FULL STACK PROJECT REPORT

On

“Expense Tracker”

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Declaration

We hereby declare that the work which is being presented in the Full Stack Project "Expense Tracker", in partial fulfillment of the requirements for Full Stack Project viva voice, is an authentic record of our own work carried by the team members under the supervision of our mentor Mr. Mandeep Singh.

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Certificate

This is to certify that the above statements made by the candidates are correct to the best of my/our knowledge and belief.

_____

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_____

Program Coordinator
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About the Project

Our full stack project “Expense Tracker” is an online website, which users can execute in their mobile phones, laptops and desktops and update their daily expenses so that they are well aware of their expenses. The Website has a simple User-Interface which makes the website very easy to use for people belonging to any age group. The Users need to define their expenses like food, clothing, rent, bills etc.as well as the amount spent to register on the website so that the record could be maintained on the expenses. Additionally, mathematical errors could be made while manually adding all the expenses, whereas in the case of Online Expense Tracker no mathematical error could be made as all the calculations are done by the computer Although the website is made to be used by everyone, it especially focuses on new job holders, interns and teenagers because they find it difficult to manage money.

Motivation

In today's busy and expensive world, we are in a great rush to make money, but at the end of the month we often face budget failure or shortage of money because we spend money on lot of unwanted things and these small transactions can sometimes break our monthly budget plan. So, we have made an online website with the task of maintaining a record of user's expenditure. The process of maintaining the records in the notebook or in the Excel sheet is very complex and not user friendly. The online expense tracker website has a simple user interface which lets the user to easily input the expenses and maintain the record of the expenses. The website aims to help everyone who is planning to know his expenses and save from it.

Requirements

a). Software Requirements:

- Technology Implemented: MERN Stack
- Languages/Technologies Used: HTML, CSS, JavaScript, React, Node js, Express js and MongoDB
- Database Used: MongoDB
- IDE Used: Visual Studio Code
- Web Browser: Google Chrome

Other Technologies used :

- GitHub: GitHub is a code hosting platform for version control and collaboration. It lets you and others work together on projects from anywhere. GitHub Repository: A GitHub repository can be used to store a development project. It can contain folders and any type of files (HTML, CSS, JavaScript, Documents, Data, Images). A GitHub repository should also include a license file and a README file about the project. A GitHub repository can also be used to store ideas, or any resources that you want to share.

- Visual Studio Code: Visual Studio Code is a free source-code editor made by Microsoft for Windows,

Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git. Users can change the theme, keyboard shortcuts, preferences, and install extensions that add additional functionality. Microsoft has released Visual Studio Code's source code on the VS Code repository of GitHub.com, under the permissive MIT License, while the compiled binaries are freeware.

b) Hardware Requirements:

- Processor Required: Intel i3
- Operating System: Windows 10 or above
- RAM: 8 GB
- Hardware Devices: Computer System
- Hard Disk: 256GB

Acknowledgement

We thank the almighty for giving us the courage and perseverance in completing the project. This project itself is an acknowledgment for all those people who have given us their heartfelt co-operation in making this project a grand success. We extend our sincere thanks to Mr. Mandeep Singh, Technical Trainer at “GLA University, Mathura” for providing his valuable guidance at every stage of this project work. We are profoundly grateful for the unmatched services rendered by him. And last but not least, we would like to express our deep sense of gratitude and earnest thanks giving to our dear parents for their moral support and heartfelt cooperation in doing the main project.

Expense Tracker

Abstract

To reduce the complexity of making record of the daily expenses, to help the user easily maintain the record of the daily expenses and to prevent mathematical calculations errors in the calculations of savings and expenses Expense Tracker website is made. The website aims to help everyone who are planning to know their expenses and save from it.

The users can run the website in their mobile phones, laptops or desktops and update their daily expenses. Here the users need to define their expense like food, clothing, rent, bills etc. as well as the amount spent to register in the website so that the record could be maintained on the expenses. Although the website is made to be used by everyone, it especially focuses on new job holders, interns and teenagers because they find it difficult to manage money.

