



## WEB- BASED FAMILY BUDGETING

Maitanmi S. O<sup>1</sup>, Ayinde, S.A<sup>2</sup>, Adekola, O.D<sup>3</sup>, Omotunde, A.O<sup>4</sup>, Malasowe, B.O<sup>5</sup>

<sup>1</sup>Computer Science, Babcock University, Ilisan Remo, Ogun State Nigeria, maitanmi@yahoo.com

<sup>2</sup>Basic Science, Babcock University, Ilisan Remo, Ogun State Nigeria, Ayinde\_sa@yahoo.com

<sup>4</sup>Computer Science, Babcock University, Ilisan Remo, Ogun State Nigeria, omotundea@babcock.edu.ng

<sup>5</sup>Computer Science, College of Education Agbor. Delta State, Nigeria, ogheneovobri@yahoo.com

### ABSTRACT:

A plan specifying how family resources especially money and time will be allocated or spent during a particular period is called family budgeting. This research work covers an impressive collaborative budgeting tool that lets you plan out your spending habits either long term or short term, not dwelling on the deluge of cash wasted in the past. This application was built as a result of some everyday problems like: daily accumulation of debts, lack of savings, financial stress, among others. The software was built on short time budgeting as regards the long time which is prevalent. In addition, the software is highly processor demanding especially when in use, the application cannot monitor users with offline account and has to trust the user to input the accurate values. The research work concluded by introducing a new system that is user friendly, and efficient. On the successful implementation of the new system, it is our belief that masses will acquire this to better their standard of living.

**Keywords:** Budgeting, planning, monitor, long term and short time.

### 1. INTRODUCTION

Budgeting is as old as the earth itself, but there exist a turning point when technology came into budgeting, thus the spreadsheet, which has been and is still being used to keep accurate track of the budget where it is needed.

A budget is a plan specifying how resources, especially time or money will be allocated or spent within a particular period of time [1].

#### 1.1 Problem Statement

Everyday people try to claw their way out of debt but due to various reasons they cannot, not to talk of saving when there is none to save as everything gotten is being used to pay another debt and sometimes they get into one debt so as to get out of another. Therefore, it is safe to say that a lot of people go through financial stress that affects their way of leaving as a family or as individual [2].

Research carried out by [3] stated that most people undergoing financial stress attempt to access desktop-based budgeting application which invariably serve as a restriction or hindrance to accessing their budgeting accounts anywhere. These

budgeting applications also lack the functionality for budgeting on long term basis and to cap it all up they are not easy to use.

#### 1.2 Objectives of study

The general objective of this research work is to build a web based application software for families with money management issues that will assist in keeping proper record of their expenses and income and help to adequately avoid mismanagement of their income[3]. Other specific objectives are:

1. Provide a forum for the user to input his/her problems in the order of priority [4].
2. Ensure high security to all user especially user with registered online bank account [5].
3. Ensure that user are free from any debt, by ensuring they account for every expenses made and providing users with adequate advice to get out of debt [6]
4. Ensure that users are prevented from any form of financial stress by providing accurate advice as regards what goes where [7].
5. Provision of structural and organized storage for financial data to enhance rapid access and usage [8].
6. Ensure that user can create a short term budget [8].

#### 1.3 Methodology

The application was developed using the following: ASPX (Active Server Page extended) for the designing process, VB (Visual Basic) for the back end coding and Microsoft Server Query Language (MSQL) for the database, the stages are shown in figure 1.

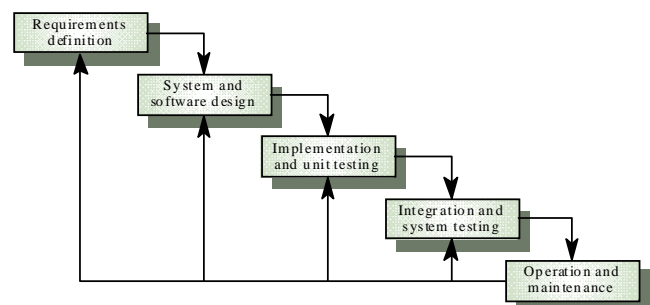


Figure. 1 Description of Water Fall Methodology with feedback Requirements are statements describing:

1. An aspect of what our proposed software will do
2. Constraints on the system's development.

Under the Requirement definition Phase, we would be finding out what will be entailed in the research work, what problems the software will be addressing, what solutions are to be offered, what will be needed to enhance the research work. We would also look into the potential risk available and their mitigations.

