DESIGN AND IMPLEMENTATION OF AN ONLINE BANKING SYSTEM

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BEING A PROJECT WORK SUBMITTED TO THE DEPARTMENT OF COMPUTER SCIENCE, SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY, AUCHI POLYTECHNIC, AUCHI, EDO STATE.

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CERTIFICATION

We, the undersigned, certify that this project work was carried out by AGORODI **AZIBALABHAMANOMU JARED JOSEPH** with **Mat No: ICT/525180168** and **OFUDJE HARIS OKIEMUTE** with **Mat. No. ICT/525180009** of the Department of Computer Science.

We also certify that the work is adequate in scope and quality in partial Fulfillment of the requirements for the award of National Diploma (ND) in Computer Science.

_____ _____

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Project Supervisor

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Head, Department of Computer Science

DEDICATION

This project is dedicated to God Almighty for His provisions, protections of our lives.

ACKNOWLEDGEMENT

Our profound gratitude to Almighty God who made all things possible and kept us alive to see the completion of this work.

Our Special thanks goes to our amiable supervisor Mrs. Campbell P.I. and our H.O.D. Mr. Akhetuamen, S.O. whose help, stimulating suggestions and encouragement helped us in the course of this project report writing. Thanks may God bless you all. Amen

Lastly, we would like to express our gratitude and appreciation to our parents for their moral and financial support and those who gave us the possibility to complete this project report.

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ABSTRACT

The banking system has improved the way that commence is carried out by way of monetary transfer and deposit. However, the queues at the banking hall have made it stressful and labor intensive. Going to the bank premises may take a long time. This research entitled online banking system is designed to resolve these issues creating a more convenient way for transactions to be carried out without the stress of manual transfer. The design was made using the object oriented system design and implemented using PHP and MySQL database server. The system is required to be ran on the internet as this would enable users far apart to send money to each other. The system was tested and proves to be efficient in its functionality.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

The developments in the information technology make the changes of the banking sector in the international competition environment necessary indeed (Sohail and Shanmugham, 2013). Electronic banking provides an important competitive advantage to the banks in terms of time, location and cost. Recently, it is concentrated on the advance technologies that are the source of the electronic banking in the interbank competition. Internet banking is the most important in electronic banking. (Calt et al, 2017) In the financial services sector where the new technologies have been easily and rapidly applied, when the computers that have previously used in the inter-office banking processes started in the automation of the banking services, internet banking have been rapidly developed particularly since 1990. In the first years when the internet banking provided in the first service, the concern of the consumers about the security of the system, the highest cost of having individual computers and costs that have been charged on the bank to provide such kind of services have delayed the dissemination of the internet bank (Barisk and Temel 2017). When approaching to 2000s, the banking sector that closely monitors the new technologic developments has directed to the applications where the customer oriented, speed, time and

cost advantage are highly considered due to the fact that competitive marketing structure has strengthened the profit rates. (Ileri, 2011).

1.2 STATEMENT OF THE PROBLEM

This project work highlights the problems of the traditional method of banking which includes:

i. In banking industries today, queuing has become the order of the day, customers line-up for hours waiting to withdraw or deposit money. This creates a lot of problem to customers as they waste their useful time in the banking hall.

ii. The management also wastes their time as they run around to find solution to those problems.

iii. Also it is observed that customers cannot withdraw money any time they want as banks has their working hours. This is a big problem as needs can arise at any time and human beings will always like to have those needs solved.

iv. Also money deposited into accounts at times takes some hours to reflect in the persons account balance hence making banking operations slow and unhealthy for business growth.

1.3 AIM AND OBJECTIVES OF THE STUDY

The aim of this project is to design and implement an online banking system. This design would achieve the following objectives:

- To improve in the speed, effectiveness, efficiency and convenience in business transaction.
- To design a friendly website that graphically advertises goods and services provided by the institute on web pages.
- To provide an online banking database using MySQL database.
- To interface the client and server side in a cost effective and efficient manner.
- To design an interface that could be used to input transactions details for customer, and the bank staff information, able to store them in the database for further use and investigations of any bank transactions.

1.4 SIGNIFICANCE OF THE STUDY

The significance of this study is to proffer a more robust banking system that can withstand all its customers' needs, easier for staff to use and makes best use of the bank's resources. This will greatly improve businesses in Nigeria.

1.5 SCOPE OF THE STUDY

This project examines the current system with a view to improve the existing system using UBA PLC as its case study. It runs through examining the previous system in a view to proffer a solution. A new system was designed using object oriented design principles and eventually the new system was implemented using PHP and MySQL technologies.

1.6 LIMITATION OF THE STUDY

Hard time is not a new phenomenon to an ordinary Nigerian but to the student researcher, it is even worse. Time and finance posed a lot of constraints to the work.

Consequently, difficulties were encountered during the collection of primary data. Most of the administrators, system engineers and clerks visited reluctantly refused interview for one reason or the other and being referred to, the organization from one personnel to the other not excluding even security men. Books related to this topic are relatively scarce and could only be gotten from the internet, which took a lot of time and money.

However, with persistence and perseverance reasonable facts were finally obtained.

1.7 DEFINATION OF TERMS

Flowchart: This is a diagrammatic representation of sequence of steps taken to solve a particular problem using limited set of symbols.

Online: The word is synonymous to internet. When software runs online it simply means the software has the capability to be access via the international network.

PHP: It stands for hypertext preprocessor. It is a server-side scripting language used majorly connecting to the database.

E-Banking: A method of banking in which the customer conducts transactions electronically via the internet.

Internet: A global computer network providing a variety of information and communication facilities, consisting of interconnected networks using standardized communication protocols.

WAMP: It is an acronym for Windows/Apache/MySQL/PHP. It is a set of free (open source) applications, combined with Microsoft Windows, which are commonly used in Web server environment.

ICT: It stands for Information and Communication Technologies. It refers to technologies that provide access to information through telecommunications. This includes the internet, wireless networks, cell phones and other communication mediums.

DATABASE: A database is a collection of information that is organized so that it can be easily accessed, managed and updated. Data is organized into rows, columns and tables, and it is indexed to make it easier to find relevant information.

COMMERCE: is the conduct of trade among economic agents. Generally, commerce refers to the exchange of goods, services or something of value, between businesses or entities.