Contents:-

Chapter-1

Introduction

Today Developers around the world are making efforts to enhance user experience of using application as well as to enhance the developer's workflow of designing applications to deliver projects and rollout change requests under strict timeline.

If students know coding and love to do programming that's good but these qualities are not enough to get the best Job. Because now companies are looking for logical minds with a wide range of skills. They don't deal with the conservative candidates. So, students need to prepare themselves accordingly and keep themselves updated with the latest technological advancement and the software or applications companies are working on. Well! We are breathing in a revolutionized world where everything is digitized, and where the Internet is the need of the hour for everyone. Businesses are moving to an online platform to promote their brands and outreach the customer globally. This technology advancement has impacted the whole world and brings the latest amendments every other day in the software programs. That's why more and more people want to learn Web Development

and adept career as a Web Developer as most of the organizations are looking forward to Front-

End developer, Back-End developer, PHP Developer, (.)Net developer, Cloud Architect, DevOps Engineer and many more.
The demand for Full-stack Developers is on the rise and companies are in desperate need of talented professionals who can work with both Front-End and back-End due to which their demand is hiking. According to the research, there is a 20% growth in demand for Full-stack developer compared to the last couple of years.

Full Stack Development

It refers to the development of both front end (client side) and back end (server side) portions of web application. Full stack web developers have the ability to design complete web application and websites. They work on the frontend, backend, database and debugging of web applications or websites. Full Stack can apply to a web stack, mobile stack, or a native application stack (i.e., software programs for specific devices).
You'll typically see a mix of front and back-end skills listed on full stack web developer job listings, including:

- HTML, CSS, JavaScript
- Ideally, one or more third-party library like ReactJS Angular

- Programming languages and libraries like Ruby, PHP, Python
- Experience with databases
- Version control
- Knowledge of security concerns and best practices
- Ideally, some knowledge of web or visual design, plus user experience best Practices.

Front-End

Everything you have ever seen on the web is considered ‘front end’. Front end is what we see when we open a web page or app. Code is downloaded from a server and is rendered to the screen by a web browser. What happens when we interact with the code is also considered front end. This is often referred to as the ‘Presentation Layer’ or ‘Client’ in software development terms.

The front end is built out of three languages: HTML, CSS, and JavaScript. HTML allows us to put content on our page: text, headers, images, buttons, links, and etc. CSS is used to style our page. It allows the contents to have different text colors, background colors, as well as dealing with the positioning of the content on the

page. JavaScript makes our page dynamic. It allows for the content to change on a mouse hover or click and also lets us submit data and have data rendered on our page (such as submitting a new blog post or having your feed populated when you open Facebook).

Back-End

This term usually refers to what happens ‘behind the scenes’: servers, databases, etc. The back end is the place we don’t see as users. This consists of data storage (databases) and servers running to provide data for the front end. Back end can be a little harder to imagine, especially for someone without much experience with it. Back end is commonly referred to as the ‘data access layer’ or ‘server’ within software development terms. The back end computes the data and content sent to the front end to be used and displayed by your browser.

Back end server code can be written using JavaScript. However, it can be also written using many other languages, such as Ruby, Java, or Python. The database logic required in back end development often utilize a database language, such as SQL or MongoDB.

Pre-requisite

Hands-on knowledge of JavaScript, HTML, CSS, JavaScript, React, MongoDB and VS-Code is essential before working on the concepts for making webpages. Make sure that you have the browser (chrome, Firefox or Microsoft edge) installed and running before opening the website.

Chapter 2

Technologies Used:

HTML:- HTML stands for Hypertext Markup Language, and it is the most widely used language to write Web Pages.

- Hypertext refers to the way in which Web pages (HTML documents) are linked together. Thus, the link available on a webpage is called Hypertext.
- As its name suggests, HTML is a Markup Language which means you use HTML to simply "mark-up" a text document with tags that tell a Web browser how to structure it to display.

Originally, HTML was developed with the intent of defining the structure of documents like headings, paragraphs, lists, and so forth to facilitate the sharing of scientific information between researchers.

Now, HTML is being widely used to format web pages with the help of different tags .