**1.3.1 System design:**the design should consist of diagrams and images that would motivate users to keep using the application and should encourage consistent users of the application to save. The backend coding, that is, the logical part of the software comes after the system design is done. The next is testing which is to ensure that all is put to function.

If the system has been tested ok; it can be deployed on the internet. It is in this implementation phase we can start the backend coding where we create the functions of each of the software components, or the component of the application.

After this we have the *system testing* to ensure that all components or units are functioning properly, working together and according to the requirements.

To achieve these objectives, this study is divided into five sections. Following this introduction, Section 2, examines existing literature on existing related systems, Section 3, presents the methodology employed in the development of the software, Section 4, presents the results/outputs and Section 5, deals with conclusions, and recommendations.

## 2. LITERATURE REVIEW

The measurement of family budgets and budget standards dates back to the late 19th century [9]. Such budgets had been used to develop cost-of-living estimates, assess wage rates, and to examine the standard of living. Early budget standards and family budgets were based on two different methodologies: expert decisions were devised to ascertain how much income a family might require to reach a certain level of living, and estimates were obtained on the behaviour of a family as a case study. The first, prescriptive method was often used to determine the sufficient amount needed to provide a standard of health and decency or some other measure of the level of living. The second, descriptive method was often used to describe consumer spending and to determine cost-of-living indexes [10].

According to a report opined by [3] that budgets that span 90 years, the budgets of the last 50 years share the most similar methodology. Research has found that in 1998, the budget based on Consumer Expenditure data for family consumption for a married couple with two children is about \$36,550 compared with a budget of \$18,210 in 1947 and 13,430 (for a family of five) in 1919. These budgets have increased in real terms; however, they have not increased as much as changes in per capita gross domestic product (GDP), compared with Saunders' results for Australia. While he suggests that this increase represents a general increase in the standard of living, some of the increase could be due to changes in the relative definitions of the terms "modest" or "sufficient." [11].

### 2.1 Related Works

#### 2.1.1 Quicken

Quicken is a desktop-based software, first launched in November 1990 by Dave Ramsey fan. Quicken is a proprietary software that offers full financial picture rather than only budgeting. It was created by Entrepreneur Aaron Patzar [12]. Quicken brings your accounts together all in one place and helps you set budgeting and savings goals, and it provides alerts for upcoming payments to help you avoid late fees.

#### 2.1.2 You Need a Budget (YNAB)

You Need a Budget is simple yet has a lot of functionalities, it is also a desktop-based proprietary software. It does all of the things a great budgeting software needs to do, but it goes well beyond the typical tasks of tracking income and expenses thereby planning for future purchases. YNAB was created for OSX, Linux, and Windows by Jesse Mecham (mdmproofing.com, December 2012). The only drawback with this type is that it is not web-based, so you will be limited to using it on a stand-alone which is not cost effective [13].

#### 2.1.3 Mint

Mint is an open source, web-based budget software. In addition to a detailed budgeting component, Mint also allows you to access information for all of your online accounts from a single location. This gives you a real-time snapshot of your cash, investments, debts and net worth so you can easily track your overall progress. Mint was first developed on the 2<sup>nd</sup> of November, 2009. Now as at March 2012, mint has claimed over 7 million users and was created by Entrepreneur Aaron Patzar [14]

Although mint is a web-based budgeting application that gets the job done, it is quite expensive as it requires some funds to provide the users with some advice that would aid his budgeting and have scalability issues as the number of people using this software has spiked and Mint does not have a future. Hence, its process of planning for the future is made quite cumbersome.

#### 2.1.4 Pear Budget

Pear Budget is another web-based budget that requires a small monthly fee. The creators of Pear Budget present it as a really simple budgeting and expense tracking service. Budgeting plus simplicity sounds like a winning approach. Pear Budget was founded in May 27, 2010 [15].

