

IT314 Software Engineering Team 28 Feasibility Study Report

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## Feasibility Study Report

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## Overview

This is the feasibility study report for Programming Club website, Team 28's IT314 Software Engineering course project idea.

## Target Audience

Programming Club members and Coders

## Mentors

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## Developers

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## Document Revision History

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## Table of Contents

<b>1. Introduction.....</b>	<b>4</b>
<b>2. Feasibility .....</b>	<b>5</b>
2.1 Technical .....	5
2.2 Economic .....	5
2.3 Legal .....	6
2.4 Scheduling.....	6
<b>3. Conclusion .....</b>	<b>6</b>

## 1. Introduction

The Programming Club, DA-IICT is a student driven organization of Dhirubhai Ambani Institute of Information and Communication, Gandhinagar which organizes and encourages programming among the student activity. The club organizes various activities such as weekly and monthly programming contests, discussion channels to interact with software developers, monthly and biweekly editorials to help students get ahead with unsolved challenges, also mentoring for the various programming challenges and hackathons that are organised. The club currently organises contests on HackerRank, a popular programming website online and depends on informal meetings to discuss solutions. This severely restricts the effective working of the club as they do not possess a central platform where they can monitor and track each students performance through the various competitions, which can be used to provide feedback to enable the growth of the student. Such data relating to the performances of the students can also be used in the placement process.

The project proposed by the group aims to provide all the above described features to the programming club. It consists of a web application that consists of an online judge and integrated development environment (IDE) to host programming competitions and thus void the dependency over any other programming platforms. This will be used to judge the correctness of the user submitted program and provide it a suitable score based on its correctness for an array of test cases. The website will also consist of an online forum which can be used to start discussion threads on various topics, and user profiles which will contain user-centric data regarding their performances in various competitions. The spirit of competitive programming would be kept alive by a central leaderboard of all registered users. Moreover, regular updates in the editorial section by the members who designed the question will help students grasp the hints they missed out on and hence give them a hang on how to solve such problems.

Our project would focus to deliver the requirements of our client – Programming Club, and the active programmers of the DA-IICT community. We plan to build the Programming Club web portal website, and if required we may also develop a mobile application for the same. The aim of this feasibility report is to evaluate and analyse the potential of the project and the practical concerns which we may face working in a team of eight people with different skill sets.

## 2. Feasibility

### 2.1 Technical

The preliminary requirements of the programming club website is to make an online judge and coding platform. To make a good functional and scalable online judge we need to make online compiler and online IDE which should also be able to judge the submissions made by the users. The team would require to understand Node JS framework or Python Flask framework along with HTML, CSS and Javascript. We decided to go with Python flask framework because it is easy to learn and use. There are two primary reasons behind this choice:

- Team members developing the website have good experience in the python and the asynchronous approach adds unnecessary difficulty so it is better to use Python Flask than Node JS.
- Python Flask is an extremely customisable web framework with a simple learning curve compared to any of the other popular and stable frameworks owing to which we can exploit the liberty it provides.

Working on a full scale web application from scratch would require extensive knowledge of web development. In the current scenario there are only one to two members who have had prior web development experience, and only one of them are familiar with the Python Flask framework. In such a situation the website would need to be developed in addition to the team members devoting time learning Python Flask and Javascript to such an extent so as to develop a smooth user experience and a stable backend. According to the team consensus this activity would require at least 30 hours of independent work over 3 weeks to be able to get an understanding of the development ecosystem to be able to attempt the current project.

The project idea would also require the comparison of various online available API's which would be used to implement the online judge. This comparison needs to be made keeping in mind that only a few available API's are free and fewer are stable or reliable. In addition to this the project would also require the implementation of Forums and Blogs on the website. A cursory reading of material related to web development is indicative of the fact that these are advanced web development concepts and would require a lot of engagement on the part of the team to get it right within time constraints.

### 2.2 Economic

#### 2.2.1 Cost Wise

All the software which the team will use in this project are free, but the website will

be hosted on a domain server which will have to be bought, and hence we will incur a cost for purchasing the domain to be used.

The client will only incur costs in the sense that an internet connection will be required to access the website and the app.

### **2.2.2 Time Wise**

We will require around 30 hours per week per person to finish the project as per our preliminary estimate. We will also require at least 30 hours of independent work over 3 weeks to be able to get an understanding of the development ecosystem.

The team expects 60 person hours every week to make the project possible.

## **2.3 Legal**

The tools used for the purpose of this project are all Free and Open Source and hence do not contain legal clauses in their use. However some API's rendered by the parent organization may not Open Source and hence we will have to obtain sufficient permissions from the parent organisation.

## **2.4 Scheduling**

The team will prepare milestones and set up a detailed timeline in the project proposal.

As per our preliminary analysis of the amount of time required to acquire the needed skills (considering the knowledge base of the team) and implement the plans made charted for the course, we believe the project will require more time than three months to reach its efficacy.

## **3. Conclusion**

As per the feasibility analysis furnished above, we conclude that the project is not feasible for us. It will entail a lot of missed deadlines to finish within three months, which is undesirable for the software development process. We cannot undermine the possibility that our focus may shift from learning the process of software engineering to learning various frameworks. Also, there are many online available IDE's which provide a platform for online judging where one can host the competition, which should suffice.

We are, hence, deciding not to move ahead with this project.