- HTML is the language for publishing web pages on the WWW (World-Wide Web).
- HTML is a Document Description Language (aka Document Markup Language).
- HTML is NOT a programming language like C/C++/C#/Java, which is used to implement programming algorithm.
- You need a web browser to view the HTML pages. The web browsers do not display the HTML tags, but uses the tags to interpret the content of the web pages.
- An HTML document is a text document, and it is human-readable.

HTML was originally developed by Tim Berners-Lee in 1990. He is also known as the father of the web. In 1996, the World Wide Web Consortium (W3C) became the authority to maintain the HTML specifications. HTML also became an international standard (ISO) in 2000. HTML5 is the latest version of HTML. HTML5 provides a faster and more robust approach to web development.

CSS:- CSS is short for Cascading Style Sheets, and is the preferred way for setting the look and feel of a website. Cascading Style Sheets (CSS) is a markup

language responsible for how your web pages will look like. It controls the colors, fonts, and layouts of your website elements.

This style sheet language also allows you to add effects or animations to your website. You can use it to display some CSS animations like click button

effects, spinners or loaders, and animated backgrounds. Without CSS, your website will appear as a plain HTML page.

The cascading means that a style applied to a parent element will also apply to all children elements within the parent. For example, setting the colour of body text will mean all headings and paragraphs within the body will also be the same colour.

CSS - Syntax

A CSS comprises of style rules that are interpreted by the browser and then applied to the corresponding elements in your document. A style rule is made of three parts −

- Selector − A selector is an HTML tag at which a style will be applied. This could be any tag like <h1> or <table> etc.
- Property − A property is a type of attribute of HTML tag. Put simply, all the HTML attributes are converted into CSS properties. They could be color, border etc.

- Value − Values are assigned to properties. For example, color property can have value either red or #F1F1F1 etc.

JavaScript :- JavaScript is a client-side scripting language of web developed by Netscape in 1995 with the name LiveScript. JavaScript is used to build interactive websites with dynamic features and to validate form data. JavaScript is high-level, dynamic and browser interpreted programming language, supported by all modern web browsers. Apart from web browser, JavaScript is also used to build scalable web applications using Node JS. JavaScript is also being used widely in game development and Mobile application development. JavaScript is also known as the Programming Language of web as it is the only programming language for Web browsers. JavaScript is an object-based scripting language which is lightweight and cross-platform. The programs in this language are called scripts. They can be written right in a web page's HTML and run automatically as the page loads. Scripts are provided and executed as plain text. They don't need special preparation or compilation to run. The browser has an embedded engine sometimes called a "JavaScript virtual machine".

JavaScript Applications

JavaScript is the widely used programming language, all over the world. It has the largest open-source package repository in the world (npm). Every type of software uses JavaScript, including the server code (Node.js), productivity apps, 3D games, robots, IoT devices. JavaScript has achieved the goal, set by Java a long time ago: write once, run anywhere. There are various JavaScript uses in different segments.

Bootstrap:- Bootstrap is an HTML, CSS & JS Library that focuses on simplifying the development of informative web pages . The primary purpose of adding it to a web project is to apply Bootstrap's choices of color, size, font and layout to that project. As such, the primary factor is whether the developers in charge find those choices to their liking. Once added to a project, Bootstrap provides basic style definitions for all HTML elements. The result is a uniform appearance for prose, tables and form elements across web browsers. In addition, developers can take advantage of CSS classes defined in Bootstrap to further customize the appearance of their contents. For example, Bootstrap has provisioned for light- and dark-colored tables,

page headings, more prominent pull quotes, and text with a highlight.

Bootstrap also comes with several JavaScript components in the form of jQuery plugins. They provide additional user interface elements such as dialog boxes, tooltips, and carousels. Each Bootstrap component consists of an HTML structure, CSS declarations, and in some cases accompanying JavaScript code. They also extend the functionality of some existing interface elements, including for example an auto-complete function for input fields.

