Daffodil International University

Project

On

"Java GUI Project"

Course Title	: Object Oriented Concepts
Course Code	: SE211
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Submitted To:

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Daily Competitive Programming

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Overview

"Daily Competitive Programming" is a Desktop Application developed in Java Programming Language. Often Beginners in competitive programming face some problems to find their strategy to improve. Keeping track of our daily activity on competitive programming is the most important thing in this sector. So, I have come up with a plan to develop such a tracker with my present knowledge. It is a mini application with some tracking features.

Goals

1. Track Problem Solving: It is designed specially for competitive programmers who want to keep track of their daily problem solving and coding activities.

2. Track Learning Progress: Anyone can keep the daily learning activity on a track so that he/she will be able to see the progress done so far.

3. Feedback on Progress: Users of the application will get timely feedback on their progress to not lose hope on Competitive Programming.

Specifications

Students like me will get a lot of benefits by using the system as well as building a beginner strategy. This is a mini project built with Java Swing (GUI), Object Oriented Concepts using Java Language.

Requirements

The requirements of the project "Daily Competitive Programming" are given below:

1. Unregistered Users can register on the system
2. Registered Users, Admin and Learner can log in to the system
3. Registered Solvers can set the daily problem solving target on the system
4. Registered Solvers can add the total number of solved problems daily to the system
5. Registered Solvers can view the list of the daily solving percentages according to the daily target on the system.
6. Registered Solvers can view the number of total solved problems.
7. Registered Solvers can view the list of daily feedback according to the percentage.
8. Registered Solvers can give feedback about the system
9. Learners can add new programming topics that he/she learned
10. Learners can view the topics that he/she learned.
11. Admin can see the list of all system users
12. Admin can view feedback about the system.

Objects

1. Problem Solver
2. Learner
3. Admin

States and Behaviors of Object

1. Object - Problem Solver:

- **State:**
  i. Username
  ii. Password
  iii. Daily Problem Solving Target
- **Behavior:**
  a) Registered Solvers can login to the system.
  b) Unregistered Solvers can register to the system.
  c) Registered Solvers can insert the daily problem solving target on the system.
  d) Registered Solvers can add the number of solved problems daily to the system.
  e) Registered Solvers can view the daily solving percentage according to the daily target on the system.
  f) Registered Solvers can view the number of total solved problems.
  g) Registered Solvers can view the list of daily feedback according to the percentage.
  h) Registered Solvers can give feedback about the system.

2. Object - Learner:

- **State:**
  i. Username
  ii. Programming Language
- **Behavior:**
  a) Learners can add new programming topics that he/she learned.
  b) Learners can view the topics that he/she learned.

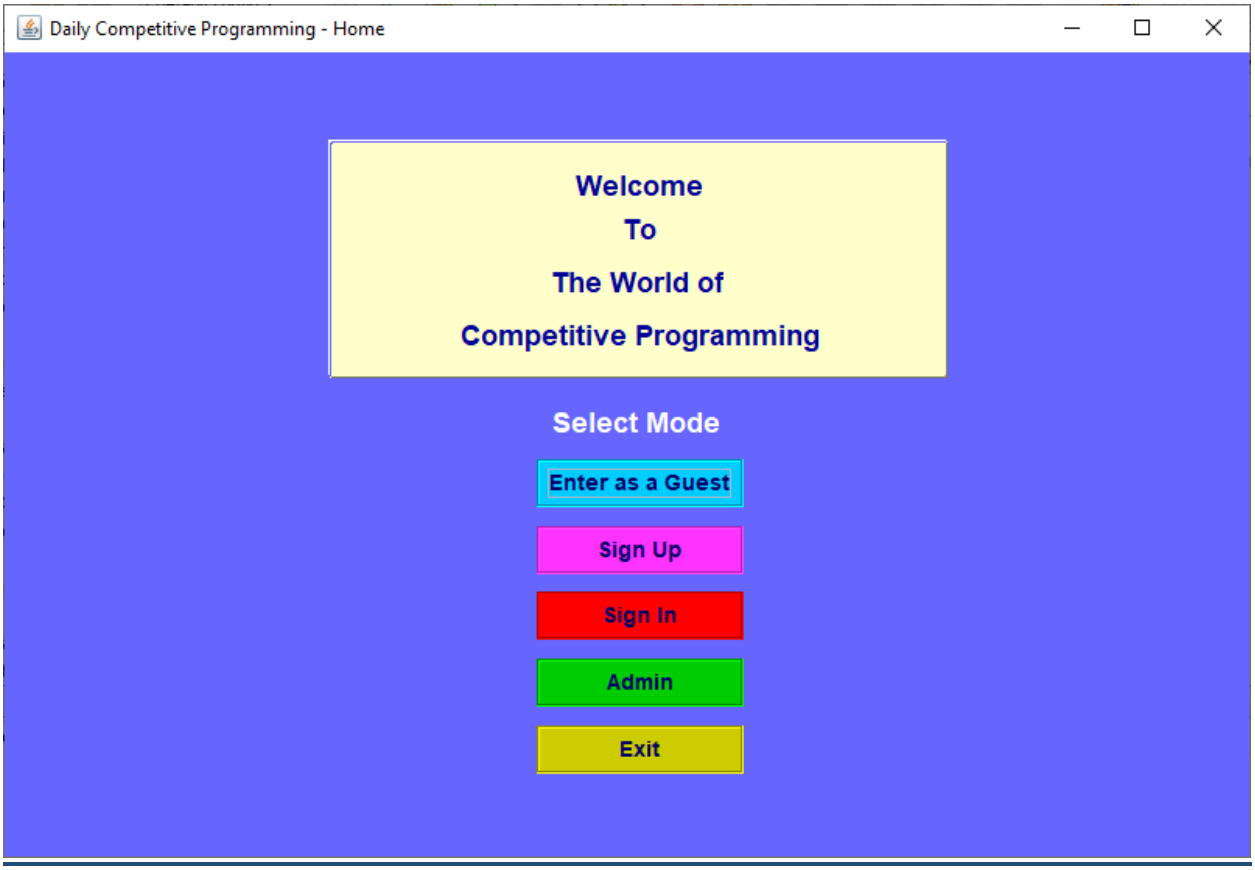
3. Object - Admin:

- **State:**
  i. Username
  ii. Password
- **Behavior:**
  a) Admin can view feedback about the system.
  b) Admin can see the list of all system users.

Project's Procedure

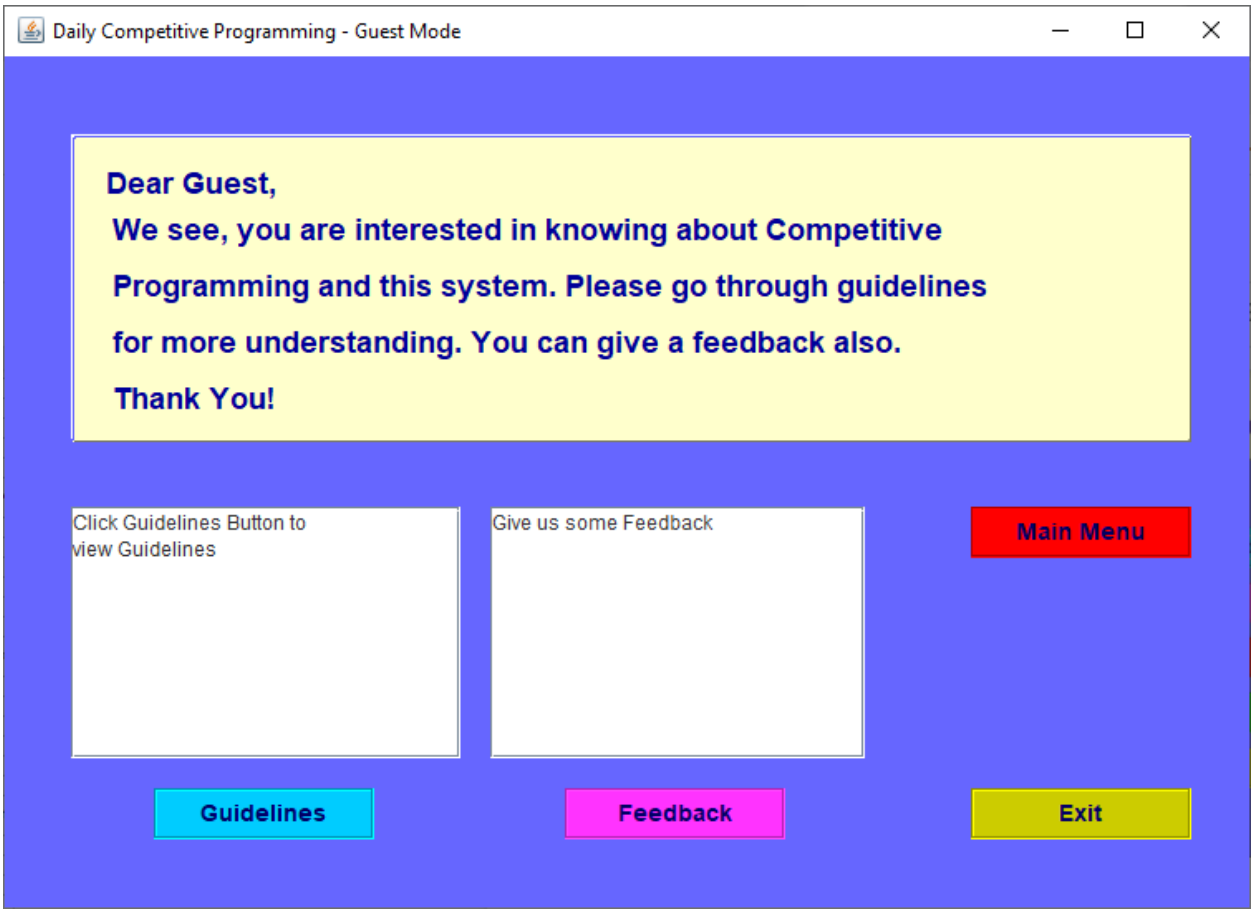
This is a simple project. Only one person from one device can save their record in this system. If they sign up again the previous record will simply vanish away. This is just a mini project. I will try to update it further with my knowledge.

