

ONLINE CODE EDITOR USING REACT

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ABSTRACT: The world of Internet is growing rapidly, many applications that previously created on the desktop start moving to the web. Many applications could be accessed anytime and anywhere easily using Internet. Developers need tools to create their applications, one of them named code editor. The purpose of this research is to design and develop a real-time code editor application using web socket technology to help users collaborate while working on the project. This application provides a feature where users can collaborate on a project in real-time. The authors using analysis methodology which conducting on a study of the current code editor applications, distributing questionnaires and conducting on literature study. Codesk is a web application that provides workspace to writing, perform, display the results of the code through the terminal, and collaborate with other users in real-time. The application main features are providing workspace to make, execute and build the source code, real-time collaboration, chat, and build the terminal. This application supports C, C++, and Java programming languages.

Keywords: Online code editor , web IDE , Browser-based code editors

INTRODUCTION

The online code editor is used to run multiple programming languages; however, many programmers who need to edit the source code urgently may not be able to access a convenient resource without installing any software on their computer or notebook. In our project, programmers can compile and run source code through a web browser, and the code is generated on the server. The output of the compilation will then be displayed in the client-side browser. Online code editors are designed to run on small resources such as PCs, tablets, Android devices, notebooks, and laptops. To edit program source code, computer operator must have at least one computer. If a programmer wants to run multiple languages, they must install the software for each one. However, if they use an online code editor, they can run all languages on the same platform, which eliminates the need for the programmer to install software for each language. Browser-based code editors and compilers significantly reduce both the hardware and software required by programmers when working on any given project by storing and executing source code online, allowing programmers and development teams to quickly begin projects for a wide range of platforms, devices, and operating systems. Code chef and code pad are two well-known online compilers. The generally accepted operation of our website is that users can write or copy paste code into the Code editor and then use the submit button, which compiles the program in the backend and displays the result in the output window. In addition, users can add files that can be compiled using the backends' compiler.

LITERATURE SURVEY

The technological development trend in software engineering has been improving, where the design of software began move from the desktop to the web. Nowadays, many IDE (Integrated Development Environment) applications has been made, such as Eclipse, Visual Studio, etc., but IDEs which based on desktop still have significant disadvantages such as long time for configuration and installing the plug-in needed for IDE to run the project. This problem could be a huge waste of time when there are many devices that have to be configured.

Many software applications have been run in the cloud, and use a web browser as a user interface that allows ubiquitous access, instant collaboration, and avoid installation and configuration on desktop computers. One of the technologies used for instant collaboration is single IDE (like pair programming). Pair programming is the practice of having two programmers' access and work on the same code in a single development environment. In pair programming, programmers have the abilities to create, edit and delete source code in real-time. Pair programming could solve the synchronization problem of program code in order to remain valid, and whenever the code changes any programmer who is working on the same project could see the one who changed the code. Collaborative technologies could help programmers work together while fixing bugs or discuss the program in the same single environment but in different geographical area. Therefore, it needs to make an application that can improve performance while creating program such as real-time collaboration, create, execute and display the result of the program using terminal.

CORE FEATURES OF A WEB IDE (ONLINE CODE EDITOR)

Code Understanding or Code Completion: The capacity of an IDE to know the keywords and the functions of a programming language is a must. The IDE may utilize this information to do things such as highlight typographic blunders, propose a rundown of accessible functions in light of the proper circumstance, or offer a definition of a function from the official documentation.

Proper Management of Resources: When making applications, programming languages frequently depend on resources, similar to library or header documents, to be in particular areas. An online IDE should have the capacity to deal with these coding resources. It ought to be mindful of any needed resources so programming errors can be spotted at an early stage and not later.

Debugging Tools: You need to be able to completely test your application before discharging a web IDE. The IDE may have the capacity to give you the value of the variables at specific points, unite them into distinctive information archives, or acknowledge diverse parameters.

Compile: For programming languages that require a compile, the web IDE can decipher codes from high level programming languages to object code of a platform. Prerequisites for these elements fluctuate considerably from one language to another. This way, usually, a web-based IDE comes with one programming language or even a set of different types of languages. Some popular IDE editors are JBuilder for Java; Microsoft's Visual Studio for C# and Visual Basic, and more.

THE TRANSITION: CODING OFFLINE TO ONLINE

Once upon a time, the standard practise for web developers was to code offline and then publish the results on the web. There were numerous undeniable reasons for this model's dominance, the most well-known of which was that internet speed was extremely slow back then.

After a while, various online IDE editors, such as ShiftEdit and Cloud9, appeared, prompting a trial shift from offline to online coding.

There are numerous options with online IDEs, and each option appears to have its own method of operation. Some IDEs charge for their services, while others are completely free. Similarly, some IDEs support as many as 50 programming languages and additionally offer key components like FTP support to help you convey your work all alone server, while others avoid FTP and stick to a limited range of programming languages.

Furthermore, some solutions support more than 50 programming languages and provide key components such as FTP support to assist you in transferring your work to a standalone server. Others, on the other hand, avoid FTP and stick to a limited set of programming languages.

WHY SHOULD YOU CHOOSE A WEB IDE?

Mobility or Portability

Similar to an online office suite, such as Google Docs, for example, an online IDE offers the chance to work from anywhere around the world. Regardless of where you are — home, office, or traveling — if you have a strong internet connection, you can code as much as you like

Simpler Collaboration

One of the greatest advantages of online IDE is the way that such editors can help your teammates. You can consistently share your code, and, in addition, create applications as a group utilizing a cloud environment.

Open Source

A web IDE such as **ICE coder**, for example, is open source, which means that users are permitted free access to the source code. So, if you require a specific component added to the product, and don't wish to sit tight an additional two years for the designers to think of it, you can simply contribute yourself.

Speed

For the most part, web coding enables you to find issues and address them faster, compared to offline coding. A web-based IDE can help you code and send your applications and sites swiftly from anywhere to anyone. This way, it improves the speed of the development workflow.

No System Constraints

You needn't bother with a megaton of RAM or superpower processor speeds in order to take a shot with an online IDE. The lack of hardware constraints makes this type of coding much more agile and accessible. Furthermore, it reduces maintenance expenses and minimizes other technical issues that may create setbacks.

No Operating System Issues

Windows, Mac, or Linux, regardless of which OS you are on, at the end of the day, it is your web program and it will not cause any operating system issues.

WHAT ARE THE DRAWBACKS OF WEB IDE?

- Online IDE and code editors are dependent on your internet connection. Although you can get Wi-Fi or mobile networks pretty much anywhere nowadays, there is still a risk that you find yourself cuffed by the absence of features.
- While this is easy to refute, some engineers feel that online IDE editors are good only for HTML and CSS and small to medium-sized projects. Any greater venture including a lot of complex code may gag the life out of an online IDE.

If your project is too vast, utilizing an online IDE would bring about a great deal of data exchange and handling, and an offline option will plainly be more practical for this reason.

CONCLUSION

Conclusions and Future Work Through much time and effort, we have successfully created a full stack web application for online programming, built with React . This application is used for online coding. After selecting the programming language, you can start to write code. Below are the highlighted features.

- Five programming languages are supported, including C, C++, java, JavaScript and python.
- Syntax highlighting for different languages.
- Compilation and execution are supported. The proper result or error message will be displayed.

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