



# A Survey on Online Code Editor

<sup>1</sup> Ms. Lynsha Helena Pratheeba H P, Assistant Professor, Department of Computer Science and Engineering, MVJ College of Engineering, India

Srivathsa Kunikullaya H, Shashi Bhavan C K, Thippeswamy Chandra Shekhar Pulipati, Veeresh Amaragatti<sup>2345</sup>, Student, Department of Computer Science and Engineering, MVJ College of Engineering, India

**Abstract:** Online Compiler and code editor's main objective is to implement Code without installing compiler in the system, directly the code can be compiled and run. An online compiler has the same basic functionality as a conventional compiler, however with one significant difference: all of a project or application's source code is stored and executed online via a web browser. Thus, we aim to develop a website where users can write C code and paste into the C-code editor and compiler and then press the run button. The system will send information to server where compiler is installed and it will test the code at server side and send result information to client within a few seconds. So, this application will save time in installing the entire C compiler with DOS which is a time taking process. Therefore, people can directly use this online compiler which is a fast and straightforward method.

Key words: Online Compiler and editor, React.js, HTML, CSS etc.

## 1. 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.

Online compilers are tools which allows you to compile source code and execute it online in your desired programming language. The first compiler was written by Grace Hopper, in 1952, for the A-0 programming language.

By Storing and executing source code online, browserbased code editor and compiler significantly reduces both the hardware and the software required by programmers when working on any given project, it allows programmers and development teams to quickly begin projects for a wide range of platforms, devices, and operating systems. Some famous online compilers are Codechef, codepad. The generally accepted working of our website would be that the users can write or copy paste a C-code in the Code editor and then use the submit button which will compile the program in the backend and show the result in the output window. In addition to this, users can also add files which can be compiled using the gcc compiler in the backend.