Home

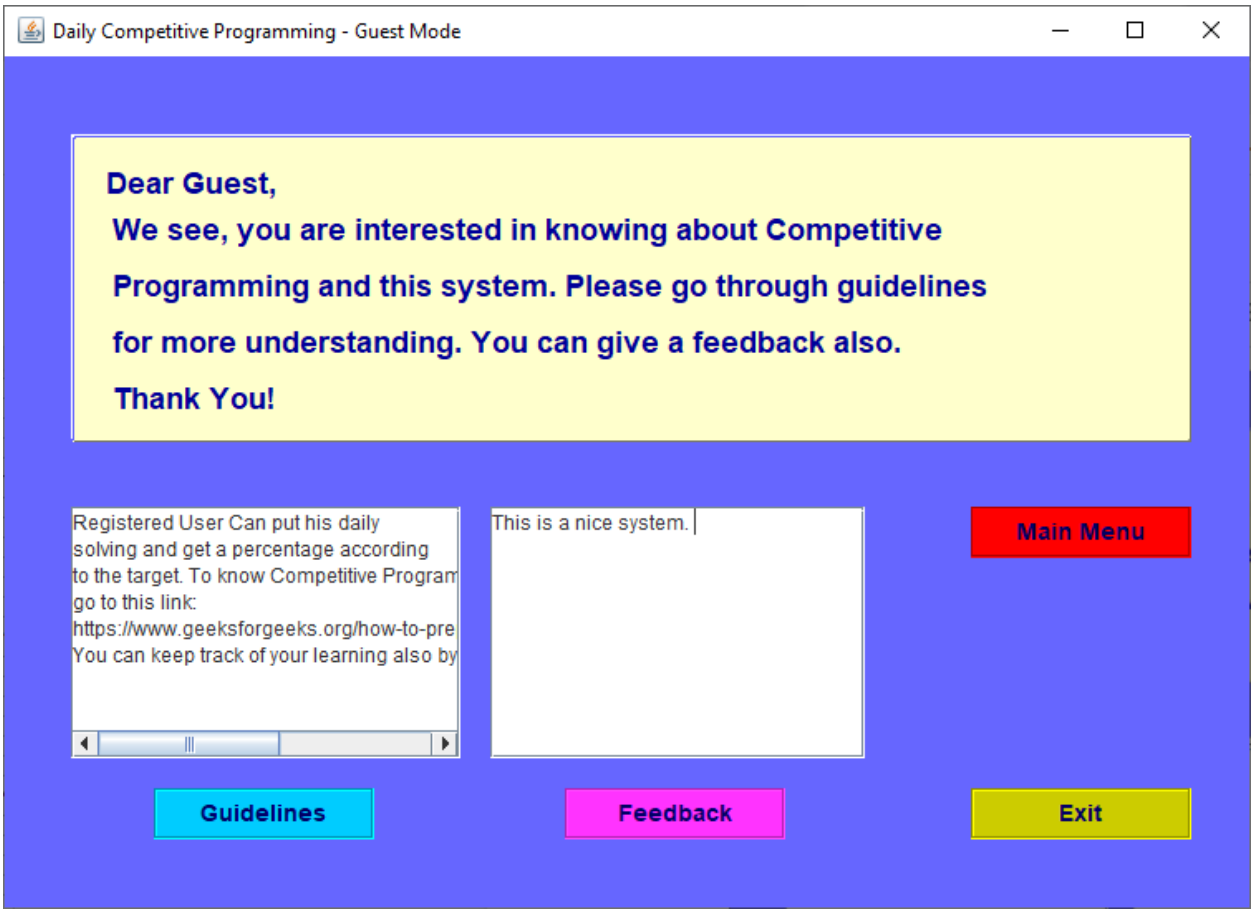


This is the Home screen of the Daily Competitive Programming System. Users can select their desired mode.

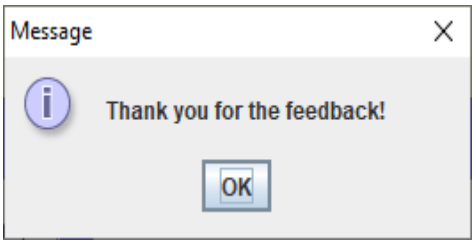
- **Guest Mode**: If a user doesn't want to sign up yet but wants to know some details of the system and its use, then he/she can select this mode. After selecting this mode the following screen will appear.



In the guidelines mode we can see guidelines like the given screenshot below. We can also give feedback about the system.

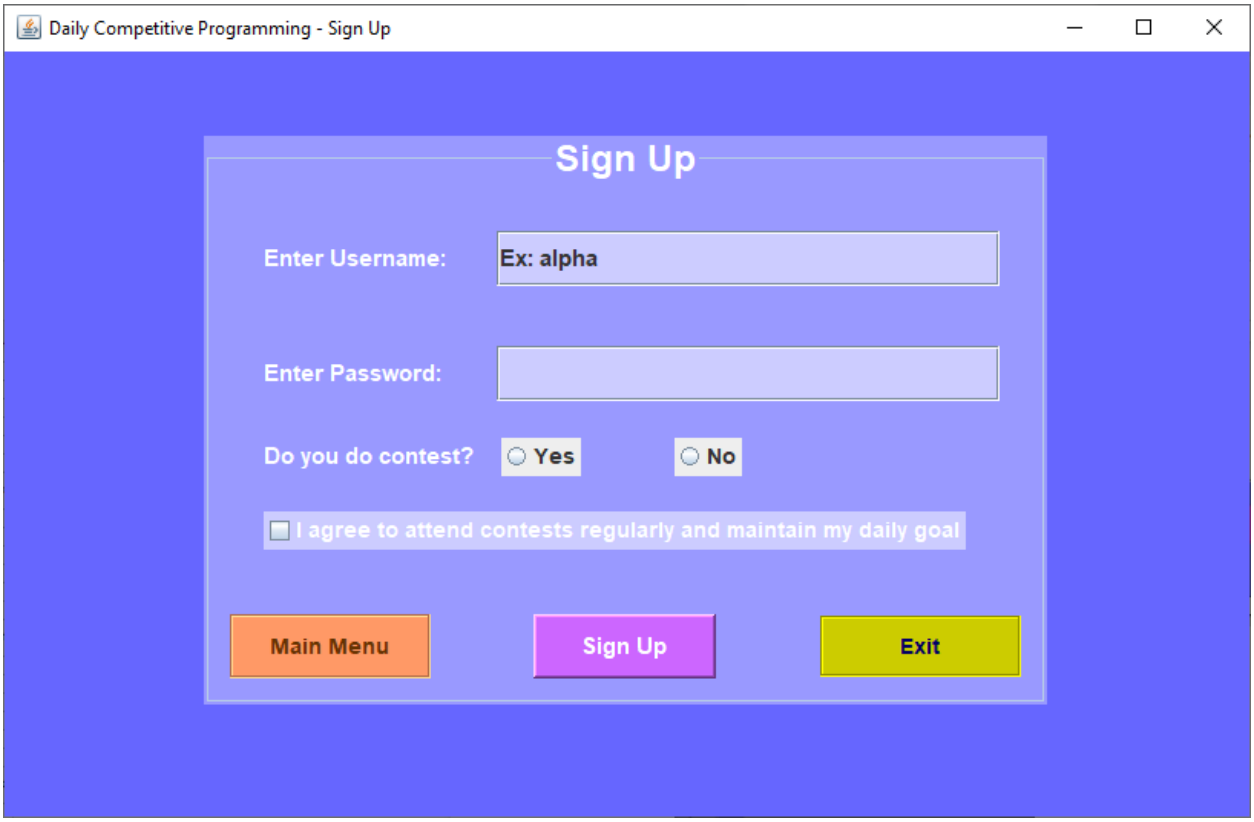


Now if we submit the feedback a message will show like the given screenshot below:

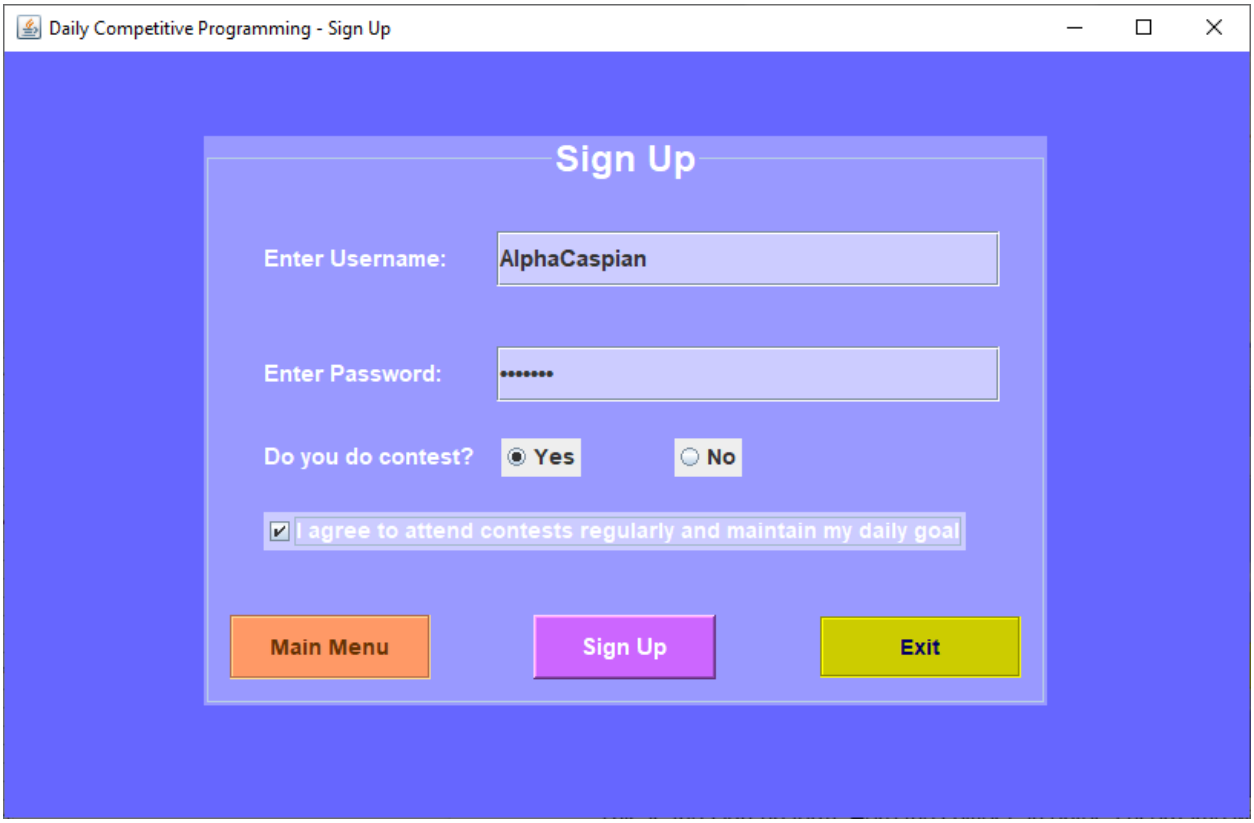


If the guest wants to go back to the main menu, he/she can press the button “main menu”.
If he wants to exit then press the exit button.

