RedSet

RedSet creates a beneficial environment for learners that includes topic wise problems with solution, notes section where user can keep notes or templates, notify about running and upcoming contest of groups where user is joined, leaderboard and activity, and the exclusive feature LatticeLine, that includes compiler, groups feature (Individual can create or join groups. The teachers of every group can make announce, assignment - like Google Classroom and contest - like an Online Judge.)

Config

You can run the project in your environment through any IDE by cloning the project. Run `git clone https://github.com/Tamal267/RedSet` in your terminal. Before run, delete `RedSet/target` if found and create a database named `lattice` in your localhost mysql server. Run `CREATE DATABASE lattice;`. Then run the given sql script for the database `lattice`.

```
-- phpMyAdmin SQL Dump
-- version 5.1.1deb5ubuntu1
-- https://www.phpmyadmin.net/
--
-- Host: localhost:3306
-- Generation Time: Nov 20, 2023 at 01:35 PM
-- Server version: 8.0.35-0ubuntu0.22.04.1
-- PHP Version: 8.1.2-1ubuntu2.14

SET SQL_MODE = "NO_AUTO_VALUE_ON_ZERO";
START TRANSACTION;
SET time_zone = "+00:00";


/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
/*!40101 SET NAMES utf8mb4 */;

--
-- Database: `lattice`
--

-- --------------------------------------------------------

--
-- Table structure for table `announce`
--
```

```
CREATE TABLE `announce` (
  `text` text,
  `date` varchar(50) DEFAULT NULL,
  `gp` varchar(50) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;


-- --------------------------------------------------------

--
-- Table structure for table `assignment`
--

CREATE TABLE `assignment` (
  `group_name` varchar(30) DEFAULT NULL,
  `text` text,
  `code` text,
  `input` longtext,
  `assignId` varchar(30) NOT NULL,
  `users` text,
  `timeLimit` varchar(5) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;

-- --------------------------------------------------------

--
-- Table structure for table `conProb`
--

CREATE TABLE `conProb` (
  `problemid` varchar(30) NOT NULL,
  `statement` text,
  `code` text,
  `input` longtext,
  `users` text,
  `timeLimit` varchar(5) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;

-- --------------------------------------------------------

--
-- Table structure for table `contest`
--

CREATE TABLE `contest` (
  `contestName` varchar(30) NOT NULL,
```

```
  `startTime` varchar(30) DEFAULT NULL,
  `duration` varchar(30) DEFAULT NULL,
  `problemsIds` text,
  `groupName` varchar(30) DEFAULT NULL,
  `ranking` text
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;


-- ------------------------------------------------------

--
-- Table structure for table `gp`
--

CREATE TABLE `gp` (
  `name` varchar(30) NOT NULL,
  `stdents` varchar(1000) DEFAULT NULL,
  `teachers` varchar(1000) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;


-- ------------------------------------------------------

--
-- Table structure for table `notes`
--

CREATE TABLE `notes` (
  `title` text,
  `note` longtext,
  `user` varchar(30) DEFAULT NULL,
  `date` varchar(30) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;


-- ------------------------------------------------------

--
-- Table structure for table `problems`
--

CREATE TABLE `problems` (
  `problemid` varchar(50) NOT NULL,
  `statement` text,
  `code` text,
  `input` longtext,
```

```
  `users` text,
  `timeLimit` varchar(5) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;

-- --------------------------------------------------------

--
-- Table structure for table `studyProblems`
--

CREATE TABLE `studyProblems` (
  `problemid` varchar(30) NOT NULL,
  `statement` text,
  `timelimit` varchar(5) DEFAULT NULL,
  `code` text,
  `input` longtext,
  `users` text,
  `solution` text
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;

-- --------------------------------------------------------

--
-- Table structure for table `studyTopic`
--

CREATE TABLE `studyTopic` (
  `topicName` varchar(30) NOT NULL,
  `problemids` text
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;


-- --------------------------------------------------------

--
-- Table structure for table `users`
--

CREATE TABLE `users` (
  `username` varchar(30) NOT NULL,
  `password` varchar(30) DEFAULT NULL,
  `connect` text,
  `fullName` varchar(30) DEFAULT NULL,
  `studentId` varchar(30) DEFAULT NULL,
  `email` varchar(30) DEFAULT NULL,
  `institute` varchar(30) DEFAULT NULL,
```

```
  `time` text
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;

--
-- Indexes for dumped tables
--

--
-- Indexes for table `assignment`
--
ALTER TABLE `assignment`
  ADD UNIQUE KEY `assignId` (`assignId`);

--
-- Indexes for table `conProb`
--
ALTER TABLE `conProb`
  ADD PRIMARY KEY (`problemid`);

--
-- Indexes for table `contest`
--
ALTER TABLE `contest`
  ADD PRIMARY KEY (`contestName`);

--
-- Indexes for table `gp`
--
ALTER TABLE `gp`
  ADD PRIMARY KEY (`name`);

--
-- Indexes for table `problems`
--
ALTER TABLE `problems`
  ADD PRIMARY KEY (`problemid`);

--
-- Indexes for table `studyProblems`
--
ALTER TABLE `studyProblems`
  ADD PRIMARY KEY (`problemid`);

--
-- Indexes for table `studyTopic`
--
```

```
ALTER TABLE `studyTopic`
  ADD PRIMARY KEY (`topicName`);

--
-- Indexes for table `users`
--
ALTER TABLE `users`
  ADD PRIMARY KEY (`username`);
COMMIT;

/*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;
/*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
/*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
```

Then change username and passowrd in `RedSet/src/main/java/com/example/RedSet/DBconnect.java`.

