

COMPUTERIZATION OF REVENUE COLLECTION BILL

(A CASE STUDY OF NIGER STATE WATER BOARD)

BY

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PGD/MCS/2000/2001/997

A PROJECT SUBMITTED TO THE
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TECHNOLOGY
MINNA, NIGER STATE.

2001

APPROVAL PAGE

This project has been approved by the Department of Math/Computer,
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DEDICATION

This work is dedicated to the Glory of God and to my late daughter
BEULAH NINMA NNANMA TSADO who died in the course of this
program through a fatal motor accident.

ACKNOWLEDGEMENT

In the first place, I wish to express my sincere gratitude to the ALMIGHTY GOD who has given me life and to be alive to undertake up to this level of an academic pursuit. I would have been dead even in the period of this study but He delivered me from a fatal motor accident.

I hereby wish to acknowledge the wisdom of the management of Federal University of Technology Minna, Departmental management of Math/Computer, FUT. Minna for being able to bring about this program.

Inevitably, I must acknowledge the guidance, assistance and criticism that I was subjected to in the course of this work by my supervisor Dr Yomi Ayesimi. He, an academician to the core ensures that this project brings out the best needed from it. I do really appreciate his effort.

To a great extend, I also wish to acknowledge the effort of the management (Engr. Sani Ndanusa-General Manager & Alh. Bello B. Paiko AGM F&S in particular) and the staff of Niger State Water Board who permits me to enroll for this program. They in numerous ways gave me the encouragement from the beginning of the course to the end.

What is more, being a novice in the programming aspect, I wish to appreciate the effort of Mister Hosea Kolo who guide and contributed to

the programming of this project. He has been very helpful and a good guide. The immense contribution of Mallam Yakubu Bawa and his co-operators can not be over-emphasized, their effort in ensuring the production of this work in good time is highly appreciated. I thank you all.

I also wish to acknowledge in sincerity every one who has in one way or the other supported me morally, financially and spiritually during the period of this course. The effort of NSWB and NKC Tunga brethren is highly appreciated.

If there is any other person(s) that deserve more than appreciation, gratitude and acknowledgement, they are my wife-Mrs. Elizabeth K. Tsado, my sons- Emmanuel & Elisha Tsado and all relatives who bear with me during the period of this studies. I do really appreciate your efforts.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Introduction

A computer is a sophisticated electronic machine like the television set which has the capacity to receive, store and process data in unlimited number of ways. To perform the task of receiving, storing and processing of data at instance of request, the average computer requires a good amount of (electronic) memory and processing power or speed.

Words and music are known to be recorded and stored in cassettes and disks for faithful playback at times of convenience. A computer does virtually the same thing but adds much more than just recording (sorting) and playbacks (output) by having the capacity to process (manipulate or alter to taste) its data.

The main objective of this project is to present a detailed study of the present system to enable management take quicker decision with a view to computerizing its activities.

1.2 Historical Background of Niger State Water Board and her Revenue Collection.

The history of water supply in the present Niger State sprang from the former North Western State of Nigeria.

The State Water Board was created via Edict No.6 of 1976. The Board is committed to justify its raison d'être among which are (i) to supply water to every hook and corner of the state (ii) to operate and maintain the existing water works and (iii) to supply water to consumers at reasonable rate.

Water supply is a determinant factor in ensuring a healthy and virile population as well as in the sustenance of the industrial growth of a community. Hence the State Government attaches priority to the field of water supply in the state.

State water supply as at the time of creation began with only 6 (six) major and 5 (five) minor water works but has now grown to 10 (ten)-area offices with seven (7) major water works, Eighteen (18) semi urban and fifty six (56), Rural/Bi-water Stations.

In order to meet with the maintenance system of the Board's operation, it was necessary to fix some water rate charges so as to make the Board minimally dependent on Government for recurrent expenditure.

To further improve the internal revenue base of the Board, effort was increased to enumerate all consumers within the water consuming areas in order to include them in the billing system and more so some commercial organizations were more served with meter rate system.