CHAPTER TWO

LITERATURE REVIEW

2.1 CONCEPT OF ELECTRONIC BANKING

Anyanwuocha (2014) defined bank as a financial institution that provides banking and other financial services. Bank is generally understood as an institution that holds a banking license. The banking license is granted by financial supervisor authorities to conduct the most fundamental banking services such as accepting deposits and making loans available to their numerous customers. E-banking is a kind of banking that involves electronic form of money transaction. Here banking services are fully automated such that transactions are concluded in a jiffy. It involves the use of computer network in dispensing cash and transfers of fund. The primary objectives are to replace intensive labour operation and thus help reduce the waiting time of customers. For now in Nigeria, e-banking is limited to the automated teller machine and electronic funds transfer. It also includes electronic devices such as SQL and MICR. The emergence of e-banking products brings to an end the era of mechanical and laborious banking. E-banking means not only electronic production, like, for instance, opening a letter of credit, but also the customer requests the services by electronic means and that the bank supplies it the very same way. In banking operations, technical change encompasses the marketing and distribution function in addition to

production. Having defined e-banking, we now in the next section consider various e-banking products existing within and outside the Nigerian's Financial System. Like many other sectors, banking has been suffering changes due to development and improvements in ICT (Onodugo, 2015), which has been a useful tool to follow market demands and practices. This development of new technologies has been causing a huge impact on organizations in terms of management and control, marketing and research, operations and decision making (Onodugo, 2015). Banking technology is not a new topic. It has been a constant presence in the literature since the late 1980s and early 1990s. E-banking can be defined as a set of activities conducted from home instead of a physical bank location (Obiri et al, 2013). It is an "umbrella term for the process by which a customer may perform banking transactions electronically without visiting a bricks-andmortar institution. E-banking can be also referred to as online banking, cyber banking, virtual banking and net banking (Obiri et al, 2013). Moreover, there are three types of e-banking: internet banking, phone banking and mobile banking, that differ in terms of distribution channel, internet, phone and mobile phone, respectively.

According to Onodugo (2015), e-banking is not something totally new. It started some time ago in the form of ATMs and telephone transactions. This first generation of solutions typically only allowed customers to view their statements online, conduct transfers between accounts and pay bills (Obiri et

al, 2013). Nowadays, the amount of operations that can be carried out using e-banking services is far greater. Customers can use e-banking to: pay utility bills and insurance premiums; fund transferences; consult current account and savings balances; carryout mortgage payments; options subscriptions; book orders online; book flights and railway tickets; and, purchase products online.

2.2 ADVANTAGES OF ELECTRONIC BANKING

The transition to e-banking, as opined in Chemtai (2016) offers major opportunities in terms of competitive advantage. Specifically, it provides banks with the opportunity to develop a stronger and more durable business relationship with their customers. For instance, it makes access to finance from banks attractive with funds appearing to be much more available (Salehi and Alipour, 2010), and customers are given the opportunity to conduct banking transactions with great peace of mind and at their convenience (Offei and Nuamah-Gyambrah, 2016). Before the introduction of e-banking, transactions took a lot of time to execute and this was tiring. Now, services are rendered quicker with transactions much more accurate hereby saving time, as well as reducing human errors and clerical overhead cost. Some other benefits derived from e-banking are increased customer satisfaction, expanded product offerings and extended geographic reach. These have helped to attract more customers since the level of satisfaction is high and also helped to conserve the energy of employees therefore giving

them the opportunity to put in their best into the roles they have to play in the bank. The advantages of e-banking can thus be summarized into increased bank development (Chemtai, 2016), increased comfort and timesaving, quick and continuous access to information, better cash management (Salehi and Alipour, 2010) and improved customer experience (Onodugo, 2015).

2.3 DISADVANTAGES OF ELECTRONIC BANKING

It must be noted that, while electronic banking provides many benefits to customers and banks, the cost of its implementation and maintenance is high. Equipment and machines used to aid electronic banking are quite expensive and may not be easily affordable. Fraud is another major downturn; for example credit card fraud, foreign exchange fraud, stolen cheques, etc. Most perpetrators of fraud use their knowledge of information technology to the detriment of others by creating malicious programs that are used to tamper with vital information. As affirm in Kujur and Shah (2015), compared to developed countries, developing countries face many impediments while implementing e-banking initiatives since if not well managed, could aggravate traditional banking risks such as Transaction/Operations risk arising from fraud, processing errors, system disruptions, or other unanticipated events, strategic risk resulting from poor e-banking planning and investment decisions and security risk wherein customers' rights and information are not adequately safeguarded and

provided for. Some other disadvantages of e-banking include unemployment, insufficient skilled personnel with information security expertise, and low level of IT appreciation among customers with over dependence on cash for all types of transactions. In addition, e-banking encourages excessive spending since customers can easily make payments any time and place and also have access to cash even on non-working days via the ATMs, (Karjaluoto et al., 2019).

2.4 THE DEVELOPMENT OF E-BANKING IN NIGERIA

Banking services development in Nigeria as a side-line to other commercial activities of Elder Dempster Sector. According to available information, the first real bank in Nigeria was the African Banking Corporation founded in 1892. In 1894, Bank of British West African Banking Corporation which called the bank of West African on Nigeria's Independence and later called the Standard Bank of Nigeria Limited and subsequently changed its name to First Bank of Nigeria Ltd now Plc. had complete monopoly of business in the banking industry until the establishment in 1917 of the colonial bank. The Colonial Bank opened branches in Jos, Kano, Lagos and Port Harcourt. In 1952 the bank changed its name to Barclays Bank DCO and is now called Union Bank of Nigeria Plc. Indigenous participation in the Banking Industry started in 1929 with the establishment of the Industrial and Commerce Bank by a group of Nigerian and Ghanaian Entrepreneurs. The Bank failed in 1930 due to

inadequate capital, poor management, hostile and unfair competition from the foreign established banks. Undaunted by the failure of the first attempt at establishing an indigenous bank, another group of entrepreneurs, this time all Nigerians among whom were the late Dr. A. Maja, ChiefT. A. Doherty and Late H. A. Subair established the Nigerian Merchant Bank in 1933. The bank was more successful than its predecessor, but like it, also failed in 1936. Meanwhile the same group of indigenous pioneers in field of banking had established in 1993 the National Bank of Nigerian Limited, which was to make history by being the first indigenous bank to survive though with some few problems to the 1952 Banking Ordinance. The success of National Bank Limited through careful management by the Western Regional Government inspired other Nigerians to go into banking business and in 1945, Chief Okupe established the Agbonmagbe bank. As a private enterprise it thrived. It thus became the fourth indigenous bank to be established. It also survived though it ran into difficulties in 1967, it was saved by the Western Nigerian Development Corporation (WNDC), later IICC and now Odua Investment Corporation who took over its operations and changed its name to Wema Bank Limited. The Nigerian Penny Bank was the fifth indigenous bank to be established but it packed up operations with disastrous consequences to depositors soon after registration in 1946. In 1946, Dr.Azikiwe established the Tinubu Bank to serve the Zik Group of the Companies, which was established in 1941 called Tinubu Properties Ltd.

