last saved at 5:22:42 PM".

Repeated Evaluation

- You can evaluate your program as many times as you like before submission
- This allows you to keep correcting your program
- If your program passes all test cases, a **green floating notification** on the top-right corner will appear with an appropriate message

The screenshot displays the Prutor online IDE interface. The browser address bar shows the URL `https://cs101.cse.iitb.ac.in/editor/3189`. The IDE window has a menu bar with 'ITS CS101', 'File', 'Run', and 'Help'. On the left, there are tabs for 'Problem', 'Tutor', and 'Legend'. The main area is divided into two sections: 'Tutor' and 'Evaluation Results'. The 'Tutor' section shows the time '5:24:08 PM' and a table of evaluation results. The 'Evaluation Results' table has the following data:

#	INPUT	EXPECTED OUTPUT	ACTUAL OUTPUT	
1	Let\s "C"!	Let\s "C"!	Let\s "C"!	✓

Below the table, a message states: 'Your program passed 1 out of 1 hidden test case(s). NOTE: These may not be the only hidden test cases that your program be evaluated upon.' The 'Evaluation Results' section shows the time '5:23:51 PM' and the same table and message. On the right, the code editor shows the following C++ code:

```
1 #include<iostream>
2 using namespace std;
3
4 int main(){
5
6     cout << "Let\s \"C\"!";
7
8
9
10    return 0;
11 }
```

A green floating notification in the top-right corner reads: 'Scratchpad Student 1 - Congratulations! Your program has passed all test cases. You can now submit this program.' At the bottom, the console shows the output: 'Compiled successfully. Execution succeeded. Program accepted. Program accepted.'

Submit Your Code

- Never forget to submit your code, even if it is incomplete, before the event ends
- However, it is not necessary to submit a code to start attempting another question. But do save it before leaving
- Code that is not submitted can not be evaluated
- To submit, click on **Submit** option in the **File** tab

The screenshot shows the Prutor online code editor interface. The browser address bar displays <https://cs101.cse.iitb.ac.in/editor/3189>. The editor has a menu bar with 'File', 'Run', and 'Help'. The 'File' menu is open, showing options: 'New File', 'New Folder', 'Save', 'Submit', 'Download', and 'Upload'. A blue arrow points to the 'Submit' option. The code editor contains the following C++ code:

```
1 #include<iostream>
2 using namespace std;
3
4 int main(){
5
6     cout << "Let\s \"C!\"";
7
8
9
10    return 0;
11 }
```

