WatchDog – Monthly Expense Monitor

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ABSTRACT
Financial planning and awareness has always been given importance to have stability in life and inculcating a habit of expense keeping at an early age can make this much easier. This paper describes WatchDog – a web platform developed keeping young adults in mind which enables them to keep track of their expenditures. This web application makes the process of record keeping easier and efficient by providing the users with facilities of adding expenditures, adding accounts that are used for spending and visualizing the spending in the form of pie charts, bar charts and tables. Also, the web application facilitates a user to set budgets for various categories which is then used to notify the user if any overflow occurs.

1. INTRODUCTION

Assigning budget or keeping track of expenditures has always been an important factor in one's financial stability. In today's scenario it has become more important to keep track of spending, especially for young adults and students. Recording expenses gives a better idea of where the money is going and can also help in saving a lot of it. Expense keeping also creates financial awareness [5]. But some people particularly students consider this task very tedious and at times avoid doing it.

Graphical User Interfaces come handy to such types of problems where the traditional methods are tedious. The use of GUIs helps reduce the mental effort required to interact with the programs. Instead of remembering sequences of complex command languages, users only need to learn how to interact with the simulated world of objects, e.g. icons and menus [6]. Web applications are user friendly providing visualization of a task as well as organize it. This project aims at providing such a platform to the user.

WatchDog – A monthly expense keeper is a web application that enables a user to keep track of their expenditures. This web application makes the process of record keeping easier and efficient by providing the users with facilities of adding expenditures, adding accounts that are used for spending and visualizing the spending in the form of pie charts, bar charts and tables. Also, the web application facilitates a user to set budgets for various categories which is then used to notify the user if any overflow occurs.

2. BACKGROUND

Financial Planning is an important aspect of one's stability and is being practiced since decades. Narrowing this down to a student or a young adult, keeping track of expenditure has always being considered advantageous. Older and traditional methods of doing the same were - using a notebook to keep the records, advancement in technology introduced us to spreadsheets and finally with the emergence of Internet and mobile devices, a web platform or application which is more user friendly and easy to use came into play.

Graphical User Interfaces can play very important role in success of such platforms as is suggested by Craig E. Wills [1] that once an application goes into user's hands "user friendly" means more than just using a graphical user interface (GUI). Rather the interface needs to be consistent and integrated with the functionality and is at least as important as the functionality in determining the product's success. The project aims at achieving a GUI

that is uncomplicated and remains consistent with the functionalities.

Many websites and mobile application are being developed to make the task of record keeping easier and convenient.

The proposed project work aligns with some previous web application developments mentioned below that were created for keeping track of expenditure with the exceptions that, it particularly aims to serve students and young adults, and hence no bank accounts are linked directly or personal information taken into account that may cause security threats.

The paper by Sabab, Shahed Anzarus, et al. [2] is an Android smartphone application that enables a user to scan receipts and store the expenses. Also monthly or yearly statistics of the expenditure is provided to the user.

Some other Android smartphone applications are Mint[3] and TimelyBills[4] which perform similar functionalities for expenditure tracking. Also, they save bills to the account and pay it automatically when the due date arrives.

There are many financial mobile applications as well such as Capital One Mobile [7] and Bank of America Mobile Banking [8] which allow users to check out their bank balance, review credit card payments and transfer money.

Yet another Android smartphone applications are PocketGuard [9] and Clarity Money [10] which specifically focus on budget creation according to a user's income and also May help save for a single event.

3. SYSTEM

The system mainly consists of software component which includes the user interface and database.

3.1 USER INTERFACE

WatchDog's software is implemented as a Website with various user interface components. Figure 1 represents the Home Page of the website which introduces the website to a user along with providing navigations to sign-up, login forms and about page.

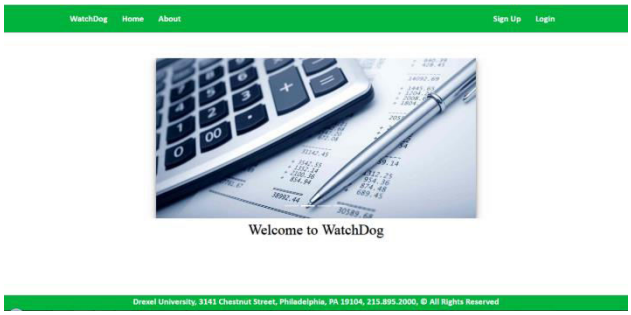

Fig. 1 Home Page

Figure 2 depicts the Sign-Up Page which allows the user to create an account on the website by entering details such as name, username, email address and password.

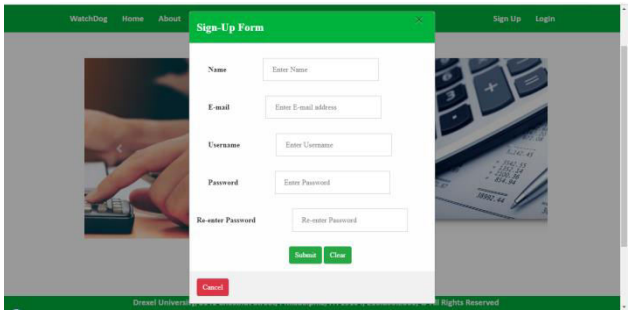

Fig. 2 Sign-Up Page

Figure 3 represents the Login Page in which an existing user can enter his/her user credentials and then use the features of the website.