MongoDB:- MongoDB is a non-relational document database that provides support for JSON-like storage. The MongoDB database has a flexible data model that enables you to store unstructured data, and it provides full indexing support, and replication with rich and intuitive APIs. Ad hoc queries, indexing, and real time aggregation provide powerful ways to access and analyze your data

MongoDB makes use of records which are made up of documents that contain a data structure composed of field and value pairs. Values contained can be a variety of data types, including other documents, arrays and arrays of documents. Documents will also incorporate a primary key as a unique identifier.

Sets of documents are called *collections*, which function as the equivalent of relational database tables. Collections can contain any type of data, but the restriction is the data in a collection cannot be spread across different databases.

React:- ReactJS is a simple, feature rich, component based JavaScript UI library. It can be used to develop small applications as well as big, complex applications. ReactJS provides minimal and solid feature set to kick-start a web application. React community compliments React library by providing large set of ready-made components to develop web application in a record time. React community also provides advanced concept like state management, routing, etc., on top of the React library.

<u>React elements</u>

JavaScript representation of HTML DOM. React provides an API, React.createElement to *create React Element*.

<u>JSX</u>

A JavaScript extension to design user interface. JSX is an XML based, extensible language supporting HTML syntax with little modification. JSX can be compiled to React Elements and used to create user interface.

React component

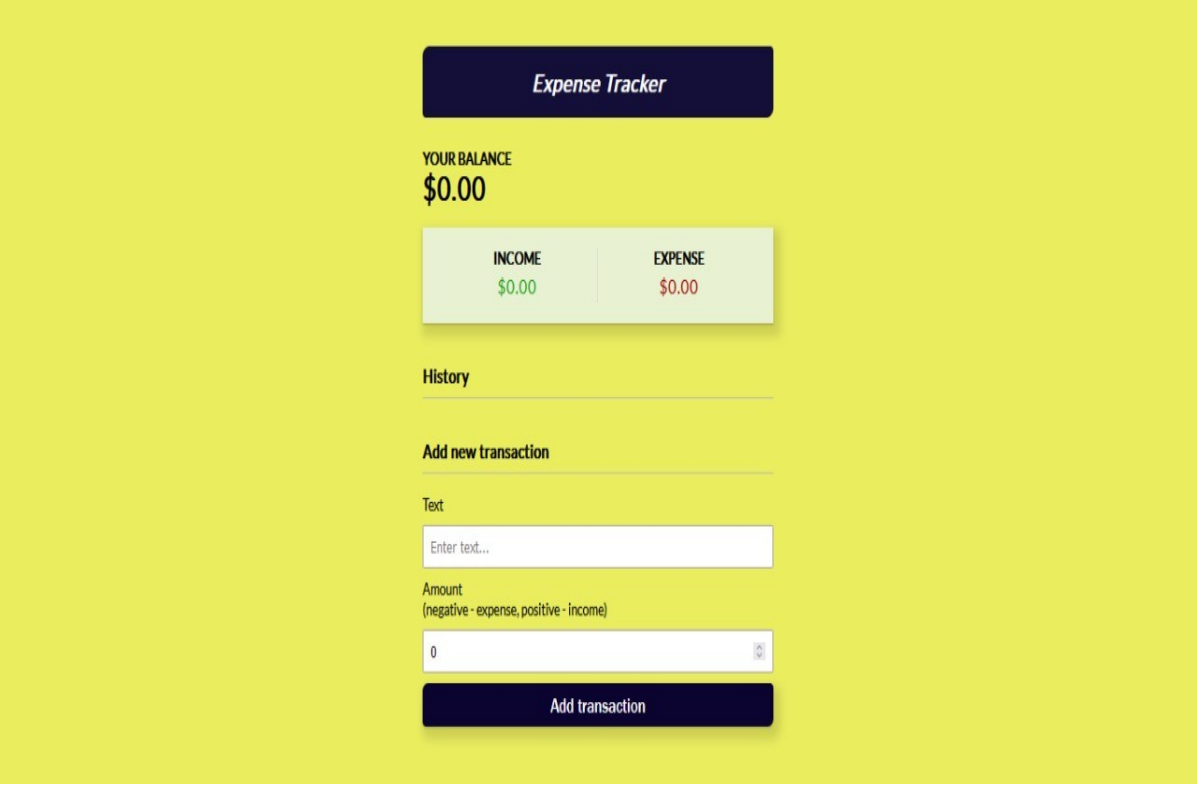
React component is the primary building block of the React application. It uses React elements and JSX to design its user interface. React component is basically a JavaScript class (extends the React.component class) or pure JavaScript function. React component has properties, state management, life cycle and event handler. React component can be able to do simple as well as advanced logic.

