

# Online Java Compiler using Cloud Computing

Mayank Patel

**Abstract**— As it is a competitive world and very fast world, everything in the universes is to be internet. In this internet world all the things are on-line. So we created software called On-line java compiler. The main aim of this project we can easily to write a java program and compile it and debug in on-line. The client machine doesn't having java development kit. The paper aims to describe an online compiler which helps to reduce the problems of portability and storage space by making use of the concept of cloud computing. The ability to use different compilers allows a programmer to pick up the fastest or the most convenient tool to compile the code and remove the errors. Moreover, a web-based application can be used remotely throughout any network connection and it is platform independent. The errors/outputs of the code are stored in a more convenient way. Also, the trouble of installing the compiler on each computer is avoided.

**Keywords**— Cloud Computing, Compiler, Online Compiler.

## I. INTRODUCTION

Cloud computing builds on decades of research in virtualization, distributed computing, utility computing, and more recently networking, web and software services. 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.

It 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.' It does not require the end-user to know the physical location and configuration of the system that provides these services to the end-user.

The main disadvantage of cloud computing is the loss of control over the infrastructure used by the users. However, this disadvantage is eclipsed by many advantages that cloud computing offers. 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).

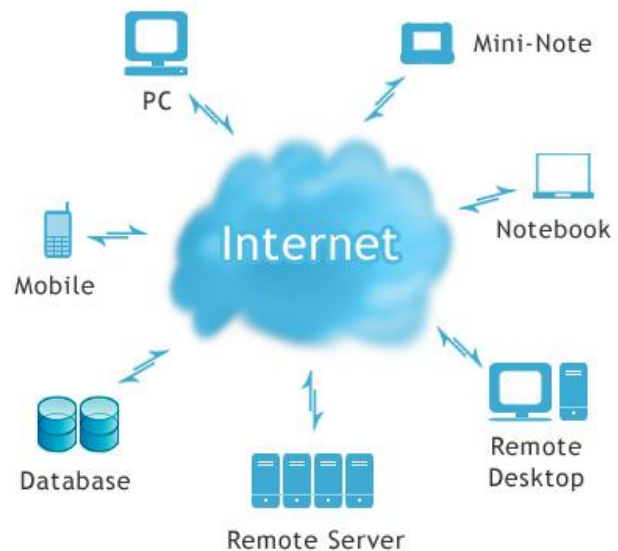


Fig. 1 Cloud Computing

## II. RELATED WORK

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). 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 remote server. This article also introduces the application field the merit of cloud computing, such as, it does not need user's high level equipment, so it reduces the user's cost. It provides secure and dependable data storage center, so user needn't do the awful things such as 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. The characteristics of cloud computing are much more complex.

Manuscript received on January, 2013.

Mayank Patel, ME. Information Technology Parul Institute of Engineering & Technology (PIET), Surat (Gujrat), India.

## Online Java Compiler using Cloud Computing

There are nineteen characteristics which can be used to distinguish cluster, grid and cloud computing systems. Cluster's resources are located in single administrative domain with single entity. Resources of grid system are distributed and located in administrative domain with multi entity and management policies. And cloud computing platform possesses characteristics of both cluster and grid. The cloud computing platform provides services to users without knowing much about the infrastructure. The service oriented, loose coupling, strong fault tolerant, business model and ease use are main characteristics of cloud computing. Clear insights into cloud computing will help the development and adoption of this evolving technology both for academe and industry. In practice, there are many cloud computing systems with their own characteristics. Amazon EC2 etc. supplies their infrastructure as a service. Google App Engine and Microsoft supply their platform as services. In academe, there are many cloud computing projects under constructing or fully run. Cloud computing can be viewed from two different aspects. One is about the cloud infrastructure which is the building block for the upper 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.

### III. SYSTEM DESIGN

Technology is applied to generate online java compiler using Cloud Computing in 3 tier architecture.

#### A. Data Layer (Back End):

Available in the Web Server which contains account information about the user.

#### B. Business Layer (Middle End)

Decision making layer from the application layer.

#### C. Application Layer (Front End)

User Interface, showing data to the user, getting input from the user.

#### D. Compile Option

This would take the code in the text box to the server side for its compilation and at the server side the compiler package has been imported.

#### E. Execute Option

The user is provided with the links of all the executable files that were present in his or her folder and were already compiled at least once without errors.