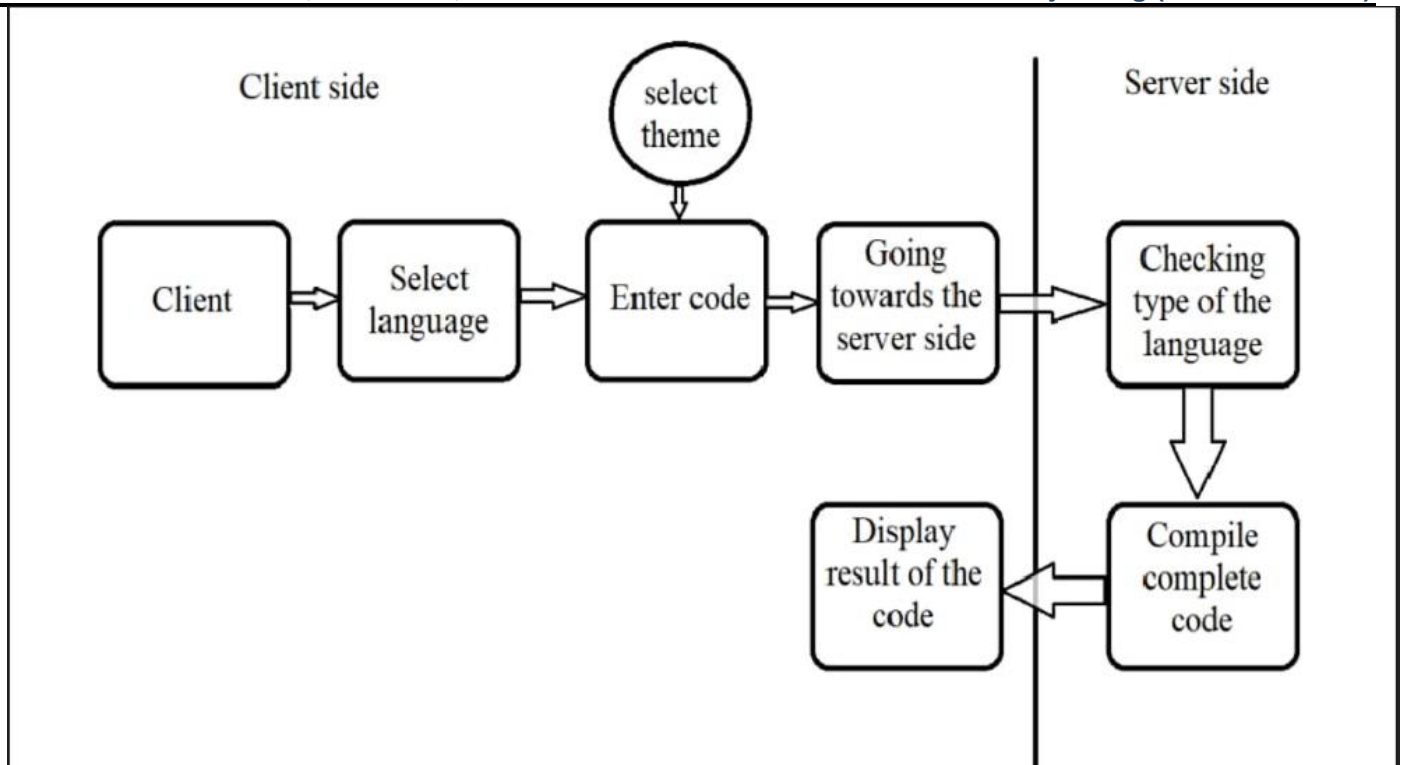


Figure 1: Online Code Editor

The server based code editor is used to run multiple programming languages, many programmers who want to edit the source code urgently might not access convenient resource without installing any application on the computer or notebook in our project programmer can compile and run source code via web browser and the code will be done at the server side. then the output from the compilation will be displayed at the browser of client side. server based code editor provides facility to run on the small resources such as pc's, tabs, androids, notebook's and laptops. programmers need to have atleast one computer in order to edit program source code. if programmer wants to run multiple languages then the programmer needs to install the software of that particular languages but by using server based code editor if programmer wants to run multiple programming languages then they can run all languages in one platform means server based code editor provider same platform for multiple programming languages that's why programmer doesn't need to install software of that particular programming languages which they wants to run and they can run their program any time anywhere without installation of separate software of multiple languages. only needs to install language software on the server side which is nothing but our private cloud.

## 2. METHODS OF DETECTION

### React.Js

The React.js framework is an open-source JavaScript framework and library developed by Facebook. It's used for building interactive user interfaces and web applications quickly and efficiently with significantly less code than you would with vanilla JavaScript.

In React, you develop your applications by creating reusable components that you can think of as independent Lego blocks. These components are individual pieces of a final interface, which, when assembled, form the application's entire user interface.

React's primary role in an application is to handle the view layer of that application just like the V in a model-view-controller (MVC) pattern by providing the best and most efficient rendering execution. Rather than dealing with the whole user interface as a single unit, React.js encourages developers to separate these complex UIs into individual reusable components that form the building

blocks of the whole UI. In doing so, the ReactJS framework combines the speed and efficiency of JavaScript with a more efficient method of manipulating the DOM to render web pages faster and create highly dynamic and responsive web applications.

Typically, you request a webpage by typing its URL into your web browser. Your browser then sends a request for that webpage, which your browser renders. If you click a link on that webpage to go to another page on the website, a new request is sent to the server to get that new page.

This back-and-forth loading pattern between your browser (the client) and the server continues for every new page or resource you try to access on a website. This typical approach to loading websites works just fine, but consider a very data-driven website. The back and forth loading of the full webpage would be redundant and create a poor user experience.

Additionally, when data changes in a traditional JavaScript application, it requires manual DOM manipulation to reflect these changes. You must identify which data changed and update the DOM to reflect those changes, resulting in a full page reload.

React takes a different approach by letting you build what's known as a single-page application (SPA). A single-page application loads only a single HTML document on the first request. Then, it updates the specific portion, content, or body of the webpage that needs updating using JavaScript.

