

Cloud Based Collaboration Tool

Rohini C. Ekghare*, Prof. Manish Hadap**

*Department of Information Technology, Yeshwantrao Chavan College of Engineering, Nagpur-441110, India.
Email: rohiniekgghare31@gmail.com

** Department of Computer Technology, Yeshwantrao Chavan College of Engineering, Nagpur-441110, India.
Email: manishhadap@yahoo.co.in

ABSTRACT

Cloud computing is a computing paradigm, where a large pool of systems are connected in private or public networks, to provide dynamically scalable infrastructure for application, data and file storage. It is a technology that uses the internet and central remote servers to maintain data and applications. It allows consumers and businesses to use applications without installation and access their personal files at any computer with internet access. Developers often have applications locally installed on their computers to run and edit programming code. But an online IDE is more accessible and lets you work in the same application you surf the Internet on – your web browser. In this paper we are offering you an open source web-based IDE for executing code online. Using this application multiple users can work online on same document. We will be implementing online execution of multiple programming languages where the compiler will use the processing and memory resources of cloud. The IDE can handle multiple projects and it helps developers to save data and development processes in a remote server.

Keywords -Cloud computing, collaborative tools, compilers, web based IDE

1. INTRODUCTION

Many applications are going to move from the desktop into the cloud. Cloud computing, where applications and files are hosted on a cloud consisting of thousands of computers and servers, all linked together and accessible through the internet. With cloud computing everything you do is now web based instead of being desktop based[1]. User can access all files or documents from any computer and from any location with an internet connection. In addition, group collaboration is also provided by cloud computing. As all users in one group can work on the same document and can access it from any location.

For coding in different languages like HTML, CSS, C#.net, JavaScript, etc. there are a few browser based IDEs. Cloude9 IDE, ideone, CodeRun Studio, Eclipse Orion, eXo Cloud IDE, etc. are few existing browser based coding environments. Cloud9 IDE supports CSS, HTML, JavaScript, etc. [3]. It is for web development and support real time collaboration. Code Run Studio [4] supports C#, ASP.net , JavaScript, HTML and CSS. It allows users to share

code via URLs. Primary use of Eclipse Orion[3] is for front-end web development and it supports JavaScript and HTML only. All these above IDEs do not support Java and Lua language. Ideone[3] is not an IDE. It supports compilation and debugging of code in various languages but it does not support creation of projects. There is only one IDE that supports Programming in Java language which is eXo Cloud IDE. But it does not support real time collaboration [3]. Also they do not have compilation feature in them i.e no cloud collaboration tool have compiler yet.

To overcome this problem we are developing an application which supports execution of programs in various languages like C, C++, Perl, Python, Ruby and Lua without installing any compilers on personal computer. The special feature of this application is that it supports real time collaboration. For working on a same project users need to gathered at same place but using this application users in the same group can work on a same document from any location. So, multiple users will have their own

copies of the actual contents of a same file working at the same time.

2. PROPOSED SYSTEM

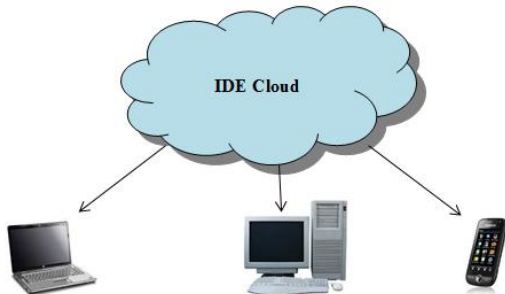


Fig.1 IDE present on the cloud

Integrated Development Environment is accessible from various devices like desktops, laptops, and smart phones with an internet connection. This paper explains the implementation details of the web based IDE which is present on the cloud and which support execution of programs in various languages. Also users can work on a same file together at the same time. As the application is deployed on the cloud there is no need to install and download it and because of this most of the operating system issues or hardware compatibility issues are eliminated [3].