Node js:-Node.js is a platform built on Google Chrome's JavaScript Engine (V8 Engine). Node.js was developed for easily building fast and scalable network applications. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient, perfect for data-intensive real-time applications that run across distributed devices. Node js is a cross-platform runtime environment and library for running JavaScript applications outside the browser. It is used for creating server-side and networking web applications. It is open source and free to use. Node.js also provides a rich library of various JavaScript modules which simplifies the development of web applications using Node.js to a great extent.

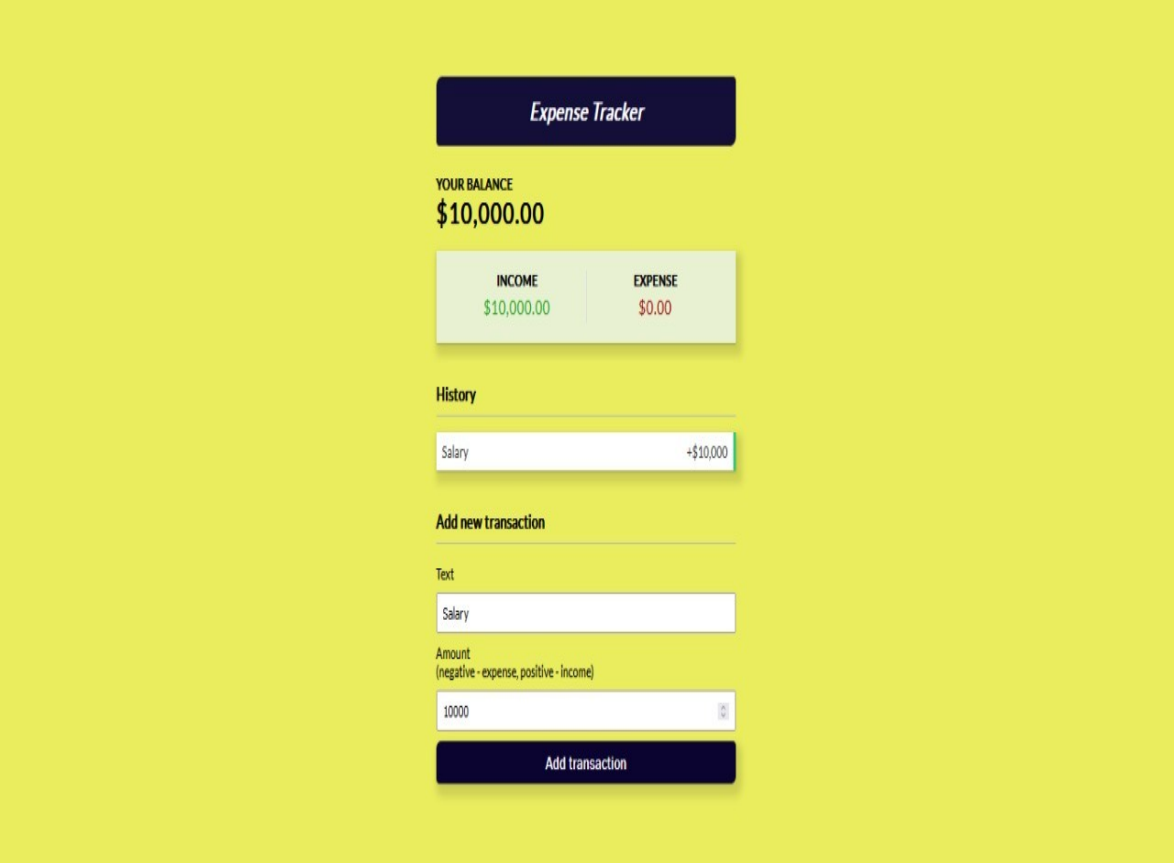
Chapter-3

Screenshots of the online project:-

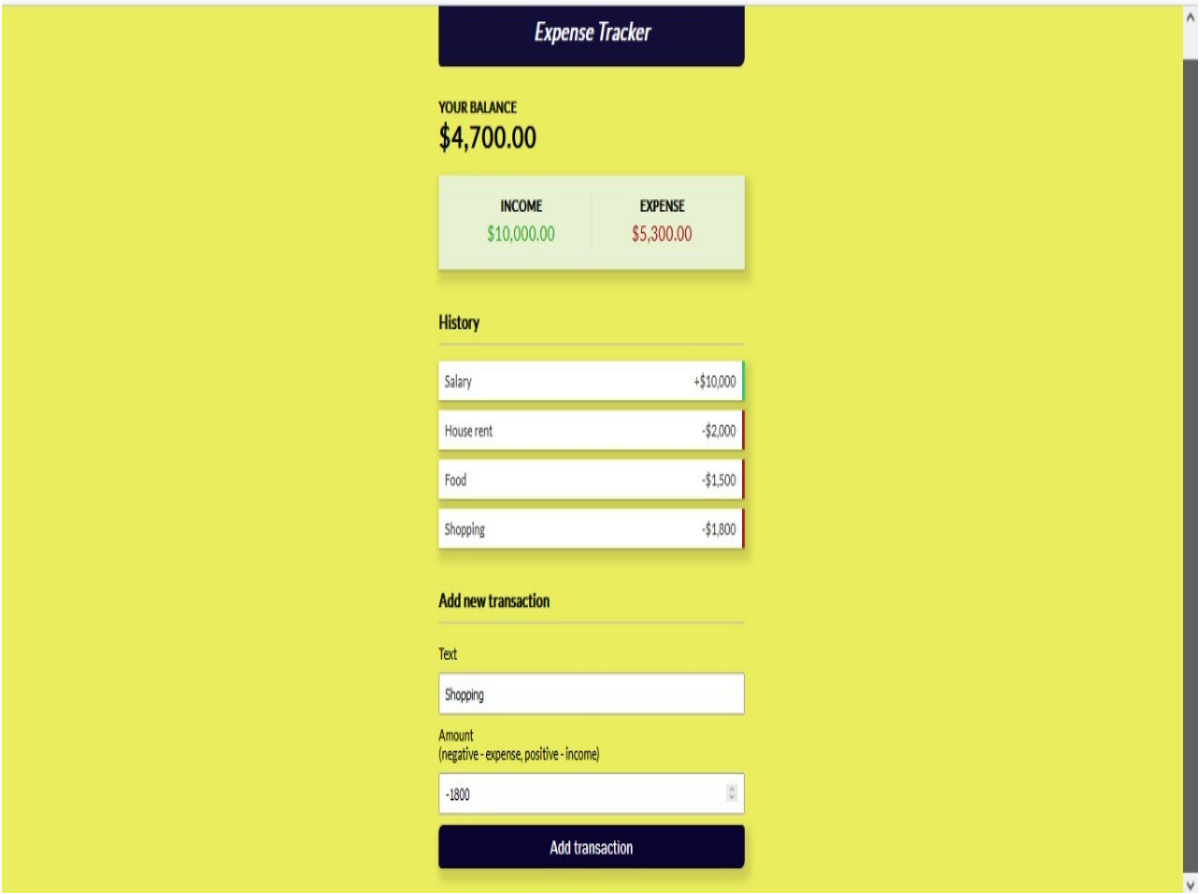
1. Home Page:



2. Adding Income, which will be displayed as "Your Balance" in the website.



3. Specifying the expenses and adding the amount, so that a website could make list of expenses.



Chapter-4

Conclusion:-

We have completed our project within time limit with the coordination of our team members under the supervision of our mentor Mr. Mandeep Singh.

Our project repository is available at

https://github.com/PawanPandey007/Expense-Tracker

Chapter*-5*

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