Pear Budget uses the classic envelope approach to monthly budget, but brings it online for ease-of-use and full access from anywhere you can get on the internet. The user will have to enter every receipt manually although the system makes as much fun as possible.

### 2.2 Strength of Related Works

Keeping up to date records of not only your income and expenditures but also how long you hold the time allocated for each expenses is vital for a successful budgeting system. Family budgeting application (FBA) simplifies this process with the use of a report, containing all the required information for a budget. Other advantages include:

- Management of multiple budget accounts
- Reporting – Quick and easy reports generation
- Tracks all of your incomes and expenditures.

### 2.2.1 Features of Family Budgeting Applications

Family Budgeting Application can be broadly categorized into three types: software-based, Web HTML-based, and Web applet-based while others explained are additional features which are not considered mandatory but necessary:

#### 2.2.2 Software Based System

Desktop based Family Budgeting Applications will offer the most sophisticated tools, brilliant flexibility. This can be proven right because it transcends beyond the typical tasks of tracking income versus expenses and planning for future purchases.

#### 2.2.3 HTML Based System

Web based system are the most common on the Web and also tend to be the least sophisticated. The system is run entirely within your Web browser and reports are limited to what is displayed within your browser.

#### 2.2.4 Applet Based System

Alternatively, some online services have users download a small program known as an applet from their Web site. The applet is installed on your hard drive, analysis and report generation is performed locally on your computer using data from an Internet feed. Applet-based systems are more likely to require a paid subscription that usually provides access to your budget accounts and reports. Applet-based systems usually offer greater functionality than HTML-based systems.

#### 2.2.5 Securities Handled

Security is one of the major features our research possesses. In checking for a good budgeting application that handles security, it is advised to pay close attention to whether or not the program handles them. MV-Purse Family Budgeting Application also give you a real-time snapshot of your cash, investments, debts and net worth so you can easily track your overall progress, but this cannot be done without the surety of security.

#### 2.2.6 Ease of Use

The great intangible aspect involved in selecting a Family Budgeting Application, centers around how easily the program can be used. In general, there is a trade-off between a simple, easy-to-use interface and a strong set of budgeting and analytical features.

### 2.3 Weaknesses of Related Works

Every of the budgeting software that exists presently, performs the sole purpose of budgeting along with other extra advantages but they still have one weaknesses or the other which makes one more advantageous than the other. These weaknesses are:

- **Location Constrain:** This weakness works only for desktop-based application that cannot be seen outside the system upon which it was installed. This is why our MV-Purse FBA is a web based application that can be accessed anywhere, on phone, palmtop, I-pads, or any device that can access the internet.
- **Complication of software:** Many existing applications are either complicated or very complicated, and therefore discourage people from using them irrespective of their efficiency. Hence, usage is left to only learned or experienced people. This is another reason MV-Purse FBA makes the process of budgeting as simple and straight to the point [16].

- **Processor demanding:** Technically, it involves a lot of calculations and would therefore not be a really fair program on the side of the system and user because of its high processor utilization.
- **Website Performance:** depending on the technology used the website may either load really fast or slow which is not user friendly [16].
- **Manual entry of data:** most of the presently running applications on this field make users enter items they intend budgeting manually, which most of the time is tiresome and strenuous. Therefore MV-Purse Family Budgeting Software tries to give a wide range of items that can be budgeted and also the ability for users to create items under specific category [17].

### 2.4 Essentials of Budget

Family budgeting application as well as a good budgeting application will have to go through series of test before it can arrive at the best budget for the planner [18].

**Income:** Every user is expected to factor in an income, whether it falls under the category of short or long-term [19].

**Be Frugal:** The process of creating a budget is the best time to analyze the current spending entered by the user. Maybe you don't need so many cable channels or a fancy cocktail every time you go out. Your gym may be top-of-the-line, but if you only go a couple of times a month, you should reconsider it [20].

#### 2.5 Contingency Expenses

Some expenses are essentially beyond user's control, like the cost of gasoline, home heating or car repairs. FBA will advise you to look at the proposed expenses and then budget extra for unforeseen expenses the prior year and then budget for a 5 percent increase, for example, your electricity bill may significantly get higher in August when the air conditioning is running than in March, and so using a single month is not accurate [21].