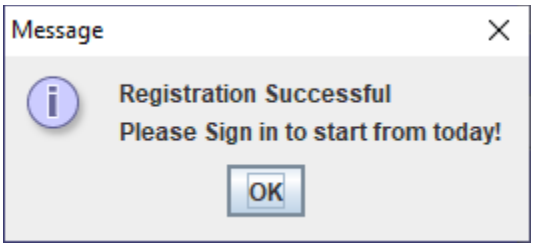
- **Sign Up**: Now if the user wants to use the system as a Solver and enjoy the features, he/she has to sign up from the main menu. If the user already has an account remember the previous record will be gone.



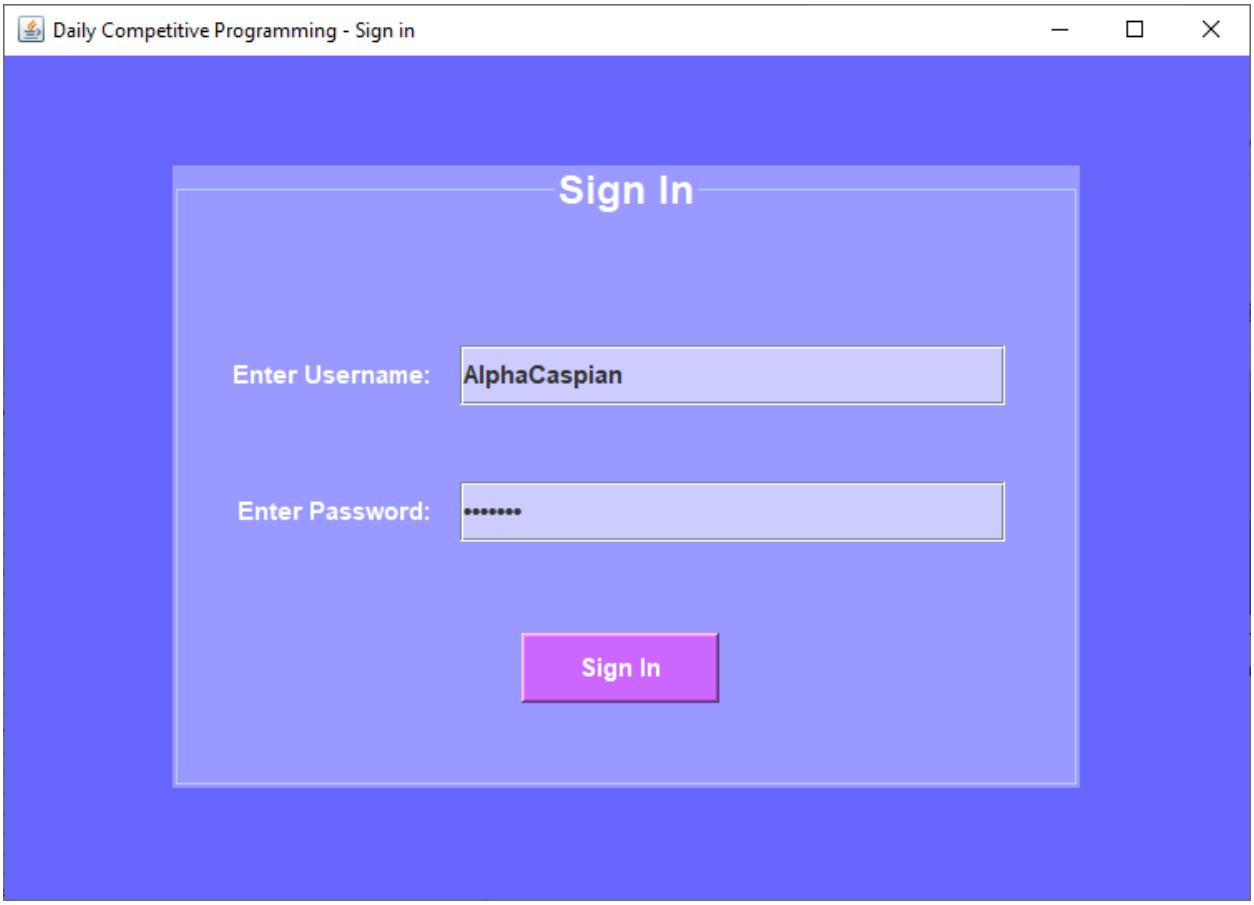
This is the sign up form. Here the solver can enter a username with more than 4 characters and a password with more than 6 characters. Otherwise it won't register. The solver has to have previous experience in the contest. If the solver presses no, the sign up won't process. That's not all, If the solver doesn't check the condition he won't be able to sign up. He has to agree with the condition to attend contests and maintain the goal. So the sign up procedure will be like below:



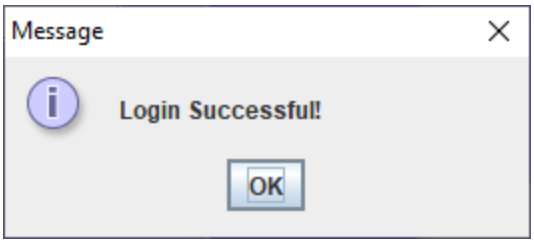
After giving every detail like above the solver can sign up, the window will appear like below. Also if the solver is not ready yet he can choose to go to the main menu or exit from the system.

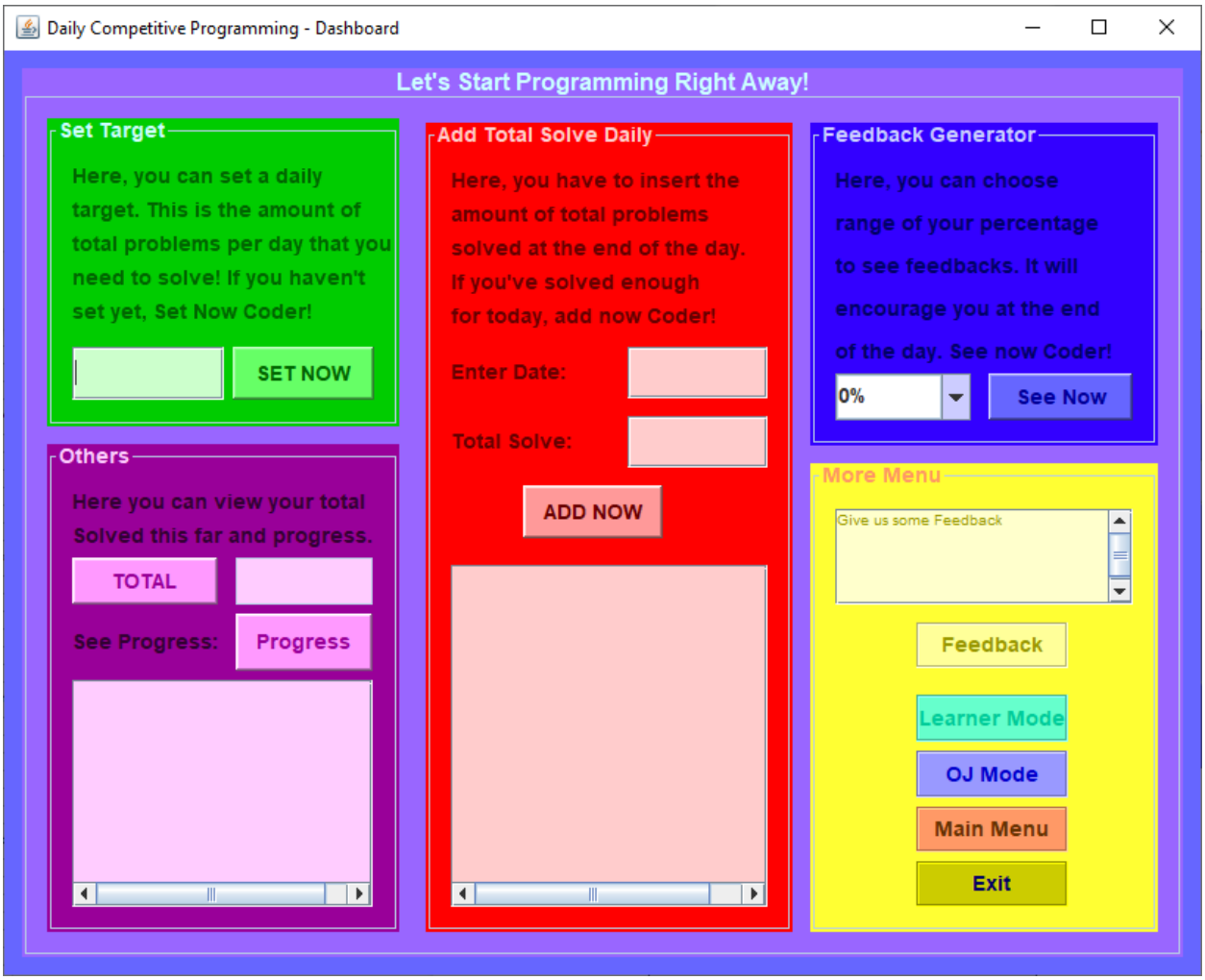


- **Sign In:** A registered solver can sign in to see the main tracker sheet. After pressing the sign in button from the main menu, the solver has to give the details to access the features inside the system. If the solver gives the wrong username or password he can't access it.



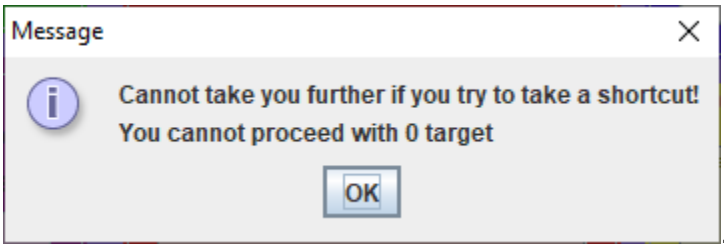
After successful sign in a window will appear like below:





This is the main dashboard for the Solver. Here can do anything to track his details.