Dashboard

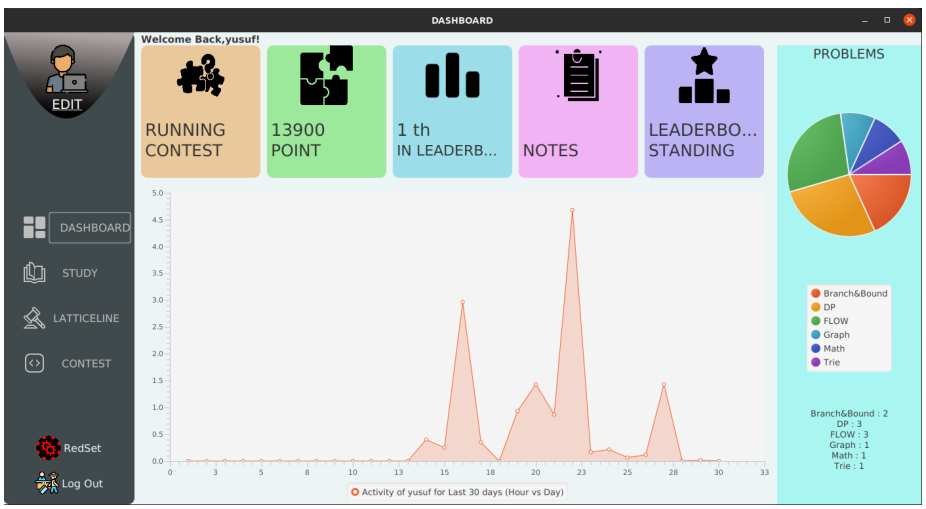
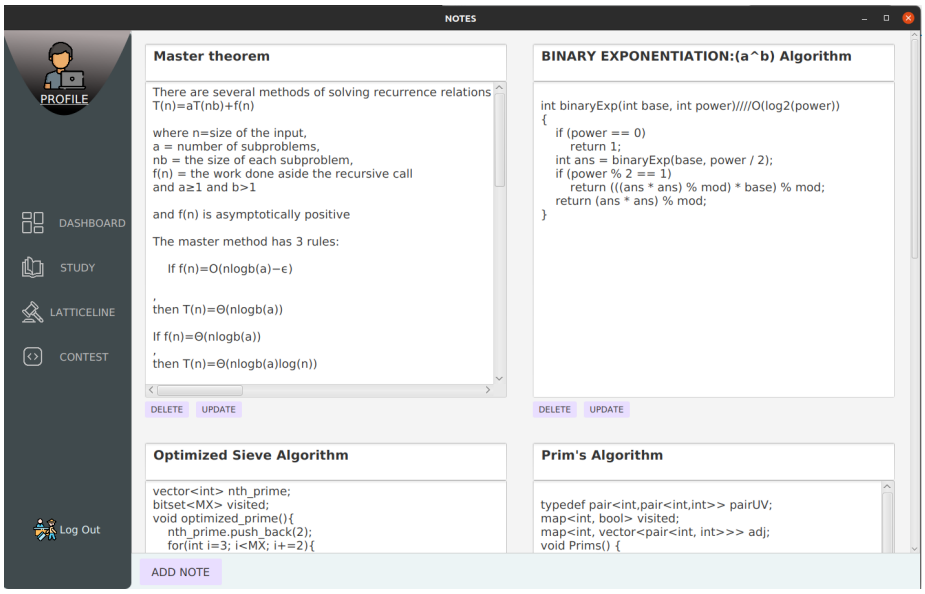


Figure 1: Dasboard

Dashboard gives a vivid idea of what can be done in RedSet. It gives important information to the users about how long he is in the application through graphical representation. Moreover, it also shows the number of different types of problems through a pie-chart. Besides it also provides features such as, * ### Notes:



It is possible to keep necessary codes,templates and notes inside this section.

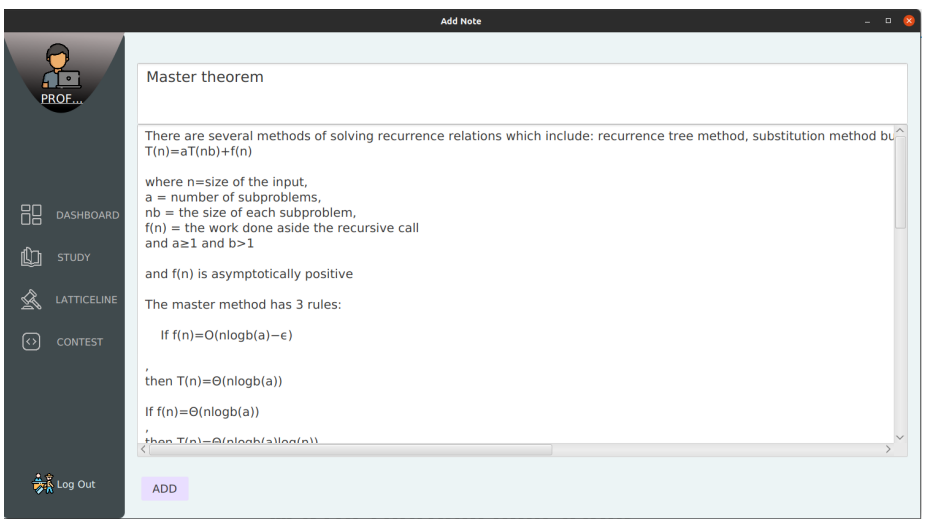


Figure 2: addnotes

A user can add/update and delete his desired template/code or notes.

-

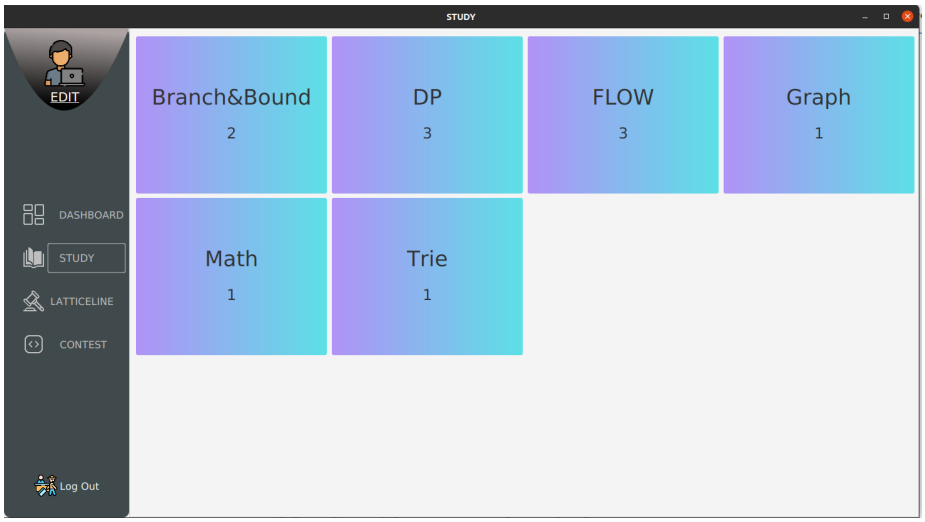


Figure 3: studyproblems

Study:

This section gives the user a chance to challenge his current capability by solving various types of problems.

contains problems of a certain topic.

User can attempt a problem and try solving it. If the solution provided by the user is correct, the judge will mark it accepted including required time.

User can read editorials or get the sample accepted solution if he fails to solve the problem.

- **Leaderboard:**

  Shows the user his current standing on the basis of the amount of time spent in the application.

- **Lactticeline:**

  An exclusive part of RedSet which is discussed below:

Features of Latticeline

- Solving Problem from problem section
- Create Group, Join Group

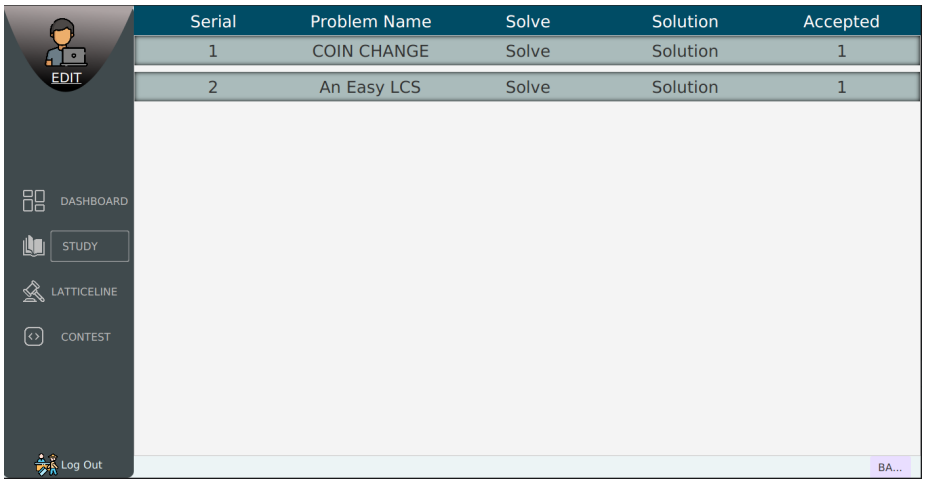


Figure 4: problemsofaparticulartopic

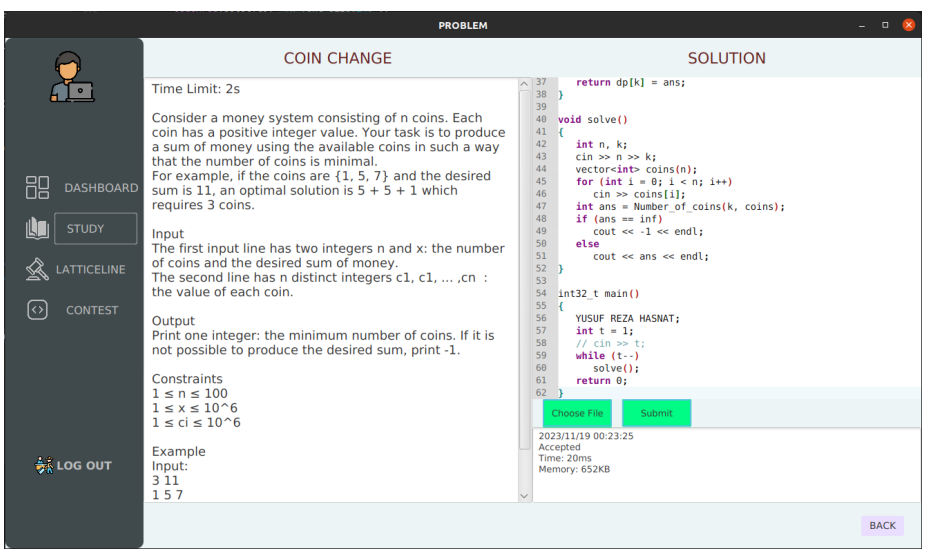


Figure 5: solve

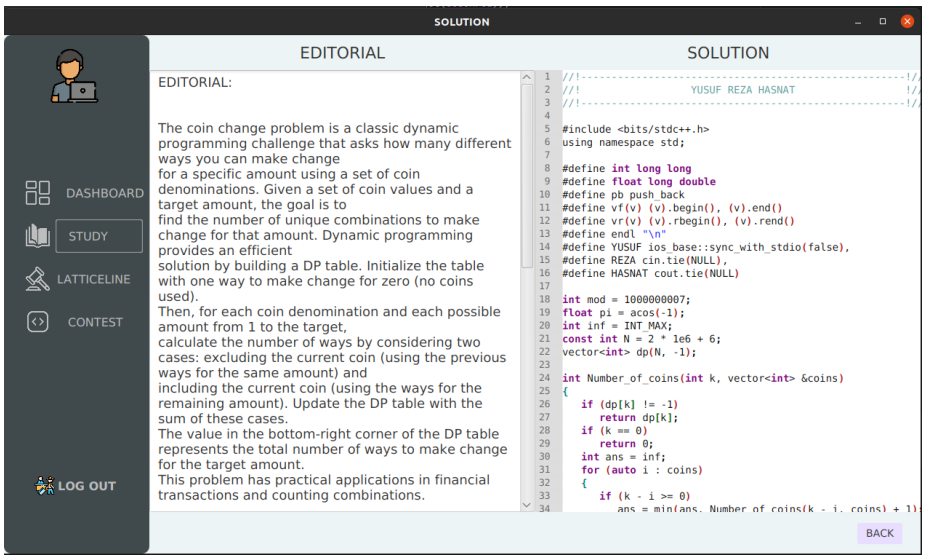


Figure 6: editorial

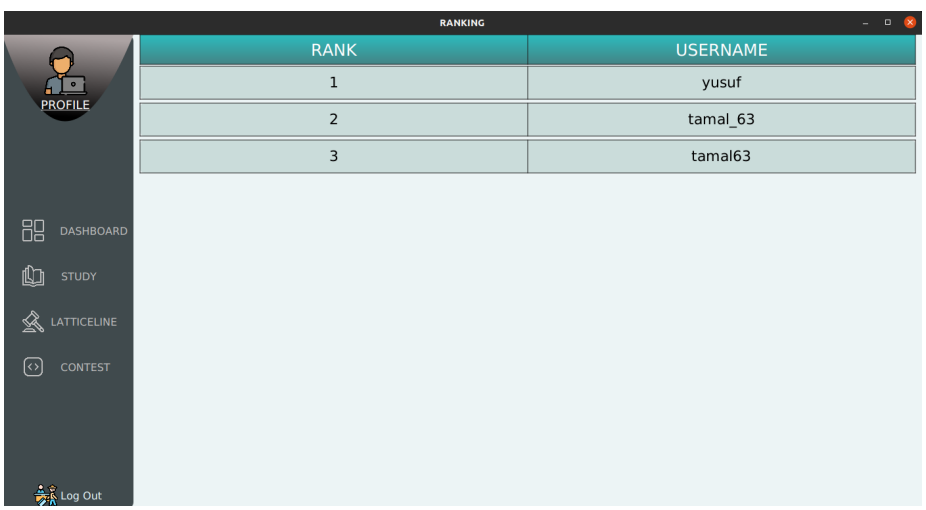


Figure 7: leaderboard

- Teachers of a group can make assignment, announce & contest
- Assignment of a student will accept when all the testcase for this assignemnt passed, like an online judge
- Teachers can see the status of every assignment
- Realtime ranking of a contest
- Others solution of a contest will visible after the contest
- Contest and Assignment is editable/updatable.
- Teachers can add a user as teacher from the group
- And more

Problems Section

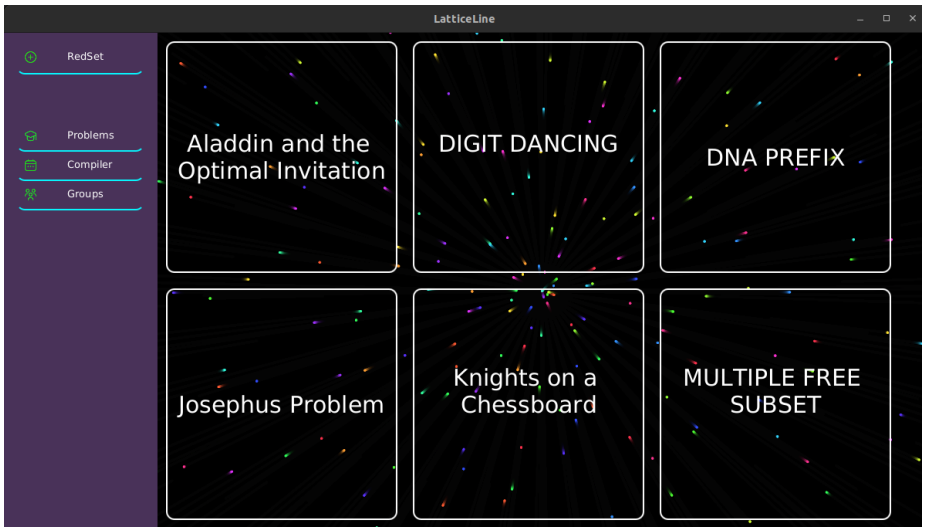


Figure 8: problem_section

It is global problem section. Any user can solve problem here.