This pattern is known as client-side routing because the client doesn't have to reload the full webpage to get a new page each time a user makes a new request. Instead, React intercepts the request and only fetches and changes the sections that need changing without having to trigger a full page reload. This approach results in better performance and a more dynamic user experience.

React relies on a virtual DOM, which is a copy of the actual DOM. React's virtual DOM is immediately reloaded to reflect this new change whenever there is a change in the data state. After which, React compares the virtual DOM to the actual DOM to figure out what exactly has changed.

In contrast to other frameworks like Angular, React doesn't enforce strict rules for code conventions or file organization. This means developers and teams are free to set conventions that suit them best and implement React however they see fit. With React, you can use as much or as little as you need due to its flexibility.

Using React, you can create a single button, a few pieces of an interface, or your entire app's user interface. You can gradually adopt and integrate it into an already existing application with a sprinkle of interactivity or, better yet, use it to build full-fledged powerful React applications from the ground up, depending on your need.

## HTML

The HyperText Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It is often assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.

Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for its appearance.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page. HTML provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes, and other items. HTML elements are delineated by tags, written using angle brackets. Tags such as `<img />` and `<input />` directly introduce content into the page. Other tags such as `<p>` and `</p>` surround and provide information about document text and may include sub-element tags. Browsers do not display the HTML tags but use them to interpret the content of the page.

HTML can embed programs written in a scripting language such as JavaScript, which affects the behavior and content of web pages. The inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), former maintainer of the HTML and current maintainer of the CSS standards, has encouraged the use of CSS over explicit presentational HTML since

1997.[2] A form of HTML, known as HTML5, is used to display video and audio, primarily using the <canvas> element, together with JavaScript.

## CSS

Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation of a document written in HTML or XML (including XML dialects such as SVG, MathML or XHTML). CSS describes how elements should be rendered on screen, on paper, in speech, or on other media.

CSS is among the core languages of the open web and is standardized across Web browsers according to W3C specifications. Previously, the development of various parts of CSS specification was done synchronously, which allowed the versioning of the latest recommendations. You might have heard about CSS1, CSS2.1, or even CSS3. There will never be a CSS3 or a CSS4; rather, everything is now CSS without a version number.

After CSS, the scope of the specification increased significantly and the progress on different CSS modules started to differ so much, that it became more effective to develop and release recommendations separately per module. Instead of versioning the CSS specification, W3C now periodically takes a snapshot of the latest stable state of the CSS specification and individual modules progress. CSS modules now have version numbers, or levels, such as CSS Color. 5

CSS (Cascading Style Sheets) is used to style and layout web pages — for example, to alter the font, color, size, and spacing of your content, split it into multiple columns, or add animations and other decorative features. This module provides a gentle beginning to your path towards CSS mastery with the basics of how it works, what the syntax looks like, and how you can start using it to add styling to HTML.

CSS is designed to enable the separation of content and presentation, including layout, colors, and fonts. This separation can improve content accessibility; provide more flexibility and control in the specification of presentation characteristics; enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file, which reduces complexity and repetition in the structural content; and enable the .css file to be cached to improve the page load speed between the pages that share the file and its formatting.

### 3. Survey Papers

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.

Our first approach towards making of Online C code editor was to collect information from the people who are actually going to use our application. So, we decided that before implementing our C code editor website we should first ask opinions from the people who will be using the website. Our application would mostly be used by students, so we decided to gather responses from concerned students of varying age group. This gave us the direction to develop our code editor website.

Sonali R. Gujarkar, Samprada D.Nimrad, Shital Meshram :This paper presents a server-based code editor for java code. in other code editors they provide facility to run languages such as HTML, CSS ,JavaScript. This languages are web-based languages those code editors are enable to run the programming languages that's why programmes face many difficulties to run programming languages such as JAVA, PHP etc. but in our project we add programming language which is java .by using server based code editor programmer can run programming language ie. JAVA .it is a good tool to run multiple programming languages on same platform. it can help programmer to develop system faster and more accurate. this paper proposed the server-based code editor that was created for programmers or developers who want to write programmes without any platform requirements or without any specific physical computers. the server-based code editor is able to isolate programming languages by highlighting syntax of programme. We create the private cloud to store the software installation of the that languages which we want to run. Share engine is a open source platform for cloud based development which as API and CMS support. and it also provides the IDE support.