A new solver cannot directly enter the total solve area without setting a target like below



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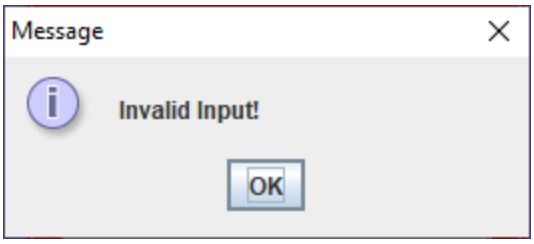
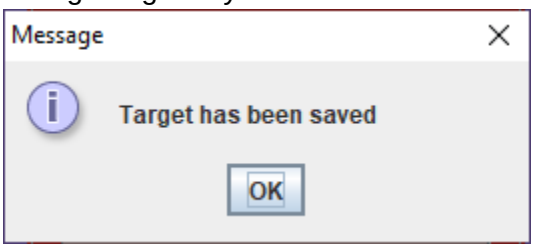
Also the solver cannot enter anything without a digit like below:

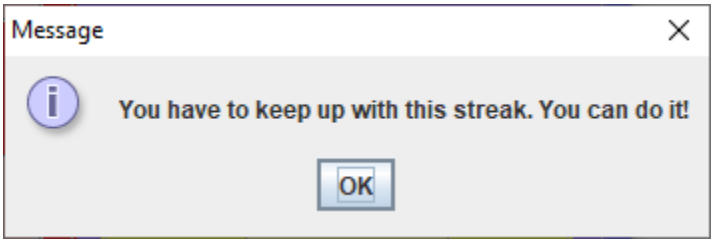


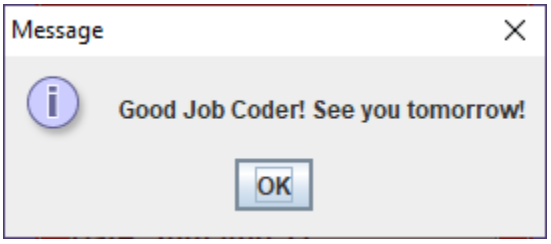
1. **Set Target:** A solver has to set a daily target. He has to fulfill this target to reach his goal. This is a beginner's step in competitive programming.

Now the solver has set the target to 5. He has to complete this target daily. He can also change target anytime.

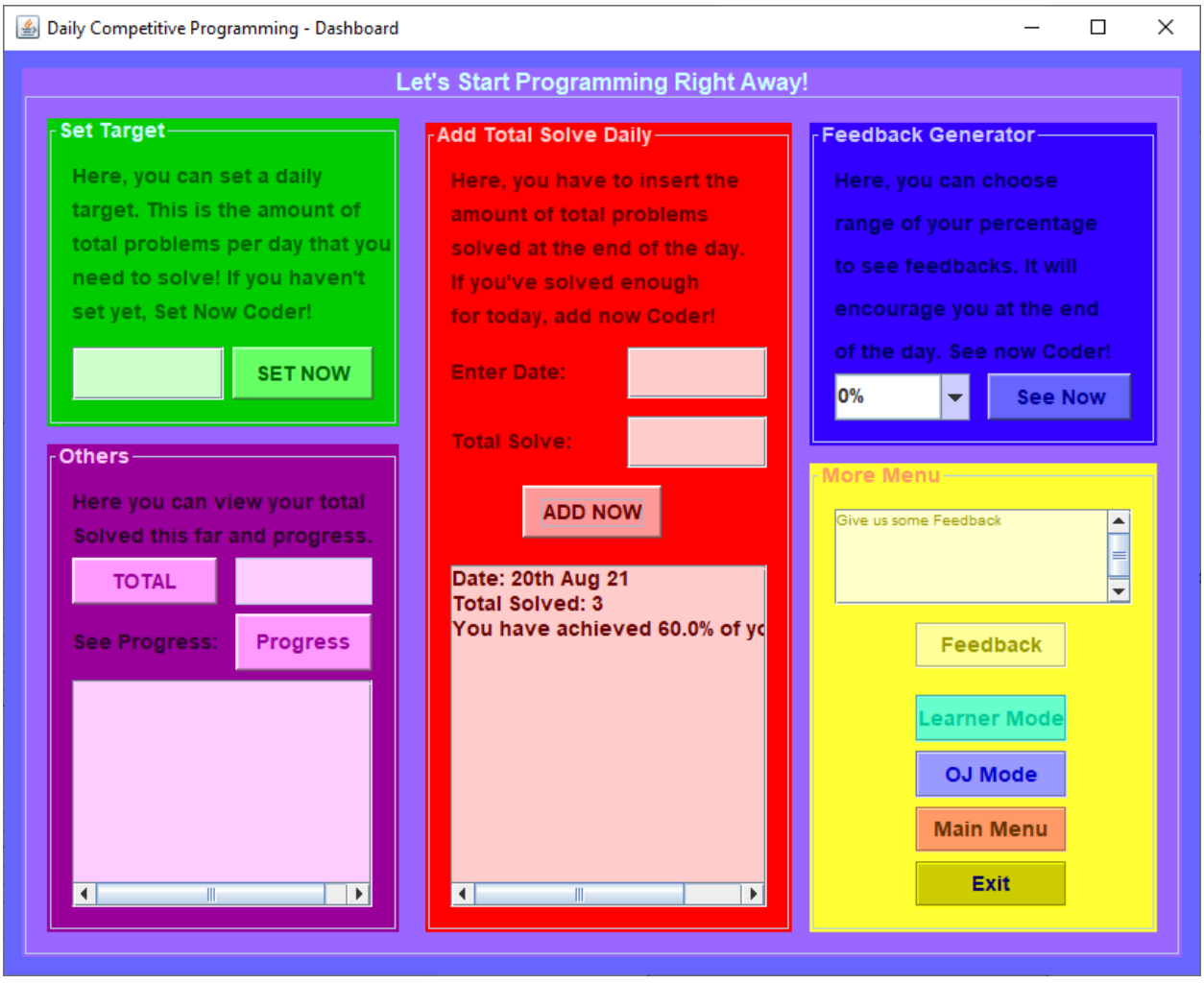


2. **Add total solve of the day:** Now if we input the day and add our total solve like above, we will see a feedback and a report like below:



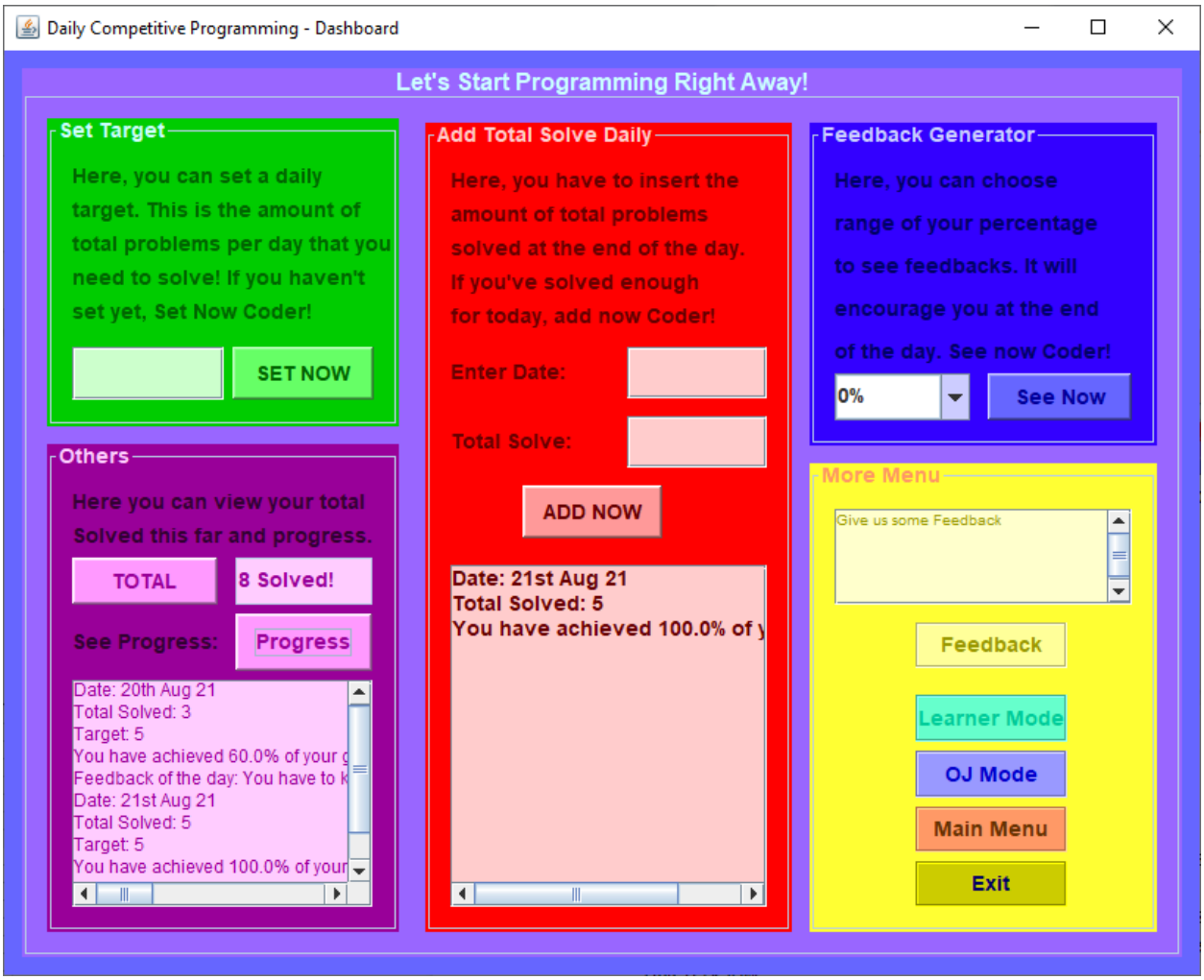


This is the feedback based on the day and target.