Compiler Section

It is a simple editor with highlight C++ code feature that shows output including time and memory complexity. You can choose a file to compile from choose button. Only C++ is available right now.

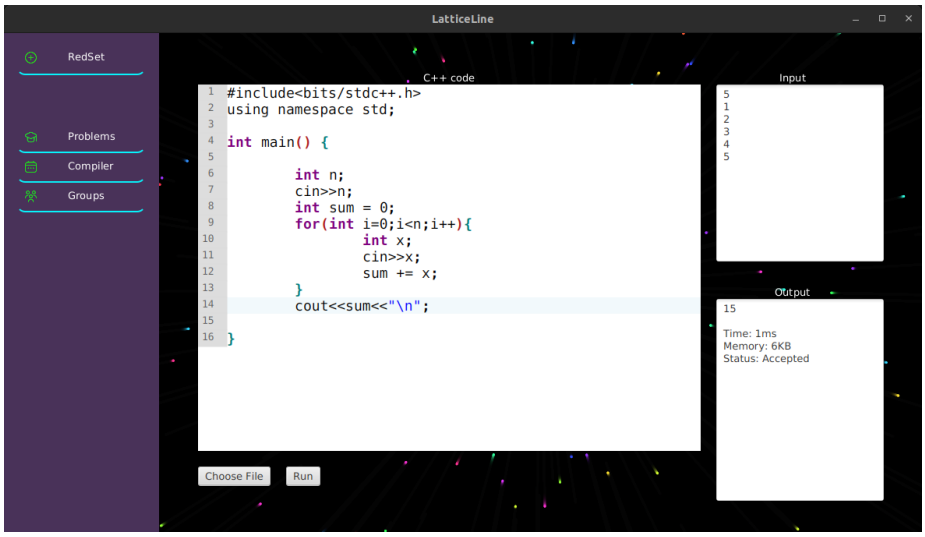
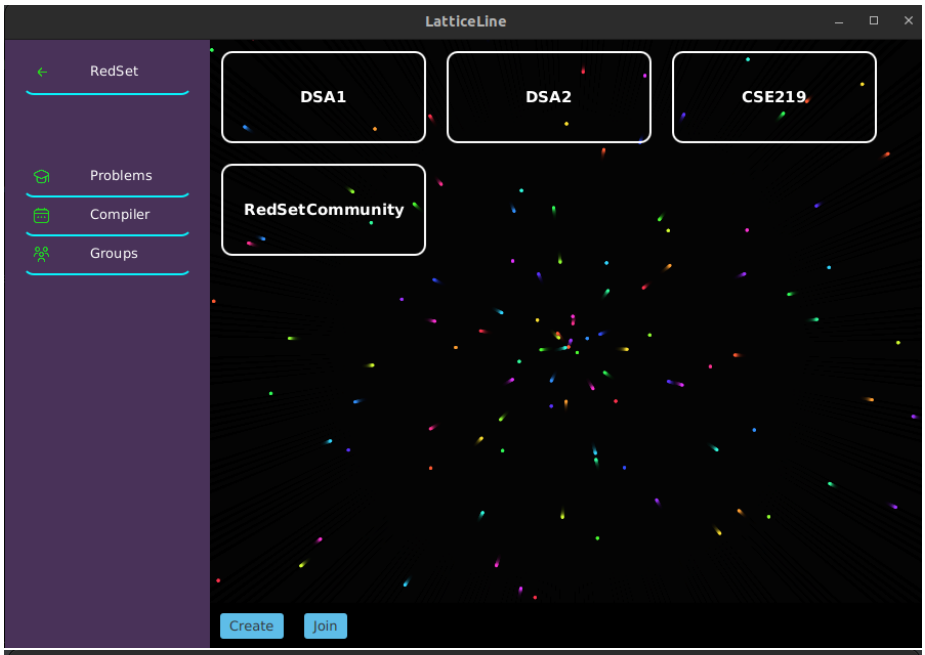
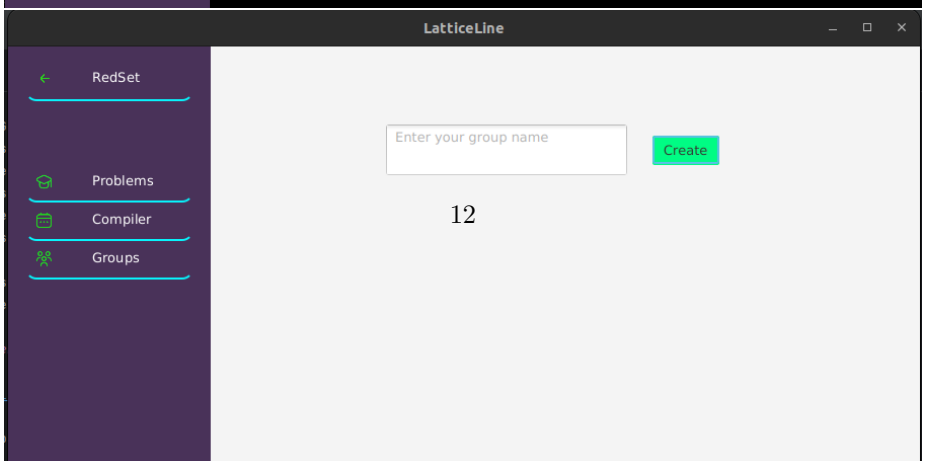
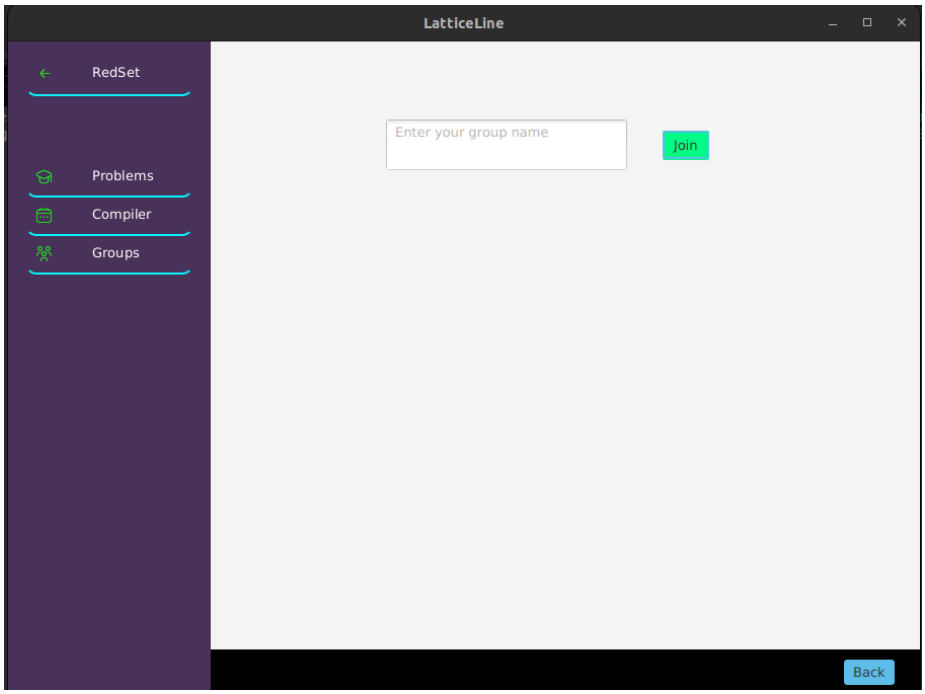


