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CHROME EXTENSION FOR DROPDOWN CODE EDITOR

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Abstract : Since the IT boom, there has been a surge of software developers. There has been a lot of new projects conducted every day. But not everyone writes their code, we refer to online forums and various websites to get a remedy for our programming problems. We get multiple solutions but don't know which is the correct one or which works with our code better. We need to visit other online editors or download separate IDEs to check our code. In our paper, we have mentioned how we created a dropdown code editor which will help developers to check for outputs for a given code without opening an external IDE or website.

IndexTerms **- Extension, Editor, Browser-Based, Multi Programming Language, IDE.**

I. INTRODUCTION

Extensions are small bits of software that allow you to customize the look and feel of your browser. HTML, CSS, and JavaScript can be used to customize Chrome's functionality and behaviour. While any application or software can create timetables, to-do lists, and set notifications, Chrome extensions make it easy to keep organized while browsing the web.

Due to COVID-19 spreading to various countries, it has affected many sectors, including education. New challenges arise in universities with study programs related to computer programming, which requires a lot of practice. Difficulties encountered when students should set up the environment needed to carry out programming practices. Also, they should install a text editor called Integrated Development Environment (IDE) to support it.

Also these days people are reluctant to write their code, they usually refer to online forums or various websites to get a remedy for their programming problems and get numerous solutions. They may not know which code is correct or which works better with their program. They need to visit online editors or download external IDEs for verification. The problem with this is that external IDEs require space and sometimes come with ads. Also, there is a risk of installing and exposing your device to malicious software. The same applies to online IDEs. To make this work easy, our idea is to develop a web extension for the Google Chrome browser that will provide users with appropriate services.

II. LITERATURE SURVEY

2.1 On the development of a web extension for text authentication on Google Chrome

In this survey paper, the grammar words used were verified and verification of text authentication is also done by selecting samples from text and verifying it from the database using an extension after doing so, the extension will highlight the selected text and it will scan and check for the authenticity of the text sample. they created a web extension for the Google Chrome browser that allows users to check online texts by simply clicking on an extension button. When you click the button, the extension software's underlying algorithm pulls the texts from the currently shown web page. By comparing the obtained texts to a text database, the messages are verified and authenticated. Texts are highlighted in different colours, according to the comparison.

2.2 Online Compiler as a Cloud Service

In this paper the problem addressed was that there is a need for several compilers to compile programs for different programming languages and instead of downloading different compilers for different programming languages, a programmer/user can refer online cloud-based compiler which can execute or compile different programming languages and it will also assign suitable compiler server automatically by detecting the programming language. The goal of this study is to solve the problem of compiler storage and portability. The user must submit the program into the user interface supplied without needing to install any

compiler. Depending on the load on the backend compilers, the controller will decide which compiler server the program should be allocated to compile. The program will be compiled and run by the compiler server. After that, the output is returned to the user.

2.3 Hybrid Smart Compiler Using Cloud Computing

This paper is based on cloud computing where it states that if multiple programmers are working in a group virtually then there is a need for a compiler that can compile the same program and if there is any improvement required or any error occurring in the program, then the same program can be accessed by their group virtually in real-time so that everyone has the access to the same program at the same time. To address these issues, they discovered the need for an online compiler nested in the cloud that can build code online and can be accessed from any device, with no high configuration required and the ability to use different languages in a single platform. The option to use several compilers allows the programmer to compile the code faster or more conveniently.

2.4 Cloud Compiler

This paper is based on a cloud compiler that is platform-independent and can autosave the code so that if there is any issue such as network issue due to power cut then it will not have any impact on the program and it can be accessed using any devices. This can execute various programs of different programming languages.

2.5 Designing IDE as a Service

This paper is based on an IDE where developers/programmers can write their code. In this IDE developers do not need to download updated IDE because this IDE is stored in the version control system and based on the requirement they can write programs in their preferred language. They created a browser-based solution that makes web application development and publishing straightforward. A user interface designer and an integrated code editor are used to constructing Arvue applications in the browser. The applications are saved in an Arvue version control system and may be quickly published to the cloud. The study also addresses resource utilization and security issues that may arise from publishing user-created programs.

2.6 Hybrid Compiler

This paper is based on compiler designing which will be centralized and can be accessed through various mediums. This compiler will consist of many different compilers at the same place and act as one. The programs can be executed remotely after accessing the compiler remotely.

2.7 A Survey, On Hybrid Smart Compiler Using Cloud Computing

This paper is based on the issue of accessing the cloud compiler remotely. To access cloud compilers remotely there is a need of having a highly configured system. But using this hybrid compiler can be accessed from any platform and thus it is platform-independent open-source.

III. METHODOLOGY

3.1 About Extension

Chrome Extension for Dropdown Code Editor is a browser-based tool for writing and executing codes for multiple programming languages. In this IDE extension, we can select any specific programming language from various languages and write and execute codes of that particular programming language. To develop our IDE we used HTML, CSS, JavaScript for the front end/UI, and for the server-side, we used PHP.

Every extension that uses the Web Extension APIs must include the manifest.json file. One can describe basic metadata about their extension, such as the name and version, as well as features of the extension's functionality, using manifest.json (such as background scripts, content scripts, and browser actions).