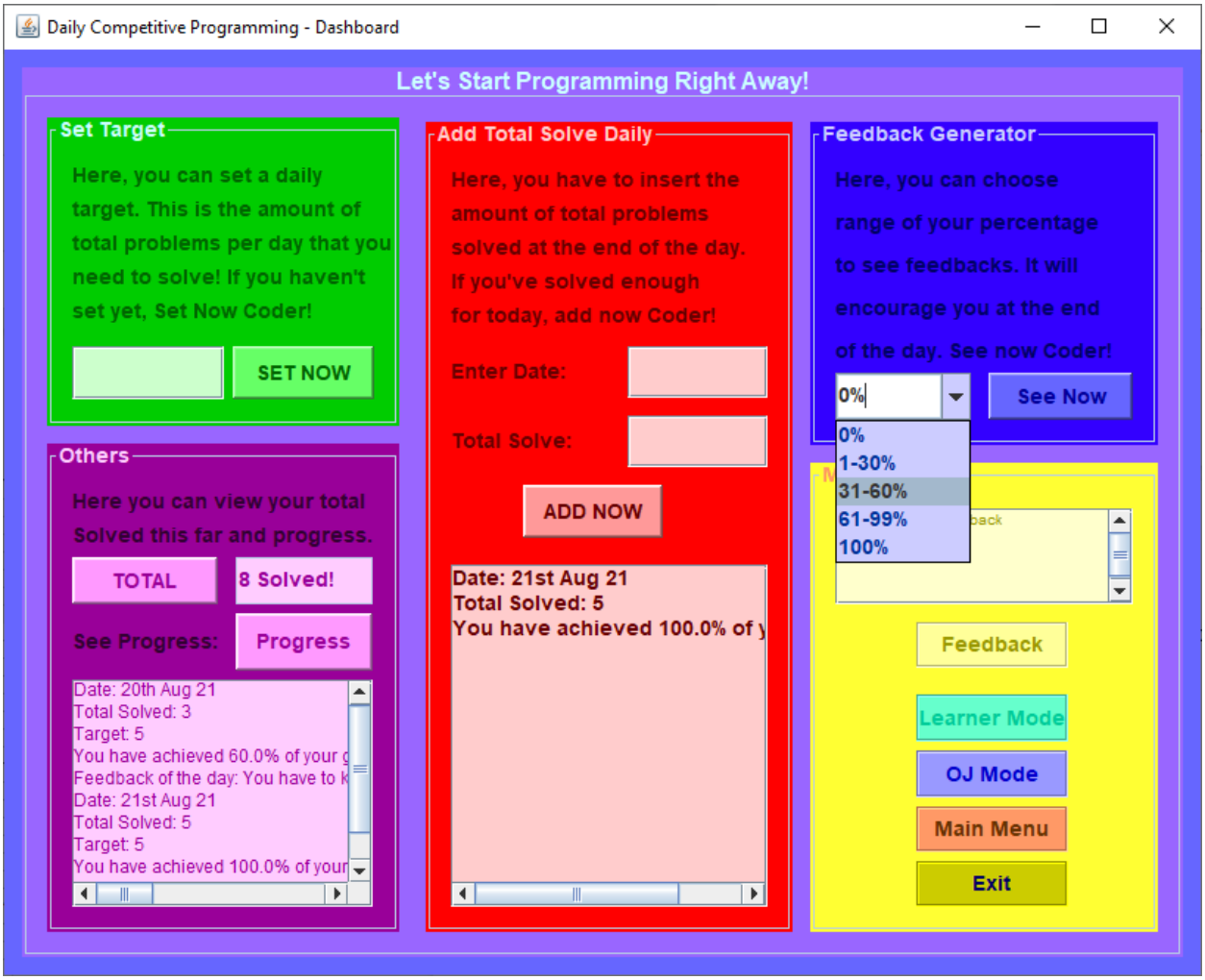


In the red box we can see the report of the day based on our daily target.

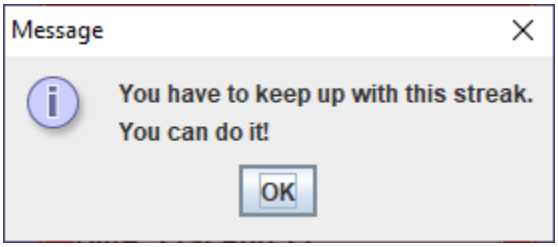
3. **Total and Progress:** In the purple box, if the solver wants to see the total solve that he has done so far, he can press Total in the maroon box. He will be able to see. If he wants to see all the progress history, he can click the progress. This progress includes the date, solve, feedback and percentage of target achievement with target. Example is given below:



4. **Feedback Generator**: If a solver wants to see how the feedback works, he can select the percentage to generate it. Example is given below:

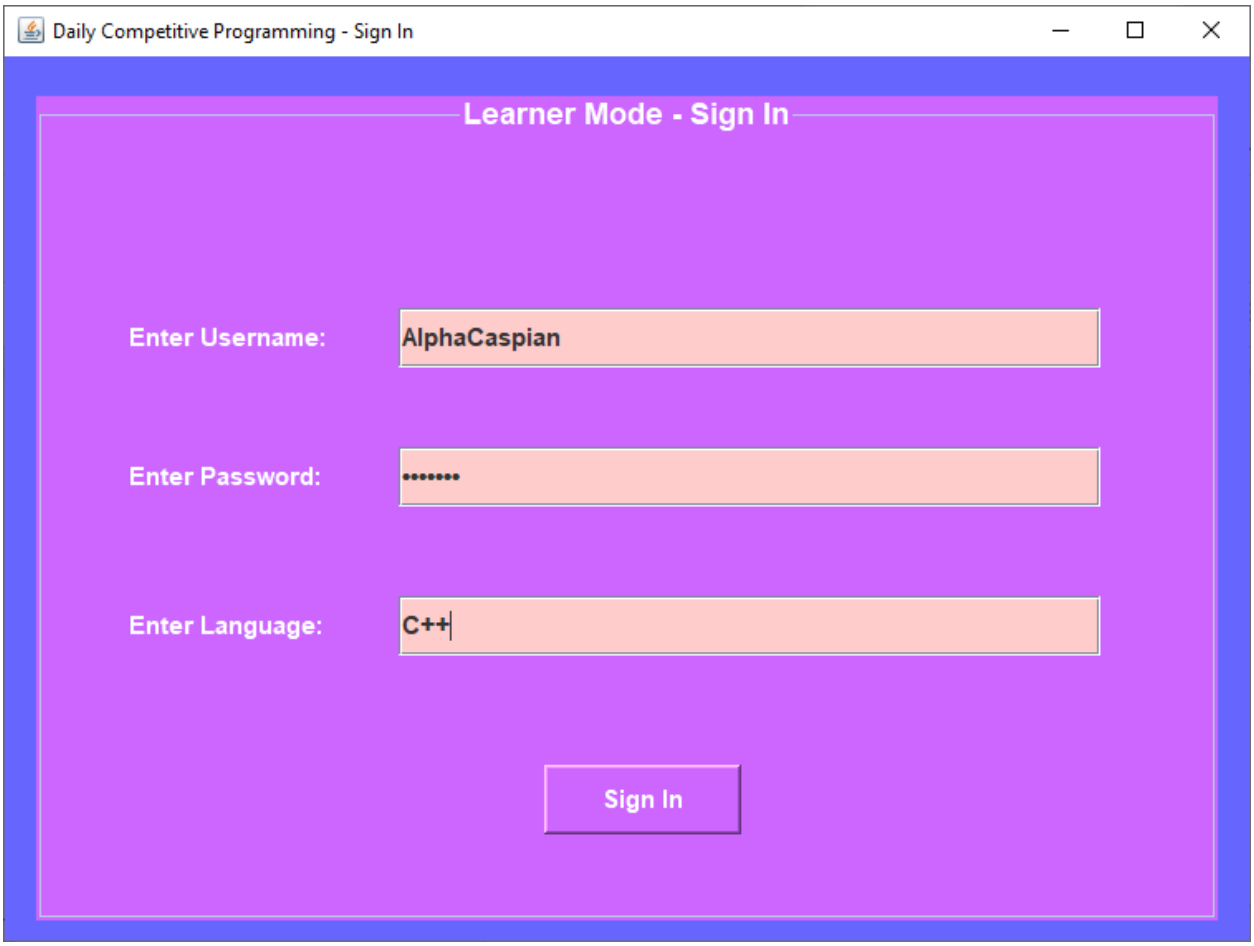


Choosing 31-60% will generate feedback like below:

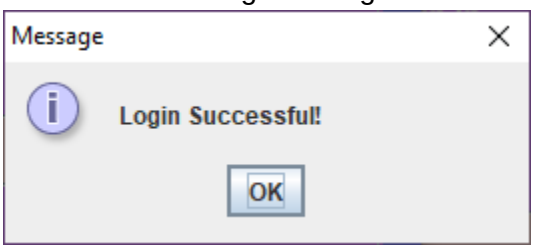


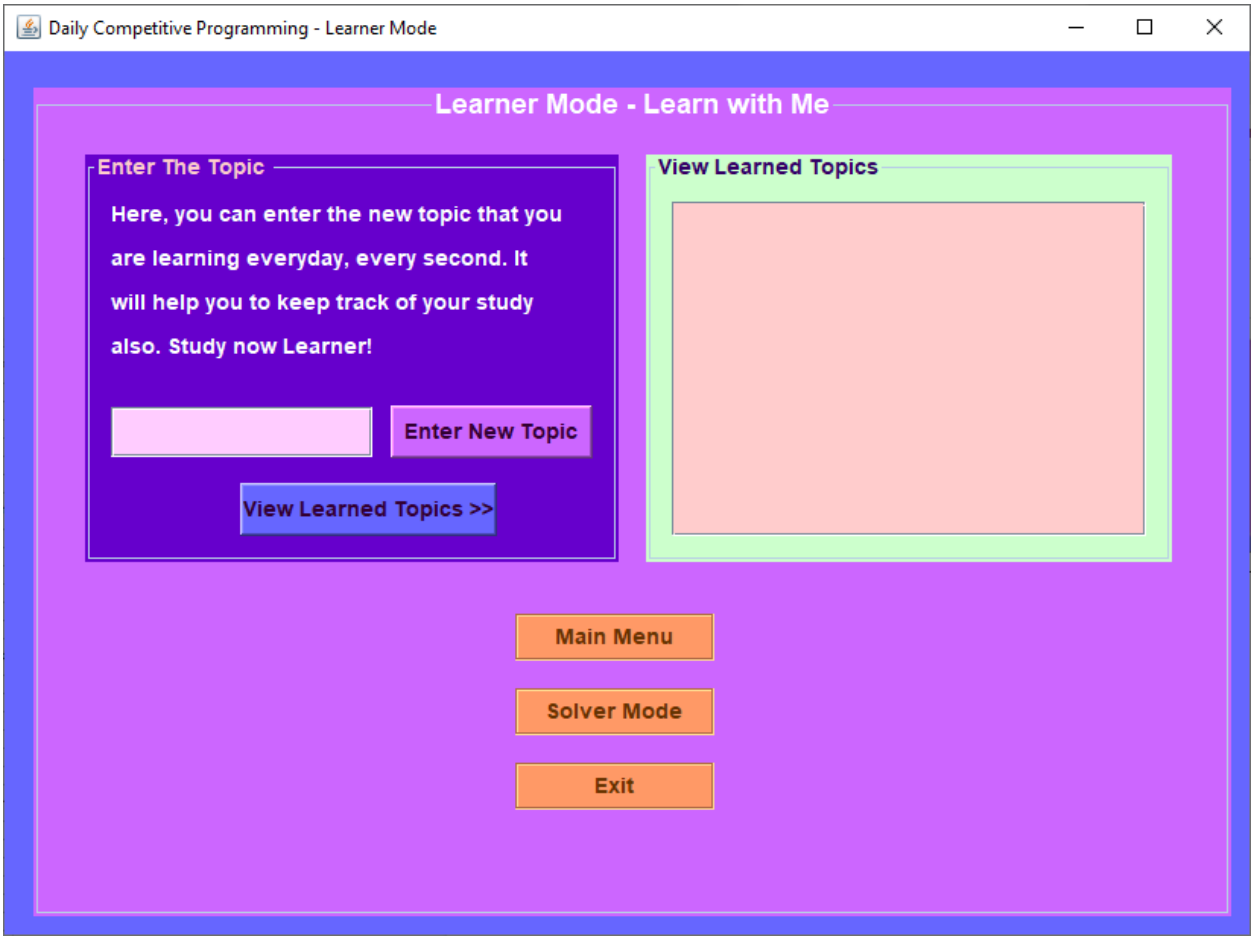
5. **Feedback:** If a solver wants to give feedback he can write something on the yellow feedback field and press Feedback.