This application can be accessed in real world from any device with an internet connection. For the development of this IDE Filezilla FTP client software is used for file transfer. In this application we are using cloud based compilers. We deployed the application on cloud. Users can directly execute programs using this application without installing any compilers on their personal Computers. This IDE supports execution of C, C++, Perl, Python, Ruby and Lua programs. The special feature of this web based IDE is that it supports real time collaboration. User can write code on our application and after execution of code output will be display on same window. The files or data can be saved on cloud so that the users can easily get their data from anywhere using this application.

In this application group of users can work on the same document, so here group of users can be created. Users in the same group can collaborate on the same document i.e they can do programming on the same document also they can share the same file.

3. SYSTEM ARCHITECTURE

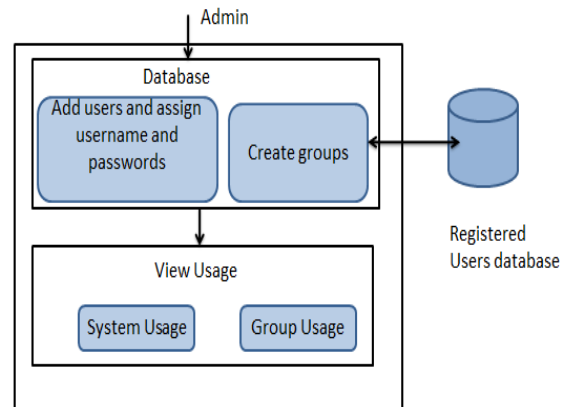


Fig.2 System architecture of Admin

Administrator has an authority to create new group or a group of users and he will allocate username and password to each user. Fig.2 shows the system architecture of administrator.

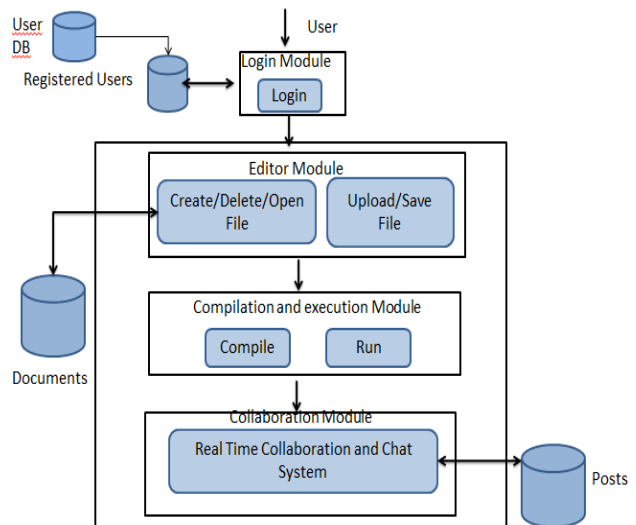


Fig.3 System architecture of Client

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

3.1 Login module

Users can login with user name and password to access the cloud IDE. User must be registered before login.

3.2 Editor module

There are sub modules of this module.

3.2.1 Create, save, delete, open and search modules

Create and save module allows the users to create new files and save them. Users can also delete the files created by them. The users who have already created files or have common access to the files created by other users in a same group can open those files. Search module permits users to search files and folders which are present in the directory.

3.2.2 Upload module

This module permits user to upload any file like text file, image file, doc file etc.

3.3 Execution module

IDE is use to execute the multiple language programs. By hitting execute the file button source code of multiple language programs get execute and output will be reflected to the user. At the time of execution, compiler will check for errors. If there are errors then they will be displayed to the user.

3.4 Real Time Collaboration

An important feature of this application is a real time collaboration. Using this application users in the same group can work on a same project from any location. This feature provide various users with the ability to modify the same file at the same time and also view the changes made by others in real time[3]. But for privacy they can not share the data with the users of other group. If other user in a same group who has access to the same file opens it, then the contents of the file are displayed to him also.