#### 2.6 Plan for Savings

Meeting your monthly expenses is your first priority when using Family Budgeting Application. If user is planning to buy your first home or upgrade your existing one, he/ she need to start saving for that. A baby, new car, kitchen remodel or even small vacations are all events to plan for by adding a line in your budget for them. Most important of all, we don't forget to budget for retirement. That day may be decades away, but you need to plan now and start saving.

## 3. METHODOLOGY

### 3.1 Database Design

The database for this application is named RealBudget database. It consists of seven tables namely:

1. **Registration table:** This store the users login and registration details. It's made reference to during login and when the users mail address is needed
2. **Bank details table:** This stores Bank details from which details input by users attempting to open an online budget account will be validated.

3. **Income table:** This stores the income details such as income name, Amount, Pay period among others without which you cannot create a budget.
4. **Budgeting items table:** This table contains predefined items and their respective categories and priority which the user can access to draw up a budget without much stress.
5. **Personal Buditem table:** This table contains details of items that were specified by a user, as a result of the fact that the list of predefined items are not what the user had in mind.
6. **Create Budget table:** Consist of the details of a budget account such as the Budget Category, Budget Type, Account Number, Start and End Date...etc.
7. **ExpenseLT table:** After budgeting account that fall under the Long-term category has been created, user can now create a working budget, consisting of the items to budget, the amount allocated to it and the month and year within the start and end date defined when creating the account.

on the flow of processes involved in MV-Purse FBA, the component and system testing among others.

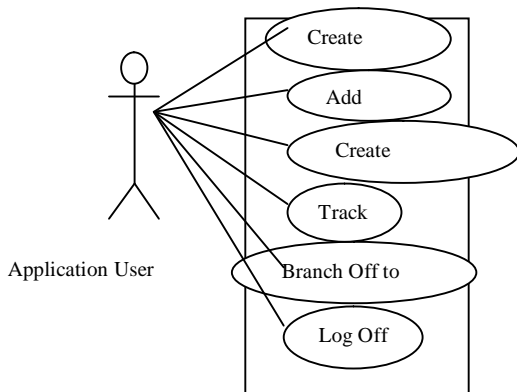
**Algorithm of the Process**

Figure 3 shows the flow of information of major processes in the system.

**Table 1** Registration table

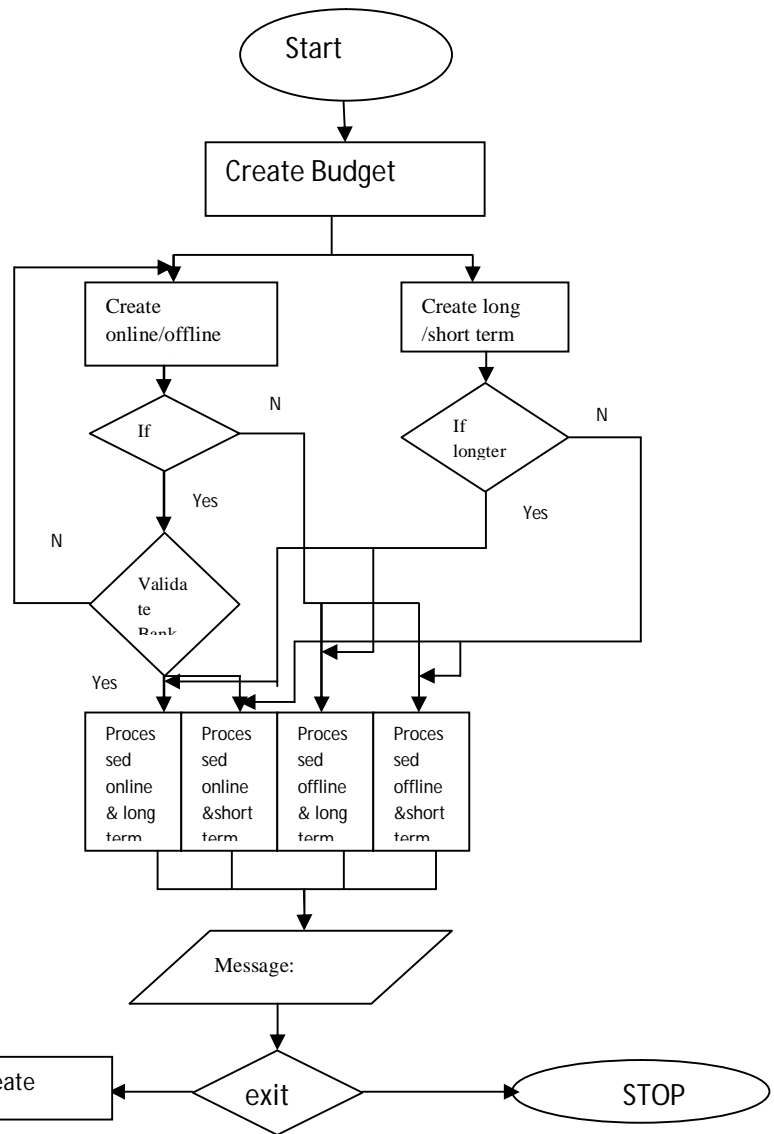
Field	Type	Null	Key	Default	Extra
UID	Int	No	Primary		auto_increment
Firstnames	Varchar(20)	No			
Lastnames	Varchar(20)	No			
Email	Varchar(50)	No			
Username	Varchar(50)	No			
Password	Varchar(50)	No			
Registartiondate	Date	No			
Registrationno	Varchar(50)	No			