1.3 Objectives

The objective of this study is to put in place information management system to

- I) ensure convenient and fast record keeping
- II) revision and updating of such records and
- III) retrieval of any relevant information for decision making in terms of more revenue generation/collection of the Board.

The speed and volume of the activities of computer is incomparable with the manual way of recording, hence the issue of time, tediousness and ever demanding labour in compilation of revenue generation data would be reduce to the bearest minimum. The board management can in essence take a further decision on the growth of the board in terms of revenue generation.

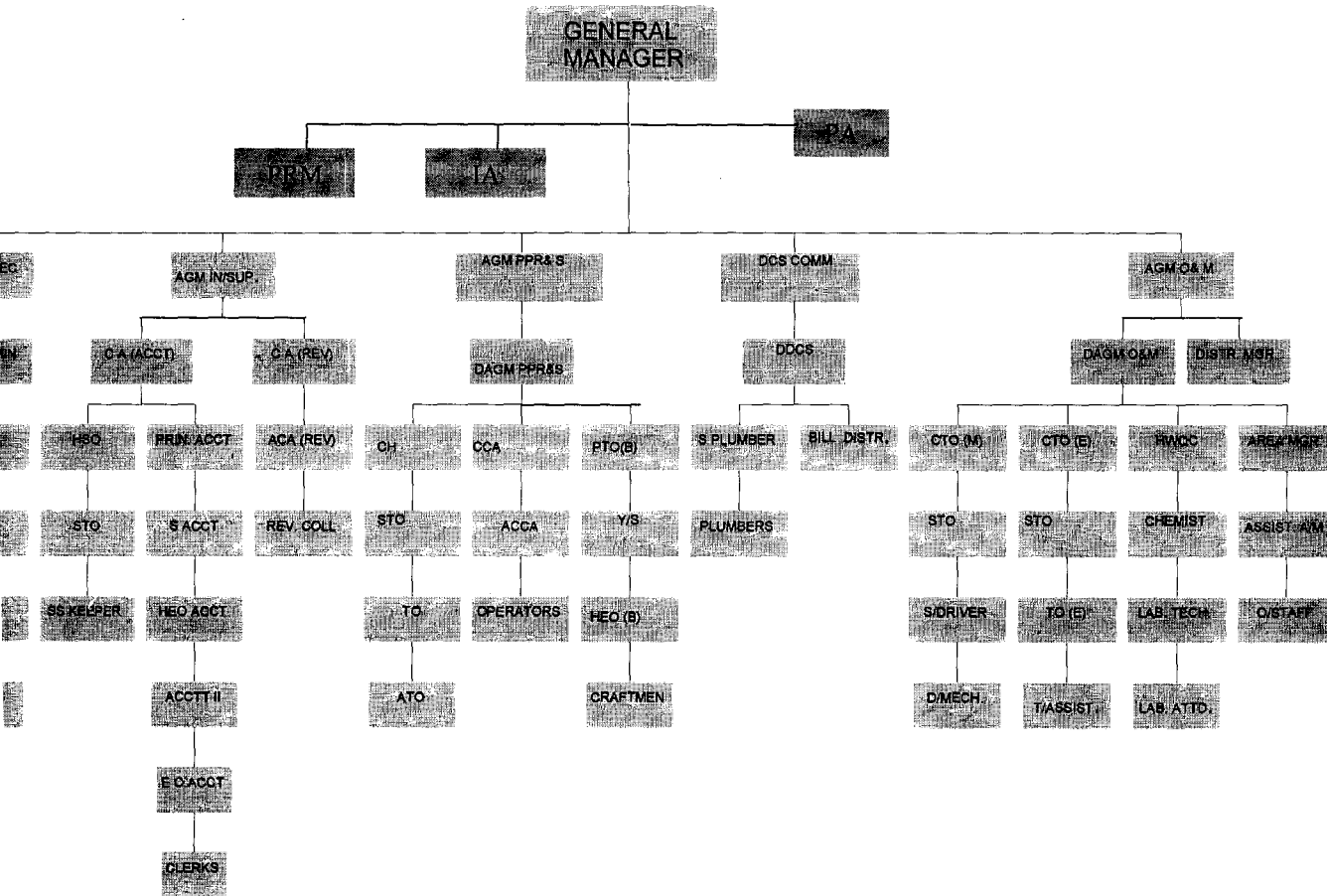
1.4 Methodology

The method of analysis which is based to a large extent on the peripheral theory as well as the dependency syndrome is used in this project to show how effective the computerization of the State Water Board revenue generation is likely to be. As for the computerization of the Board's activities, though computers might be costly to acquire but the anticipated end result (output) of the machines will definitely be a step in the right direction.