6. **Learner Mode:** To access the learner mode for a solver has to login first. In the login the learner will enter the language of his Competitive Programming topic for the day.

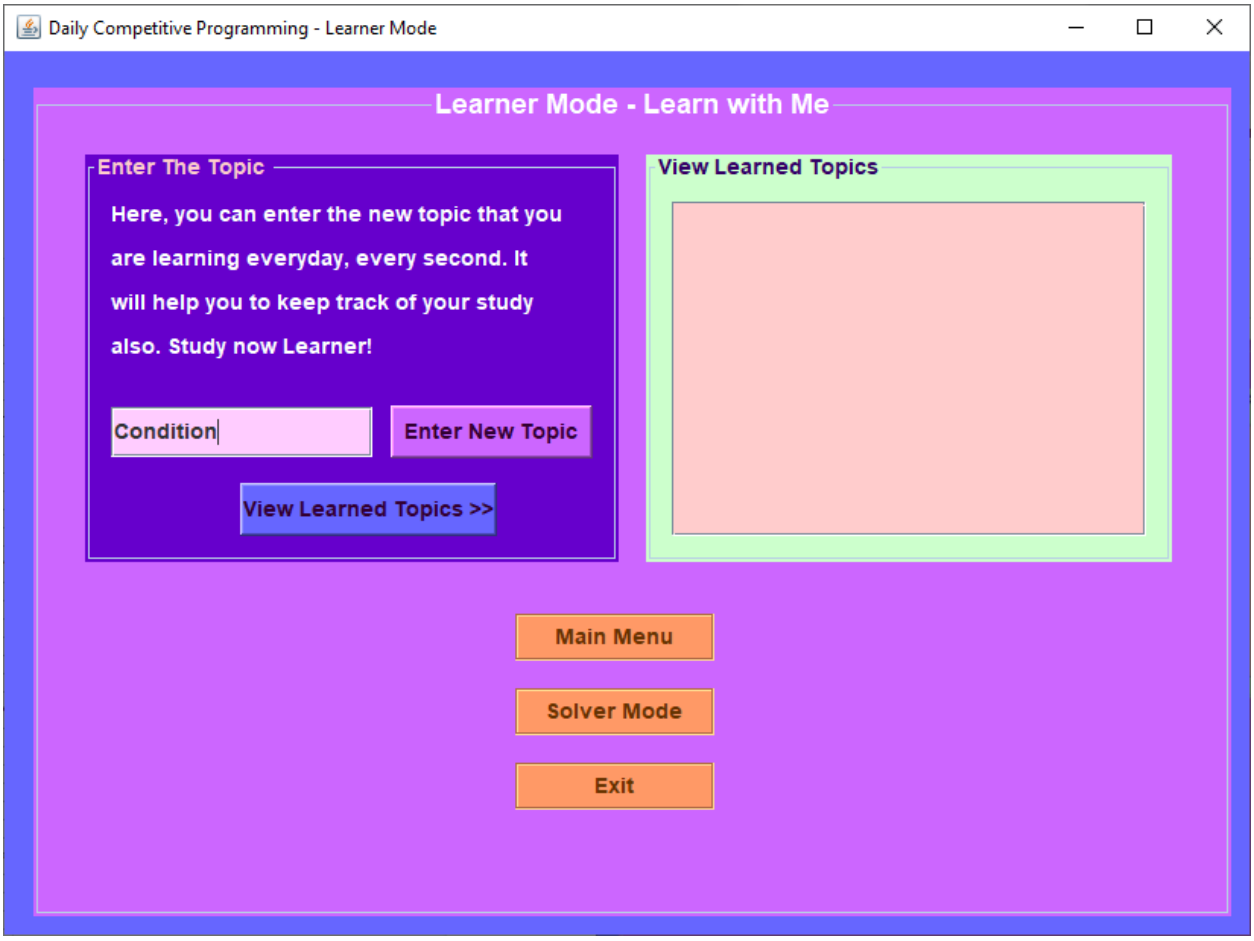


After successful login it will give the solver access to the learning mode.

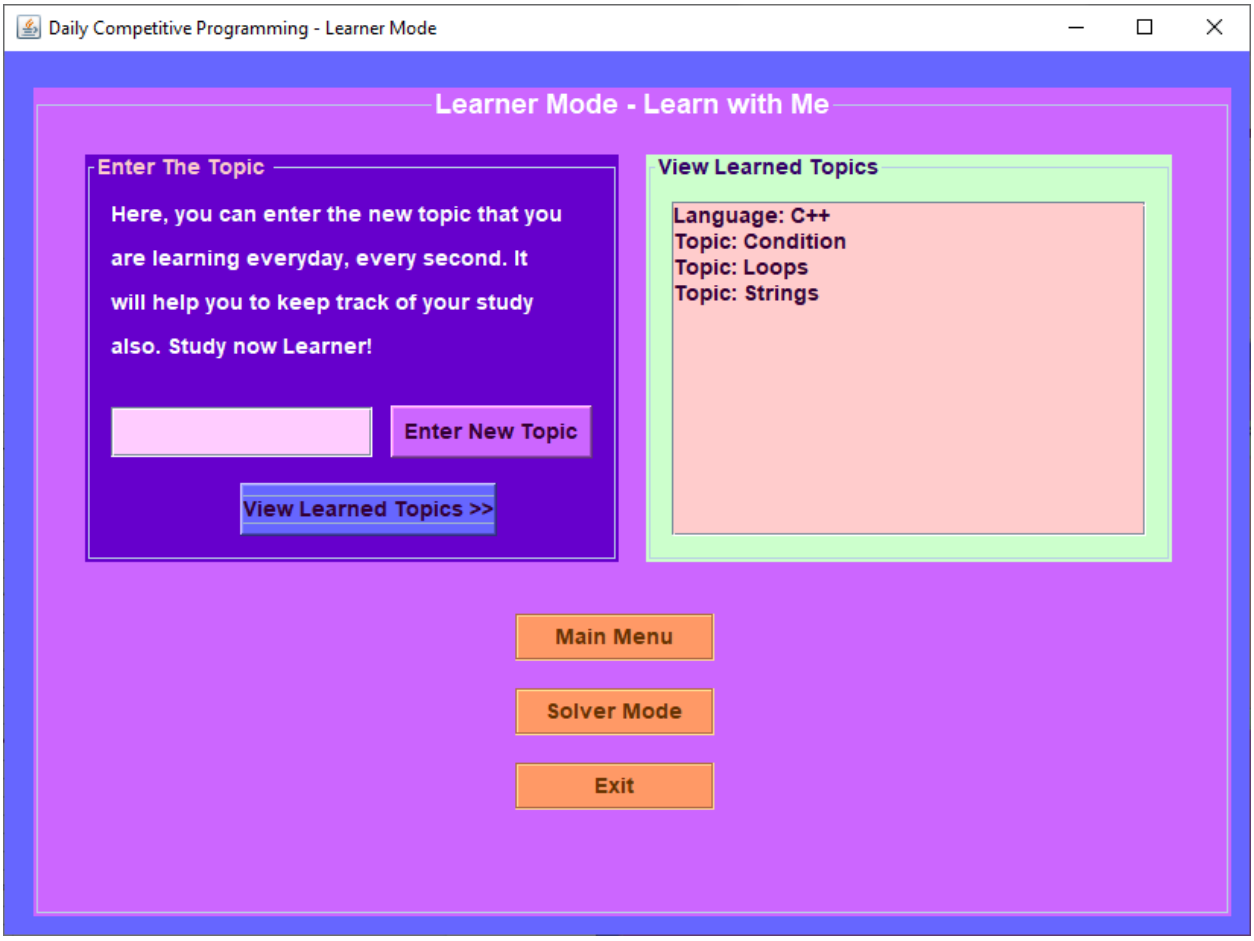




This is the learner's dashboard. Solver can enter the topic that he has learned. In this way he will be able to see what he has learned and what he needs to learn next. Without learning, the solver cannot compete.