Mr. Sunil Mhamane & Amartya Thorat : Source code editor have different features to ease and speed-up the developer works. This paper proposed the source code editor BUILD integrated with Community Question and Answer (Q&A) and stack overflow web service. While programming developer often came across the set of questions, programming errors, thus in order to find the solutions or resolving the errors developers take reference from the different online resources (Documentations, Books, Q & A Services) through web browser. This leads to switching windows between source code editor and web-browser. To reduce development time and effort, neglect web or internet distractions and to get the specific result to questions we form a community. we combine source code editor and community Q & A services (Stack Overflow, institutional CQA). We also understand different learning resources and development tool which preferred by the developers. Explains the important of the Community Question & Answer (CQA) services.

#### 4. CONCLUSION

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. Most of today's online editors /compilers only provide the bare minimum of compiling or editing code but not a workspace where you can save your work completely online. Our efforts try to achieve that by saving user's files, projects fully online which can also be shared with just a link keeping the UI straightforward and simple. In this paper the server based code editor is created to run multiple programming as well as web based languages, and provides the features create file, open file, save file, delet file, close file, compile ,and run file and run project were created to make this editor complete. In addition, the advantage of sever based code editor the programmers in the business or organization can urgently write or modify program source code without any specific physical computers or without installing the software of programmers'-based languages HTML, CSS, JavaSript. and programming language Java can be written within this determinate future, other computer languages such as can be written using the server-based code editor

#### REFERENCES

- [1] Daum,B:"Equipping SWT Applications With Content assistance",nov 2003.
- [2] J.Lautamaki,A.Nieminen,J.Koskinen,T.Aho,T.Mikkonen,andM.Englund,"CoRED/Browser-Based Collaborative realtimeeditor for java web applications,"proceedings of the ACM conference on computer supported cooperative work(CSCW'12),2012,pp.1307-1316.

- [3] L.C.L.Kats,R.Vogelij,K.T.Kalleberg,andE.Visser, "software development environments on the web:A research Agenda,"proceedings of the 11th SIGPLAN symposium on new ideas,new paradigms,and reflections on programming and software,ACM press,2012,pp.99-116.
- [4] M. Doernhoefer, "Surfing the Net for Software Engineering Notes", ACM SIGSOFT Software Engineering Notes, Vol. 24, No. 3, (1999), pp. 15–24.
- [5] L. C. L. Kats, R. G. Vogelij, K. T. Kalleberg, and E. Visser, "Software development environments on the web", in Proceedings of the ACM international symposium on New ideas, new paradigms, and reflections on programming and software - Onward! '12, (2012), pp. 99.
- [6] M. Goldman, "Role-based interfaces for collaborative software development", in Proceedings of the 24th Annual ACM Symposium Adjunct on User Interface Software and Technology - UIST '11 Adjunct, (2011), pp. 23.
- [7] F. Fröbber, "A Practice Theoretical Analysis of Real Time Collaboration Technology: Skype and Sametime in Software Development Projects", Göttingen: Cuvillier, (2008).
- [8] S. Klein, N. Vehring, and M. Kramer, "Introducing Real Time Communication: Frames, Modes & Rules", in Proceedings 23rd Bled eConference eTrust: Implications for the Individual, (2010), pp. 591–606
- [9] Bau,D.A.Droplet,ABlock-Based Editor for Text Code.journal of computer science in colleges.30,6(jun 2015).
- [10] Bau,D.A.Droplet,ABlock-Based Editor for Text Code.journal of computer science in colleges.30,6(jun 2015).

