# UNIVERSITY OF KASHMIR

Hazratbal Srinagar,J&K-190006

A PROJECT SYNOPSIS
ON
**"ARCLIGHT: An Online Code Judge"**
*Submitted in partial fulfilment of the requirements for the award of the degree of*
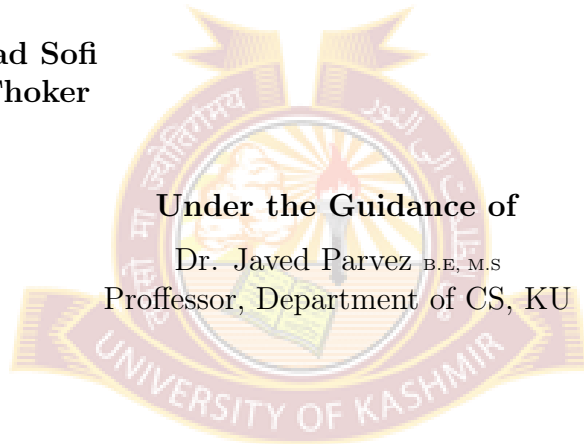
## MASTER OF COMPUTER APPLICATIONS

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## UNIVERSITY OF KASHMIR

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# ARCLIGHT

Arclight is an online system to test programs in Lab Exams. The system can compile and execute code, and test them with pre-constructed data. Submitted code may be run with restrictions, including time limit, memory limit, security restriction and so on. The output of the code will be captured by the system, and compared with the standard output. The system will then return the result. When mistakes were found in a standard output, rejudgement using the same method must be made.

# 1   INTRODUCTION

An online judge is an online system to test programs in programming contests. They are also used to practice for such contests.

The system can compile and execute code, and test code with pre-constructed data. Submitted code may be run with restrictions, including time limit, memory limit, security restriction and so on. The output of the code will be captured by the system, and compared with the standard output. The system will then return the result.

When mistakes are found in a standard output, the submission will be unsuccessful. We must correct any errors in the code, and resubmit for re-judgement.

Online judges are becoming increasingly appropriate in various applications. Online judges are designed to accurately assess the source algorithm submitted by users, which is then compiled and evaluated in an environment. They are categorized according to their critical objectives into structures that facilitate the advancement of the educational context by conducting competitive programming competitions and achieving programming challenges.

The source code submitted by the students is executed on the server. Therefore, we have to ensure that the system is resistant to a broad range of attacks, such as forcing a high execution time, modifying the testing environment, or accessing restricted resources during the solution evaluation process. The most popular methods for avoiding such issues rely on the execution of submitted solutions in dedicated sandboxes that are managed by the online judging system, such as virtualization, LXC containers, and the Docker framework.

# 2   AIMS AND OBJECTIVES

- To provide our University a platform so that they can easily conduct coding contests among students and assign programs to students in Lab exams and evaluate their performance.

- Replacing conventional method of conducting lab exams using new technologies.

- Aims to serve as an intra-college programming community that fosters learning and healthy competition among students.

# 3   POTENTIAL OF PROJECT

– This project is capable of reducing the time that is used for installing softwares and setting up manual papers.

– Almost uniformly quick transmission of assignments providing time independence for students and staff.

– To reduce extra burden on faculty of assigning papers and keeping vigil on students.

# 4   TOOLS & TECHNOLOGIES USED IN PROJECT

| Front-end | ReactJs |
|---|---|
| Back-end | NodeJs, Express, Bash |
| DataBase | MongoDb |
| Deployment | Docker |