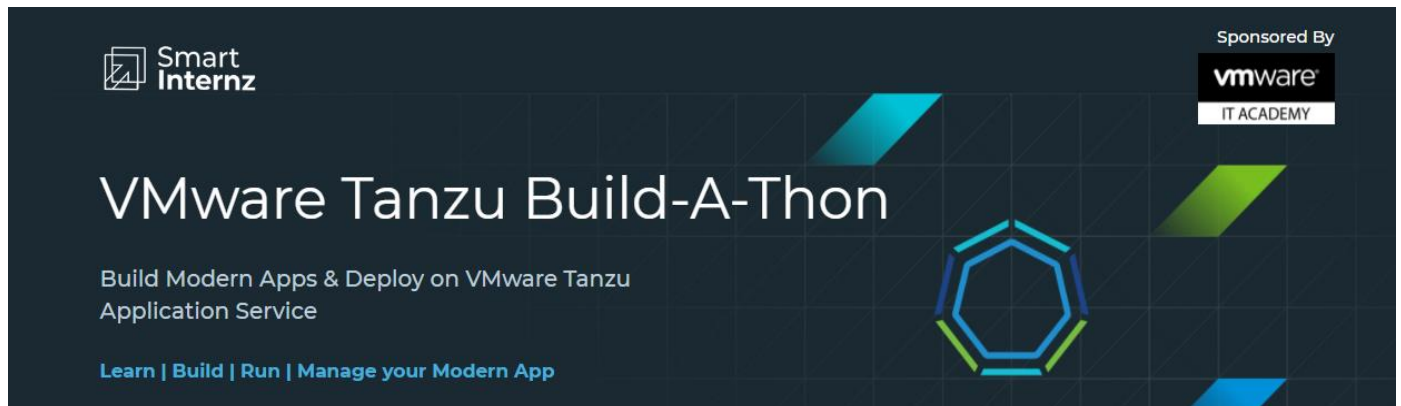


VMware Tanzu Build-A-Thon

Personal Expense Tracker

Using Python Flask

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ABSTRACT

In simple words, personal finance entails all the financial decisions and activities that a Finance app makes your life easier by helping you to manage your finances efficiently. A personal finance app will not only help you with budgeting and accounting but also give you helpful insights about money management.

Personal finance applications will ask users to add their expenses and based on their expenses wallet balance will be updated which will be visible to the user. Also, users can get an analysis of their expenditure in graphical forms. They have an option to set a limit for the amount to be used for that particular month if the limit is exceeded the user will be notified with an email alert.

CHAPTER 1

INTRODUCTION

1.1 Personal finance

There's a reason that the word "personal" is used with budgeting. Although guidelines are often provided to help you determine how much to spend in different areas of your life, the choice is really yours. Your budget is designed for you based on your goals, so if you have enough income to spend more on your transportation needs, then go ahead and buy that Tesla. The purpose of having a budget is so that you have a **plan** for spending your money. This helps you avoid debt and achieve what you want to with your money.

In order to build your personal budget, you will need to gather your financial records, spend time to categorize and analyze your current spending, create a balance between earnings and expenses, consciously plan for expenses that you might be facing in the future, and put everything together while considering your long-term financial goals.

Your goal when gathering your financial records is to have a completely clear picture of how you already spend your money. The biggest challenge of building a good budget is **making sure it is realistic**. Having exact records of how you spent your money is the best way to plan moving forward.

Budgeting helps you make a definite plan to save money for those things you want and need in the future. There are several strategies to help you plan for unexpected and irregular expenses, but most come down to spending a few minutes for planning. One simple task will help you look ahead at expected expenses that often sneak up on you because you don't pay them regularly. The task involves making a chart of

irregular expense, determining when they need to be paid, and identifying how much the expense will most likely be. (Use the previous year's numbers to help you estimate this year's costs.) Think about what holidays are coming up, and how much you plan on spending on gifts. If you visit the dentist twice a year, include that in your chart so you have the extra cash set aside BEFORE the visit.

1.2 Budget

A budget will also help you decide how to spend your money over the coming months and years. Without the plan, you might spend cash on things that seem important now, but don't offer much in terms of enhancing your future. Many people get caught in this quagmire and get down on themselves for not reaching the financial milestones they want for their family and their own life. A budget is a tool that tracks income and expenses, and it allow you to set goals and make plans for the future. Developing a budget for a specific project, for a special event, or to help you with your monthly spending are all examples of using a budget to help you manage your financial situation.