Figure 9: compiler_section

Groups Section



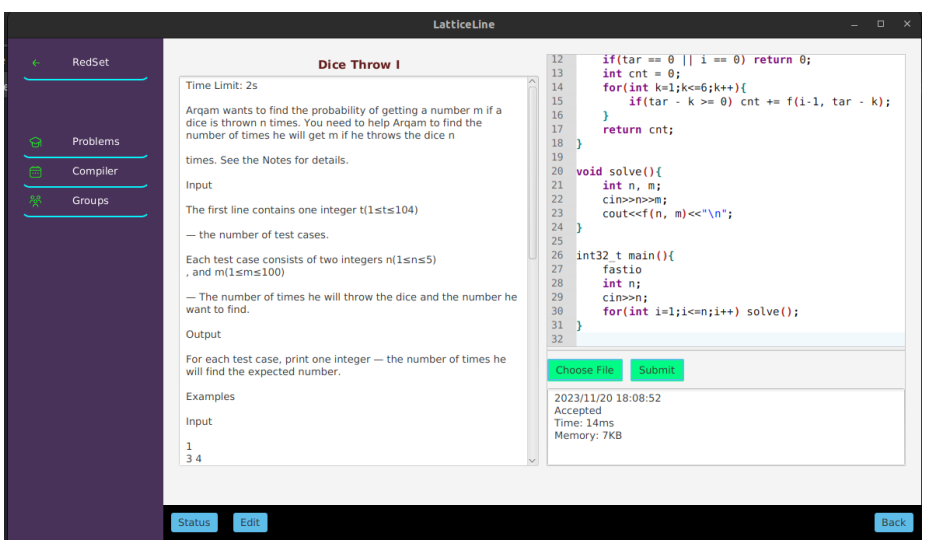




You can create a group. Group name will unique. You can join a group as a student also.

Create Assignmente, like Google Classroom. Assignment are showing in each of the boxes.

Only Teachers can create assignment.



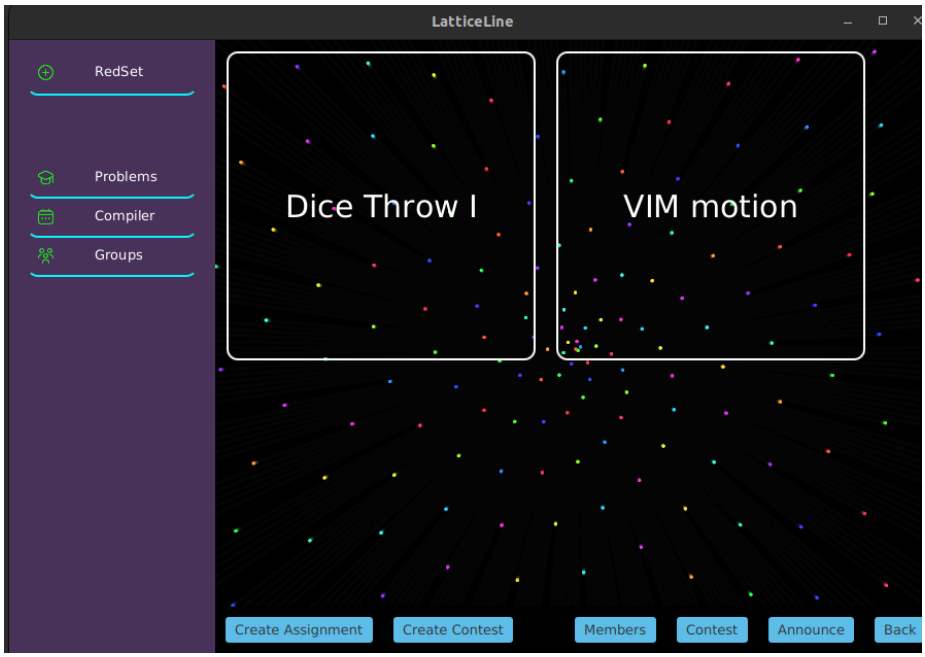
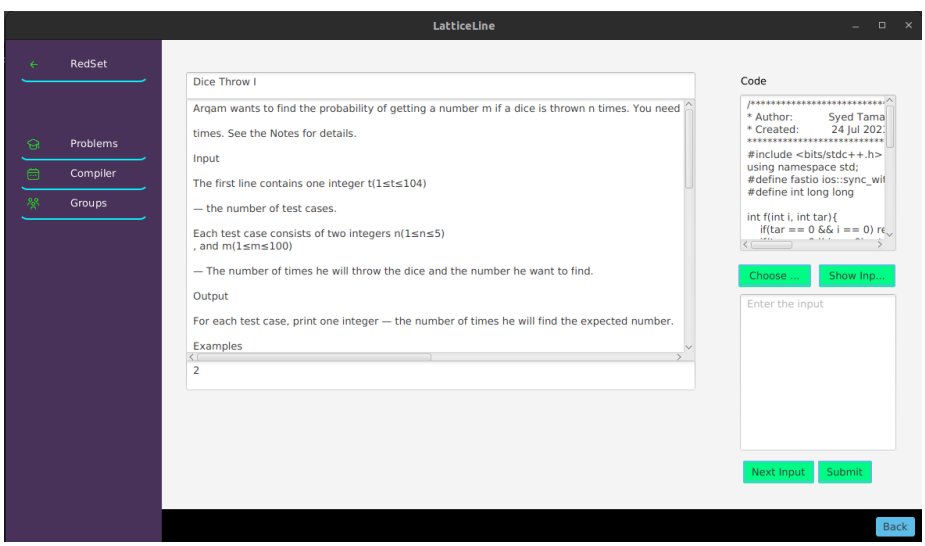