The name of the bank was changed to the African Continental Bank in 1947 with its first office in Yaba. In 1949, another foreign bank, British and French Bank was established. The bank was re-established in 1961 by a consortium of five foreign banks. Since then it has been known as the United Bank for African (UBA). In order to have further insight into the history and development of the Banking industry in Nigeria, from the establishment of the first in 1892 to date, it will be convenient to drive the period into three distinct eras.(Ibrahim & Daniel, 2019)

2.5 THE CHALLENGES AND LIMITATIONS OF E-BANKING

Automation is very expensive venture more so in Nigeria where infrastructure and support facilities (like dedicated line called "lease lines" from NITEL) are virtually non-existent. It must be remembered that hardware cost represent only a fraction of the overall cost of an automation project. On the other hand potential benefits of automation are usually very subjective and not easily verified. Any recommendation therefore to automate must be very well thought out and the true impact of all expenditures involved in the automation plan must be clearly communicated to users. Management in the feasibility or other report presented for consideration. Automation also involves a lot of expenditures to retailer and customers who want to install personal computers.

The cost consideration must include the following:

- ✓ Hardware -generators, air conditioning, communication equipment
- ✓ Software - operation system and application programs – Stationery
- ✓ Conversion
- ✓ Training - data processing staff, implementation staff and user staff
- ✓ Maintenance of both hardware and software's

And again, there is tendency to dorge the cost of keeping the system riming at all times and in an up to date fashion. Another challenges or limitation to e-banking in Nigeria is the official red-tapism in the banking system of operation. For instance, quite numbers of banks that render on-line-real-time services still maintain anachronistic policies such as not allowing cashiers to dispense across the counter, cash beyond a certain sum. In some banks a cashier cannot honour a cheque that is above S500 or S1, 000 without getting authorization or over-lapping of a supervisor. Consequently, long queues still thrive in such banks, rendering meaningless the computerization effort. Furthermore, banks should be selective in the choice of candidates for ATM because fraud can easily be perpetrated through it. Such restriction is also 46 whatever you feed into the computer is what it rolls out (Garbage in, Garbage out) Though some errors are inadvertent, there are cases of

wrong programming by operators with the intent to defraud. This again leads to the legal implications of electronic form of banking. Although customers are warned on the need to keep safe their ATM card and personal identification numbers, this is likely to be abused in future. .(Ibrahim & Daniel, 2019)

What therefore is the bank's legal position when a customer's account is debited in error and when a fraud is perpetrated on the account using ATM? In the first instance, when a customers' account is debited in error, the bank is at fault and it must take appropriate action to mitigate injuries that could be suffered by the customer. The other hand if a fraud is perpetrated without the knowledge of the customer this may involve the bank in unnecessary and avoidable litigation since such debits are difficult to prove. .(Ibrahim & Daniel, 2019)

2.6 SECURITY OF ELECTRONIC BANKING

Several studies bring out the importance of security in Internet banking. Broderick and Vicharapornpuk (2012) studied the importance of customer role in designing and providing quality service in Internet banking. Guraau (2002) analyzed the state of affairs of online banking and its services. The study also pays attention more towards the virtual banking system.

Karjaluoto, Mattila, and Pento (2012) made an attempt to determine those factors that influence the formation of consumer attitude toward electronic banking. Hutchinson and Warren (2013) studied the financial service of

electronic commerce, Internet Banking and its benefits to the customers. In the study, internet banking security measures and various techniques for privacy of customers' data has been discussed. Rotchanakitumnuai and Speece (2013) in their research work found that corporate customers do not accept electronic form of banking, which can assist banks to implement this self-service technology more efficiently in the various banking transactions. Lympero and Chaniotakir (2014) evaluated the allusion of Internet – banking technology and the existence of different distinct factors which affect the market. Li and Worington (2014) in their working paper described linkage between internet banking and electronic activities in the business and industrial events.

Pikkarainen, Karjaluoto, and Pahnila, (2014) highlighted that electronic banking know-how had created newer usages of banking especially via online banking direct methodology. The authors adopted technology approval model to control the online environment. Singh (2014) in his study examined the collision of online banking and internet banking trends. The study also concentrated on the latest banking technology products and services for the economic growth. Gupta (2016) in his study analyzed the potential of Internet banking and found that its capability to reach each and every cranny and gap of the world holds great significance for a realm like India. Flavián, Guinalíu, and Torres (2016) explored how customers' sensitivity of conventional bank guided them to take up the

services of the internet. The researchers found that if the customer trusted the traditional bank then it was feasible that they feel more forced to use the online services offered by the same bank. Lichtenstein and Williamson (2016) explained the factors that influence the consumer decision, to choose internet banking services in the Australian context. Ndubisi and Sinti (2016) discussed the impact of internet banking on customers' stance, their needs and activities. The intent of the study was to see the internet banking adoption in Malaysia.

Abu-Shanab and Pearson (2017) investigated the key determinants of the adoption of internet banking in Jordan. Kamakodi and Khan (2018) found an exemplar shift in the Indian banking services in about 15 years since the Indian banking sector was liberalized. Uppal (2018) described that the Post – LPG (liberalization, privatization and globalization) era and information technology (IT) era, revolutionalized the face of Indian banking, as banks are stepping towards e-banking from traditional banking. Lifen, Zhao, Koenig‐Lewis, Hanmer‐Lloyd, and Ward (2010) in their study explained the roles of reliance and perceived the risk on client's/customer's usage purpose.

Khare (2010) in his study described the importance of technology in civilizing customer service levels in being used deliberately and progressively more by service organizations. There are substantial amount of studies conducted at the Indian level and international level but, very few

works have focused on the Internet banking, its usage, safety measures and its perceptions, attentiveness level, satisfaction levels, attitudes and behavior of the internet banking, security issues, and financial frauds Additionally, studies relating to the Internet banking security specifically in the Southern Region of Tamil Nadu are extremely limited.

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

3.1 ANALYSIS OF THE EXISTING SYSTEM

System analysis involves a detailed and comprehensive study of the current system leading to a new specification of a new system. The purpose of the fact-finding is to understand the existing system and to identify the basic information requirement.

In this system mostly the work was done manually and each customer has to pay a visit to his concerned bank branch to get any bank service. It is also called traditional banking system. It is a process for convening the information of the customers by the banking staff with handwriting but not through computerized system. Opening an account, debit credit, withdrawal of amount, transactions and other utility bills are made in ledgers through hand-written without any automated system.

For an account opening and issuing of bank statement before computerized system bank staff had to do this process. A customer had to fill a form for opening an account and necessary payment were made to the bank cashier who gave the payment slip to the customer. After getting the payment receipt, customer had to go to the another staff for verification and

entering his information in the ledger book. Customer received a cheque book and a pass book along with account number after book keeping his information. Whenever he wanted to deposit or withdraw his money he had to go to the branch and wait for his turn in a long queue and gave the cheque to the bank officer and got a token. The cheque was verified and sends to the desk of cashier for giving the cash to the concerned customer having the same other relevant token. The cashier announced the token number of that cheque and gave the cash to the customer.