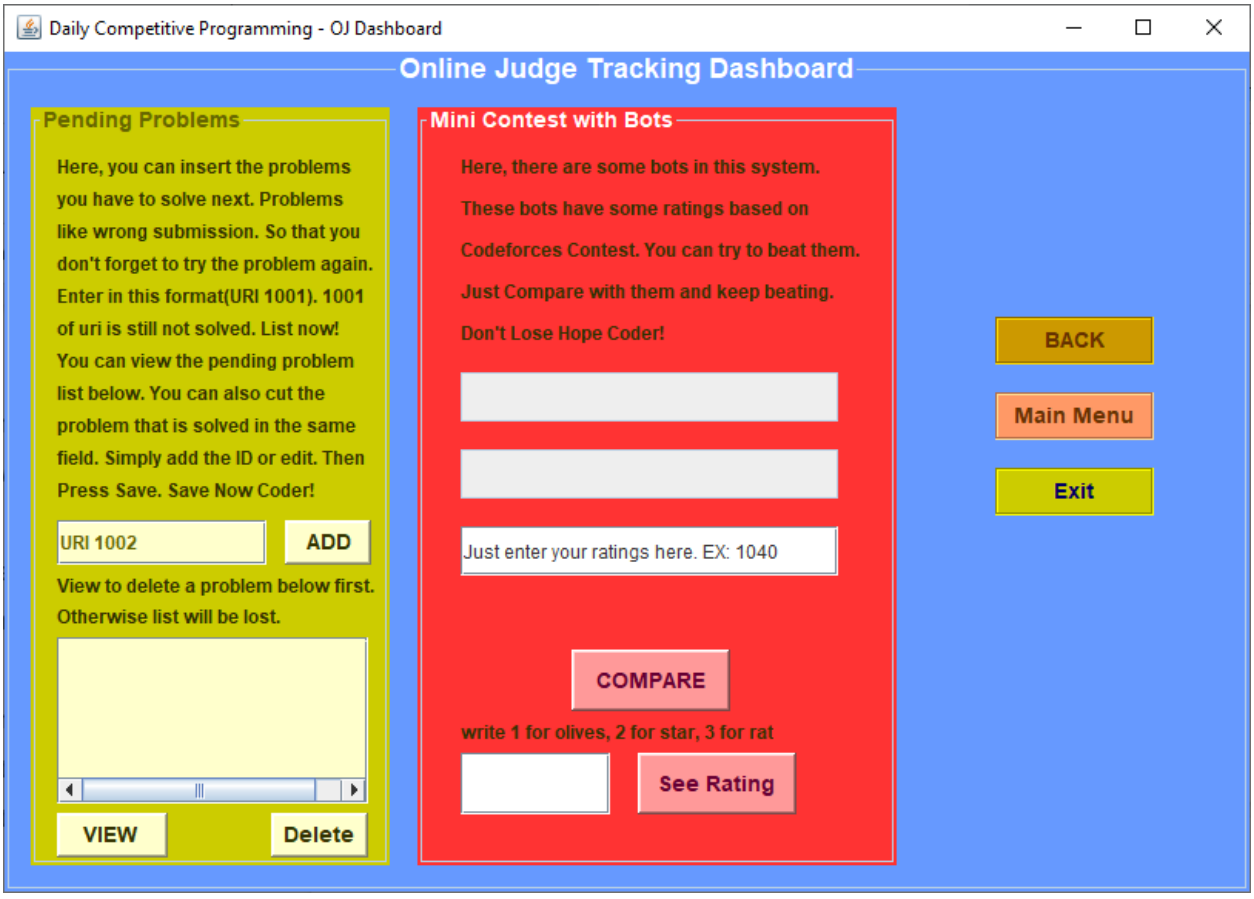


After entering the topic if the learner wants to see the list of his learning he can view it.

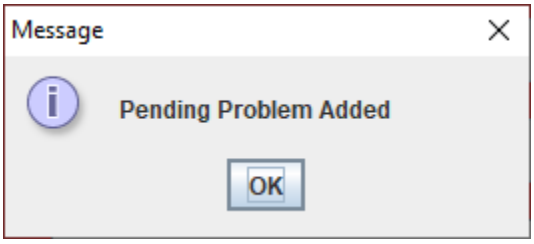


After viewing this is the list that will show for the language c++. Learners can change language during sign in. Now if we go again to the solver mode and check the OJ mode.

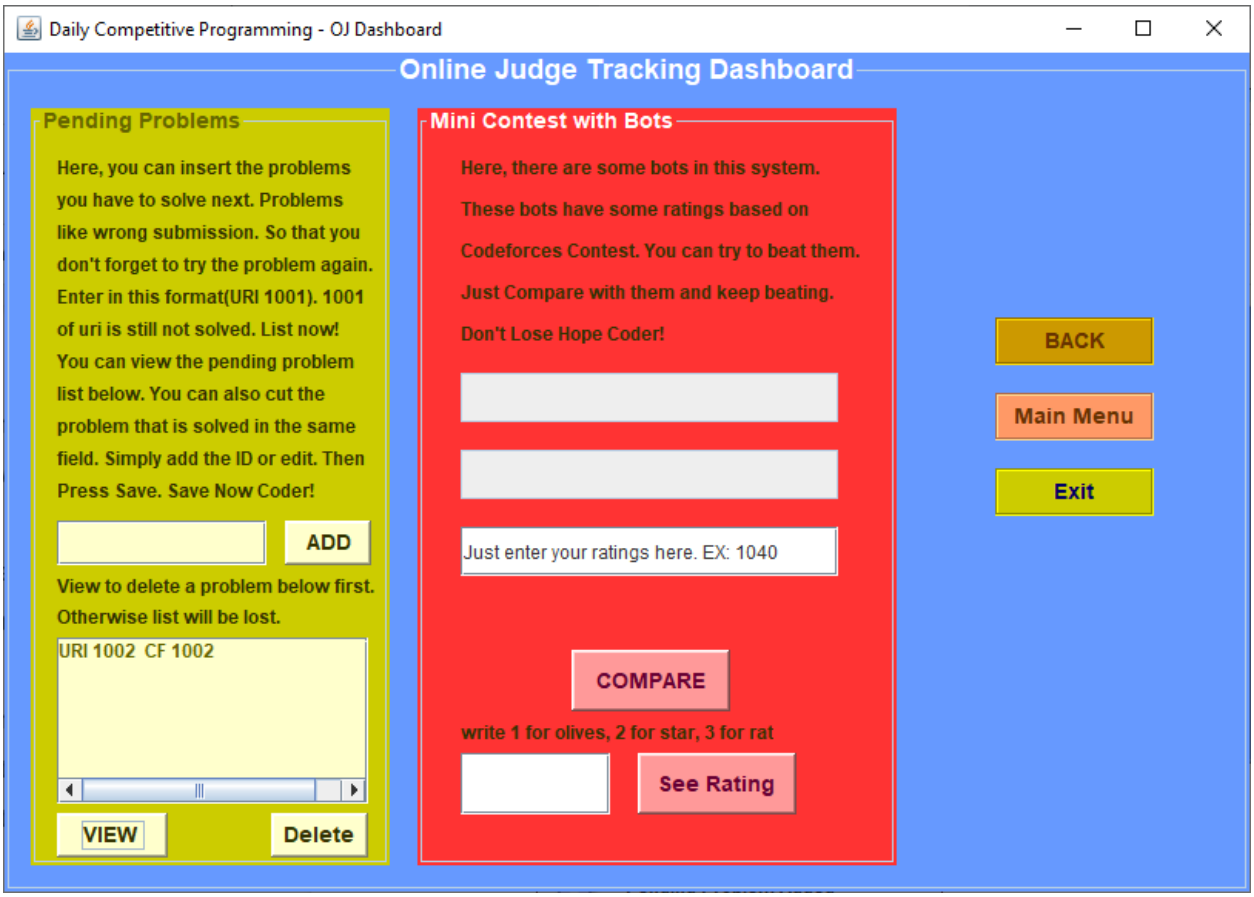
7. **OJ Mode:** Below is the dashboard of OJ mode.
    - Pending Problems: Now if the solver gets a wrong answer or is confused about a problem, he can list the problem on the yellow box by ADD. By this feature he can add the problem that he will solve in future.



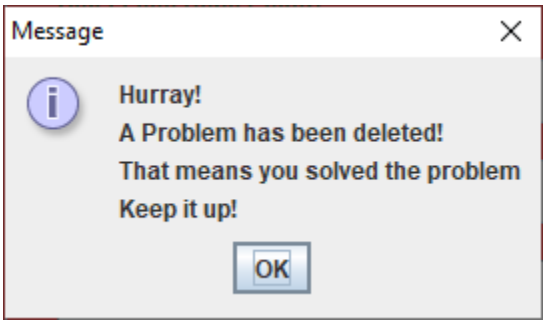
by adding this problem will show a window like below



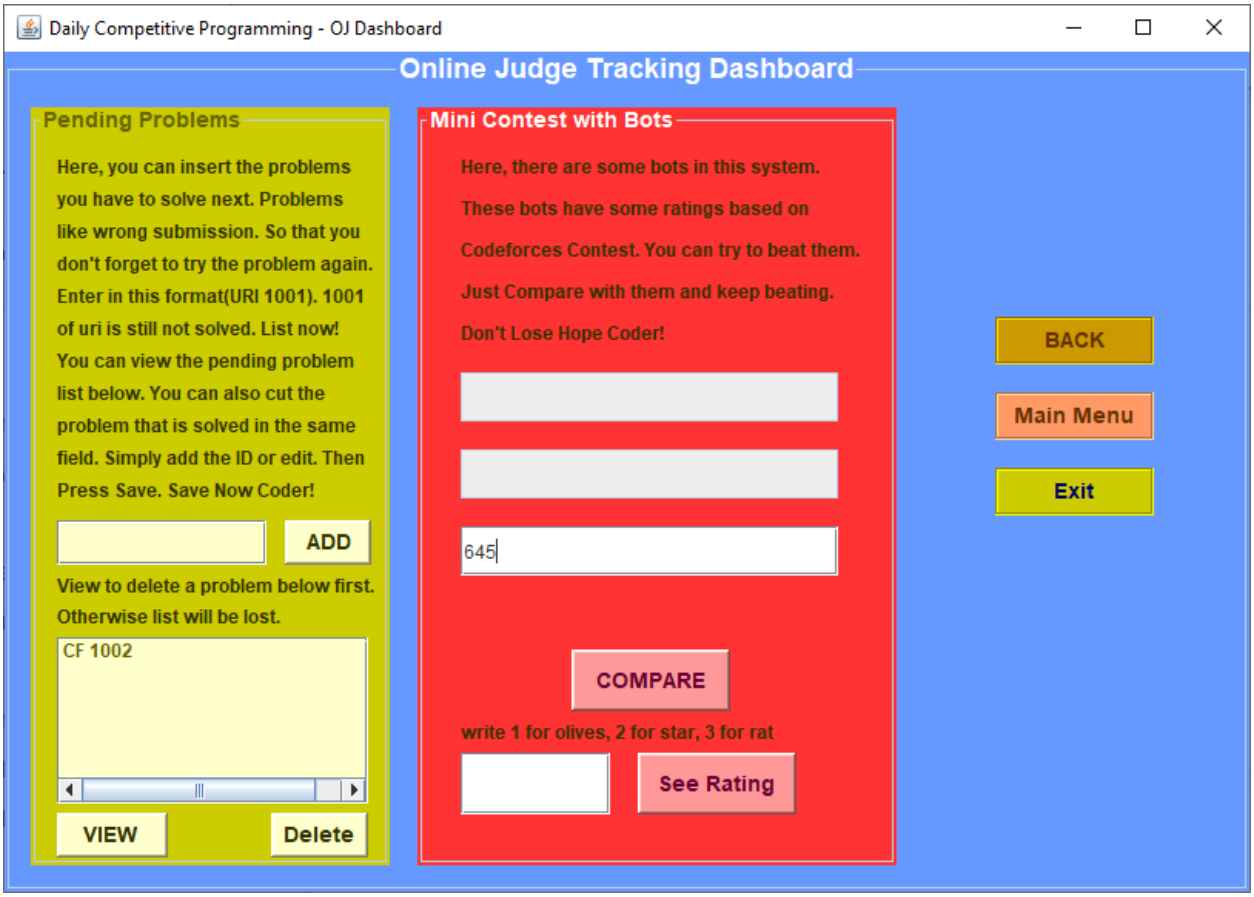
If the solver wants to view the problem list that he needs to solve, he can click VIEW



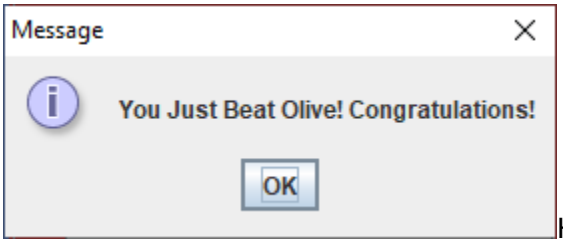
We can see the pending problems here. Now if the solver solved the problem URI 1002, he can erase that problem in the box and click DELETE. This will save the process.
But there is a CAUTION. If the solver doesn't view first and press delete, all records will get deleted. So the solver has to view first, in order to delete.



