Web Based IDE

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Abstract

It is often seen that the Program Developer, who writes the code of a particular project, has to carry the whole environment for the particular project to present it in front of anyone. This particular environment includes the particular software on which the code runs and also the databases. So the developer has to be equipped with all the necessary resources even if he wishes to test his code by himself. To his rescue here we present a Web Based IDE which solves his many problems. The Developer just needs a web browser and an internet connection to access, modify and test his code. Thus saving his time and reducing the cost to create the environment wherever he goes..

Keywords:
Integrated Development Environment(IDE), Remote Method Invocation(RMI),Compiler, Editor, Cloud Server.

1. Introduction

IDE is the Integrate Development Environment which provides the environment to execute particular program of any language. Online or web based IDE is an online compiler which allows you to compile source code and execute it online in more than one language. By using web based IDE we can store our code online in database and access them using internet connection. It is always been difficult for programmer to organize a work on project across a variety of location especially working team. Because each member of team has to send their code to every other member. The software contains a system that has text editor and terminal. The user would be given an option to select the language in which they want to compile the program. The software will compile the program and return the output to the user.

2. Existing system

A Web based environment has been designed to execute C programs without explicitly installing any compilers on the machine, thus addressing the concerns of portability and accessibility. The environment runs on a Linux server, uses password authentication and provides each user with separate project directories to store all his programs. It only support the C language and it does not support other server other than Linux server.

The creation of Integrated Development Environment for the java language to code, compile, run, test and debug the code using the browser based IDE through the Internet and a web browser. The project is aimed at creating a browser based IDE to code in Java language in the cloud. But it does not support applet.

3. Problem statement

The Program Developer, who writes the code of a particular project, has to carry the whole environment for the particular project to present it in front of anyone. A compiler that is to be installing manually on every system physically requires a lot of space and also configuration. We need to install different compiler on each language on which we wish to work. To avoid these drawbacks there is need to develop the web based compiler to execute the programs.

4. Proposed system

The product will provide easy compilation and execution of code. Generally developer need to write programs for different languages for different purpose and need to compile as well as execute such a programs , get the output anytime and anywhere. Solution to their requirement is Web Based IDE.

Product will be deployed to web site and all users of the product will access by use of the website. Website will be main user interface where users can operate all the provided functionality. However, this web site will be only a part of a larger system. There will be cloud server where all the user data is kept and all the execution is done. Website will only be the interface for the user data and the execution of provided functionalities. To use product, users are required to register through the web interface. Whenever a new user registered, all the required data will be created in the database and a predefined workspace will be assigned for the user. Later, user will be able to login and logout the system anytime. Since every operation that user perform reflected to our database, user will find workspace however leaves last time. From the user point of view, user will have to functionality to create and edit files in own workspace. User will be able to run predefined programs on these files such as language specific compilers and project management tools. All of the files users created will be kept in cloud server and all the CPU requiring work such as compiling and running the programs will be executed on cloud server so that user will be able to access own integrated development environment with specific setting anywhere.

5. System Requirement

A) Hardware Components
B) Software Requirement

A) Hardware Components:

Hardware include, two Laptop with Intel® Core™ i5-2450M processor, 4GB[3] DDR3 SDRAM at 1600MHz, 500GB 5400RPM SATA Hard Drive

B) Software Requirement:

JAVA:

Java is a set of several computer software products and specifications that together provide a system for developing application software and deploying it in a cross-platform computing environment. Java is used in a wide variety of computing platforms from embedded devices and mobile phones on the low end, to enterprise servers and supercomputers on the high end. Writing in the Java programming language is the primary way to produce code.

Apache Tomcat:

Apache Tomcat is open source software. Apache Tomcat is used for server.

MySQL Database:

MySQL is a popular choice choice of database for use in web applications, and is a central component of the widely used. The MY SQL is the open source database.
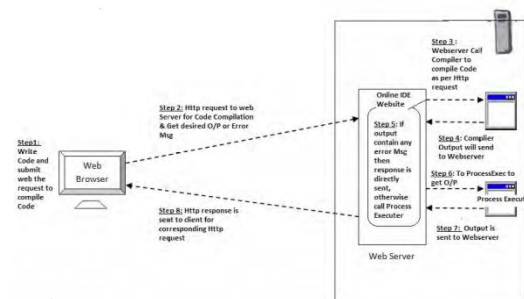
6. System Architecture:

Figure 6.1 .System Architecture

To use product, users are required to register through the web interface. Whenever a new user registered, all the required data will be created in the database and a predefined workspace will be assigned for the user. Later, user will be able to login and logout the system anytime.