It was very complicated and time consuming process through which every customer has to adopt for services. For customers account statement a customer has to apply through an application along with his/her identification. The statement issuance staff gave his/her time of one or two days for collection of the statement. Then bank staff prepared statement of account based on the information in the ledger book and make the statement

3.1.1 DISADVANTAGES OF THE EXISTING SYSTEM

There may be a lot of problems due to the manual or traditional banking system which can be overcome with the help of computerized systems. Some most common problems are as under:

i. Time is money and manual system takes a long time for the processing of customer's accounts information.

ii. Customers have to come to the concerned bank branch for any help related to banking services.

iii. Customers have to wait in long queues to get their turn.

iv. Too much human error.

v. Boring and uncompetitive system

vi. Cost of labor is increased

vii. It is difficult to keep the backup of all the ledgers in case of any mishap like fire incident.

3.2 JUSTIFICATION FOR THE NEW SYSTEM

i. The e-banking services open seven days a week and 24 hours a day.

ii. To decrease the cost-line and no need of physical bank branches

iii. To create more deep collection for consumer's needs and expectations.

iv. Terms of services to customers for their personal choices.

v. Easy access for all.

vi. With the e-banking money can easily be gotten in no time from ATM machine.

3.3 DATA COLLECTION AND SYSTEM METHODOLOGY

The following research methods were used for study:

1. Interview

Interviews were used to obtain detailed information from bank officials especially the bank tellers at the banking hall on the how the system works currently. The interviews were not only used to answer the research questions under study but also to obtain ideas from the personnel been interviewed about how the existing system could be improved.

2. Literature Search And Content Analysis

Constant analysis involved examining information and /or content from various sources. Extra information on this project was gotten from the banks website. This information is incorporated into the new system design.

3 Observation

Observations were made during one of those visits to the banking hall while carrying out various interviews.

3.4 ADVANTAGES OF THE NEW SYSTEM

Online banking is very suitable and convenient. It allows people to pay their bills and make transactions during any time of the day and in the week. E-banking system never closes any time because people can access it

through internet. There will be no matter in which country you are or anywhere in the world. Customers can make online transaction and handle your finances with conveniently.

Secondly, e-banking services are very rapid, effective, enhanced and efficient. E-banking system also gives the option of transaction making in the different bank accounts from a website.

3.5 PROPOSED SYSTEM DESIGN

In the proposed system we are concentrating the problems whatever a client faced with existing manual system. By introducing online banking management system, the client provides faster services to the customer. The transaction service, report generation services and every service is available at no delay. This project is an attempt to make the task of administrator as well as customer easier. The administrator has the right to know everything. He/she has the right to know the account details of the users and bank reports. The development of the new system contains the following activities which try to automate the entire process keeping in view of the database integration approach. The administrators have great accessibility in collecting the consistent information that is very much necessary for the system to exist and coordinate.

i. The system can provide information related to the different types of accounts that are existed within the bank.

ii. The system can provide the bank administration with information on the number of customers who are existence in the system.

iii. The system at any point of time can provide the information related to executed transactions by the customer.

iv. The system with respect to the necessities can identify all the history details of the trial participants along with their outcome of the results.

3.6 INPUT DESIGN

This procedure collects all the personal information like name, date of birth, address, phone number, e-mail, verifying person, initial amount to be deposited from the user and provides unique identification number and account no. Usually which user can make transaction after accepting only identification number and account number. It saves the information given by the user in our maintained database through file system support.

The program designed involved some input forms in order to achieve or derived some required outputs. These forms relates to customers account opening and transactions. The forms designed in this system are expected to be used to capture program inputs. The forms included:

1. Account opening form Know Your Customer (KYC)

2. Deposit/withdrawal form

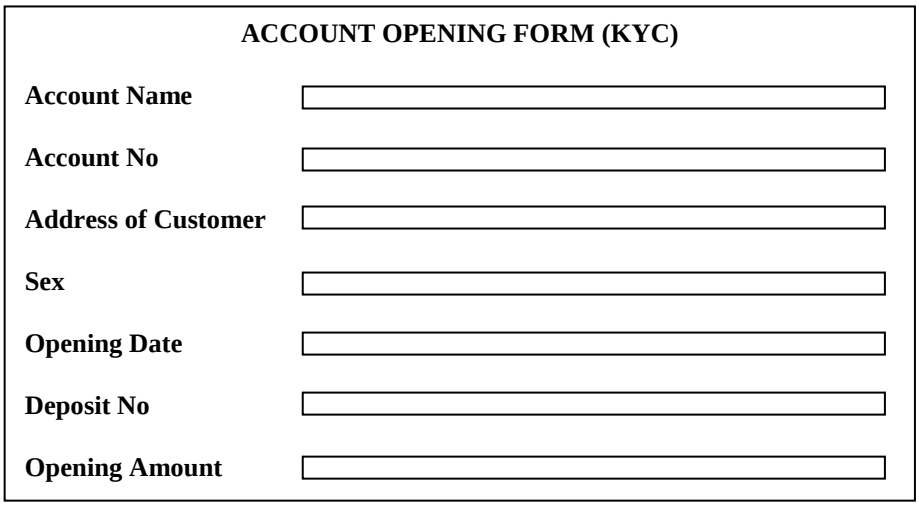


Fig 3.1: Account Opening Form

3.7 OUTPUT SPECIFICATION AND DESIGN

Output from the system is in the form of document, majority of the outputs carries information relating to bank transaction operations, account statements, etc. the outputs are presented in a text format and some of the information is retrieved from the database. Some of the reports produced are:

i. Statement of Account

ii. Account Holders in the Bank:

iii. Account Balance

3.8 DATABASE FILE DESIGN

MySQL database was used in storing the information used in this project. The database was integrated into the system that the program access and update the files. In the course of the design, five tables were created in the database. The master files account table, available cash table, account type table, transaction table and user table.

i. Master Table

Field Name	**Type**	**Size**
Account No	Varchar	20
Name	Varchar	50
Address	Varchar	100
Sex	Varchar	6
Date of Birth	Date	
Date	Date	
Amount	Number	200
Account type	Varchar	10
Password	Varchar	60

ii. Transaction table

Field Name	**Type**	**Size**
Account No	Varchar	20
Date	Date	
Deposit	Number	100
Withdrawal	Number	100
Balance	Number	100
Teller	Varchar	12

iii. Available Cash Table:

Field Name	Type	Size
Amount	Number	100
Name	Varchar	50

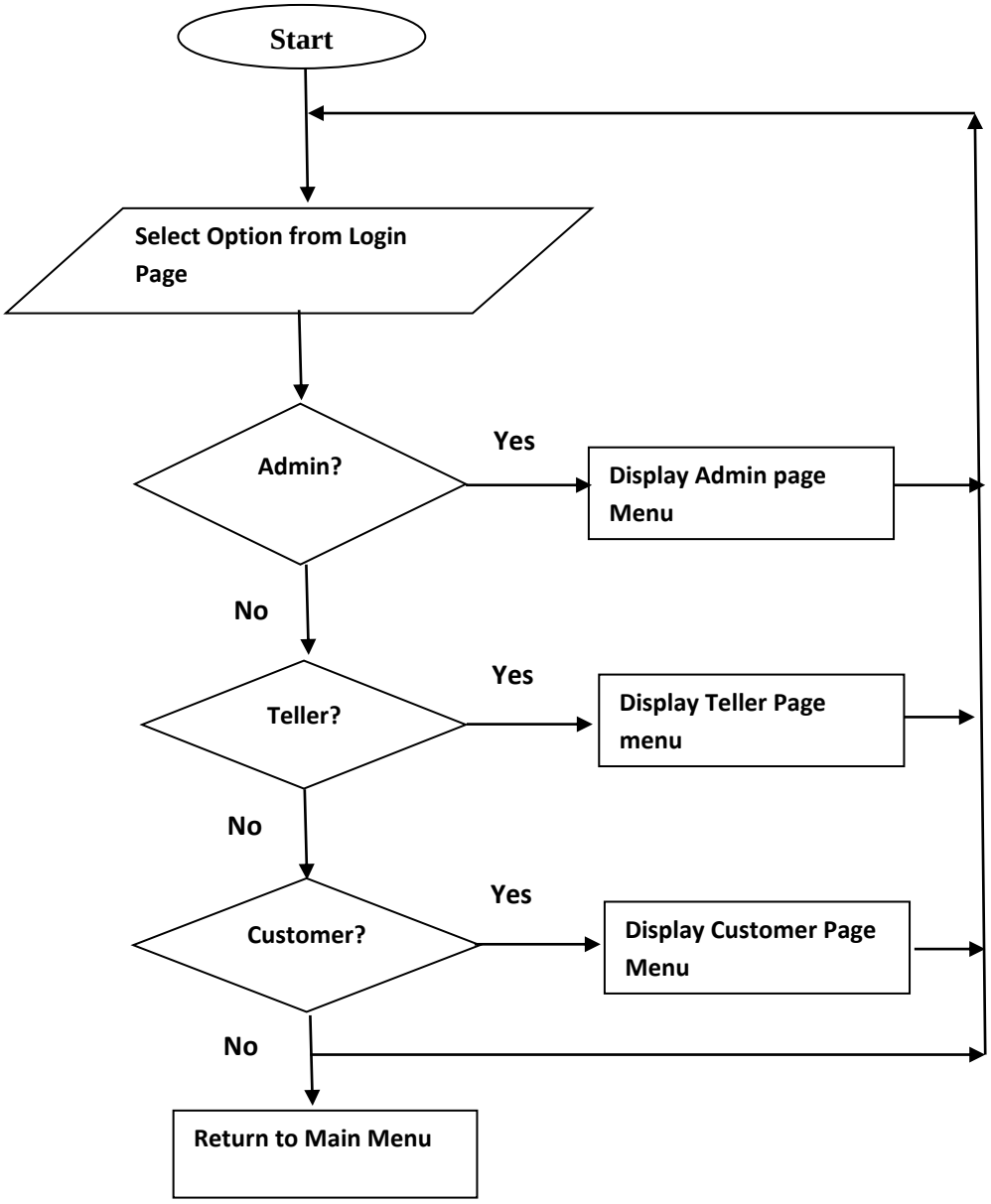
iv. Account Type Table:

Field Name	Type	Size
Id	Number	20
Account Type	Varchar	12

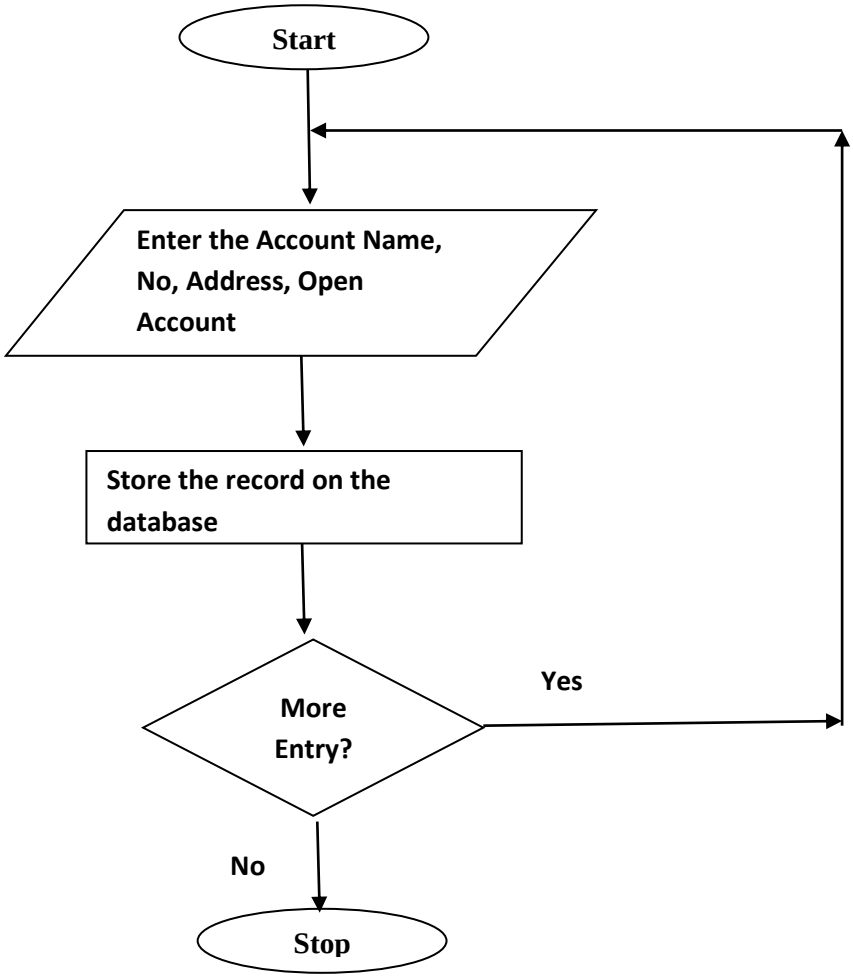
v. User Table:

Field Name	Type	Size
Name	Varchar	20
Username	Date	
Password	Number	100
Last Login	Number	100