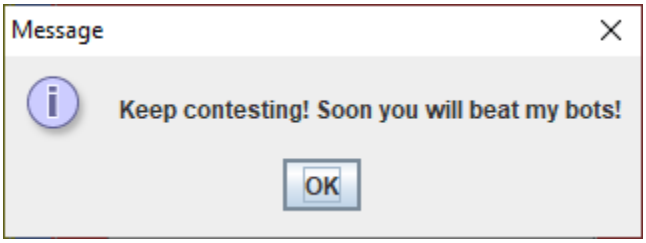
- **Mini Contest With Bot**: In the red 3rd box, solver can enter his/her coderforces current ratings and compare with the system's bots.



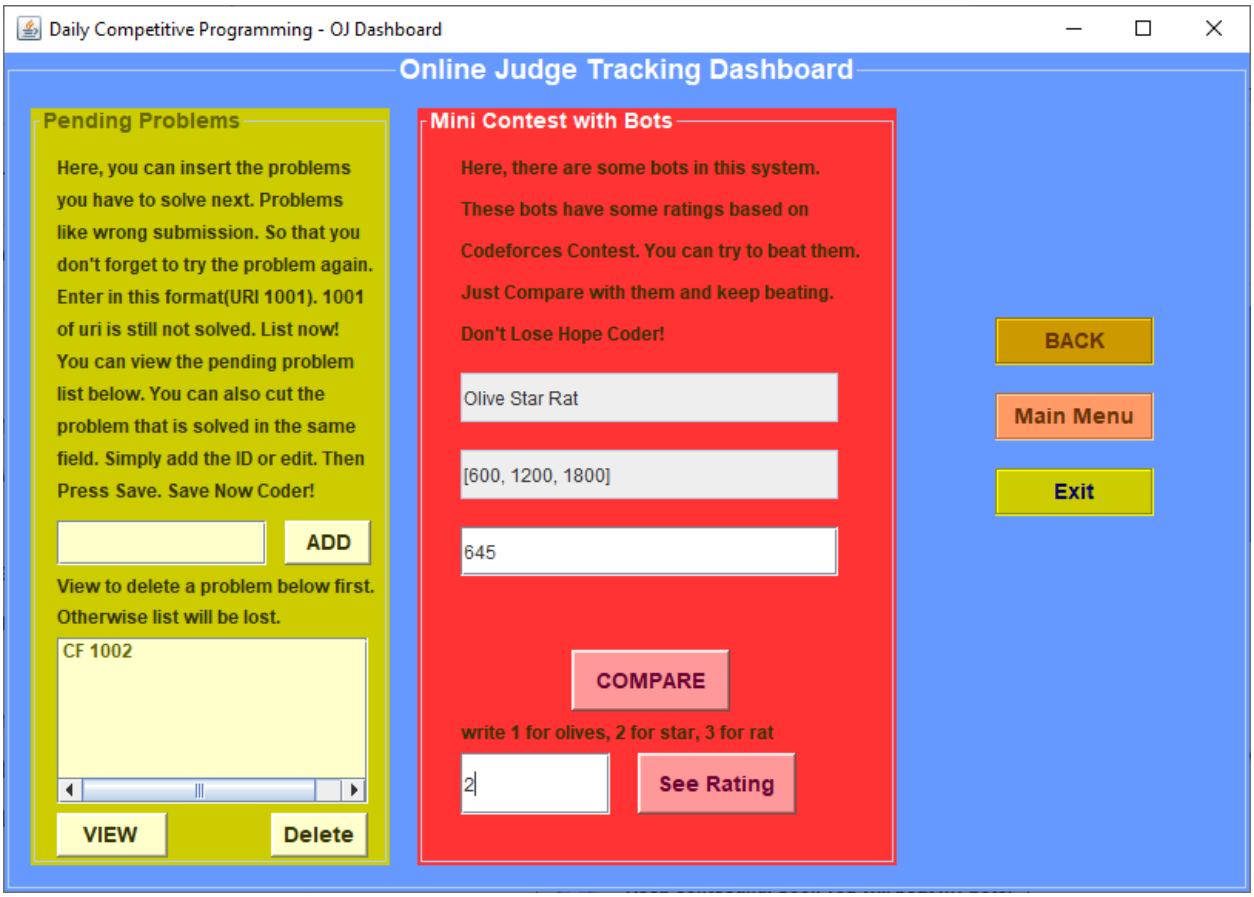
After comparing, the result will show like below

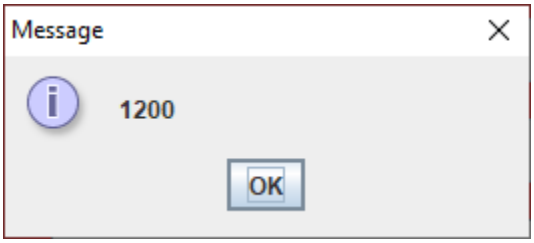


Here Olive is a system, which the solver beats



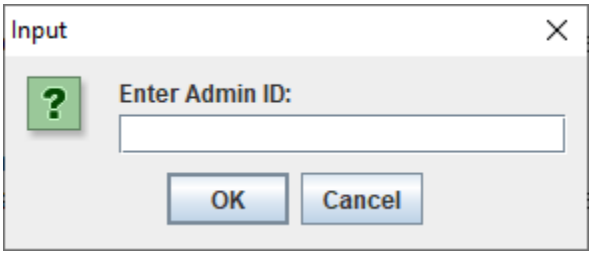
Now if the contestant wants to see the ratings of the system's bots, he/she can click "See Rating" by giving the serial number of the bot.

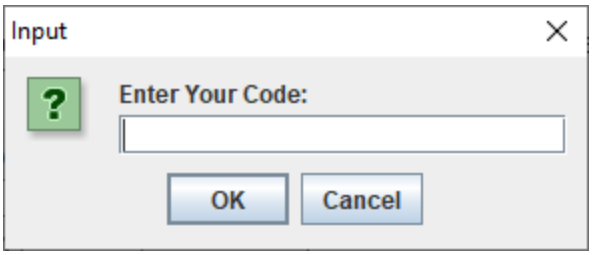




Here Stars rating is 1200.

8. **Admin**: After going to the main menu, the admin of the system can login into the system.

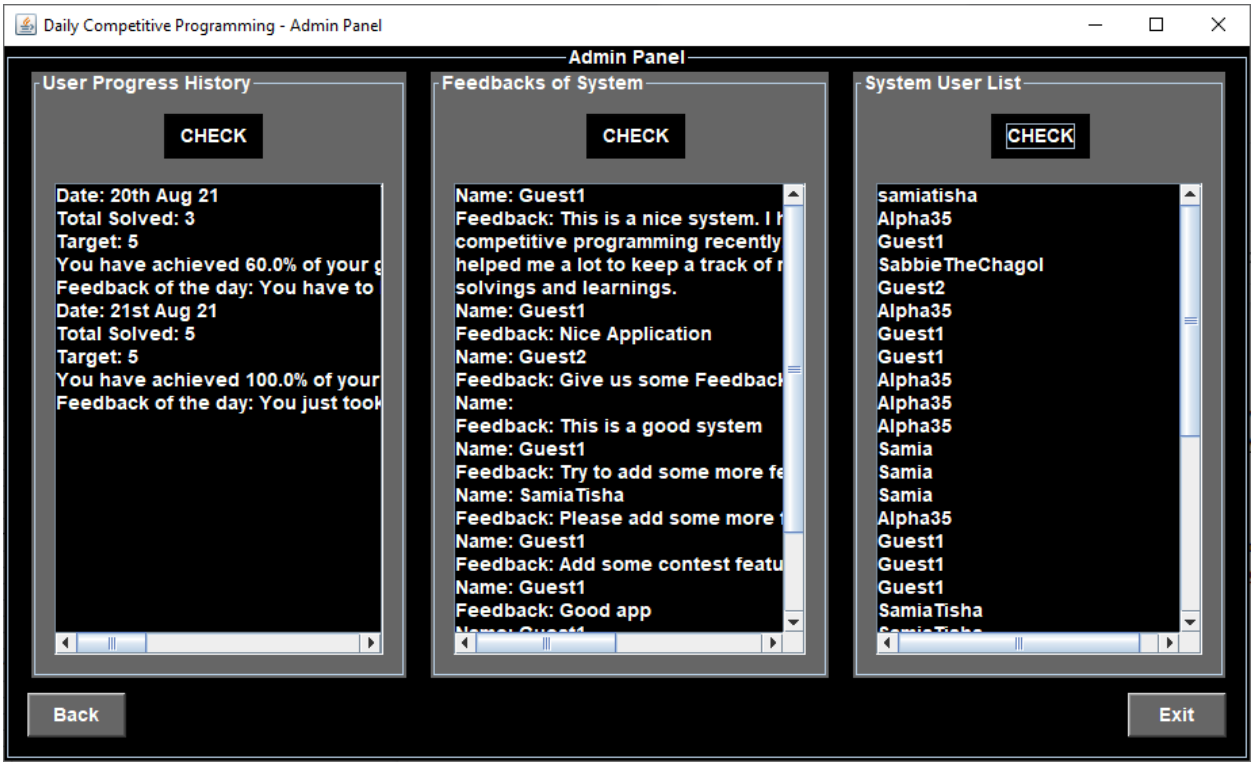




This code and ID is only for the admin. No other person except the admin will know the access area. After successful Access admin dashboard will show like below

- **User Progress History:** Here admin can see the progress history of the solvers.
- **Feedbacks of System:** Admin will be able to see the feedbacks about the system
- **System User List:** Admin will be able to see all the list of users.

The Example of this 3 area is given below



Tutorial View⇒ Java Project.mp4

This is how the system works. Competitive Programmers can use this app to track his programming activity on a daily life basis. This will help the beginners to reach his goal easily.

The End