# **Keywords**

* Expense
* Income
* Source
* Saving
* Time
* App
* Inserting
* Visualization
* Feedback
* Achievement
* Decision

# **Introduction**

Personal expenditures might differ from small amounts to huge amounts depending on how a person might spend money daily. These expenses are rigid, changeable, and unexpected. Rent can be taken as a rigid expense because the money spent on the rent is fixed and doesn’t get changed with time. On the other hand, the expense which changes with time is changeable expenses for example electric bills and groceries. Unexpected expenses are those which occur without a plan and it does not concern time. Repairing a car’s broken parts or visiting a doctor is an unexpected expense. Similarly, the incomes of a person also differ from small to huge amounts depending on how a person works and they might be fixed or changeable, or occasional (Siyavula, 2022). Only rare people keep notes of their expenses and incomes to take better care of their money. But those who don’t do it will not have any idea about how much money they are spending daily or weekly or monthly, what are things they are spending money on, where to avoid spending money, what are the other income sources apart from the salary or wage. Because of this, there might be a high chance of running out of money. It will be hard to take a good economic decision while running on low money.



Figure 1: Personal Economic status

Sometimes people spend too much money and get into debt. Managing money very carefully and planning activities can reduce expenses and increase savings. In the same way, saving money will be beneficial while paying for unexpected expenses for example health problems. Therefore, monitoring expenses and incomes monthly is very important and this will help to decide which expenses are low and high priority. Let’s consider a person has been left with a little amount of money during the last days of a month, then food will be important rather than buying ornaments or watching movies. To monitor the expenses and incomes, written papers or a text file will not be enough or a better solution. A system that can keep records of all expenses and incomes permanently is required in this situation. A mobile app will be better because it will be easier and more flexible for people. Likewise, users also should be able to visualize their daily, weekly, and monthly expenses and incomes in different ways with the app. The app should also give feedback if the user manages the expenses well or not for making better economic decisions. Similarly, giving points, and achievements to the users, if they do well, then they will be encouraged and motivated to do better in the future. Making a competitive environment will be more entertaining for the users to use the app and not get bored. These are gamified content of the app to keep the users attracted. This kind of gamified content could be also seen in other non-gaming apps like the Nike Run Club and Stack Overflow website, etc. In this way, a person can handle all his expenses and income status in his/her hand with a mobile app and get rid of personal financial problems.

## **Aim**

Provide a data-driven mobile solution to the expense and income status for making better individual economic decisions.

## **Objectives**

* Research on expenses and incomes
* Researching the existing systems and understanding the workflow
* Self-researching for making more better system than the existing one
* Challenges findings for the system
* Use the appropriate methodology, tools, and technology to develop the system
* Documentation and report submission

# **Justification**

Most people don’t keep records of how much money they are spending and earning. Sometimes people spend money on unnecessary things knowingly or unknowingly and the expense becomes greater than the income which might arise financial problems. They don’t know what fields they are spending money on, or which field they have spent money on most or less. Likewise, categorizing their expenses like Food, Education, Health, Transportation, Clothing, etc. could help to manage expenses properly. But many people don’t do that. Not keeping in mind their expenses and how much money is left could lead to such kind of financial problems. However, no one wants to spend money on unnecessary activities or things but it is hard to find those things without any kind of references. Those who have a tight budget and have to look after lots of things over a fixed time definitely should keep track of their expenses and income otherwise, they can run out of money. In the same way, people also don’t keep records of their income too. They don’t know what are their income sources and from which source they are earning the most or less. Categorizing their incomes could provide a better vision of their finance. Another thing that is very hard to know about expenses or incomes is the date. People might remember their expenses or incomes but they forgot when they have spent or earned that money but the date is also a very important thing. It will know the amount of money earned or spent on a date if the date of the income or expenses is recorded. Therefore, if people can keep a record of how much money they are spending, where they are spending most, how much they are earning, where they are earning most when they have spent or earned, and look back to their income and expense history, then they will get an idea about how to handle their economic status and where to avoid spending money in the incoming days. Similarly, being careful and informed is the most important thing for better economic decisions rather than facing the problem, realizing what was the mistake, and then understanding what should be done next time.



