IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Impact Factor 8.471 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 14, Issue 8, August 2025

DOI: 10.17148/IJARCCE.2025.14812

Expense Tracker using .NET

Prajwal D Jadhav[1] and Hemanth Kumar[2]

Student, Department of MCA, J N N College of Engineering, Shivamogga, India[1]

Associate Professor, Department of MCA, J N N College of Engineering, Shivamogga, India[2]

Abstract: Prior to the modern days of the digital technology, it is important to manage the finances efficiently. Lots of people are tracking their spending with paper and complex spreadsheets that are confusing and not very easy to enter. To make tracking their budget spending simple, we designed a Expense Tracker Web Application with ASP.NET Core MVC that allows users to enter income and expenses, and categorize spending like (bills, groceries, travel, etc.) and set budget limits for the categories. The results can be viewed in charts summary, and grouping the reports and make it easy to see where spending is occurring, updating to the latest secure authentication methods, we have made the entry as easy and user friendly as possible. The program provides a responsive design, an SQL server embedded database to safely store their information.

Keywords: Data Visualisation, Budget management, ASP.NET Core MVC, Expense Tracker, PDF Export.

I. INTRODUCTION

The reality is that managing one's finances is important and more important than ever. What we noticed is a number of people have challenges documenting their income and expenses consistently when using a manual method or even a very basic spreadsheet program. When it comes time to make intelligent decisions regarding their finances the very basic methods mentioned above, do not provide adequate support structure, methodology or alerts. To address these very basic needs, we created an online Expense Tracker using the ASP.NET Core MVC technology. It provided a secure and user-friendly product which also provided a mechanism for managing their budgets, income and expenses live (real-time). The system was flexible, manageable and always usable based on the Model-View-Controller paradigm. The site lets a user dispose of a person securely register and has a sign in process that shows the user their dashboard with income, spend, balance, and budgeting status. Through the user configurable custom category it creates a much richer spending plan that articulates an individual spending habit. The application is also written with analytics and data driven visuals using Chart.js. We hope this helps planning and understanding. The application will utilize the different forms of financial data in different formats, for example a pie chart, bar graph, or trend line. The users will utilize Rotativa or iTextSharp to generate the written reports for their PDF reports, usually for formal or offline. Technically, insert in the User Guide, the application does all the database stuff, with Entity Framework Core on SQL Server with code first database building, and builds the front end with Razor Pages and Bootstrap, for the mobile versions. Once again, Expense Tracker makes it absolutely super easy for users to manage their personal finances by simply logging in to view their required insights, and search through the category filters, track in-come and outgoings and manage a budget all in the same place. So, students, freelancers, and anyone else who hopes to better their financial habits. Future features might include cloud sync, mobile, and an AI wizard-type app for users to get financial insights.

II. LITERATURE SURVEY

Aanajey Mani Tripath and Tamia Ruvimbo Masendu et al. [1] developed a simple and easy-to-use system known as Daily Expense Tracker which allows users to log, categorize, and evaluate expenses. The system was built to promote better control over expenses, mainly for students and working people. Hagawane Abishek et al. [2] presented an expenses tracking system based on an Android which has a simple user interface features daily entry, past transaction, reminder, and income versus expenditure monitoring. Usha and Velmurugan et al. [3] built another application based on Android studio highlighting user engagement, graphical representation, and real-time expenditure tracking further goal includes cloud integration and analyzing on expense categories. Prabhat Parashar and Shivam Mehra et al. [4] created a digital expense journal that provided a set of listings by types, with date filtering capabilities, geared towards users at an introductory level of the digital financial tool. K. I. Vinodhini and N. Zahira Jahan [5] developed an Android expense assistant that utilized speech recognition for data entry, following the principles of human-computer interaction for a better user experience. Shah Darsh and colleagues [6] utilized predictive analytics and data visualization in assisting users with financial forecasting and insights, while offering trend-based suggestions in guiding the spending of users. Chandini S. et al. [7] built an online tracker which can be accessed from multiple platforms through the cloud and incorporates automation to ease the burden of manual entries and accessible across platforms. P. Thanapal et al. [8] presented an earlier