Apart from the computerization of the Board's revenue collection, there are other areas where the computer will be put into useful and profitable work..

1.5 Organizational chart of Niger State Water Board.

ORGANISATIONAL CHART OF NIGER STATE WATER BOARD



1.6 SCOPE AND LIMITATION

This study focuses only on Niger State Water Board Revenue Collection comprising of the local Government Areas of the State.

In the course of this study, certain factors posed as impediments, some of which are; -

- i.) Due to haphazard ways of documentation's, data was not available to give detailed information on the history of revenue generation of the Board.
- ii.) As a result (i.) above, it's my believe that much work has not been done on this topic
- iii.) Due to the problem of deadline as to when to finish this work, time does not permit me for detailed/thorough findings.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 COMPUTER AWARENESS & LITERATURE

History has it that manual record keeping techniques had continued to develop through the centuries. Computers have been in general use since the early 19th Century. There after, significant advances, invention and discoveries were made, John Attamosoft and colleagues completed a proto-typed electronic Computer in 1939 called the Attamosoft-Berry Computer or the ABC Computer.

ENIAL (Electric Numerical integrate & Computer) was later designed as the first large-scale computer lesser built by John Mauchly along with J. Premer Echart and was tested on 2/10/55.

Subsequent discoveries were made in the development of the early computer until now that we are in the era of fifth generation computer age. This generation is influenced by the advent of Artificial Intelligence (AI) and Expert System i.e. the ability of the computer to exhibit behaviors like an Intelligent person and an appreciation program that has the capability making judgements and decisions like an expert in a particular field of application.

It is however important to note that computerization is not just for purpose

of computerization, but it is meant to enhance operational efficiency and effectiveness of an organisation. It is also meant to simplify repetitive, boring or monotonous activities that are not handled properly by human beings.

As we are in the era of technological advancement, no organisation that wishes to stand the test of time can do without computerizing her activities. Hence Niger State Government, Water Board in particular have to begin a large-scale computerization process geared towards taking full advantage of the interest/benefits derivable from the computerization process.

At the seminar of the Nigerian Institute of Public relations in April 2001, Prof. A.S. Sambo stated that “ computer literacy has become an imperative for all information Managers and indeed Nigerian as a whole. This is the trend all over the World, inability to appreciate the computer by business and political class as well as the technocrats and bereucrites, its application and accessibility to the interest has already weakened Nigerians efforts at managing internationally her image problem”.

2.2 CONSISTENCY/ACCURACY

Computers unlike frail human beings do not become bored or less concentrated when performing a highly repetitive task, if a computer has to compute a million numbers, it will compute each one with equal diligence.

This is something that cannot be attributed to human beings, since if any human being has to add fifty numbers and do so four times, there are chances that different answers may be obtained but a computer will get the same answer and at a faster time.

Inaccuracies and errors can easily arise from the use of unclean media or because of errors in data preparation usually carried by human error. Machines are more consistent if correctly used/feed with data. In essence, any error in the output of a computer system is as a result of human error in the input. If on the other hand, proper precaution is taken, errors will not occur.

2.3 COMPUTER APPLICATION

The early computers were built at Universities and Scientific establishment to carry out specific tasks. Example ENIAC (Electronic Numeric Integrator and computer) was designed in response to the U.S.A. army's need for a machine to compute artillery trajectories during the second World war

ENIAC was not only used for ballistics but later for forecasting of weather, random calculations, atomic energy computations and cosmic ray calculations. As the development of reading programs into computer was designed for use as aids to general business and office administration.