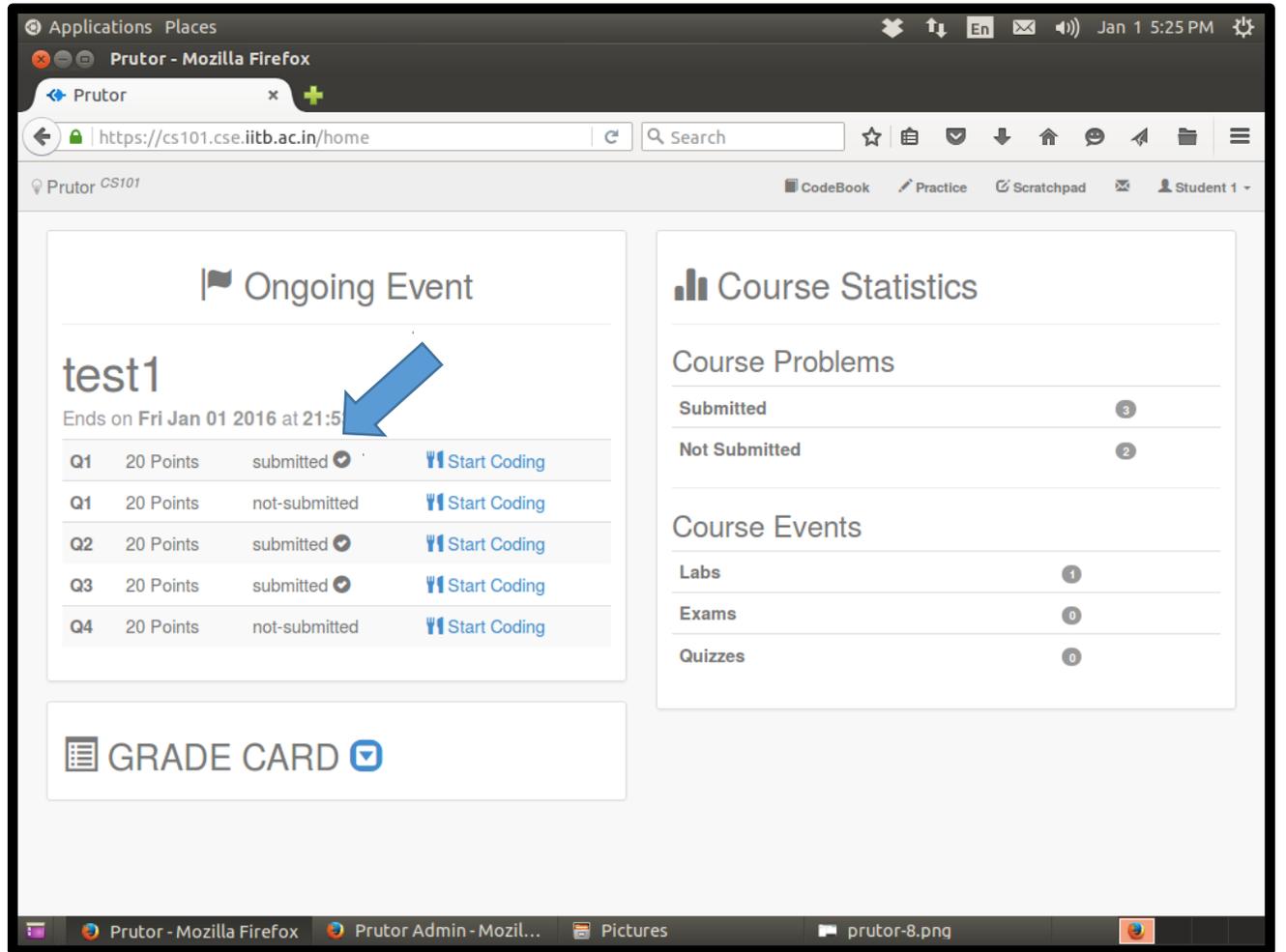
The evaluation results table shows the following data:

#	INPUT	EXPECTED OUTPUT	ACTUAL OUTPUT	
1	Let\s \"C!\"	Let\s \"C!\"	Let\s \"C!\"	✓

Below the table, a message states: "Your program passed 1 out of 1 hidden test case(s). NOTE: These may not be the only hidden test cases that your program be evaluated upon." The console output shows "Let\s \"C!\"". The bottom status bar indicates "Last saved at 5:22:42 PM".

Homepage After Submission

- After submitting your code, the homepage will mark your question as **submitted**