Figure 10: eachgroup_section



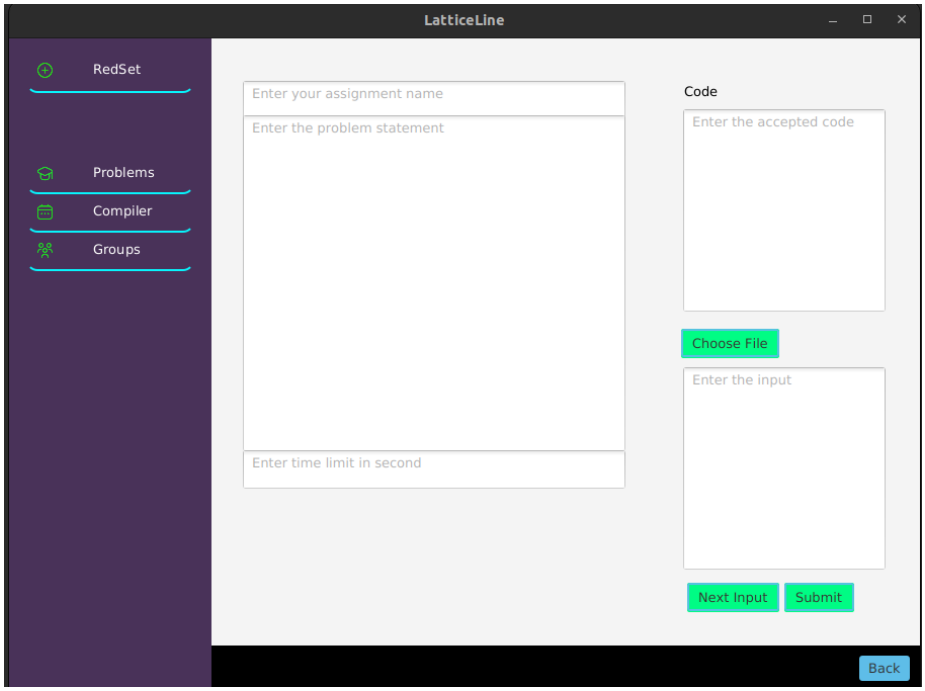
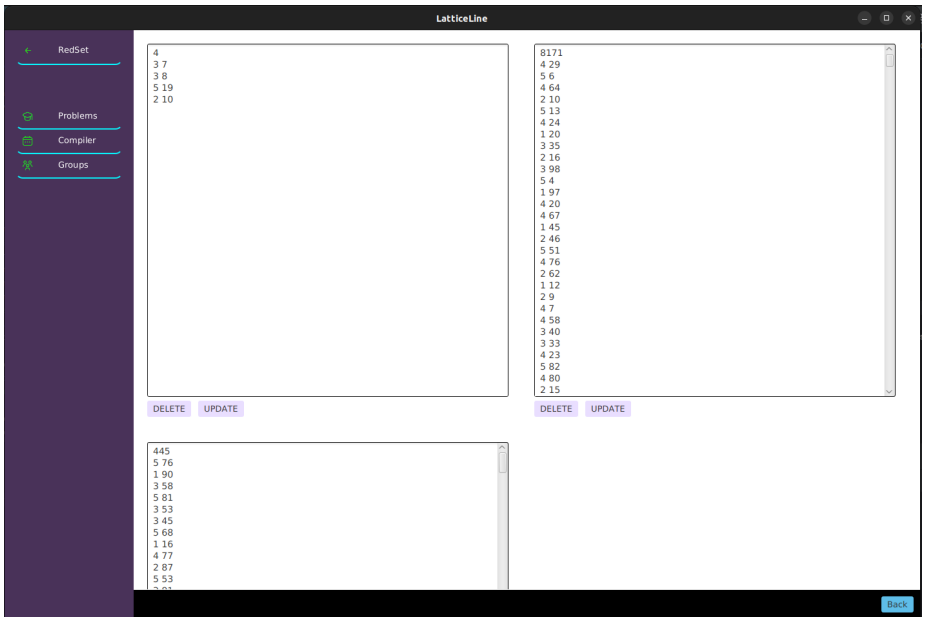


Figure 11: crtassign_section



An assignment. Previous accepted solution remains visible with time & space complexity if any. Only teachers can show status and edit the Assignment. Teachers can see inputs and update inputs.

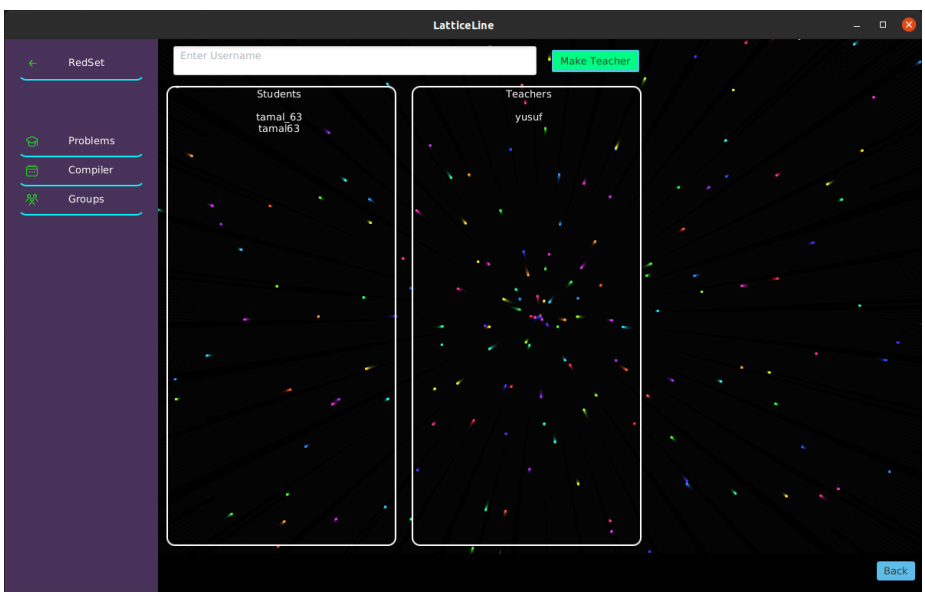


Figure 12: maketeacher

A teacher can promote a student as teacher.

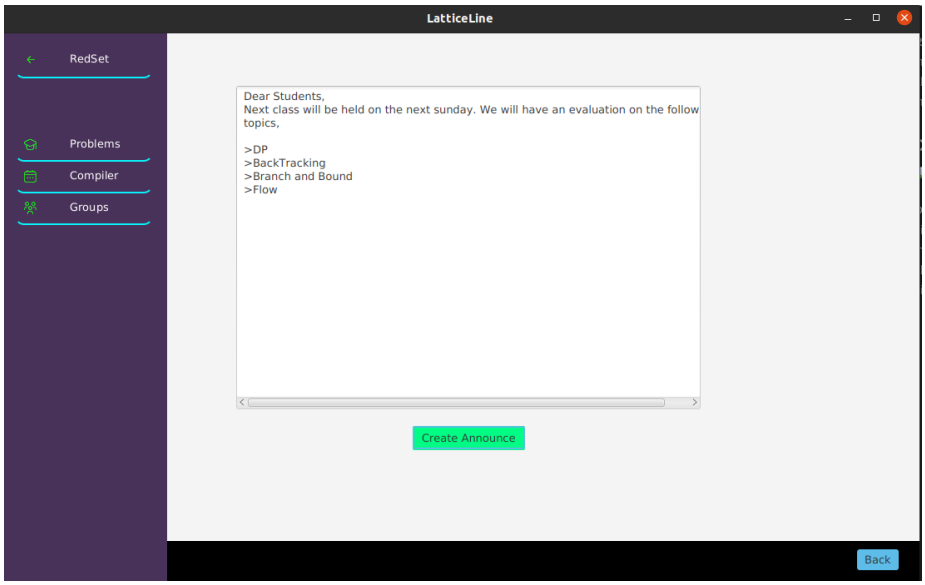


Figure 13: createannounce

Teachers can make necessary announcements if required!

