

**East West University**

A project report on

**Online Judge**

-Contest Programming Platform

**Course Title:** Software Engineering& Information System Design

**Course Code:** CSE411

**Section:** 3

**Submitted To:**

Md. Mohsin Uddin

Lecturer,   
Dept. of Computer Science & Engineering

**Submitted By:**

Shaykh Siddique

ID: 2016-1-60-053

Shanawaz Ahamed

2016-1-60-103

Jannatul Ferdous Sorna

2016-1-60-029

**Project Title:** Online Judge – Contest Programming Platform.

**Name of sponsoring organization:** East West University

**Online Judge Project Proposal:**

**Introduction:** Online judge is now very popular platform to measure the knowledge of the participants on a given problem. It’s one kind of examination system by which they can prove their skills on coding. Without an automated judging system, sources codes have to judge with a manual compilation and checking with outputs. This process is very time consuming.

This Online Judge will help to make this process simpler. As it’s a web-application so participants can attend contest from all over the world with live ranking. All the archive problems will help problems solvers for practicing. By the grace of internet and online judge now they can instantly understand their positions and if need they can also improve their coding skill.

**Software description and facilities:**

In such a contest platform there will be a set of problem given by admin, teachers or problem setters. For attending online judge everyone must have to register first. After registration they can easily login our website of online judge. There will be some major features like after login any participant can participate in live contest. The contest can be hosted as for all user or for some specific user. Archive problems feature will help programmers for practicing. There will be two types of rank list – one is live contest rank list and the other will be universal contest ranking.

**Key of the project:** For user interface HTML5, CSS, JavaScript and for backend it will be developed with python. Essential tools and Frameworks –

* Django
* REST Framework
* Postgresql (Database)
* Bootstrap (UI framework)
* Docker(One-click deployment)

**Non-Functional Requirement:**

**Responsive:** The judge system will be handled with multiple threads which will makes the code compilation faster. User Interface of web application will perform responsive in any device.

**Reliability & Privacy:** All user details and the solution codes of all users will be protected and encrypted.

**Security and privacy:** For ensuring high quality of security we will use docker and deploy the application in a secure virtual environment and all the functions will in isolated container. This will make an extra layer of security with sandbox.

**Functional Requirement:**

Therewillbethree types of users, admin – super user account, stuffs- teachers or problem setters can host a contest with this account and can set problems.

* Different level of user authentication.
* Live time contest hosting.
* Archive Problems.
* Online IDE.
* Smooth maintenance system and control panel.

**Administration:**

1. Can view/Edit any profile.
2. Can add/Delete/View Questions.
3. Can Approve a contest
4. Can approve user for a contest.
5. Can make Registration for Students and can delete them too.
6. Submit and Compile codes.

**Problem Setters:**

1. Can add/Delete/View Questions.
2. Can view any profile.
3. Can approve user for a contest.
4. Submit and Compile codes.

**Problem Solvers:**

1. Can Edit own profile Registration
2. Can view any profile.
3. Can view a valid problem.
4. Submit and Compile codes.

**Time scales:** It will take maximum 2 months to finish the project.

**Future extensions:** We have a plan to extend this software with some external features like Tutorial, Clarification of problem, and notification system in the update version.