Figure 2: Solution to untracked expenses and incomes

A mobile app will be best suited for this solution because writing all the incomes and expenses in a textbook, or a text file will be time-consuming and bothering. If the textbook is lost or the text file is deleted, then it will be game over. On the other hand, people might use an excel sheet to keep records of their expenses and income sources. But it will not be as much flexible as the mobile app while visualizing the data in many different ways. As the finance are personal, people will prefer using a mobile app instead of a website because a mobile app is easy to access, portable, more personalized, and even could be operated offline. Websites are better responsive to computers than mobile apps due to the variable screen size of the mobiles. Users can add their expenses and incomes as much as they want on a day in the app. The app will save all the expenses and incomes of a user and give feedback if they are doing well or not. Users can access their data anytime wherever they want and their inserted data will be never lost even though they uninstall the app because all the data will be saved in the cloud. They can access their expenses and incomes based on the current day, week, or month, or manually selecting the day or according to the expense and income category. Similarly, they will get progress points and even can unlock achievements according to how much data they insert, how regularly they insert data into the system, and how well they will save money in a month. The more they insert data into the system the more they will get progress points and unlocking achievements will give even more progress points. This will motivate and encourage them to keep using the app more and more. All the achievements will be calculated for a month and the next month, users have to score again. But the progress point won’t be lost. Likewise, users can share their progress points and users with the high progress point will be listed on the ranking system. But the sharing of progress data with the public will be optional for the users. This will provide a healthy competitive environment and users will be attracted to the app continuously. The app will answer the when, where, how much, and for what questions of their both incomes and expenses. This will help users to have better control and make better decisions about their expenses and incomes because they will start working on plans. Similarly, they will avoid unnecessary spending, save money as much as possible, know the area where they are spending money most and less, and the high earning sources.

# **Research Questions**

* What kind of income and expenses do people have?
* How can be people encouraged to track their expenses, and incomes and save money?
* What are the ethical considerations while storing the data of the different users related to their expenses and incomes?