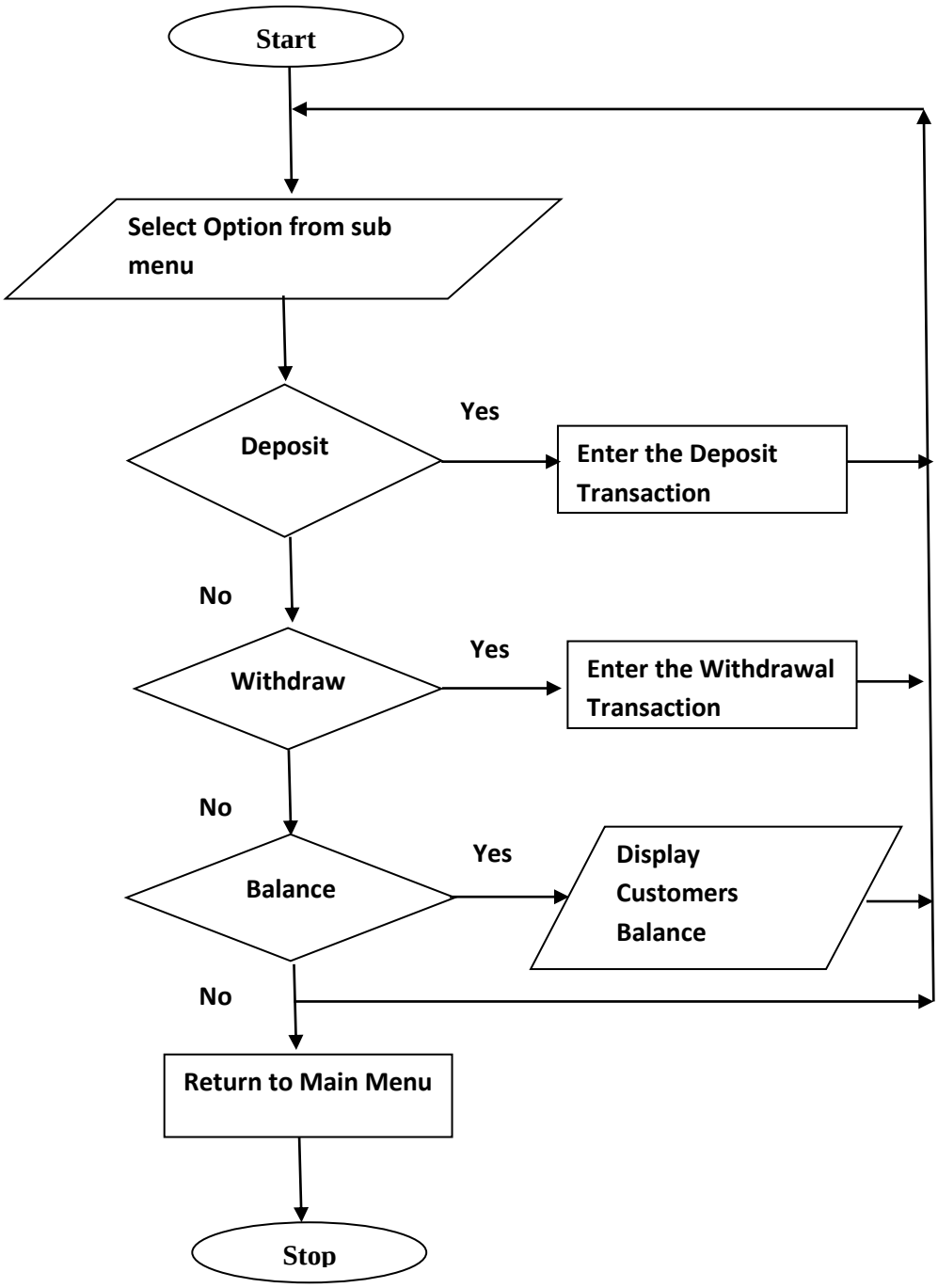
4.7 PROGRAM FLOWCHARTS OF THE BANKING SYSTEM



3.1 Program Flowchart



3.2 Account Opening Flowchart


Start
Select Option from sub menu
Deposit
Yes
Enter the Deposit Transaction
No
Withdraw
Yes
Enter the Withdrawal Transaction
No
Balance
Yes
Display Customers Balance
No
Return to Main Menu
Stop

3.3 Bank Transaction Flowchart

CHAPTER FOUR

SYSTEM IMPLEMENTATION AND TESTING

4.1 CHOICE OF PROGRAMMING LANGUAGE USED

After the analysis of this entire Software System, I chose to work with Adobe CS5 Dreamweaver and MySQL database as our development tools. The choice of Adobe CS5 was due to the fact that it is a development platform that helps in creating web applications at a very fast speed. It is a high level programming language that provides a very user friendly environment to write managed applications and involves less coding.

Our choice of MySQL database is due to the fact that it can be used to set up a query which, when applied to a database typically returns a set of records that matches your SQL (Structured Query Language) query. It is also used to handle large databases

4.2 SYSTEM REQUIREMENT

In order to realize this project, the following software and hardware components were used

4.2.1 Hardware Requirement

In the cause of the design, the software developed needed the following hardware for an effective and efficient operation of the new system Intel Computer System

1. At least 512 MB RAM

2. At least 40gb hard disk

3. Colored Monitor

4. An uninterruptible power supply (UPS)

5. Printer

4.2.2 Software Requirement

The software requirement includes:

1. A window 98 or higher version for faster processing

2. WAMP Server

3. Web Browser

4.3 THE TEST PLAN

The test plan used in this project was to test the modules, the subsystems and then the entire system. The testing was done in two parts: unit testing and integration and final testing.

4.3.1 Test Data, Expected versus Actual Test Result

At subsystem level testing, each subsystem was taken as the test data while at module level testing; each module was taken as the test data. The entire system was also taken as the test data during the system testing. During this testing, the expected result was noted, which was compared with the actual result that came up. These step by step processes were taken in all the stages of the testing process and are hereby presented in the following tables.

4.3.2 Testing the database

The database was tested by supplying sample data to each of the database tables and then verifying that the data supplied is reflected in the database.

4.4 TRAINING OF STAFF

Training of staffs is inevitable. It involves educating the staff that would use the new system. However, standard software should be simple and easily understandable. Although the staff involved has to know the basic operation of the software. The following are available to staff in order to get acquainted with the working of the software.

i. A hard copy produced for tutorial.

ii. Organizing a class for the staff that are already computer literate as well as those that are not with additional curriculum.

4.5 CHANGE-OVER PROCEDURE

After the users are trained about the computerized system, working has to shift from manual system to the computerized. The following two strategies can be followed for running the system. These strategies are deemed fit because they do not immediately abandon the previous working system but enable them to run side by side so as to determine the effectiveness of the new system and in the case of modifications in the design.

1. Parallel Run: In such run for a certain defined period both systems i.e., computerized and manual are executed in parallel. This strategy is helpful because of the following:

(a) Manual result can be compare with the result of the computerized system.

(b) Failure of the computerized system at the early stage does not affect the working of the organization, because the manual system continues to work as it used to do.

2. Pilot Run: In this type of run the new system is installed in parts. Some part of the new system is installed first and executed successfully for

considerable period of time. When the results are found satisfactory, then any other parts are implemented. This strategy builds the confidence and errors are traced easily.

