

Virtual Compiler for College Students

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ABSTRACT

Virtual apps are programmers that have been tuned to function in a virtual environment. A software that runs on a computer without needing to be installed is referred to as a virtual app, to put it simply. Users' devices receive virtual programmers stored on a server using remote applications, a typical method of delivering virtual apps. Instead of having these programmers installed on the user's device, a client is set up on it that establishes a connection to the server, and the application is then sent to it as screenshots. Using a compiler is necessary to run programmers. A web-based compiler was created by us. Making things simpler for all pupils is our compiler's main objective. According to their semester, students can access virtual compilers (such as python). This study aims to present a web-based compiler that encourages platform independence. The problem of storage capacity and portability is lessened by the use of cloud computing.

Keywords: Virtual application, Compiler, Flask, SQL.

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I. INTRODUCTION

A concept known as virtual reality was developed by computer technology and refers to a world that looks to exist but does not. Virtual apps are programmers that have been optimized to work in a virtual setting. A virtual app is, to put it simply, an application that runs on a computer without needing to be installed. The popular virtual app delivery method known as remote applications lets users download virtual programmers from a server to their devices. These programmers are delivered to the user's device in the form of screenshots through the installation of a client that connects to the server rather than being installed on the user's device directly. Programs need to be compiled in order to run. It converts text-based source code into object code, an executable format. If

the compiler is set to run manually on every system, it will consume a lot of disc space and need correct configuration if it is not installed with default settings. In today's world, the majority of apps and the interfaces that go with them are made to function online. We created an online compiler as a result. Our compiler's main objective is to remove the need for any user to download any IDE (Integrated Development Environment) or compiler in order to make it simpler for anyone to create and run programmers written in any language. There is no need for a development kit on the client machine.

This study aims to present a web-based compiler that encourages platform independence. The problem of storage capacity and portability is lessened by the use of cloud computing. Programmers may swiftly

compile, eliminate, and save the output of all bugs by utilizing multiple types of compilers through a single interface.

The approach suggested in this study deviates from the sample student data's initial result less than other approaches. The study is divided into four sections: section II contains a survey of the literature; section III includes specifics of the analysis model that is suggested; and section IV contains information about how the model was put into practice and the outcomes of the experiments.

II. RELATED WORKS

The current system makes it difficult to develop cloud compiler. In the current approach, servers are utilized to create virtual compilers, which can be very sophisticated and time-consuming.

[1] Ansari, A.N., Patil, S., Navada, A., Peshave, A. and Borole, V., 2011, July; A approach known as "cloud computing" allows users to quickly and easily deploy and release a shared pool of programmable computer resources over a network on-demand. The goal of this study is to provide a description of an online compiler that addresses portability and storage space constraints by utilising the cloud computing model. The ability to utilise a variety of compilers gives programmers the freedom to choose the tool that will compile and fix errors the fastest or most conveniently. A web-based application is also platform independent and can be accessed remotely via any network connection. The outputs and errors of the code are saved more conveniently. Additionally, the hassle of the compiler having to be installed on every computer is removed. These advantages make this application appropriate for administering online tests.

It includes, among other things, on-demand services, a service-oriented design, lowered end-user information technology overhead, high flexibility, and a lower total cost of ownership. 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 little management effort or service provider interaction." The end user does not need to be aware of the precise location or setup of the system providing these services. The primary drawback of cloud computing is the loss of control over the infrastructure used by consumers.

The advantages of cloud computing, however, much outweigh this drawback. A few of them are lower costs, better computing, regional independence, and more security (although this advantage in clouded with doubts of loss of some sensitive data). The five types of cloud computing that are now accessible are public, private, communal, combined, and hybrid. The core of any computing system is a compiler, which translates source code from a higher-level language to a lower level, machine language. The main goal of this is to create executable files that may be used to 'execute' a programmer and carry out its instructions. Each compiler is composed of three primary parts:

1. The Front end: This validates the higher-level code's semantics and grammar (written by the user). The frontend also performs functions such as type checking and error reporting.
2. The Middle end: This optimises the code by removing unnecessary code and relocating computations depending on the context.
3. The Back end: This is the section in which the language is really translated.

[2] Sharma, A., Dixit, A., and Upadhyay, B., 2017, Programs need to be compiled in order to run. It converts text-based source code into object code, an executable format. If the compiler is set to run manually on every system, it will consume a lot of disc space and need correct configuration if it is not installed with default settings. In today's world, the

III. METHODOLOGY

majority of apps and the interfaces that go with them are made to function online. We created an online compiler as a result. Our compiler's main objective is to remove the need for any user to download any IDE (Integrated Development Environment) or compiler in order to make it simpler for anyone to create and run programmers written in any language.

This study aims to present a web-based compiler that encourages platform independence. The problem of storage capacity and portability is lessened by the use of cloud computing. Programmers may swiftly compile, eliminate, and save the output of all bugs by utilizing multiple types of compilers through a single interface.