# **Scope**

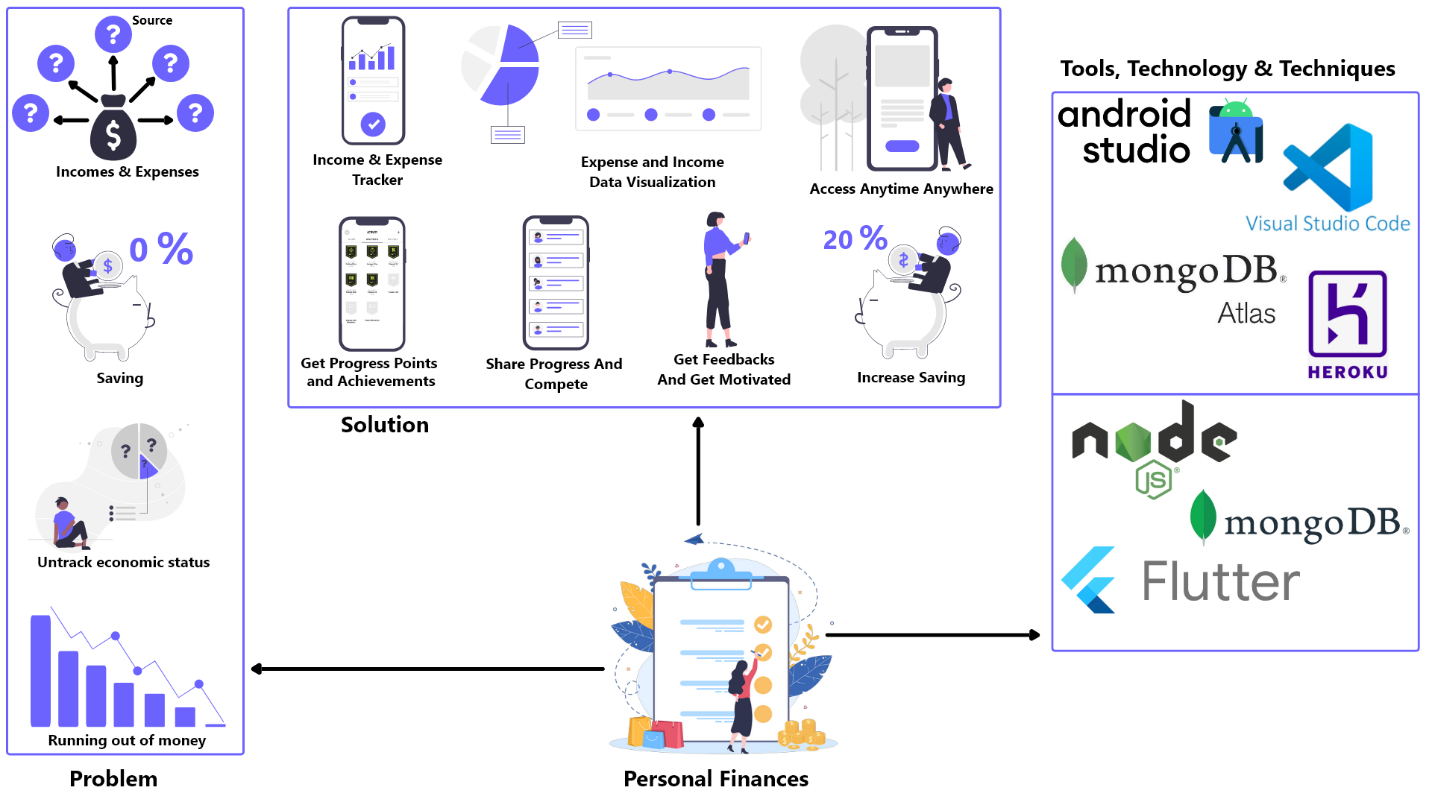


Figure 3: Scope of the project

# **Ethical Consideration**

During the research and development process of this project, any harm that could happened to individuals has been completely avoided. The resources that are used in this project has been properly cited to the respective owners. Users of the Expense Tracker app generates lots of data related to their expenses and incomes but these data has not been shared with anyone else, not even with the other users of the app, and also not used for any other purposes. These data are saved permanently in the cloud and the users can see their data only. The app provides ranked system where users with the high progress points are listed. These data are also shown according to the user’s permission. There is an option for sharing progress point or not in the setting of the app and only those users who have shared their progress points are shown in the ranked system. All the tools, and technology used in this project are open source and legal to use. No any cracked version of tools or technology is used. The source code of the app is also developed from the scratch, not copied from the internet. No any copyright contents are used in this project.

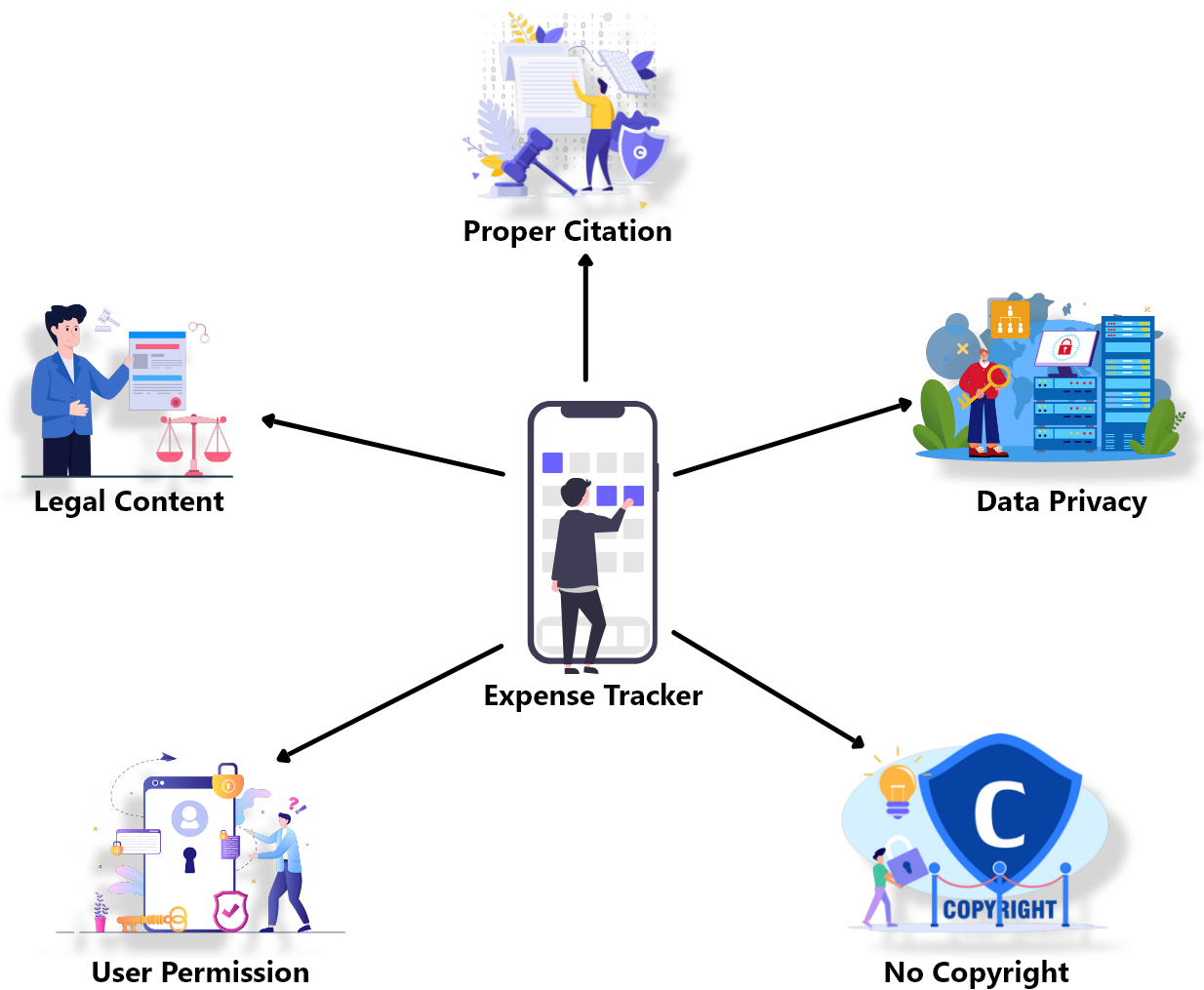


Figure 4: Ethical Consideration of this project