**Model of the software**



**Figure.2** Use Case Diagram of the Proposed research work

The aim of this section is to produce a detailed report of the system implementation process of this research work. It focuses



**Figure .3** Account Creation Modules

**Login Page**

The login page is the first page available to the user after the system has been initialized. User is expected to provide a username and a password to access the system. As shown in figure.4



Figure.4 Login Page

Short Term Budget and the Long term Budget as discussed earlier.

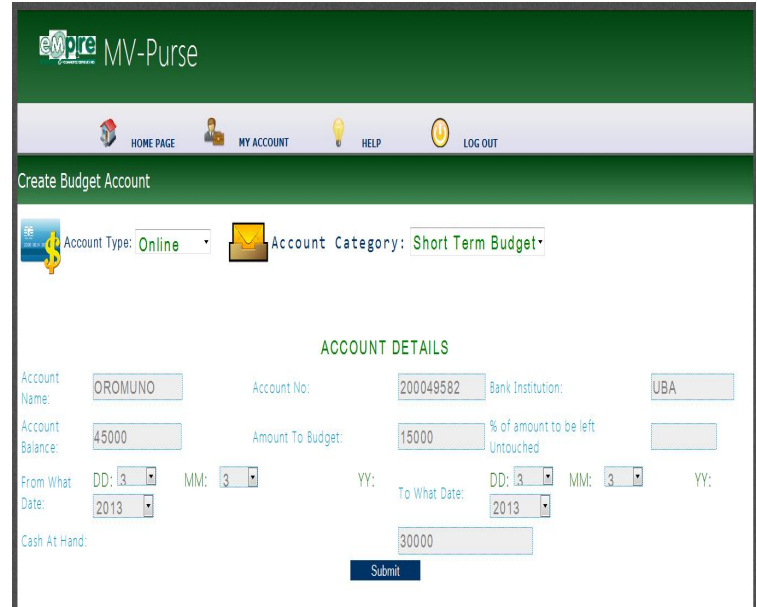


Figure.6 Add New Budget Account

**Pick Budget Account Page**

Figure 7 contains a grid-view that displays the budgeting account that has been created. The folder in that grid view is to open that budget to either add income to it or draw up an expense list for that budget.