A platform for altering, setting up, and personalizing various programmers online is offered by cloud computing. The foundation for cloud computing was laid by years of study on utility and distributed computing, networking, and web-based applications. It enables many organizations, or even just one individual, to store, examine, or access data, particularly sensitive data, in their own data centers. A key element of this kind of computing is virtualization. It enables you to instantly split any computing device into numerous "virtual" units, each of which is capable of carrying out its own task.

[3] Patel, M., 2013, Everything in the cosmos is linked to the internet because we live in a cutthroat, fast-paced culture. In today's world, everything is accessible online. We created an online Java compiler as a result. This project's main objective is to show how easy it is to create a Java programme, compile it, and debug it online. The client system does not have the Java Development Kit installed. The goal of this study is to provide a description of an online compiler that addresses portability and storage space constraints by utilising the cloud computing model. The ability to utilise a variety of compilers gives programmers the freedom to choose the tool that will compile and fix errors the fastest or most conveniently.

In order to save student login information, we constructed a virtual application utilizing Python (PyCharm IDE & Flask Framework) and a SQL database. Therefore, based on their interest, each student has their own compiler.

A web-based application is also platform independent and can be accessed remotely via any network connection. The outputs and errors of the code are saved more conveniently. Additionally, the hassle of the compiler having to be installed on every computer is removed. Years of research into cloud computing have benefited a variety of technologies, including virtualization, distributed computing, cloud services, and more recently, networking, online, and software services. An addition, consumption, and delivery model for IT services based on Internet protocols called "cloud computing" typically entails the provisioning of dynamically scalable and frequently virtualized resources. It is a by-product and repercussion of the ease with which remote computer sites catered to their particular need can be accessed via the Internet.

It includes, among other things, a service-oriented design, lower total cost of ownership, considerable flexibility, and on-demand services. It also reduces end-user information technology costs. According to the National Institute of Standards and Technology, "cloud computing" is "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 little integration management or service provider interaction" (NIST). The end user does not need to be aware of the precise location or setup of the system providing these services.

IV. RESULTS AND DISCUSSIONS

Home Page:

Here user view the home page of Virtual Compiler for College Student web application.

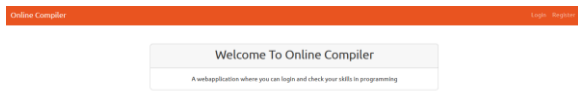


Fig 2: Home Page.

About:

In the about page, users can learn more about Virtual Compiler.

New Student Registration:

User needs to input the required data to submit the registration.

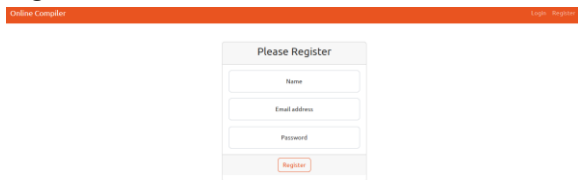


Fig 3: New Student Registration.

Student Login:

After registration approved by administration only student can login.

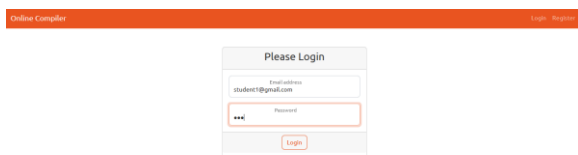


Fig 4: Student login not approved/rejected.

Virtual Compiler:

Student has to select year and corresponding semester to get the respective compiler.

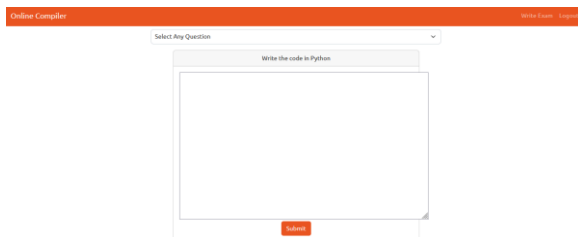


Fig 5: Input for the virtual compiler.

Exam Page:

After Login, if student needs to take a test he needs to enter into the below page:



Fig 6: Exam Page

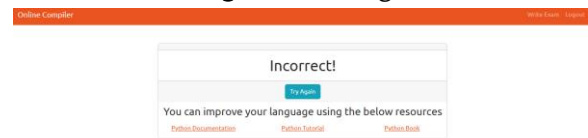


Fig 7: Page for displaying the answer

In the above page, if the answer is in correct it will recommend python documentation, tutorial, and book links for increasing the skills and then to retake the task.

After test the user can logout from the session.

V. CONCLUSION

Based on the student's year and semester inputs, this work displays a virtual compiler to them. The technique has a propensity to have several shortcomings, such as the absence of private server virtual compilers. There will be a new component-generating mechanism that creates proposals for the suggested design in the not-too-distant future.

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