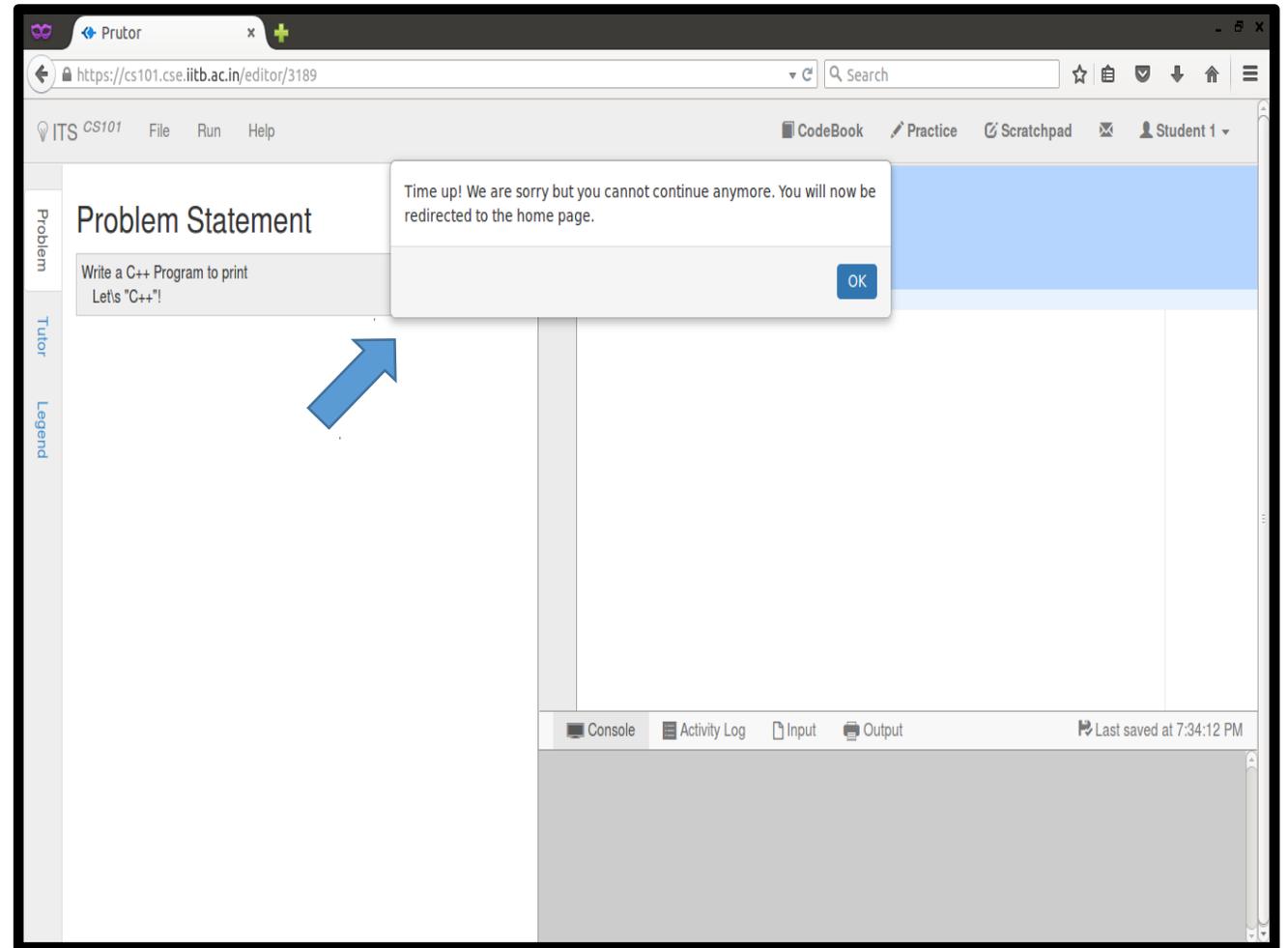
The screenshot shows the Prutor CS101 homepage in a Mozilla Firefox browser. The page features an 'Ongoing Event' section for 'test1' which ends on Fri Jan 01 2016 at 21:5. Below this is a table of questions with their submission status and a 'Start Coding' button for each. A blue arrow points to the 'submitted' status of the first question (Q1).

Question ID	Points	Status	Action
Q1	20 Points	submitted	Start Coding
Q1	20 Points	not-submitted	Start Coding
Q2	20 Points	submitted	Start Coding
Q3	20 Points	submitted	Start Coding
Q4	20 Points	not-submitted	Start Coding

Other sections on the page include 'Course Statistics' (Submitted: 3, Not Submitted: 2), 'Course Events' (Labs: 1, Exams: 0, Quizzes: 0), and a 'GRADE CARD' button.

End of Event (1)

- You have limited time to write the code for all questions.
- You will be intimated through a floating notification when you have only 30 minutes left
- When the **time is up**, you will get a notification and you will **not be allowed to edit the code any more**
- You will be redirected to your homepage



End of Event (2)

- After an event finishes, it stops showing on your homepage (i.e. it is not accessible to you)
- You can view your submitted code after the lab week is over (i.e. all batches have finished the same lab) by visiting your **Codebook**
- Once the grading is done, you can view your marks by clicking on the arrow button next the **Grade Card**

The screenshot displays the Prutor CS101 homepage. The main content area features an 'Ongoing Event' section with a message: "No events right now. You may come back later or fiddle with the [ScratchPad](#). :)". Below this message is a 'GRADE CARD' button with a blue arrow icon. A blue arrow points from the text "fiddle with the ScratchPad" to the 'GRADE CARD' button. To the right, there is a 'Course Statistics' section with a bar chart and a table showing 'Submitted' (3), 'Not Submitted' (2), 'Labs' (1), 'Exams' (0), and 'Quizzes' (0). The browser address bar shows 'https://cs101.cse.iitb.ac.in/home'.

Thank You

Happy Prutoring!