### IV. IMPLEMENTATION

The online java compiler provides a feature that enables the output of source code in multiple programming languages at run time, based on a single model that represents the code to render. We can generate assemblies dynamically at run time

and execute. It was assumed that the user will use his or her favorite text editor to create and correct program files. This assumption allowed to create a very simple front-end that loads quickly and is platform independent. Although the front-end is designed to be as simple as possible with only a few commonly used options, it is sufficiently functional and can be used quickly. Checks whether the text area is empty or not. If it is empty, displays warning message. Otherwise use `CompileResults` class to represent the result of compilation that are returned from a compiler, `CompilerError` class to represent a compiler error or warning and `CompilerParameters` class to represent the parameter to invoke the compiler. After successful compilation compiler generate either .class file. This .class file produce the desired output for the given source code.

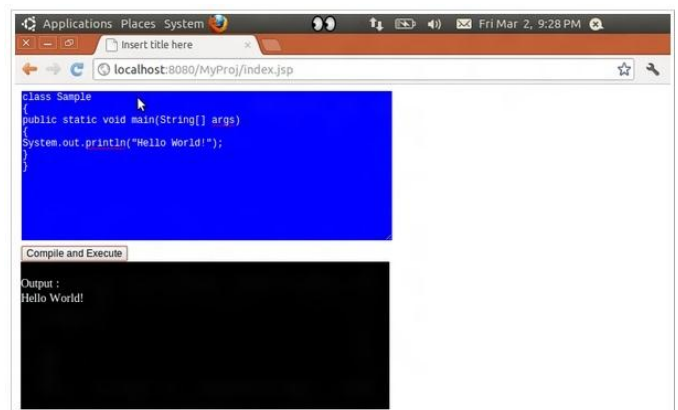


Fig. 2 When the Program Is Not Having Any Error

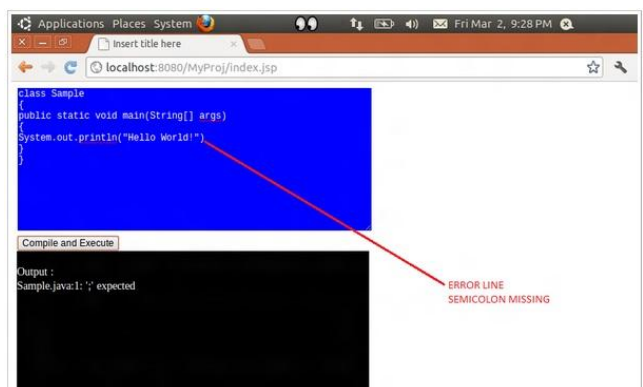


Fig. 3 when There Is Error in Entered Program

### V. CONCLUSIONS

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. Another advantage of such 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.

### ACKNOWLEDGMENT

My most sincere thanks go to my advisor, Asst. Prof. Ashthabaxi. I thank her for providing me opportunity to work in the area of online java compilation for cloud.



I thank her guidance, encouragement and support during initial development of this project. She has been helping me to improve my English communication and writing skills.

## REFERENCES

1. Aamir Nizam Ansari, Siddharth Patil, Arundhati Navada, Aditya Peshave, Venkatesh Borole , Online C/C++ Compiler using Cloud Computingl, Multimedia Technology (ICMT), July 2011 International Conference, pp. 3591-3594.
2. Shuai Zhang Shufen Zhang Xuebin Chen XiuzhenHuo, —Cloud Computing Research and evelopment Trendl, Future Networks, 2010.ICFN '10' Second International Conference.
3. Shufen Zhang Shuai Zhang Xuebin Chen Shangzhuo , —Analysis and Research of Cloud Computing System Instancel, Future Networks, 2010.ICFN '10. Second Internation execute the program and its instructions.Fig 1 - Cloud Computing logical diagram al Conference.
4. Grobauer, B. Walloschek, T. Stocker, E., “Understanding Cloud Computing Vulnerabilities”, Security & Privacy, IEEE March-April 2011
5. Chunye Gong Jie Liu Qiang Zhang Haitao Chen Zhenghu Gong, “The Characteristics of Cloud Computing”, Parallel Processing Workshops (ICPPW), 2010 39th International Conference
6. JunjiePengXuejun Zhang Zhou Lei Bofeng Zhang Wu Zhang Qing Li, “Comparison of Several Cloud Computing Platforms”, Information Science and Engineering (ISISE), 2009 Second International Symposium
7. Shufen Zhang Shuai Zhang Xuebin Chen Shangzhuo , “Analysis and Research of Cloud Computing System Instance”, Future Networks, 2010. ICFN '10. Second International Conference