When you mention the word “budget” to others, you may get a negative response. That's because people often associate budgeting with restrictions. They feel that if they go on a budget, it's like going on a diet. They won't be able to spend money in the way that they'd like. But a budget is really a financial planning tool. Every person or household should have a personal budget, not just to help keep spending under control, but also to help achieve what's important financially, whether that's saving for college, buying a second car, or going on that Hawaiian vacation. An effective budget will give you a clear picture of your expected income, a detailed look at where you spend your money, and it will help you set and achieve realistic savings goals.

1.3 Expense tracking

Expense tracking is an important part of creating a budget for your small business. Keeping a daily record of your expenses by tracking receipts, invoices and other outgoing expenses improves the financial health of your budget. Tracking expenses can help you stay on top of your cash flow and prepare you for tax season.

Keeping a daily record of your expenses will help you avoid digging through shoeboxes, your car and pockets for receipts. Knowing what expenses are tax deductible can make sure you're not losing out on any money.

Recording your expenses daily can ensure that you are financially aware all year long and not just during tax season. Knowing where your money is going and how much you're spending can improve your spending habits. Plus, you'll have a better idea of where you can allocate money to positively impact your bottom line.

CHAPTER 2

LITERATURE SURVEY

Flask is a micro web framework written in Python. It is classified as a micro framework because it does not require particular tools or libraries. It has no database abstraction layer, form validation, or any other components where pre-existing third-party libraries provide common functions. However, Flask supports extensions that can add application features as if they were implemented in Flask itself. Extensions exist for object-relational mappers, form validation, and upload handling, various open authentication technologies and several common framework related tools.

2.1 Existing Problem

Tracking personal finance and budgeting, also give you helpful insights about money management. Personal finance entails all the financial decisions and activities that a Finance app makes your life easier by helping you to manage your finances efficiently.

2.2 Proposed solution

Personal finance applications will ask users to add their expenses and based on their expenses wallet balance will be updated which will be visible to the user. Also, users can get an analysis of their expenditure in graphical forms. They have an option to set a limit for the amount to be used for that particular month if the limit is exceeded the user will be notified with an email alert.

CHAPTER 2

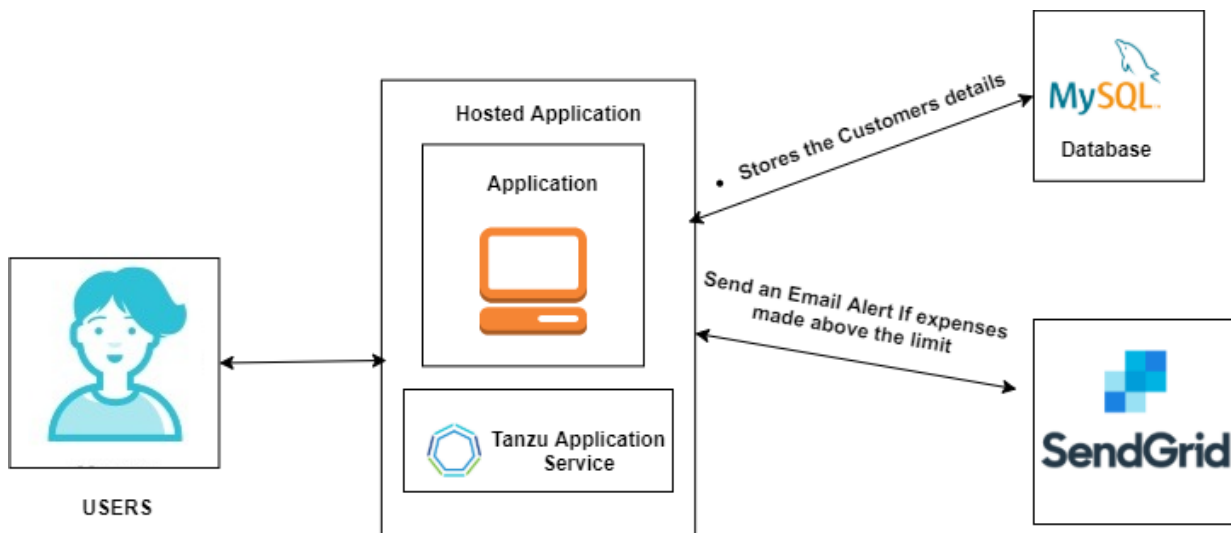
REQUIREMENT SPECIFICATION

- HTML
- Bootstrap
- MySQL
- Python-Flask
- SendGrid
- Cloud Foundry
- Tanzu Application Service
- REST API's

CHAPTER 3

DESIGN

3.1 Flow Chart



3.2 Software Designing

I developed the personal expense tracker application using Python language which is an interpreted and high level programming language. For coding I used the Spyder which is an integrated scientific programming in the python language. For web application development I used the Flask. It is a micro web framework written in Python. It is classified as a micro framework because it does not require particular tools or libraries. It has no database abstraction layer, form validation, or any other components where pre-existing third-party libraries provide common functions, and a scripting language to create a web page is HTML by creating the templates to use in the functions of the Flask and HTML.

