**Chapter-2**

**SOFTWARE REQUIREMENT ANALYSIS**

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Software requirement is a functional or non-functional need to be implemented in the system. Functional means providing particular service to the user. Software requirement can also be a non-functional; it can be a performance requirement. **Software requirement are usually expressed as a statements.**

**While developing this project we have analyzed the older versions of similar concepts developed earlier and have also gone through the project reports of such similar projects. We have explicitly scrutinized the bugs in earlier version so as to make our current development more feasible and enhanced in terms of performance.**

**2.1 FEASIBILITY STUDY**

It is surely logical to develop such a platform which can skip many nuisances of the ordinary system and provide a better environment to test and enhance the coding abilities and skills.

Since our project is a student based project and we are implementing it at the college level. There is no such constraint of money as we are having all the required basic resources.

As the saying goes, “to err is human”, keeping in view the above fact, we are open to all server side technologies and we can switch to the one which is most appropriate and convenient for a particular module and the project, as currently we have developed the project in php as it was looking much feasible in many aspects.

The day-to-day coding challenges and their results in the form of Rank in the “Code Judge” helps users to see their performances in different tests and user can keep track of his progress as well as find where he is not doing well.

We are having all the required resources to develop this project completely and if we talk about the time constraint, as we have to complete this project till 8th semester’s end so after looking at our current proceedings it seems that we are having good pace and will be able to complete it much before the presumed deadline.

**2.2 REQUIREMENT ANALYSIS**

Requirements analysis, also called requirements engineering, is the process of determining user expectations for a new or modified product. These features, called requirements, must be quantifiable, relevant and detailed. In software engineering, such requirements are often called functional specifications.

**2.2.1 HARDWARE REQUIREMENT**

1. Processor – Intel Core 2 Duo (1.2 GHz) or higher
2. RAM – 2GB (minimum) or more
3. Hard Disk Space – 5 GB

**2.2.2 SOFTWARE REQUIREMENT**

1. Tools & Technologies – Sublime Text Editor, HTML, CSS, JS, PHP.
2. OS – Any Operating system with HTML5 supported browser.
3. Apache sever (or any Server supporting PHP)
4. Linux server at the backend.
5. MySql database for storing data.

**2.3 SYSTEM MODULES**

Codejude mainly consist of four modules: Compilation module, Test Case module, Execution module and the Result module.

**2.3.1 COMPILATION MODULE**

Compilation module comprises of the compilation of the user’s program submitted through editor on the server side. On clicking the compile button the code will be submitted to the server and a file will be created storing the code of the user. Compilation module will compile the code and give user a message if there is a compilation error. If there is no error it will fork the execution module.

**2.3.2 EXECUTION MODULE**

The execution module executes the executable file created corresponding to the compiled file by passing the test cases to the file. It displays the number of test cases passed by the user. For example: if no test cases are passed then message “You have passed 0 test cases will be displayed”.

**2.3.3 TEST CASE MODULE**

Test case module consist of various test cases for a particular question. A test case has two fields that are input and the output corresponding to the input. This module performs the matching of the users output with expected output and logs how many test cases are passed.

**2.3.4 RESULT MODULE**

The result module logs down the result of the users code into the database which later on will be available to the teacher for evaluation and marking accordingly.