6.1 Importance of IDE

Integrated Development Environment is an application which provides facilities to programmer for software development such as code completing and fixing, source code editing and management, automated testing, etc. Cloud computing is usage of computer resources (both hardware and software) which is served over the internet. The purpose of this project is provide an easy-to-use web service providing many powerful feature of desktop IDE's by combining with the power of Cloud Computing for application developers.
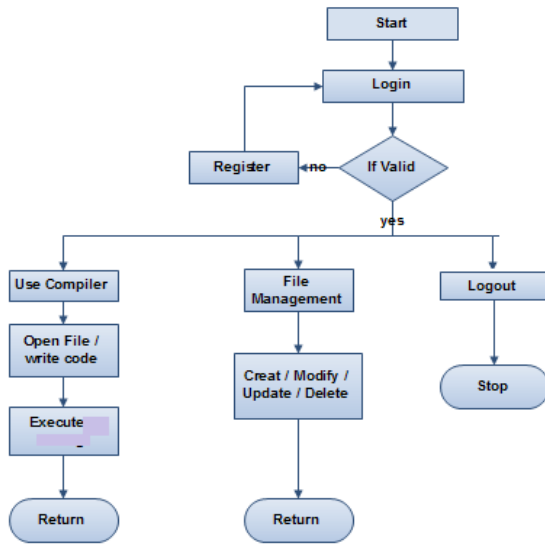
6.2 Workflow of System

Figure6.2. Workflow of System

1. Registration:-This module accepts the details of a new user and stores it in the database. This action is logged in the Logs database. This module ensures that the user is registered before the first login.

2. Login:-A registered user should login with his username and password to use the IDE. This module facilitates login and user authentication using UserDetailsDB database. This action is logged in the Logs database.

3. Create new Project/ File:-This module permits valid users to create new projects with the name of their choice. They can also create new files within these projects. The details of the projects are stored in the database.

4. Open Project/ File:-This module permits valid users to open existing projects and files. The user's access rights to the projects and files are checked from the database.

5. Delete Project/ File:- This module permits the valid users to either delete certain files of a project or delete the entire project itself. The time at which the delete action is performed along with the User ID of the user who performs it.

6. Save: - This module allows the valid users to save their projects and files. These projects are stored in database.

7. Compile: - This module allows the users to compile their code by invoking a compiler. The result of compilation is displayed to the user.

8. Run: - This module allows users to run the compiled code. The result of this action is displayed to the user.

hardware and software. Additionally, it functions to send information to the online networking system through intermediary database system.

6.3 Interface Design

In this project development, the three important aspects need to be emphasized are java programming language, MySQL, and Apache Tomcat server. The software that has been used in this project is java, MySQL, Apache Tomcat is used to Compile and execute the client program. It provide the IDE for client. MySQL is used as storage information system. Connectivity of java and MySQL are done to store the database. Java is used to provide user interface to the client. The interfacing was developed using java software and the flowchart of the system show relationships of overall system. [1]
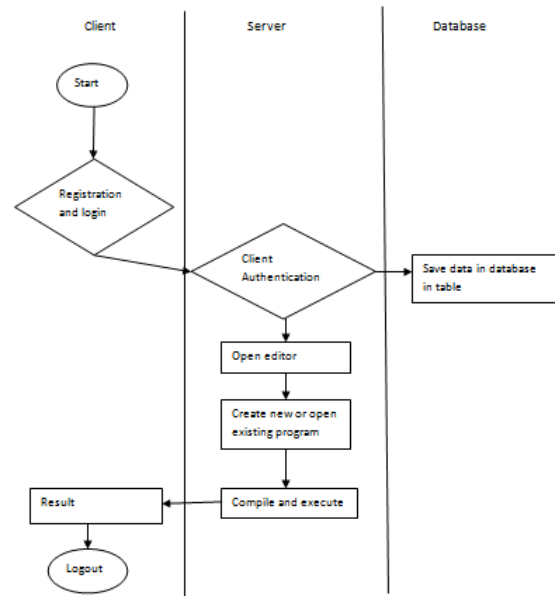

Figure 6.3: Interface Diagram

7. Advantages and Disadvantage

7.1 Advantages

1. **No need to download the SDK of any compiler.**

   When we want to execute any program we required a software development kit of that particular program for example if user want to compile JAVA program then they required JDK.

2. **No issues of setting path variables.**

   Sometimes there is requirement of setting path variable i.e. where the program is saved.

3. **Simple to use GUI for better coding.**

   It provide better graphic user interface for coding i.e. editor.

4. **Mobility.**

   No need to carry whole environment of our program. Only required internet connection on user system.

5. **No need of storage space on your system.**

   Everything is store on web server so there is no need of storage space of user system.

7.2 Disadvantage

1. Cost is high because of Cloud Server.
2. Required Internet Connection.

8. Conclusion

The main reason for creating the project is to provide a centralized compiling scheme. Also, it will act as a centralized repository for all the codes written. The other major advantage that this system will have over the others is that it will make the users system lightweight i.e. there will be no need to maintain separate compilers at the client side. Also, the process of maintenance and distribution of dynamic usernames and passwords will be greatly simplified. Also, authentication and personalized task distribution will be made possible.

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