Let's have a look at some of the most recent Google Chrome Web Store statistics:

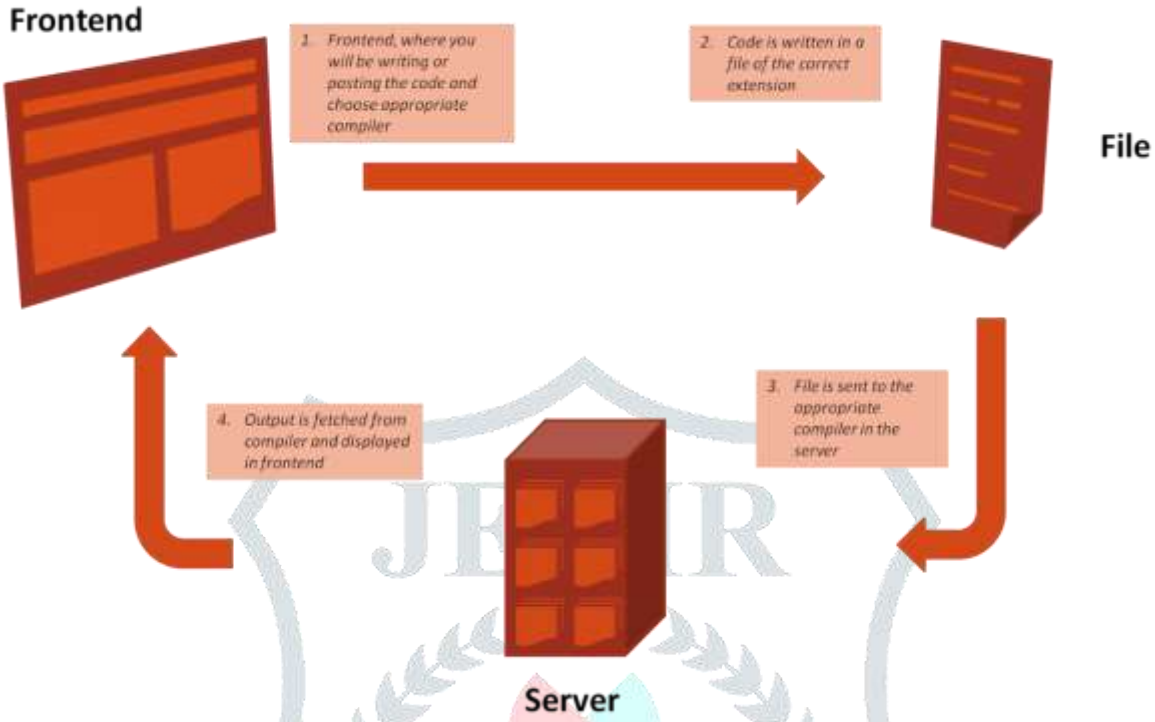
- The Chrome Web Store will have 215,075 total goods (extensions, themes, and apps) in 2020.
- There will be 155,583 Google Chrome extensions in 2020.
- Half of all Chrome extensions have only been downloaded 16 times.
- There are less than 1000 active users in 88.55 percent of Chrome extensions.
- Productivity is the most popular Chrome extension category, with 46K extensions.
- Fun is the second most popular extension, with 33K extensions.
- Chrome extensions are free to use in 87.37 percent of cases.
- In the previous two years, 45 percent of all Chrome extensions have not been updated.
- Approximately 10% of all Chrome extensions have never been installed.
- Only around a third of all Chrome extensions have been installed once.
- 83.3 percent of all extensions were approved.

3.2 Manifest V3

Since its inception a decade ago, Manifest V3 has represented one of the most significant changes to the extensions platform. Extensions that use Manifest V3 will benefit from improved security, privacy, and performance, as well as the ability to employ more modern Open Web technologies like service workers and promises. Developers can upgrade their extensions now to take advantage of these Manifest V3 features; as we phase out Manifest V2 in the future, this will become essential.

3.3 Our Extension

The user can access the extension IDE by clicking the extension icon present at the top bar of the web browser which will drop down a text area where the user can write or paste their code. They are allowed to choose a specific programming language of their choice from the menu beside the text area. According to the chosen programming language, the user can execute their code by clicking the submit button at the bottom of the editor. The output will be fetched from the server after compiling without a hassle. The user can perceive the result which will be displayed at the bottom of the editor.



We are using the open-source libraries provided by ACE editor.

IV. PRACTICALITY

Chrome Extension for Dropdown Code Editor provides a secure environment for users to write and run code in a variety of programming languages. Instead of downloading various IDEs to write and execute different codes in multiple programming languages, users can install our extension **"Chrome Extension for Dropdown Code Editor"** to their browsers, which can save time and disk space if our system is running out of storage. All users will have easy access to our IDE extension. Because our add-on is an editor, it highlights the keywords, making the code easier to read.

V. CONCLUSION

The extension IDE we discussed in our paper, can be used when the user has no time to check for the code by opening any external IDE and using it without knowing whether the code will work or not. Our service will provide the users with the necessary demands to perform their tasks providing them with appropriate remedies to their problems and without any time to waste. An example of such a scenario is when the user is in a meeting and he/she needs to show a piece of code to their clients, they may have to open an online editor or an external IDE and check for the code's proper execution. Sometimes it may happen that the website is not working or the application they are trying to open is not responding, which might lead to decay in the amount of time allotted to the meeting and can smear a person's reputation, and people may look down on them as a result. Looking up to this our service through the extension can enlighten the situation.

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