DOI: 10.17148/IJARCCE.2025.14812

web-based expense tracker that allowed users to maintain a financial summary, which have influenced contemporary features of expense tracking. M. Harish Kumar and colleagues et al. [9] developed a secure personal expense application that featured daily expense charts and comparisons of trends monthly based on a custom dashboard. Sharma Ram Kumar et al. [10] produced a mobile application that provides exporting report ability and provides graphical analysis. The application users can limit spending on categories and have included support for multiple users. Dr. Mahalekshmi T, Prof. Miriam Thomas and Lakshmi P. et al. [11] described the backend structure of an MVC tracker system, with details on designing a database, system flow, and user roles, but primarily aimed at developers. Kazi Atiya et al. [12] described the design of a minimal but useful tracker for students to encourage saving and responsible spending through organized knowledge of finances. Garg Aman et al. [13] designed a web application using the HTML, CSS and PHP for budget tracking, that prioritizes cross-browser compatibility and simple access. Singh Uday Pratap et al. [14] presented a mobile, budget tracking application with real-time alerts, colour-coded graphics, and interactive progress bars for visual budget tracking. Jadhav Nidhi et al. [15] developed, a secure and modular expense tracker with data exporting, graphical trend analysis, user authentication features which allows for growing any expense tracker and makes future updates easier.

III. METHODOLOGY

The proposed method was created utilizing the ASP.NET Core MVC framework with the Microsoft SQL Server for the backend data management. The methodology follows a structured and modular approach to run down into multiple stages as described below.

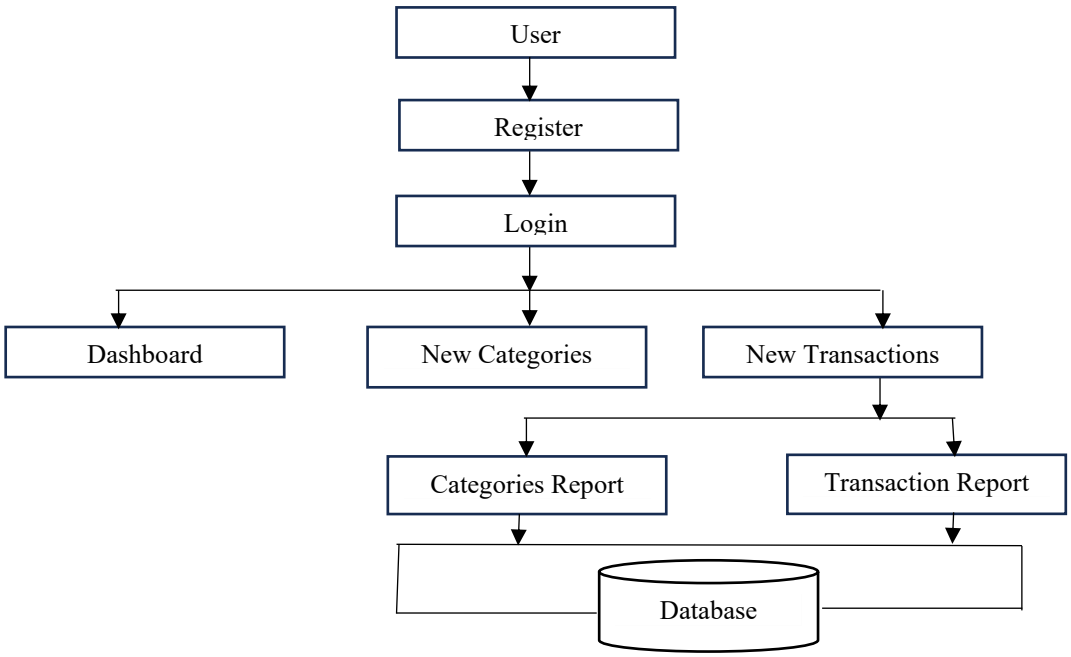

Fig. 1 Block Diagram of Proposed System

A. Requirements Analysis

In order to determine what the system will do and what the system will not do, a requirements analysis was completed. The key features were identifying categories (for example Utilities, Food, Travel and so on), income and expense records, user registration and login, and visual financial reports. Every cost, regardless of whether a user registers it or not, must be assigned a category. The key functional needs were expenditure classification, data presentation, and visual access for registered users.