Users can view the current announcements that were made up until the teacher doesn't delete it.

Students can enter to the contest if the contest is in running or in ended state. Teachers can edit/update contest anytime.

You can see a countdown at the bottom inside a contest page.

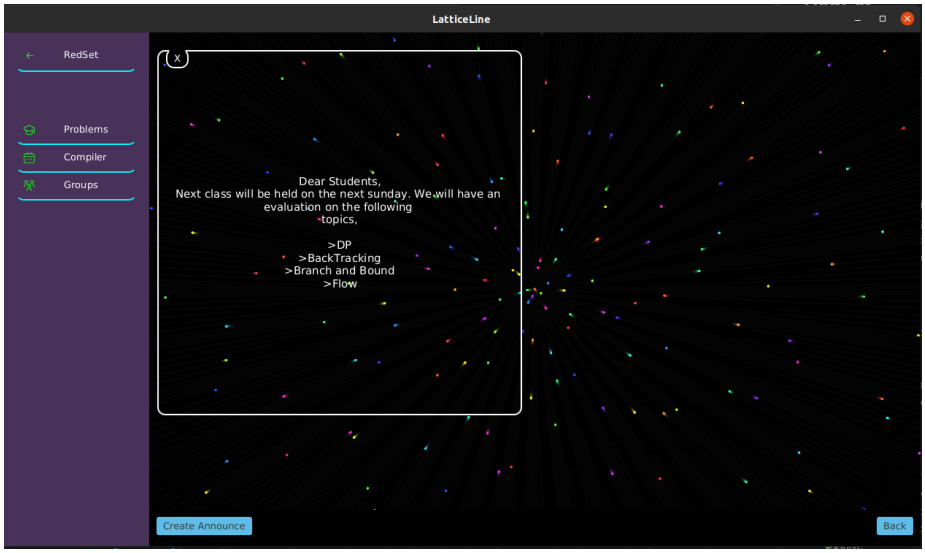


Figure 14: viewannounce

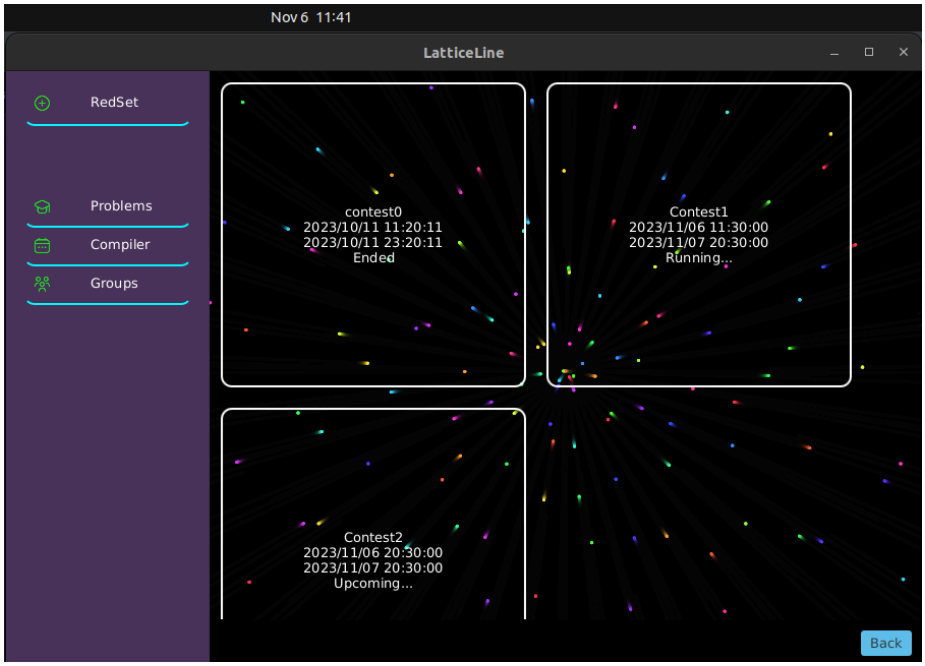


Figure 15: contest_section

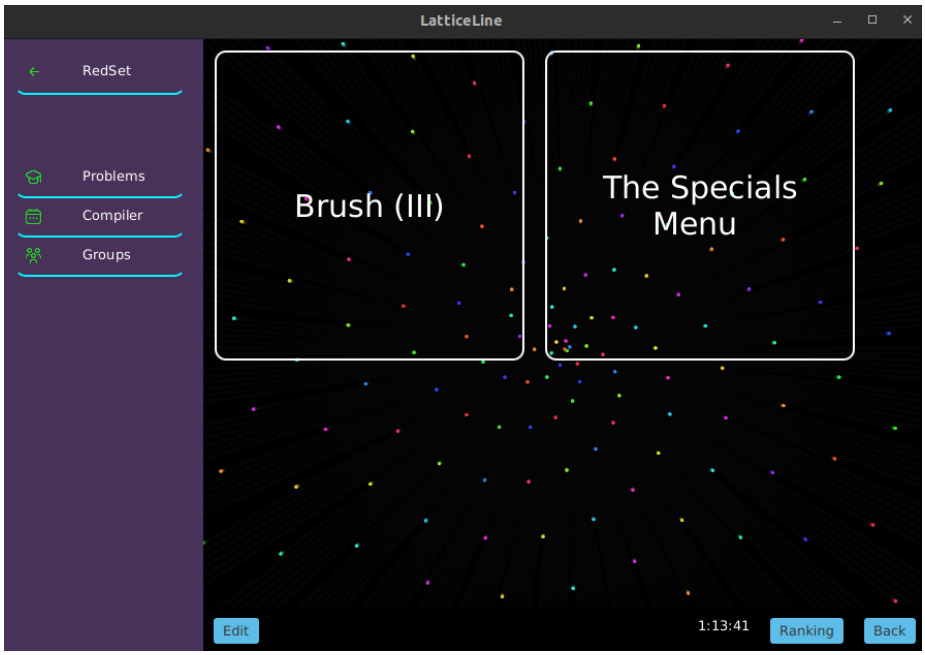