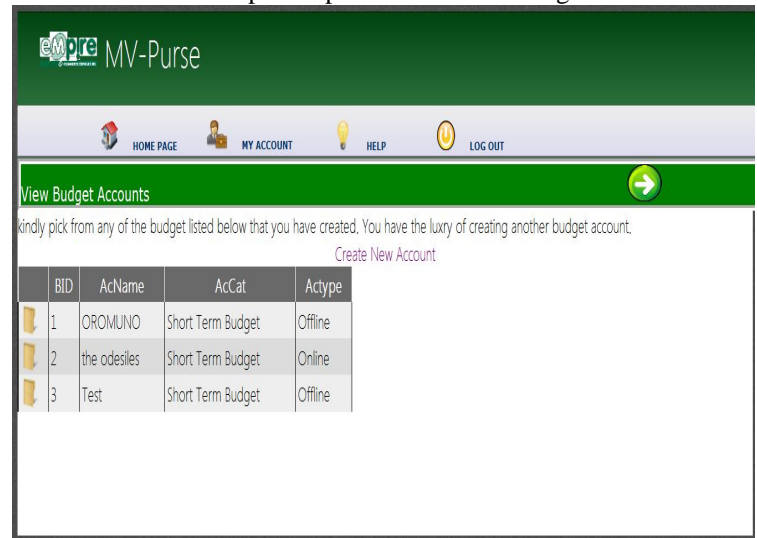


Figure.7 Pick Budget Account Page

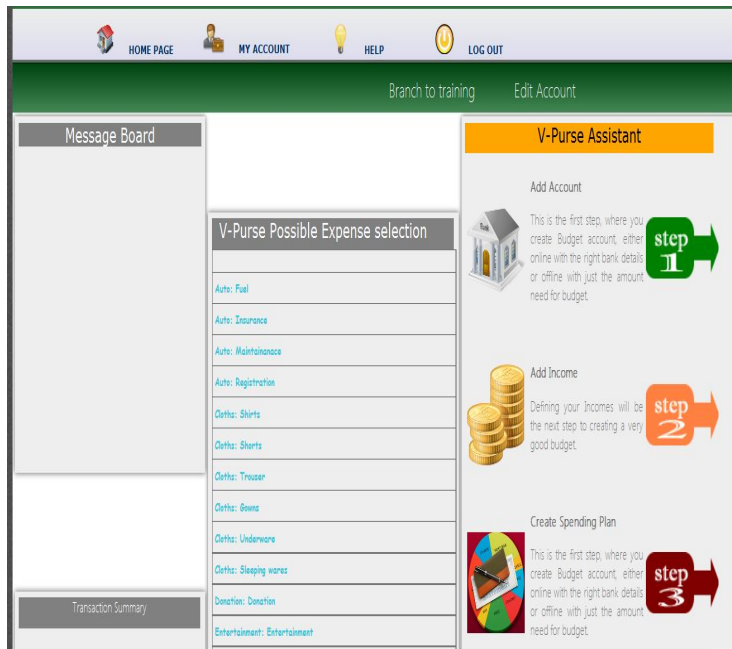


Figure.5 Homepage

The home page in figure 5 gives the users access to all the available transactions such as add account, add income, create spending plan et cetera.

**Add New Budget Account**

Figure 6 shows where the user gets to create the budget account without which he/ she cannot create a budget. On this page is the combo box for online type contains just two values, online or offline, where online was chosen. We also have the combo box labeled account category, which also contains two values,

**Advice Page**

Figure 8 give detailed analyses on expenses made. Telling the user if the amount assigned to an item is too large or too small relative to the amount available for budgeting and the priority assigned to each budget.

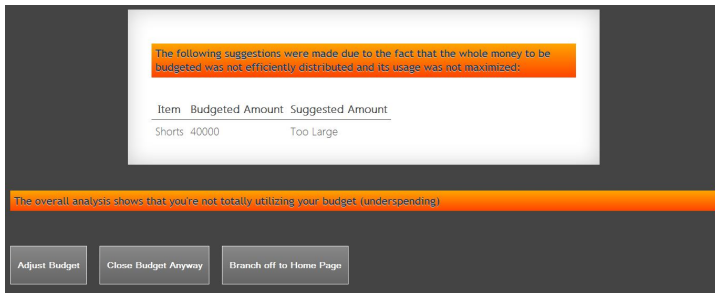


Figure.8 Advice Page

## 4. SUMMARY, CONCLUSION AND RECOMMENDATIONS

### 4.1 Summary

MV-Purse Family Budgeting application is very convenient to use, particularly for creating the Budget Plan and Tracking user Proposed Budget. The development of MV-Purse Family Budgeting Applications has helped to eliminate complications in budgeting and has increased the will for users to save and live a debt-free life as much as possible.