B. System Design

The system employs an MVC (Model-View-Controller), architectural pattern to ensure the architecture consisting of maintainability and separation of concerns. The Model refers to core data structures which consist of Users, Categories and Expenses. The View layer utilizes Razor syntax used to create dynamic HTML interfaces for end users. And it is

International Journal of Advanced Research in Computer and Communication Engineering
Impact Factor 8.471 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 14, Issue 8, August 2025
DOI: 10.17148/IJARCCE.2025.14812

responsible for UI design .The Controller acts as mediator to manage user input, process logic and provide updates to either the model or view. Lastly, the database design was developed using an Entity-Relationship (ER) model for data normalisation and referential integrity.

C. Database Design

The Microsoft SQL Server was used for the backend data storage. The database schema consists of the following core tables:

1) *Users:* UserID (PK), Name, Password, Phone number, Address
2) *Categories:* CategoryID (PK), CategoryName, UserID (FK)
3) *Transactions:* TransactionID (PK), CategoryID (FK), Amount, Date, UserID (FK), Description

The Object-Relational Mapping (ORM) tool used as an access layer between the application and the database was Entity Framework Core.

D. Application Development

Asp.NET Core MVC was used to develop the application which allows the user to sign up, log in, and keep tracking of their financial tracking. The application solutions developed are CRUD operation (create, read, update, delete) of income and expense categories and ability to filter their transactions through income or expense category, live calculation of total income, total expenses, and current balance. These solutions all help track finance as well as personal budget tracking.

E. Data Visualization

Included in the data visualization of external libraries - Chart.js, Google Charts for an additional user engagement to developing understanding to problems. The most recognizable visualizations will be line charts for to spending over time. Bar chart for to expenses compared across categories. These visualizations will help a user easily identify their own monetary conduct.

F. Testing

Comprehensive system testing demonstrated a focus on accuracy and reliability from the system. Unit testing was done considering the business logic layer, whereas functional testing confirmed that the business rules were included in the correct user interface and workflow. Testing also conducted manually in order to verify that the data is accurately represented from the system is accuracy, field validation (for example is it a valid combination), if the product can be used.

G. Execution

The application is constructed on a local development server hosted by Internet Information Services (IIS) for testing, updating, and performance measurement purposes. Remember that the application is designed with the view of running as a public cloud service through public cloud service providers at a profit (especially using Microsoft's Azure cloud to host the application) which is the scalable resource and available as soon as the usability can be set up.

IV. RESULT AND DISCUSSION

This Web Application utilizes ASP.NET MVC and Web technologies including bootstrap and was implemented and evaluated for performance in real-world use-cases. The system gives users the option to track daily expenses in many categories including: Food, Travel, Bills, and Other. Users can set financial constraints per category and get alerts whenever their expenses go beyond the predefined budget of the user.

In Fig. 2, users register as part of a new account for an Expense Tracker application. Users are required to fill their Username, Password Full name, Profession, Contact number and city. Once the user fills the required forms, they have to click Register button and they are signed in with a new account, which provides a hyperlink to existing users so they can log in. Fig. 3, represents the user can login to their Expense Tracker account if they are already registered. Login requires the username and a password. There is a link for the users to go to the registration screen if they are new to Expense Tracker.

IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Impact Factor 8.471 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 14, Issue 8, August 2025