4.6.2 Recommended Procedure

The pilot run is the recommended method for the implementation of the system. This is a more economical method for the organization can do the conversion for as long a period as it deem fit. This also allows the organization to computerize the organization unit by unit.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

The use of Information Technology in solving man's problems is very common in our day. The banks are not immune to challenges that require the input of technology. This research made a comparison of the traditional banking system against an electronic banking system. It looks at the challenges that the banking are facing using the traditional banking system and proffers an electronic design taking some banking sites. The proposed banking system designed was implemented using web technologies (PHP and MySQL).

5.2 CONCLUSION

Customer satisfaction and customer service delivery are key element for banks to ascertain customer acquisition, retention and increase bank

profitability. New technologies enabled banks to serve and assist customers not only in branches, but anywhere in the world at any time and through any delivery channel a customer cares to select. With the convenience of digital channels, customers are visiting branches less often and they use online and mobile technology for their banking needs more often. Online and mobile banking are growing fast while branch importance decline rapidly. The system designed during this research is adequate and robust to be used by any banking company in Nigeria. The web application can be tailored to any bank so as to have the prime features of the bank like logo, account types, bank addresses, number of branches etc. Although implementing these technologies could be costly for the banks but in the long run would save them the high cost of paying high for human power.

5.3 RECOMMMENDATIONS

In the course of this research a highly robust banking system was designed. However, there are no perfect systems as improvement is required. Hence the following are some recommendations:

1. More research should be made in the area of security in the application as security is very paramount to any banking application due to the activities of hackers.

2. The banks should make provision for electrical power back up as these technologies require constant electrical power supply.

3. The banks staff should be adequately trained to use this technology.

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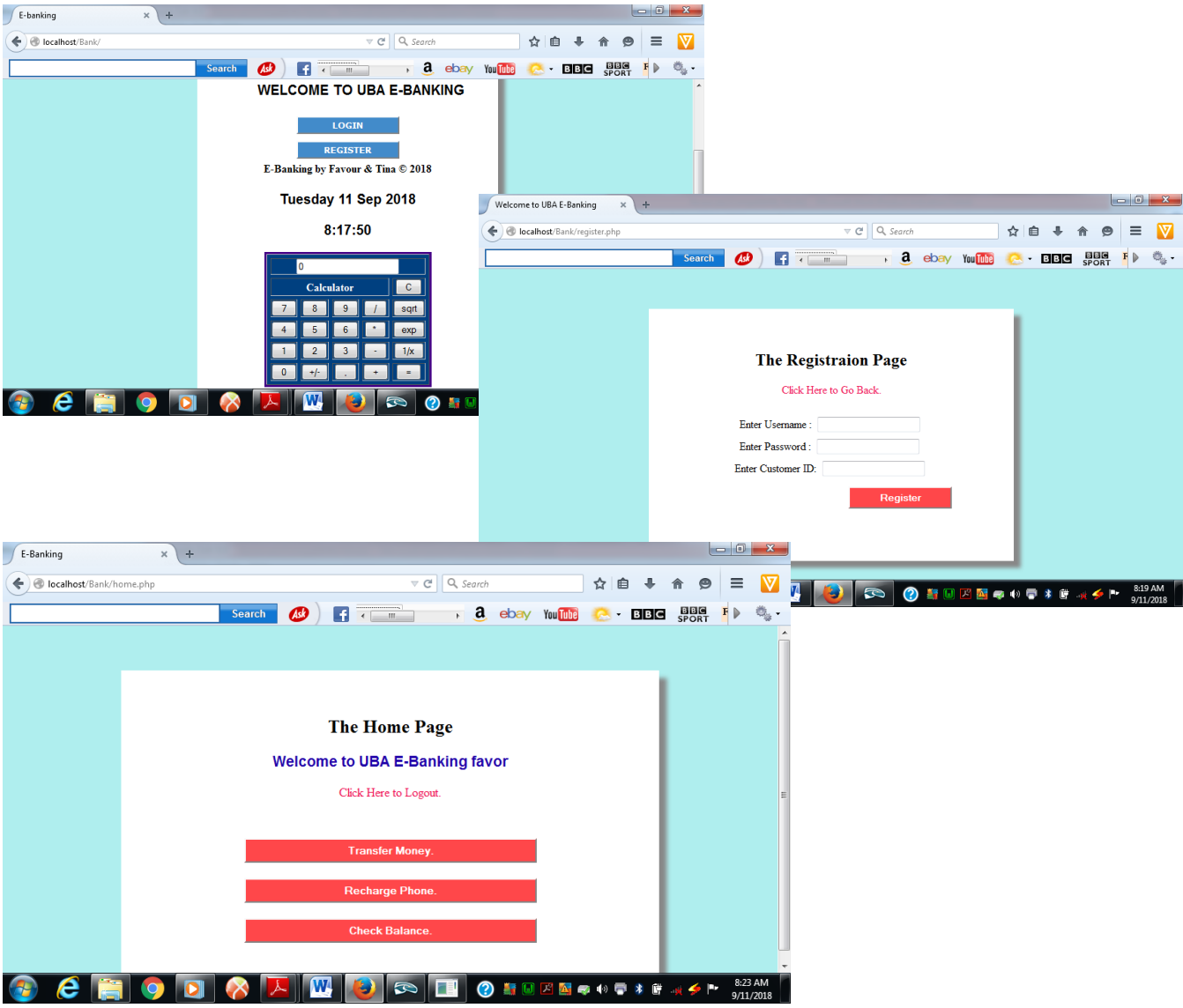
APPENDIX