### 4.2 Conclusion

In conclusion, by introducing a new system that can be used by all interested persons, as budgeting is a necessary step before actual expenses. On successful implementation of the new system, it is our belief that users will do better in budgeting and there will be a transition in standard of living from poor to average and the average to the rich.

### 4.3 Recommendations

The system is subject to improvement. It is meant for any family that wants a secured application that can be trusted with their bank figures, and bring the analyses of the budget drawn to the most understandable terms possible. Also, tracking can be made as easy as possible. Finally, we recommend that the research work can be further improved such that mobile users would be able to lay hands on them anywhere.

## REFERENCES

- [1.] T. Crunch.: "Everything You Wanted To Know About Startup Building But Were Afraid To Ask". October, 2009
- [2] "Mint.com Now Tracks Cash and Pending Transactions". <http://Mint.com>. Retrieved, Feb 3<sup>rd</sup>, 2013;
- [3] Bureau of Labor Statistics, (1997): "Comparisons of compensation and prices,": *Report on the American Workforce*
- [4] California Department of Defense (Nov, 2009): [www.dof.ca.gov/fisa/bag/history.htm](http://www.dof.ca.gov/fisa/bag/history.htm): Retrieved 5<sup>th</sup> of October, 2012
- [5] C. Denise. "RE: Framing; Securing Very Important Data: Your Own". October, 2007
- [6] Citro and Michael and, Bernard M. S. Van Praag and Nico L. Van der Sar, (Spring 1988, 193–210.): *Measuring Poverty*; also "Household Cost Functions and Equivalence Scales," *Journal of Human Resources*
- [7] D. Betson "Is Everything Relative? The Role of Equivalence Scales in Poverty Measurement," University of Notre Dame; and K. Short, Thesia Garner, David Johnson, and Pat Doyle, *Experimental Poverty Measures, 1990–1997*, P60–205 U.S. Department of Commerce, Bureau of the Census, 1999.
- [8] D. Adena. "Mint's A Personal Finance After-Banking Treat". GigaOM. September 19, 2007
- [9] Ellis, Blake. "Yodlee no longer powers Mint.com's data aggregation tools". December, 2010
- [10] Foster, "Absolute Versus Relative Poverty," *American Economic Review*, pp. 335–41.
- [11] Gordon Fisher, "Is There Such a Thing as an Absolute Poverty Line Over Time? Evidence from the United States, Britain, Canada, and Australia on the Income Elasticity of the Poverty Line" Poverty Measurement Working paper, U.S. Bureau of the Census, Monthly Labor Review May 2001 451995.
- [12] M. F. Kokoski, P. Cardiff, and B. Moulton, "Rice Indices for Consumer -Goods and Services: An Hedonic Approach Using CPI Data," Working paper 256 Bureau of Labor Statistics, 1994.
- [13] Pear Budgeting application (2008), <https://www.pearbudget.com/> visited 26<sup>th</sup> of September, 2012
- [14] P. Saunders "Household Budgets and Income Distribution Over the Longer-term: Evidence for Australia": paper presented at the 25<sup>th</sup> General Conference of The International Association for Research on Income and Wealth, August 1998.
- [15] Pocketsmith Application (2011), <https://my.pocketsmith.com/r/EngagedMarriage>, visited 26<sup>th</sup> of September, 2012
- [16] Department of Commerce, Bureau of the Census, "Poverty Lines in the United States from 1904 to 1965": Poverty Measurement Working paper and "Poverty Lines and Measures of Income Inadequacy in the United States since 1870," paper presented at the meeting of the Social Science History Association, October 1997.
- [17] Quicken Budgeting Application <http://www.amazon.com/gp/product>, visited October, 2012
- [18] J. K. Stewart and B. S. Reed "CPI research series using current methods, 1978–98": *Monthly Labor Review*, (June 1999), pp. 29–38.
- [19] S. Malpezzi "Remarks on Geographic Variation in Housing Prices and the Measurement of Poverty" presented to a conference "Poverty: Improving the Definition after Thirty Years," April, 1999
- [20] T. Corbett, "Poverty: Improving the Measure after Thirty Years, A Conference": *Focus* (Spring 1999);
- [21] G. Burtless, "The Political Consequences of a New Poverty Measure," presented to a conference "Poverty: Improving the Definition after Thirty Years,"