DOI: 10.17148/IJARCCE.2025.14812

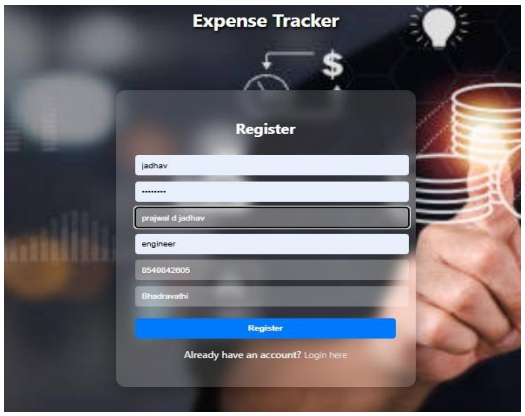

Fig. 2 Register Page

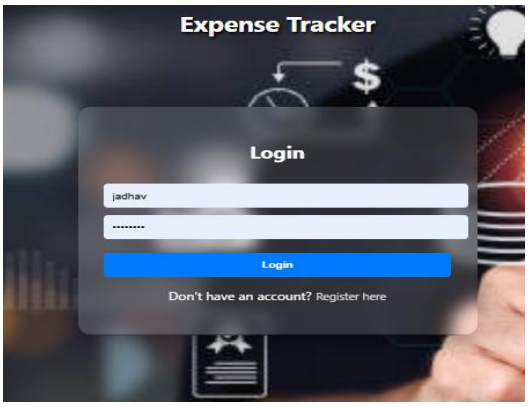

Fig. 3 Login Page

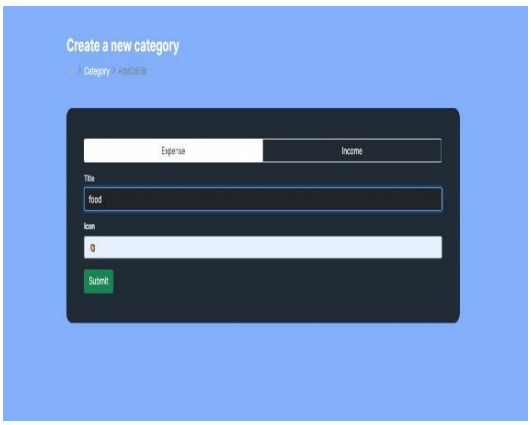

Fig. 4 Creating Category

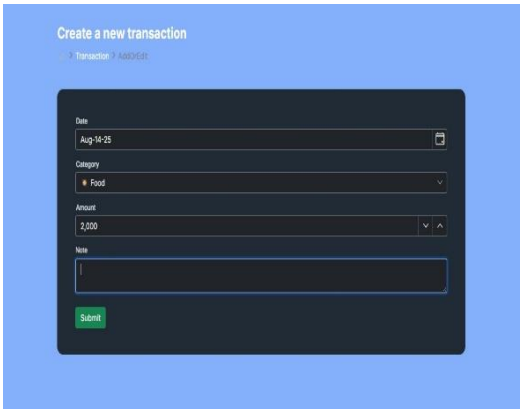

Fig. 5 Creating Transactions

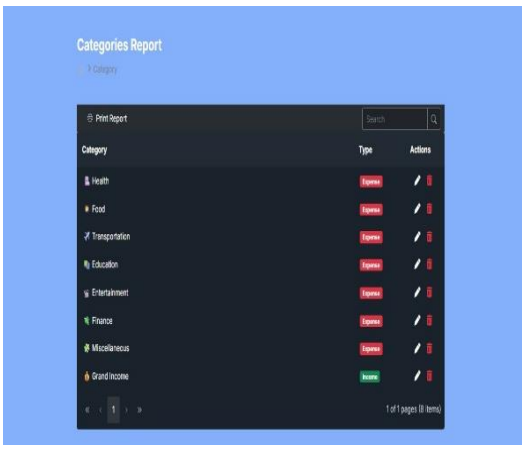

Fig. 6 Categories Report

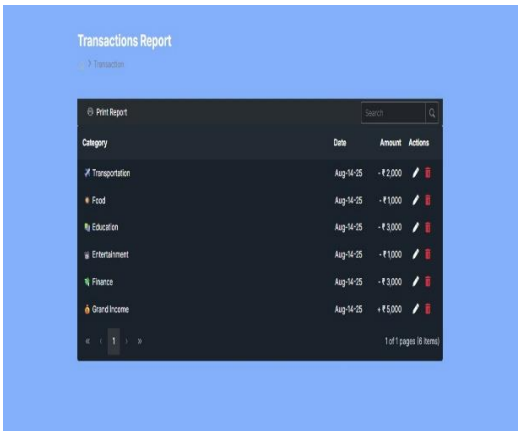

Fig. 7 Transaction Report

In Fig. 4, Users can add a new category in the Expense Tracker by indicating whether it's an expense or an income category. The user can enter a title (i e. food) and choose one of the available icons. After the user clicks Submit, the new category is saved, to track in the future. Fig. 5, shows Creating Transactions for the recording of a new transaction in the Expense Tracker. The user can record the date of the transaction, select a category (e.g. Food) and enter the amount spent, along with the optional note with the amount spent. Once clicking "Submit" the transaction will be saved for tracking and analysis. Fig. 6, represents Categories Report page of the Expense Tracker where all expense or income categories in the tracker are displayed. Each entry shows the name of the category, the type of the category (Expense or Income),

IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Impact Factor 8.471 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 14, Issue 8, August 2025

DOI: 10.17148/IJARCCE.2025.14812

as well as, the option to edit or delete the category. There is additionally a search bar and print button so you can appropriately manage or find specific categories. Fig. 7, represents the Transactions Report of the Expense Tracker and shows all expenses and incomes you have entered into the app. The report provides a list of all expenses and revenues along with the category of each transaction, date, and amounts. Each transaction will have options to edit and delete the entry. To facilitate history tracking, there is also a search bar to help find specific entries or dates, also a print bar.

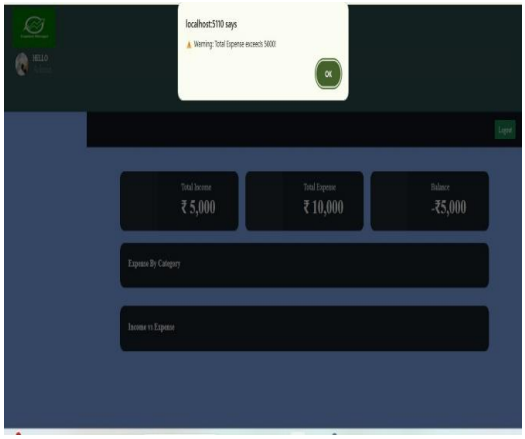

Fig. 8 Warning Alert

High-level users can view their total earnings, expenditures and balance in the Expense Tracker with the displayed dashboard. Only a warning alert produces a prompt for the user as they have overspent , total expenses are over ₹5,000 Users can also visualize the distributed spending components for expenses by category, and a comparison between total income and total expenditures.

In Fig. 9, 10, represents graphical dashboard provides an overview of income and expenses in graphical form using bar charts and pie charts to provide a quick way to find major spending areas. The system allows for report generation in a printed format to provide owners an expense summary and breakdown of areas over the user selected period of time.

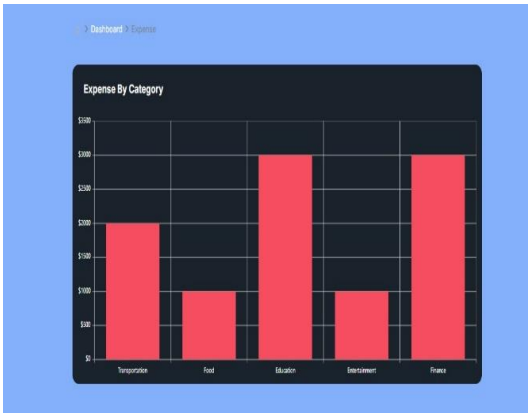

Fig. 9 Expense Chart

Fig. 10 Pie Chart

However, the results prove that the system design is responsive to the challenges posed in personal finance, which is effective in spending tracking, budget control and visual analytics. The visual dashboard enabled users to observe their financial behaviour more qualitatively and, vice versa, the budget alert flagged a more quantitative warning not to over-spend one's income. Sought, simplified, is the automation and minimization of error with the addition of an archive required by financial records, and spreadsheets made personal finance manageable in much a straightforward way. While the printed-out report proves financial planning, it is also valid evidence of long-term record-keeping. Users need to provide the information accurately and completely. Some user activities may produce data mistakes. Future research may devote time to predictive analytics, future expense forecasts, a possible mobile app version, and automation to import transactions using bank API's. The system is successful in meeting its main purposes of allowing tracking of the budgeting

International Journal of Advanced Research in Computer and Communication Engineering
Impact Factor 8.471 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 14, Issue 8, August 2025
DOI: 10.17148/IJARCCE.2025.14812

process, providing information that is helpful, and at times can sustain their budgets to remain mindful of making budgets more diligently.

V. CONCLUSION

In this work, we have built a web-based application for tracking expenses using ASP.NET Core MVC and SQL Server. The application functions as an expense tracker system that allows users to track, categorize and understand their income and expenses with the objectives of being able to help and manage their personal finances. The system provides visual insights into income, expenses, etc. with dynamic graphs and filters. The web application takes advantage of an organized code structure with a module design method that was developed from the Model-View-Controller (MVC) architecture to maintain easy maintainability and separation of responsibilities. Testing indicated the system is responsive and user-friendly through the performance testing, functionality testing, and usability testing. The system can produce graphs, such as line graphs and bar charts, which enhance usability and help users make educated decisions regarding personal finances. The web application can further develop and improve its performance and usability to assist with personal finance management in addition to the tracking function, such as automated budgeting, predictive analysis, receipt scans, mobile respondence, as well as interacting with financial APIs.