3.5 Chat system

Sometime users in one group faced various problems during implementation of their programs or they may have queries related to various technical topics. So any user is allowed to ask queries or can answer to others .

4. EXPERIMENTAL RESULTS

To use this collaboration tool or IDE, users need to have internet connection. The users have to type the correct URL and the login page will be displayed to the users.

4.1 Administrator console

Administrator can create new group or group of users. This page also shows the disk usage of each group and system usage i.e the total space used by all groups.

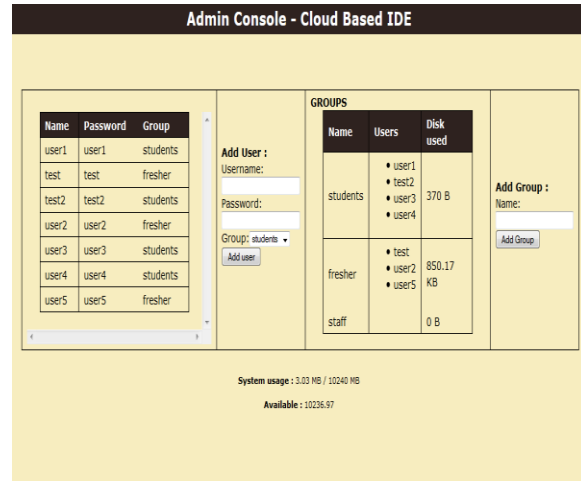


Fig.4 Administrator console

4.2 Login module

To use this application registered user can login with his username and password.

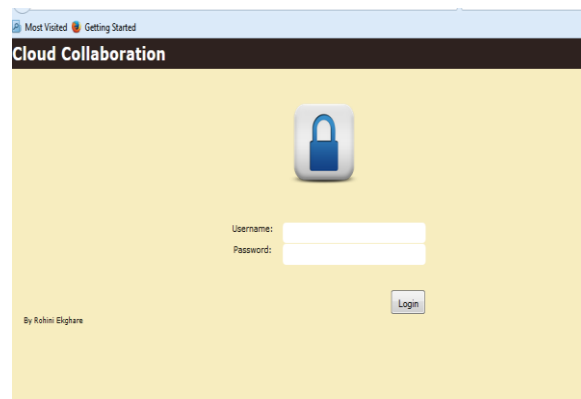


Fig.5 Login page

4.3 Create, Search files and folders

Files and folders can be created or searched using file or folder name present in a directory.

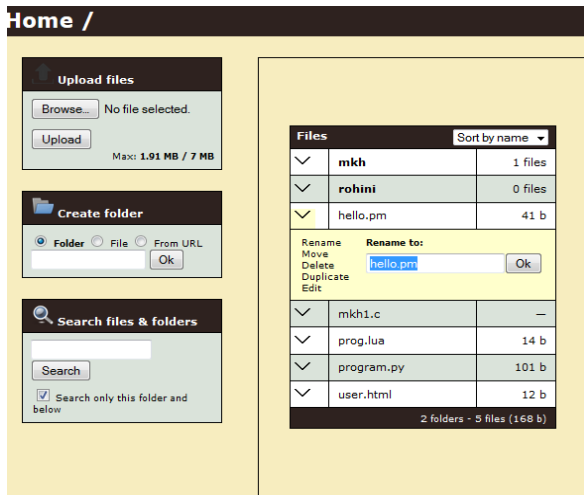


Fig.6 Create, search files and folders

4.4 Editor module

Files can be edited in two ways in this module Text based editor and WYSIWYG Editor. Rich content files like HTML (.html, .htm) files can be edited in WYSIWYG editor.