Chapter 4

RESULTS

Application link - <https://expensetracker.apps.pcfdev.in/>

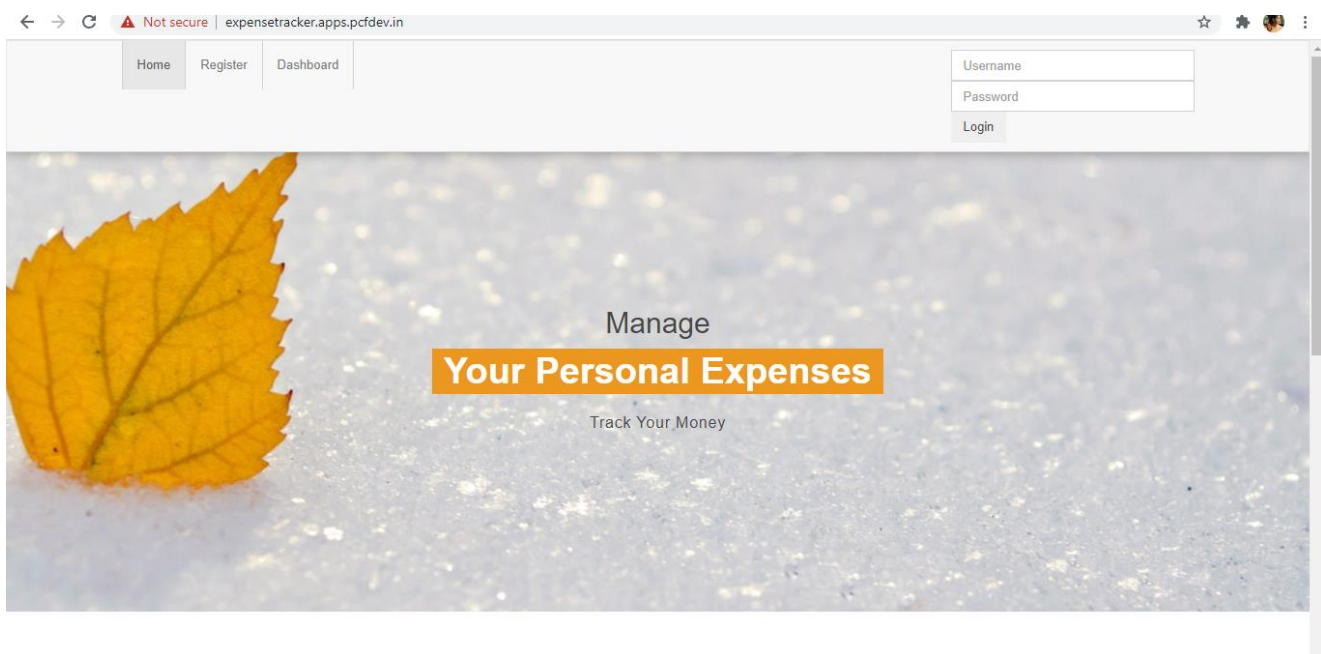


Fig 4.1 Home Page

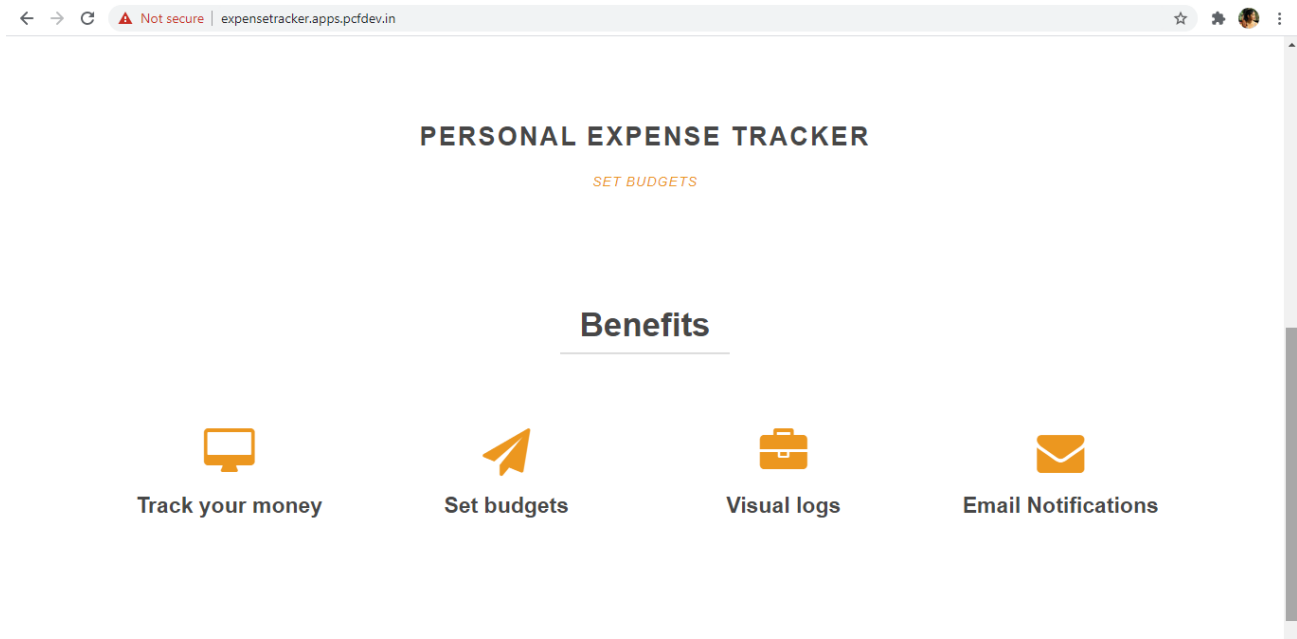


Fig 4.2 Home page

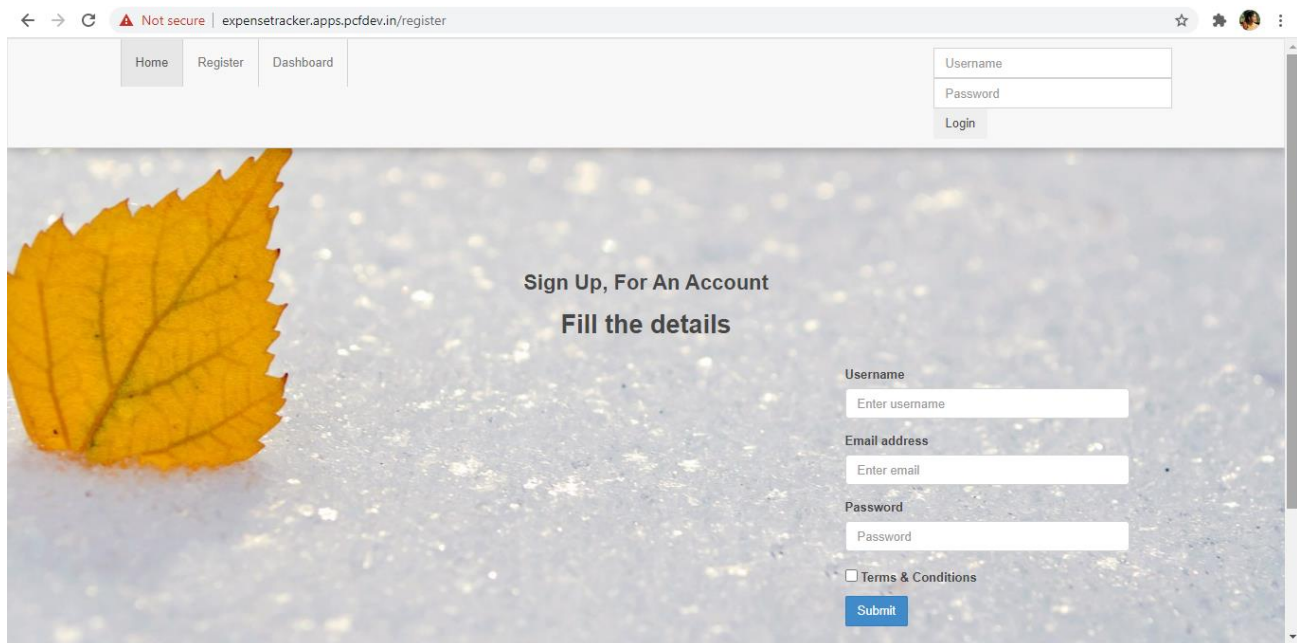


Fig 4.3 Sign Up

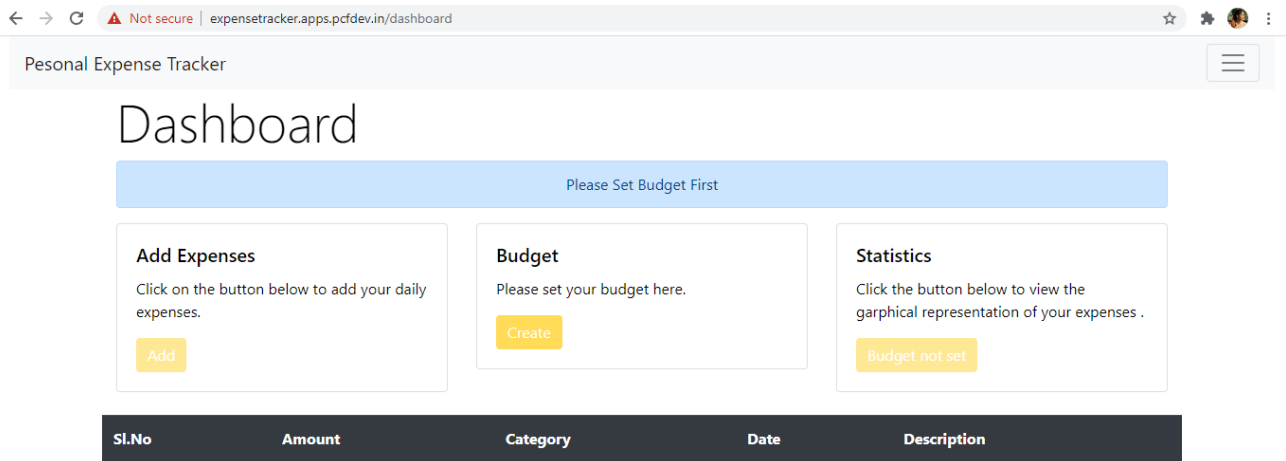


Fig 4.4 Dashboard

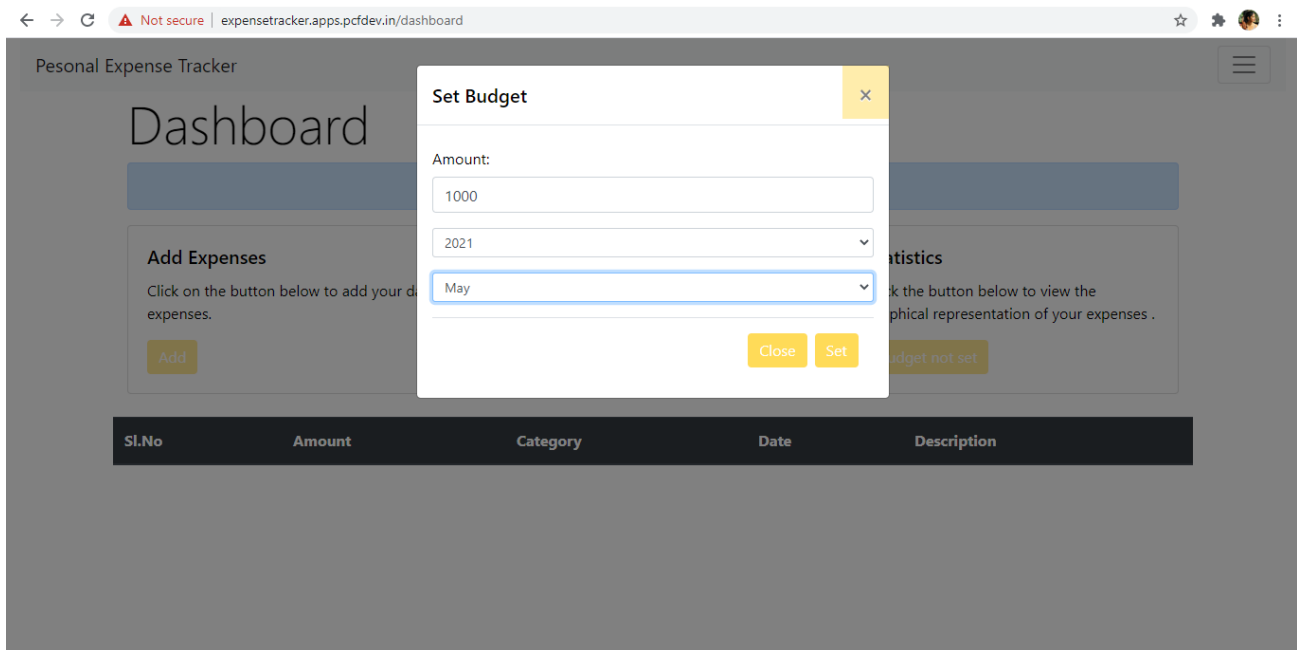


Fig 4.5 Budget Form

Budget has been set, Now you can proceed to adding expenses

Add Expense