REFERENCES

[1]. A. M. Tripathand T. R. Masendu, "Daily Expense Tracker," "*International Journal of Computer Applications*", Vol. 182, No. 3, pp. 25 – 28, 2022.
[2]. A. Hagawane, R. Patil, S. Pawar, and A. More, "*An Android- grounded Expense Tracking Application*," International Journal of Engineering Research & Technology (IJERT), Vol.11, No. 5, pp. 45 – 49, May 2022.
[3]. P. Usha and R. Velmurugan, "*Expense Tracker App using Android Studio*," International Journal of Engineering and Advanced Technology (IJEAT), Vol. 10, No. 3, pp. 134 – 138, Mar. 2021.
[4]. P. Parashar and S. Mehra, "Design and Development of a Digital Expense Journal," *International Research Journal of Engineering and Technology (IRJET)*, Vol. 8, No. 2, pp. 112 – 115, 2021.
[5]. K. I. Vinodhini and N. Z. Jahan, " *Voice- Enabled Expense Management Assistant for Android*, " in Proc. Int. Conf. on inventions in Engineering and Technology(ICIET), Chennai, India, pp. 256 – 260, Dec. 2016.
[6]. D. Shah, R. Patel, and A. Sharma, " Predictive Analytics- Grounded Expense Management System, " *International Journal of Scientific Research in Computer Science*, Vol. 9, No. 4, pp. 85 – 90, 2021.
[7]. S. Chandini, V. Kumar, R. Kaur, and M. Jain, " A pall- Grounded Cross-Platform Income and Expense Tracker," *International Journal of Engineering Research & Technology(IJERT),* Vol. 8, No. 12, pp. 61 – 65, 2019.
[8]. P. Thanapal, S. R. Ramesh, and T. Kumar, " *A Web- Grounded Financial Record Tracking System,* " International Journal of Computer Applications, Vol. 117, No. 7, pp. 18 – 22, May 2015.
[9]. M. H. Kumar, A. Singh, and K. Patel, "*Personal Finance Tracker with Graphical Interface and stoner Login*," International Journal of Emerging Technologies and Innovative exploration, Vol. 9, No. 1, pp. 90 – 94, 2022.
[10]. R. K. Sharma, A. Agarwal, and M. Meena, "*Expense Tracker App with Exportable Reports and Graphical Budgeting*," International Journal of Engineering Research and Applications (IJERA), Vol. 11, No. 2, pp. 23 – 27, Feb. 2021.
[11]. M. T. Mahalekshmi, M. Thomas, and L. P., "*System Flow and MVC Design for Expense Tracking Applications*," International Journal of Scientific and Research Publications (IJSRP), Vol. 10, No. 10, pp. 112 – 118, Oct. 2020.
[12]. A. Kazi, S. Patil, and R. Deshmukh, "Financial Awareness Tool for College Students Using Expense Tracker," *International Journal of Innovative exploration in Science, Engineering and Technology(IJIRSET)*, Vol. 10, No. 5, pp. 207 – 210, May 2021.
[13]. A. Garg, R. Joshi, and K. Goyal, "Web- Grounded operation for Recording and assaying diurnal Charges," *International Journal of Computer lores and Engineering (IJCSE),* Vol. 9, No. 4, pp. 89 – 92, Apr. 2021.
[14]. U. P. Singh, M. Bhatia, and K. Sharma, " Responsive Mobile operation for Budget Tracking and cautions, " *International Journal of Advanced Trends in Computer Science and Engineering*, Vol. 10, No. 2, pp. 188 – 193, 2021.
[15]. N. Jadhav, P. Desai, and R. Pawar, "Modular expenditure Tracker with stoner Authentication and Import Capabilities, " *International Journal of Computer Applications Technology and Research(IJCATR),* Vol. 11, No. 1, pp. 55 – 59, Jan. 2022.