PROGRAM INTERFACES



SOURCE CODES

```
<html><head><script language='JavaScript' type='text/JavaScript'>//Made Nanzige Mahawuya
first3=24;var fifteenth=0, sixteenth=0, seventeenth=0, eighteenth=0, nineteenth=1, twentieth=0,
first2, second2;second3=first3+6; third3=first3+second3; fourth3=first3+second3+third3;
fifth3=fourth3/third3*first3; sixth3=third3*first3/12*second3; seventh3=first3+second3/fifth3-
16*fourth3; eighth3=sixth3*(first3-5)/third3+fourth3; ninth3=eighth3/seventh3+first3*third3-
fourth3;tenth3=(ninth3+first3/third3*fourth3+second3*fifth3)/sixth3+eighth3-ninth3-
1;eleventh3=Math.floor(tenth3)   ;twelfth3=eleventh3-60;  function third2(value){
document.form1.fourth2.value = value; fifteenth = twelfth3, sixteenth    = twelfth3, seventeenth  =
twelfth3, eighteenth = twelfth3; nineteenth  = 1; twentieth  = twelfth3;}
function fifth2(sixth2){ first2 = 1;
if(seventeenth || nineteenth) {   seventeenth = twelfth3;   nineteenth = twelfth3;   second2 =
sixth2; } {
```

```
if (second2.indexOf(".")!=-1) {      first2=twelfth3;   } }}
function fifteenth3(sixteenth3,seventeenth3){second2 = document.form1.fourth2.value;
if(seventeenth3=='.') {  fifth2('0');
if(first2==1) {     second2 += seventeenth3;    document.form1.fourth2.value = second2;
twentieth = twelfth3;  }}
if(sixteenth3>=twelfth3 && sixteenth3<=9)  {  fifth2('');
if(second2==twelfth3 && first2==1) second2='';  second2 += sixteenth3;
document.form1.fourth2.value = second2;  twentieth = 1;}
if(seventeenth3=='-' || seventeenth3=='+' || seventeenth3=='/' || seventeenth3=='*') {
if(seventeenth) sixteenth = seventeenth3;
else {
if(!eighteenth) {     sixteenth = seventeenth3;     fifteenth = second2;     eighteenth=1;   }
else {     fifteenth = eval(fifteenth + sixteenth + second2);     sixteenth = seventeenth3;
document.form1.fourth2.value = fifteenth;   }   twentieth=twelfth3;   seventeenth = 1; }}
if(seventeenth3=='1/x' ) { fifteenth = eval(1 / second2) ; third2(fifteenth); }
if(seventeenth3=='sqrt') { fifteenth = Math.sqrt(second2); third2(fifteenth); }
if(seventeenth3=='exp' ) { fifteenth = Math.exp(second2) ; third2(fifteenth); }
if(seventeenth3=='+/-')  document.form1.fourth2.value = eval(-second2);
if(seventeenth3=='=' && twentieth && sixteenth!='0') third2(eval(fifteenth + sixteenth + second2));
if (seventeenth3=='C') third2(twelfth3);
if(document.form1.fourth2.value[0] == '.')  document.form1.fourth2.value = '0' +
document.form1.fourth2.value;}
</script>

        <title>E-banking</title>
        <style>
    .container{
        width: 360px;
        padding: 4% 4% 4%;
        margin : auto;
        box-shadow: 10px 10px 5px #888888;
```

```
        background-color: #fff;
        text-align: center;
        position:relative;
        top:50px;
        vertical-align: middle;
}

p{
        font-family: sans-serif;
        font-weight: bold;
        font-size:  20px;
}

button{
        width :150px;
        margin :5px;
        padding:2px;
        font-weight: bold;
        background-color: #428BCA;
        text-align: center;
        color: white;
        font-family: verdana;
        text-decoration: none;
}
button:hover {
  background: #CF4647;
}

body{
        background-color: PaleTurquoise    ;
}
```

```
    </style>
        </head>
        <body>
<div class="container">
<?php  Print "<p><MARQUEE BEHAVIOR=ALTERNATE ><B> WELCOME TO UBA E-
BANKING</B> </marquee></p>";
                ?>
                <button type="button" onclick="location.href='login.php'">LOGIN</button><br/>

                <button type="button"
onclick="location.href='register.php'">REGISTER</button>

                        <center><b>E-Banking by Favour & Tina &copy; <?php echo date("Y");
?></b></center>
        <html>
<head>
  <link rel="stylesheet" type="text/css" href="clock_style.css">
  <script type="text/javascript">
    window.onload = setInterval(clock,1000);

    function clock()
    {
        var d = new Date();

        var date = d.getDate();

        var month = d.getMonth();
        var montharr
=["Jan","Feb","Mar","April","May","June","July","Aug","Sep","Oct","Nov","Dec"];
        month=montharr[month];
```

```
            var year = d.getFullYear();


            var day = d.getDay();
            var dayarr
=["Sunday","Monday","Tuesday","Wednesday","Thursday","Friday","Saturday"];
            day=dayarr[day];


            var hour =d.getHours();
      var min = d.getMinutes();
            var sec = d.getSeconds();


            document.getElementById("date").innerHTML=day+" "+date+" "+month+" "+year;
            document.getElementById("time").innerHTML=hour+":"+min+":"+sec;
    }
  </script>
</head>

<body>
   <h1></h1>
   <p id="date"></p>
   <p id="time"></p>


 <form name='form1'><CENTER><TABLE bgcolor='#430086'><TR><TD><TABLE BORDER=1
cellspacing=5 cellpadding=0 bgcolor='#004080'><TR align=center>         <TD colspan=5>
    <input type='text' name='fourth2' value='0'></TD></TR><TR align=center>       <TD
colspan=4><B><FONT COLOR='#FFFFFF'>Calculator</FONT></B></TD>         <TD >
    <input type='button' name='C' value='  C  ' onclick="fifteenth3(11,'C')"></TD></TR><TR
align=center>    <TD>
    <input type='button' name='7' value='  7  '   onclick="fifteenth3(7 ,'')"></TD>      <TD>
    <input type='button' name='8' value='  8  '   onclick="fifteenth3(8 ,'')"></TD>      <TD>
```

```
    <input type='button' name='9' value='  9  '   onclick="fifteenth3(9 ,'')"></TD>      <TD>
    <input type='button' name='/' value='  /  '   onclick="fifteenth3(11,'/')"></TD>      <TD>
    <input type='button' name='sqrt' value='sqrt' onclick="fifteenth3(11,'sqrt')"></TD></TR><TR
align=center>    <TD>
    <input type='button' name='4' value='  4  ' onclick="fifteenth3(4,'')"></TD>        <TD>
    <input type="button" name="5" value="  5  " onclick="fifteenth3(5,'')"></TD>     <TD><input
type="button" name="6" value="  6  " onclick="fifteenth3(6,'')"></TD>        <TD>
    <input type="button" name="*" value=" *  "  onclick="fifteenth3(11,'*')"></TD>   <TD>
    <input type="button" name="exp" value="exp" onclick="fifteenth3(11,'exp')"></TD></TR><TR
align=center>    <TD>
    <input type="button" name="1" value="  1  "  onclick="fifteenth3(1,'')"></TD>    <TD>
    <input type="button" name="2" value="  2  "  onclick="fifteenth3(2,'')"></TD>    <TD>
    <input type="button" name="3" value="  3  "  onclick="fifteenth3(3,'')"></TD>    <TD>
    <input type="button" name="-" value="  -  "  onclick="fifteenth3(11,'-')"></TD>   <TD>
    <input type="button" name="1/x" value="1/x " onclick="fifteenth3(11,'1/x')"></TD></TR><TR
align=center>    <TD>
    <input type="button" name="0" value="  0  "   onclick="fifteenth3(0,'')"></TD>   <TD>
    <input type="button" name="+/-" value=" +/- " onclick="fifteenth3(11,'+/-')"></TD>        <TD>
    <input type="button" name="." value="  ,  "   onclick="fifteenth3(11,'.')"></TD>  <TD>
    <input type="button" name="+" value="  +  "   onclick="fifteenth3(11,'+')"></TD>          <TD>
    <input type="button" name="=" value="  =  "
onclick="fifteenth3(11,'=')"></TD></TR></TABLE></TD></TR></TABLE>
 </CENTER></form></body></html>      </div>    </body> </html>  <html>  <body> </body>
 </html>
```