# **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 the 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 should also 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, will be an encouragement or motivation to do better in the future. 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
  + Understand personal expense of a day, week, and month
  + Learn about the income sources
  + Find different expense and income categories
  + Identify the problems while managing the economics
* Researching existing systems
  + Search and understand the workflow and features of the existing systems
  + Understanding the system culture and how it takes advantages
  + Find the challenges and missing features in the system
  + Compare existing systems with each other
* Self-researching
  + Read research papers, documents, and articles
  + Find new useful functionalities for the system
  + Understand gamification on non-gaming app
  + Define system functionalities
  + Design a small concept system
* Challenges findings
  + Do pestle analysis
  + Do risk analysis
* System Development
  + Use the appropriate methodology, tools, and technology
  + Add quality attributes to the system
  + Add security and data backup to the system
  + Test the system
* Documentation
  + Start working on draft documents
  + Finalize document’s contents
  + Use correct language and add infographics
  + Structure the document in a logical order
  + Revise and proofread
  + 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. Not keeping in mind their expenses and how much money is left could lead to such kind of problem. 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. 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, 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 income and expenses in a textbook, or a text file will be time-consuming and bothering. People might use an excel sheet to keep a record 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. A mobile app will be simple, portable, easy, and fun to use. 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 because the data will be saved in the cloud. They will get progress points and even can unlock achievements according to how regularly they insert data into the system and how well they will save money. This will motivate and encourage them to keep using the app more and more. Likewise, users can share their progress points and users with the high progress point will be listed on the ranking system. This will provide a healthy competitive environment. 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**

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