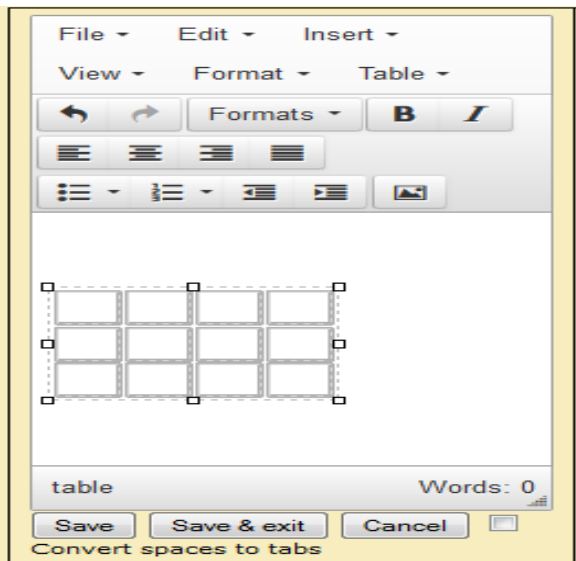


Fig.7 WYSIWYG editor

4.5 Execute source code using cloud based compilers

User can Execute the programs in C, C++, Perl, Python, Lua, Ruby languages. When the user hits the Execute the file button, the source file is execute using the compilers. If errors are present, they are displayed to the user. Also user can save the output for future purpose.

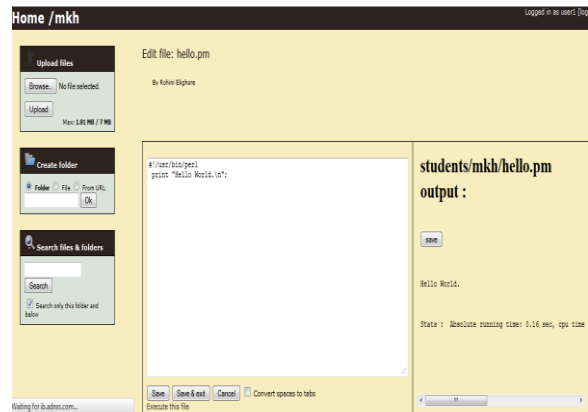


Fig.8 Execution of Perl program

4.6 Real Time Collaboration

Users in same group can modify the same file at the same time and also view the changes made by other users in real time.

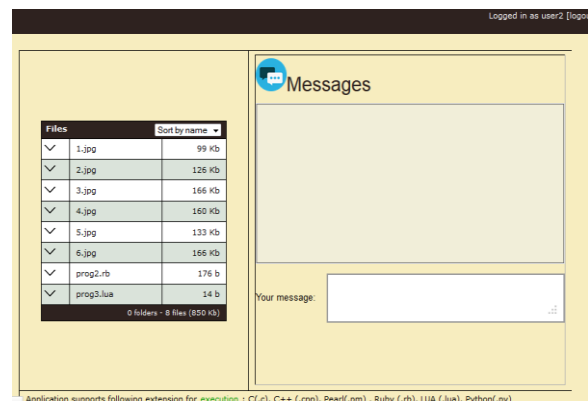


Fig.9 Profile of first user in group

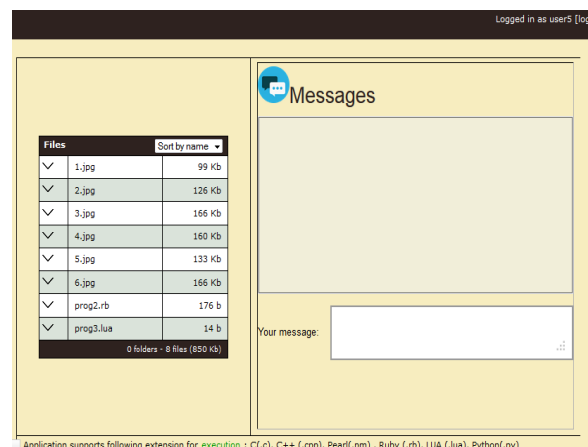


Fig.10 Profile of second user in group

4.7 Chat system

User can solve their problems by using chat system. Any user in a same group is allowed to ask queries or can answer to others.

