Cloud Documentation and Centralized Compiler for Java & Php

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Abstract

Cloud computing is an Internet based computing which aims at providing hardware and software resources. It enables the users to access and share information from devices like laptops, desktops, smart phones, etc. which have ability to connect to the Internet. Cloud computing caters to dynamism, abstraction and resource sharing. The project mainly deals with 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 which will allow real time collaboration with the peers.

Keywords: Centralized Compiler, Cloud Computing, Collaborative Learning Tools, Peer Reviewing, Browser Based IDEs, Compiler, Document Sharing.

1. Introduction

Cloud Computing describes a new supplement, consumption and delivery model for IT services based on Internet protocols and it typically involves provisioning of dynamically scalable and often virtualized resources. It is a byproduct and consequence of the ease-of-access to remote computing sites provided by the Internet according to their own needs. This may take the form of web-based tools or applications that users can access and use through a web browser as if the programs were installed locally on their own computers. There are five known ways of providing cloud computing currently viz. public, private, community, combined and hybrid cloud computing. The users need not care how to buy servers, software.This project mainly deals with 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 IDE will permit easy development, testing and debugging of applications. Cloud computing is a model for providing computation, software, data access and storage services that do not require end-user knowledge of the physical location and configuration of the system that delivers the services.

1.1 Collaborative Writing

The cloud will allow the real time collaboration with peers. Collaborative writing allows the users to work concurrently on single document. Computer-supported collaborative writing has received attention since computers have been used for word processing. Research that analyzes collaborative writing in terms of group work processes, focusing on issues such as process loss, productivity, and quality of the outcomes [5], [6]; and research that studies collaborative writing in terms of group learning processes, focusing on topics such as establishing common ground, knowledge building, and learning outcomes [4]. Collaborative writing is an iterative and social process that involves a team focused on a common objective that negotiates, coordinates, and communicates during the creation of a common document is a cognitively and organizationally demanding process.

1.2 Centralized Compiler

The paper aims to describe centralized compiler which helps to reduce the problems of time, cost and storage space by making use of the concept of cloud computing. Also, the trouble of installing the compiler on each computer is avoided.The main reason for creating the project is to provide a centralized compiling scheme [2], [3]. 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[2],[3]. 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. A compiler, which is the heart of any computing system, transforms source code from a higher level language to a lower, machine level language. This is mainly done in order to create executable files which can then be run in order to execute the program and its instructions [2].

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2. Related Work

(1) Cloud computing implies a service oriented architecture, reduced information technology overhead for the end-user, great flexibility, reduced total cost of ownership and on demand services among other advantages. The National Institute of Standards and Technology (NIST) defines Cloud Computing' as a model for enabling easy, on demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. Some of them are lower costs, better computing, location independence, better security (although this advantage in clouded with doubts of loss of some sensitive data) [8].

(2) Cloud computing can be viewed from two different aspects. One is about the cloud infrastructure which is the building block for the up layer cloud application. The other is of course the cloud application. By means of three technical methods, cloud computing has achieved two important goals for the distributed computing: high scalability and high availability. Scalability means that the cloud infrastructure can be expanded to very large scale even to thousands of nodes. Availability means that the services are available even when quite a number of nodes fault. SaaS provides Internet application to the customer also provides the software the off-line operation and the local data storage, lets software and service which the user all may use it anytime and anywhere to order.

(3) The concept of computing comes from grid, public computing and SaaS. It is a new method that shares basic framework. The basic principles of cloud computing is to make the computing be assigned in a great number of distributed computers, rather than local computer or remoter server. This article also introduces the application field the merit of cloud computing, such as, it do not need user's high level equipment, so it reduces the user's cost [9].It provides secure and dependable data storage center, so user needn't do the awful things such storing data and killing virus, this kind of task can be done by professionals. Users can enjoy the service even he knows nothing about the technology of cloud computing and the professional knowledge in this field and the power to control it.
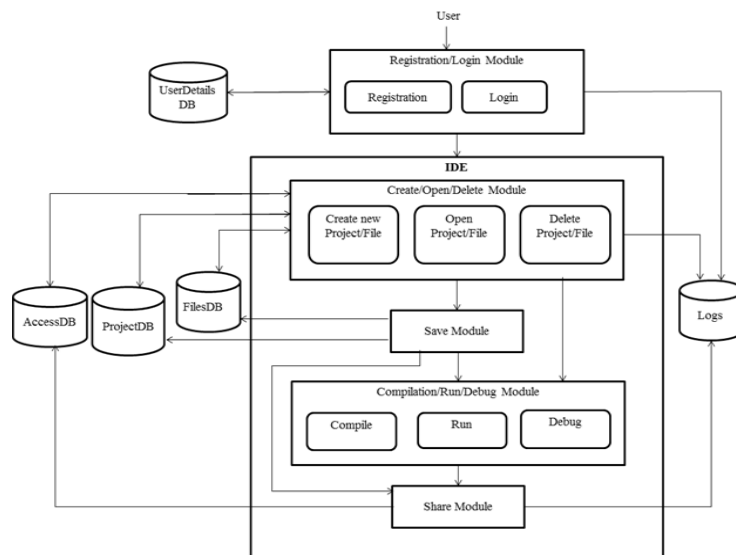
3. System Architecture