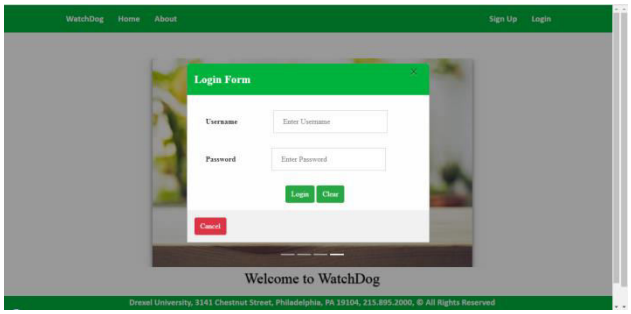

Fig. 3 Login Page

After a user logs into the account he/she is provided with various options such as add expenses, add account, view expenses, and add budget, settings, logout etc which is depicted by Figure 4. Add Expenses tab enables a user to store their expenses and these expenses can be viewed in various forms such as Bar Chart, Pie Chart or a Table which is represented by Figures 4.1, 4.2 and 4.3.

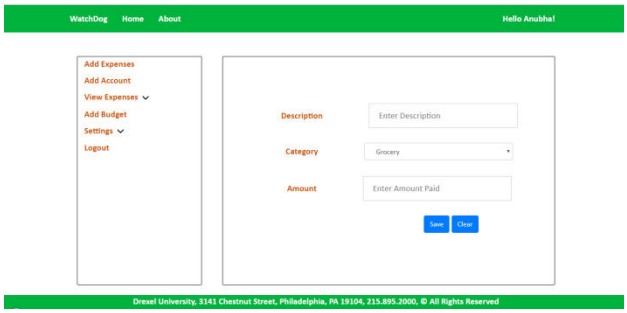

Fig. 4 User Login Page

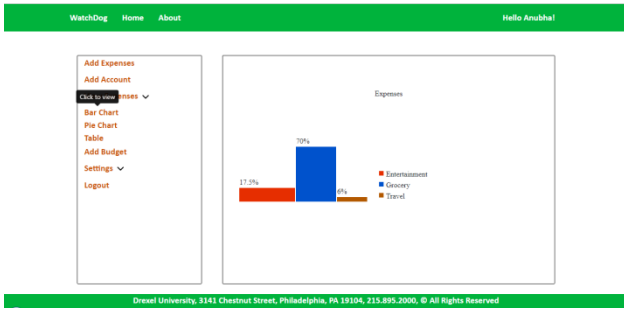

Fig. 4.1 Bar Chart Representation

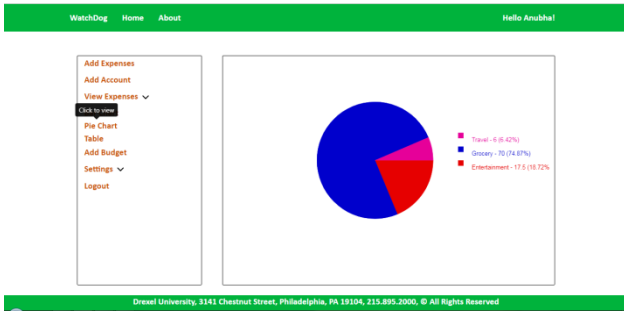

Fig. 4.2 Pie Chart Representation

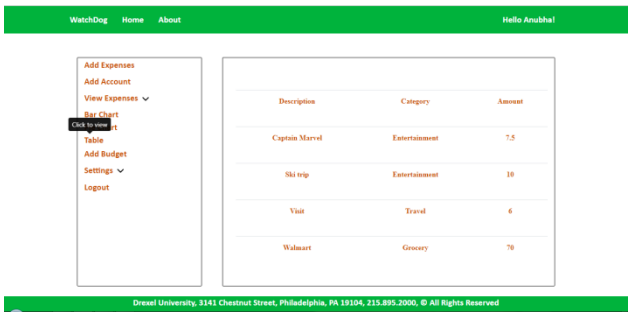

Fig. 4.3 Table Representation

3.2 DATABASE

SQLite Database was used for development of website in which different tables were created such as a user table – stores details of the user, expense table – stores expenses of different users, budget table – stores budgets assigned by different users.

4. EVALUATION

For evaluation of the project work few users from different field of study were asked to use the website and fill up a small questionnaire consisting of the following questions:

1. How is the color theme of the website?
2. Is the website easy to understand?
3. Rate the usefulness of the website.
4. Are the font-sizes and families used proper?
5. Any improvements that could be made?

Most of the users were satisfied with the color theme of the website with some saying that colors used could have been less bright. About usefulness and navigability of WatchDog most users said that the idea of the website is good and it's straightforward to understand and navigate.

Users were also asked for some improvements that they may suggest and one of the users suggested that a monthly budget could be assigned to every category and the remaining budget balance can be displayed to make it

easier for the user to check. Another user suggested adding some more graphics as user interface looks simple.

5. CONCLUSION AND FUTURE WORKS

WatchDog was developed as a web platform focusing young adults as the audience and providing them with a user-friendly platform to record their expenditure. Also, helping them visualize the expenditure in the form of bar chart, pie chart or table.

The paper explains the inspiration behind the project work and thoroughly goes through the software components of the system and the evaluation process.

Along with this there are some future works which could be implemented for expanding the project work such as:

1. Enhancing the User Interface.
2. Enabling the user to create groups with friends or family with whom they share expenses.
3. Linking bank accounts with WatchDog account.
4. Providing the user with more visualization options.
5. Providing real-time notifications via email or SMS for budget overflows.

6. REFERENCES

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