ONLINE C, C++, JAVA COMPILER USING CLOUD COMPUTING - A SURVEY

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ABSTRACT

Cloud computing model is for enabling convenient as well as on-demand network access to a shared pool of configurable computing resources that can be quickly provisioned and released with minimum management efforts. In today’s world widely use of internet. In this internet world all the things are online. So we create software online compiler. This project main aim is we can easily write program and compile and debug it in online. In this paper, we compare three online compilers, namely, Online C, C++ compiler using cloud computing which reduces the problem of portability and storage space by making the use of cloud computing, centralized c# compiler using cloud computing which help to reduces problem of time, cost, storage space by using cloud computing concept, online java compiler using cloud computing, which provides most convenient tool to compile code and remove the errors. These three compilers provide online compiler service, so no need to install separate compiler on each pc. By using all these application we can conduct online practical examination.

Keywords - Online compiler, cloud computing, compiler, centralized compiler, Code Dom, OCC

1. INTRODUCTION

Cloud computing builds on decades of research recently in networking, web and software services. It is also a byproduct and on sequence which makes it easy to access to remote computing sites which are provided by the internet according to their needs.

There are five ways of providing cloud computing currently viz. public, private, community, combined and hybrid cloud computing. Cloud computing is not only simply collecting the computer resources but it also provides a management mechanism with services for millions of user simultaneously.
‘cloud computing’ is a model which makes easy as well as on-demand network access to a shared pool of configurable computing resources like network, server, storage, application and services that can be quickly provisioned and released with minimal management effort or service provider.

2. ONLINE COMPILERS USING CLOUD COMPUTING

There are 3 systems:

2.1. Online C/C++ compiler using cloud computing:

Cloud computing explains the concepts of distributed computing, virtualization and utility computing. This system makes use of the dual layered architecture in which the lower layer consists of clients, which are of lower configuration and the upper layer consists of the server.

It involves Service oriented architecture which reduces information technology overhead for the end-user, also has greater flexibility, reduced total cost of ownership and on-demand services among other advantages.

The main aim of the project is to provide a centralized compiling scheme for institution or organization. Codes and schedule of sending codes for execution is stored on database. OCC is an online compiler cum interpreter and a simple collaboration and also it is a pastebin that executes code for the user. Advantages of this project are this new generation of technology is based on Web services – combining small codes and linking of large codes with each other. .NET combines unprecedented developer productivity with performance, reliability and also deployment.
Disadvantages are applications that use the MS .NET framework tend to utilize maximum system resources and especially those that are running on Microsoft framework. Also, the loss of trade secrets and by passing of license is the major problem caused by reverse engineering. Regular garbage check with collection makes the application pause for sometime from execution.

![Online compiler architecture](image)

**Fig 2.1. Online compiler architecture**

### 2.2. Centralized C# compiler using cloud computing:

Cloud Computing describes technology with virtualization, distributed computing for IT services. It has been proved as a revolution in internet world.

CodeDom (Code Document Object Model) Technology is applied to generate Centralized C# compiler using Cloud Computing in 3 tier architecture i.e.

- **A. Data Layer (Back End):** Available in the Web Server which contains account information about the user.
B. Business layer (Middle End): It acts a decision making layer from the front end.

C. Application Layer (Front End): It acts as a user interface, which shows output to the user, and fetch input from the user.

The .NET Framework provides a feature called Code Document Object Model (CodeDom) that enables the output of source code in multiple programming languages at run time, which are based on a single model that represents the code to be executed. Main characteristics of cloud computing are service oriented, easy to use, tolerance to fault strongly, representing business model at an efficient level. Clear insights into cloud computing will help the development and adoption of this evolving technology both for academe and industry. The system.CodeDom.Compiler namespace contains enumerations as well as interfaces and classes that are used for generating and compiling source Code. Check whether the text area is empty or not. If it is empty, displays warning message. Otherwise use Compile Results 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 dll or exe file. This exe file produce the desired output for the given source code.

2.3. Online JAVA compiler using cloud computing:

In cloud computing, the end user is unaware about the physical location of storage of datas. In practice, there are many cloud computing systems with their own characteristics. Amazon EC2 etc. Supplies their infrastructure as a service. Types of cloud computing are private, public, community, hybrid and combined. Google App Engine and Microsoft supply their platform as services. In academe, there are many clouds computing projects under constructing or fully run. Cloud computing can be viewed from two different aspects from which one is about the cloud infrastructure which is the building block for the up layer cloud application and the other is of course the cloud application. Cloud computing has achieved a level of scalability and portability. SaaS provides Internet application to the customer also provides the software the off-line operation and the local data storage, makes software and service which the user all may use it anytime and anywhere to order. As compared to the current scenario where each machine need to install compilers separately. This would eliminate the need to install compilers separately. Another advantage of such project is up gradation of newer version is done automatically. 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 regarding application layer is done in this layer.

C. Application Layer (Front End) This layer acts as user interface which gives output to the respective user and fetch desired 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 gets the links of all the executable files that were present in his or her folder and was already compiled at least once without errors.

3. **COMPARISONS OF ALL THE THREE PAPERS**

<table>
<thead>
<tr>
<th>Sr. no</th>
<th>Parameters</th>
<th>OnlineC/C++ compiler</th>
<th>Centralized C# compiler</th>
<th>Online compiler</th>
<th>JAVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Applicable areas</td>
<td>In academe and industry.</td>
<td>Used in ASP.NET applications.</td>
<td>In academe, organization, industry</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Operating systems on which it is accessible</td>
<td>Windows, Linux</td>
<td>Windows</td>
<td>Windows, Linux, Mac OS X</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Platform status</td>
<td>Platform dependent</td>
<td>Platform dependent</td>
<td>Platform independent</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Back-End</td>
<td>Conversion of language from high level to low level takes place</td>
<td>Log of user is kept</td>
<td>Details of user is maintained</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Front-end</td>
<td>Semantics and syntax error of code is checked</td>
<td>Data to the user is sent and input from user is taken</td>
<td>Required data is provided to user</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Middle-End</td>
<td>Code redundancy is done</td>
<td>This layer acts as decision maker</td>
<td>Decision taken for activities of clients</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Technology used</td>
<td>OCC</td>
<td>CODE-DOM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9. Efficiency | More as applicable in different O.S | Less as applicable in one O.S | Highest as platform independent and operated in different O.S

10. Advantage | As C/C++ is basic language of computer everyone is familiar with it and so can handle it nicely. | As using cloud computing we need not have to know the concept related to cloud computing. | Using JAVA is the main advantage in it and using cloud computing increases its efficiency more.

11. Disadvantage | It is not platform independent which makes it accessible only to a particular system. | Using ASP.NET decreases its efficiency. | Some problems related to security of the system as using cloud computing.

4. CONCLUSION

Thus, we must have a system which will combine each above system’s advantages and will discard their disadvantages for the better future use of cloud computing. Moreover, in today’s world we require everything online so this all systems provide the best solution to these problems. By integrating and enhancing the capabilities of these essential technologies, we hope to introduce the ‘Online Compiler’ and to contribute to the current examination system. It would provide a platform for students to give practical examinations online. A cloud will be available where a server will be present which handle codes of all students and will compile codes separately sitting on another system.

5. REFERENCES