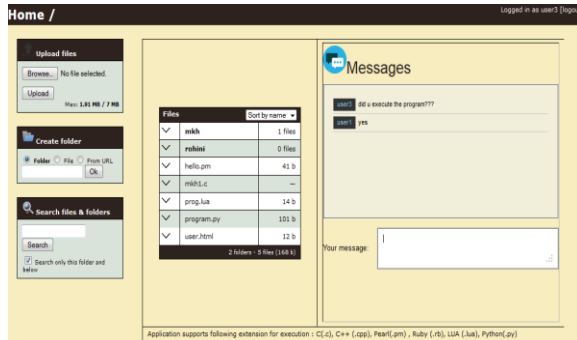


Fig.11 Chat system

5. CONCLUSION

This paper describes the implementation of web based IDE to code in the cloud and also it provide the special feature of real time collaboration. At present situation each machine need to install compilers separately. But using this IDE without installing any compilers user can directly execute program. Also, with various devices like desktops, laptops and smart phones it can be accessed from anywhere, anytime with an internet connection.

REFERENCES

- [1] Michael Miller, *Cloud Computing: Web-Based Applications That Change the Way You Work and collaborate online.*
- [2] Ashish Kumar, World of Cloud Computing & Security , *International Journal of Cloud Computing and Services Science (IJ-CLOSER) Vol.1, No.2, June 2012,pp.53~58 ISSN: 2089-3337*
- [3] Laxmi M. Gadhikar, Deep Vincent, Lavanya Mohan, Megha V. Chudhari, Implementation of browser based IDE to code in the Cloud, *International Journal of Advances in Engineering & Technology*, Nov. 2012, ISSN: 2231-1963
- [4] GiladKhen, Dan-El Khen and AlonWeiss <http://www.coderun.com>.
- [5] Ling Wu, Guangtai Liang, Shi Kui, Qianxiang Wang, CEclipse: An Online IDE for

Programing in the Cloud, pp.45-52, 2011 *IEEE World Congress on Services*, 2011.

- [6] A.Rabiyathul Basariya and K.Tamil Selvi, Computer Science and Engineering, Sudharsan Engineering College-centralized C# compiler using cloud computing, 2nd march 2012 .
- [7] NamrataRaut, Darshana Parab, Shephali Sontakke, Sukanya, Cloud Documentation and Centralized Compiler for Java &Php, *International Journal Of Computational Engineering Research (ijceronline.com) Vol. 3 Issue. 3*
- [8] Rafael A. Calvo, Senior Member, IEEE, Stephen T. O'Rourke, Janet Jones, KalinaYacef, and Peter Reimann-Collaborative writing support tools on the cloud, Jan-March 2011.
- [9] Peter Reimanna, Rafael Calvob, Comprehensive Computational Support for Collaborative Learning from Writing, *International Conference on Computers in Education*, S. L. Wong et al. (Eds.) (2010).
- [10]Max Goldman, Greg Little, and Robert C. Miller. 2011.Collabode: collaborative coding in the browser. *In Proceedings of the 4th International Workshop on Cooperative and Human Aspects of Software Engineering (CHASE '11)*. ACM, New York,NY, USA, 65-68.
- [11]Martin Nordio, H.-Christian Estler, Carlo A. Furia, and Bertrand Meyer, ETHZurich, Switzerland, Collaborative Software Development on the Web, arXiv:1105.0768v4 [cs.SE] 26 Jun 2012.
- [12]Van Deursen, A., Mesbah, A., Cornelissen, B., Zaidman, A., Pinzger, M., and Guzzi, A. Adinda: A knowledgeable, browser-based IDE. *In Proceedings of the 32nd ACM/IEEE International Conference on Software Engineering (ICSE) (2010), vol. 2*, ACM, pp. 203–206.