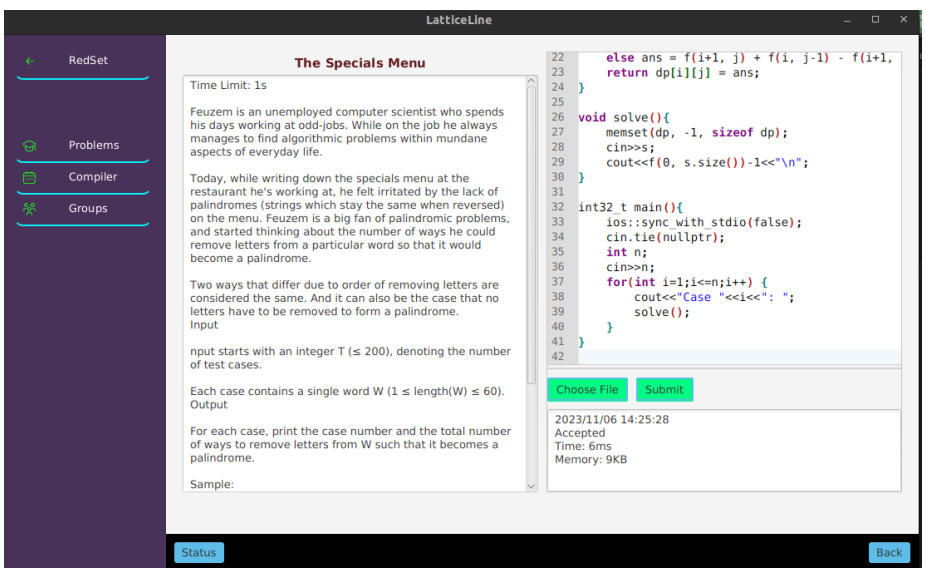
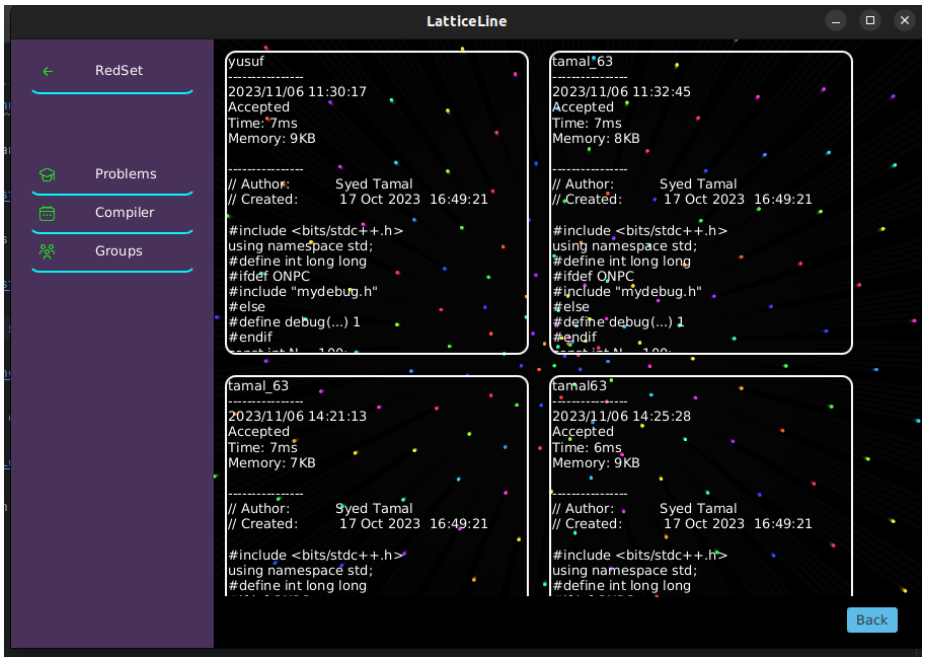


Figure 16: contest_section





Students can only see the status after the end time of a contest.

Ranking of every contest. 20 penalty increase for a wrong submission.

User can view his current given information and edit them anytime.

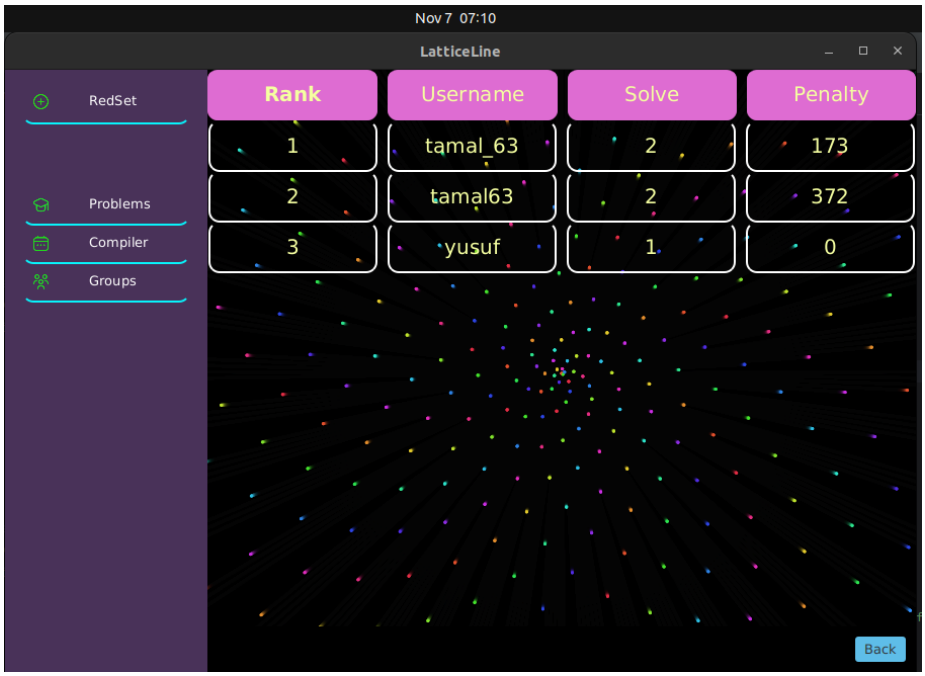


Figure 17: ranking_section

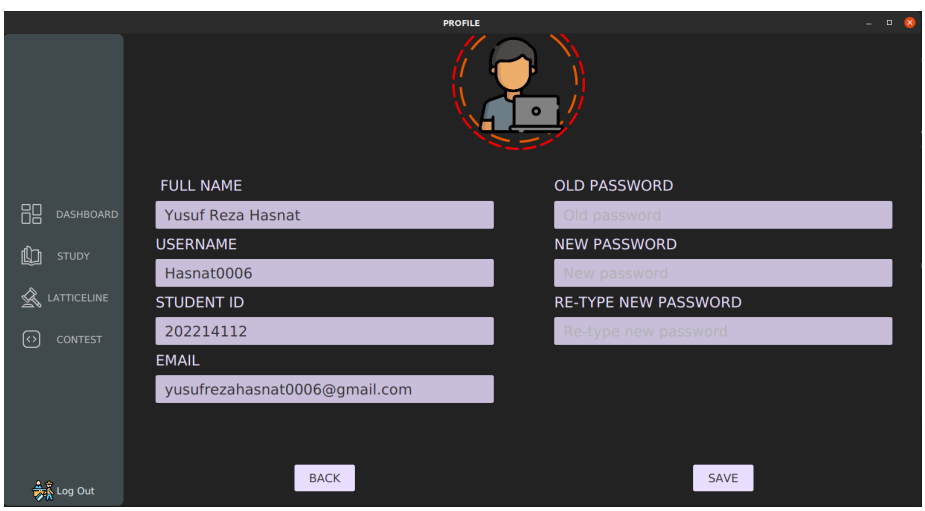


Figure 18: profile