Amount:

Category:

Date:

Description:

Close Add

Fig 4.6 Expense Form

Your total budget is : **1000**
For the month of 2021-May

You have exceeded your budget
\$1200

Choose Budget Month... Download Transactions Email Transactions

Sl.No	Amount	Category	Date	Description	Modify	Delete
0	\$600	Shopping	2021-05-21	Tshirt	<button>Modify</button>	<button>Delete</button>
1	\$300	Dining	2021-05-12	Biryani House	<button>Modify</button>	<button>Delete</button>
2	\$100	Utilities	2021-05-10	paints	<button>Modify</button>	<button>Delete</button>
3	\$100	Groceries	2021-05-02	Pulses	<button>Modify</button>	<button>Delete</button>
4	\$100	Food	2021-05-01	Noodles	<button>Modify</button>	<button>Delete</button>

Fig 4.7 Budget Exceeded Warning

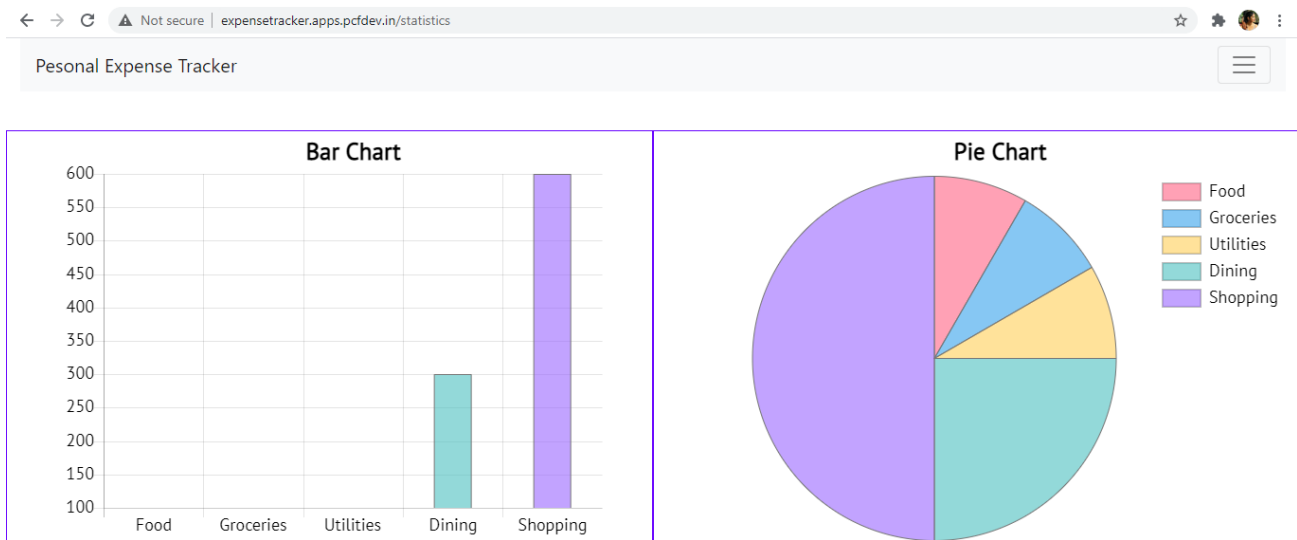


Fig 4.8 Monthly Statistics



Fig 4.9 Months Comparison

CONCLUSION

Here, I made an attempt to make use of python and Flask to develop a useful product. It will help to track personal finance. It is aimed at proving a tool to set budgets so that a person can achieve their financial goals. If a person fails to stick to a budget an Email notification will be send to warn the user about the same, this is achieved using SendGrid. The product is developed using Flask and MYSQL database. The Web application is also modernized by creating docker image and deploying it on VMware Tanzu.