Fig1.System Architecture

The various modules involved in Browser Based IDE to Code in the Cloud are as follows:

1. **Registration:-**This module accepts the details of a new user and stores it in the UserDetailsDB 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

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ProjectDB database and those of the files are stored in FilesDB database. These actions are logged in the Logs 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 AccessDB database. The action of opening project is logged in the Logs 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 is logged in the Logs database.

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

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

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

9. **Debug:-** This module permits the users to insert breakpoints in the code for the purpose of debugging.

10. **Share:-** This module permits valid users to share the projects with other users. The User ID of the peer with whom the project is shared and the access rights granted are store in the AccessDB database. This action is logged in the Logs database.

4. Features
1. **Ability to create new projects and files:-** The IDE will allow the users to create new projects and to name the projects according to their choice. It will permit the creation of new files within the project to write Java code.
2. **Easy modification of existing code:-** The IDE will have the ability to edit and modify the already written code in various files.
3. **Saving the files and project for future access:-** The files and projects will be saved on the cloud itself and will be easily available to the users from anywhere and at anytime.
4. **Easy development, testing and debugging of applications:-**
The IDE will have tools for easy development of the applications. It will have an integrated Java compiler to review the build errors. It will also allow users to employ breakpoints in their code in order to debug the code.
5. **Sharing projects with peers: -** The IDE will allow users to share the projects with peers.
6. **Real time collaboration:-** The IDE will allow the users to share code and to modify the same files by real time collaboration feature.

5. Future Scope
The software can be extended in the future to include Java EE technologies like JSP, Servlets and also other advanced functionalities like code completion, syntax highlighting, sharing code with hyperlinks and support for other languages.

6. Conclusion
The project aims at creating & compiling Java & Php code in the cloud and also aims to provide the special feature of real time collaboration for the users. As compared to the current scenario where each machine need to install compilers separately. This would eliminate the need to install compilers separately. So we can check our code at the centralized server. Advantage of this project is that whenever the compiler package is to be upgraded it can be done easily without again installing it on each and every machine.

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References

[1]   M.L. Kreth, "A Survey of the Co-Op Writing Experiences of Recent Engineering Graduates," IEEE Trans. Professional Comm., vol. 43, no. 2, pp. 137-152, June 2000.

[2]   Aamir Nizam Ansari, Siddharth Patil,Arundhati Navada, Aditya Peshave, Venkatesh Borole , Online C/C++ Compiler using Cloud Computing‖, Multimedia Technology (ICMT), July 2011

[3]   Shuai Zhang Shufen Zhang Xuebin Chen Xiuzhen Huo, ―Cloud Computing Research and evelopment Trend‖, Future Networks, 2010. ICFN '10. Second International Conference.

[4]   M. Scardamalia and C. Bereiter, "Higher Levels of Agency for Children in Knowledge Building: A Challenge for the Design of New Knowledge Media," The J. Learning Sciences, vol. 1, pp. 37-68, 1991.

[5]   P.B. Lowry, A. Curtis, and M.R. Lowry, "Building a Taxonomy and Nomenclature of Collaborative Writing to Improve Interdisciplinary Research and Practice," J. Business Comm., vol. 41, pp. 66-99, 2004.

[6]   G. Erkens, J. Jaspers, M. Prangsma, and G. Kanselaar, "Coordination Processes in Computer Supported Collaborative Writing,"Computers in Human Behavior, vol. 21, pp. 463-486, 2005

[7]   Chunye Gong Jie Liu Qiang Zhang Haitao Chen Zhenghu Gong, ―The Characteristics of Cloud Computing‖, Parallel Processing Workshops (ICPPW), 2010 39th International Conference.

[8]   A.RABIYATHUL BASARIYA and K.TAMIL SELVI,Computer Science and Engineering, Sudharsan Engineering College-centralized C# compiler using cloud computing, 2nd march 2012

[9]   Rafael A. Calvo, Senior Member, IEEE, Stephen T. O'Rourke, Janet Jones, Kalina Yacef, and Peter Reimann-Collaborative writing support tools on the cloud, Jan-March 2011

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