Installation and usage of computers depends on the workload at hand, super

computers have the capability to process seismic data gathered during crude oil seeking explorations and the simulation of airflow around an airplane at different speeds and altitudes. A mainframe computer commonly used in business and industry are used to solve highly sophisticate problems. Example, Banks large Commercial/Industrial companies and government agency uses mainframe computer because they can support multiple users and multiple functions.

Micro and Mini computer are use by small businesses, in home and classroom. Flexible software package {i.e. commercially written programs that programs specific task} has been developed for a wide variety of applications not only in business but also in medicine, education, etc. In short, Microcomputer system is widely use in practically all aspect of human endeavor. The main benefit of these applications is that work is done with higher efficiency, accuracy and presentation in at her best.

2.4 STORAGE, RETRIEVAL AND VALUE OF INFORMATION

Computer can store vast amount of information. In other words, it is valuable to be able to build large bank of information that like an encyclopedia can be tapped or referred to when required. Hard disks and floppy disks are the two main secondary storage device or media in today's computer system. They are also considered to be the most important peripheral of computer because they provide a way of storing data and

programs permanently in the machine. Often a time, computer is described and cost by the capacity of its hard disk. Computer filing system is the most convenient storage device for organisation like Niger State Water Board which have offices all over the local government area of the state and a large number of water consumers.

Activities of Niger State Water Board revenue generation includes compilation of an up-to-date water consumers' list, production of bills for individual consumers, review and up-dating of each consumers payment record card, preparation and maintaining a very good accounting record, preparation of feasible budget proposal in terms of receivables for a specific period, etc. Computerization of the revenue activities will enhance production of the bill distribution to individual consumers on either monthly or quarterly basis depending on distribution network available to the board. With the bill in place, it will help management in taking decision on defaults and areas/zones of non-performance will be clearly seen.

CHAPTER THREE

3.0 SYSTEM ANALYSIS AND DESIGN

3.1 SYSTEM ANALYSIS

Analysis of a system is the procedural study of its operations with an attempt to discover its basic problems. Hence, system analysis is concerned with the detailed procedural activities of the system that determines how best to use computers with other resources to perform task which meet the information needs of an organisation. System analysis in essence applies specific approach towards solving computer problem. It is developed as a specialized branch of organisation and method, which is a general approach to solving procedural problems.

The aim of this chapter is to ensure that all feasible alternatives are eventually produced and the present system is criticized against the principles of procedure after which the strength and weakness of the system should be apparent.

3.2 SYSTEM DESIGN

The design stage of a system can be conveniently divided into inputs, outputs, files and procedures.

INPUT AND OUTPUT; - Consideration of inputs will be greatly influenced by the needs of output, that is, the necessity for quick response from the

system world determine the need for an outline type of input. It is necessary to consider what is required from the system before deciding how to set about producing it. Taking into cognizance the magnitude of transaction of the Board in terms of opening and updating individual ledger/bill cards, printing of bill cards on monthly/quarterly basis (depending on management choice), projecting yearly budget for the years ahead, distribution of defaulters bill letter and collection of monthly water rate, an operating software that will meet or be accepted to the required operating system has to be installed. Hence a customized information technology system has to be procured. The analyst will need to consider data collection and data validation, types of input media available, volumes of inputs document, design of input layouts and forms, types and volume/frequency of reports and documents that have to be produced.

FILES: - This is very much linked to input and output, input is produced against files to produce the necessary output. Considerations also have to be made of storage media, record layouts, file security and method of file security and method of file organisation and access.

PROCEDURES: - Is the step that unify the whole process which links everything together to produce the desired output, it also involves both computer and clerical procedure that starts with the organisation with the source document and end with the output document being distributed.

3.3 PROJECT FEASIBILITY

This aspect can be viewed in the following ways

- (a) Technical feasibility which tries to see whether the technology needed is available,
- (b) Operational feasibility which tries to ensure that the proposed solution can fit into the existing operations and whether the right information can be derived and provided to the user at the right time, and
- (c) Economical feasibility which tries to ensure that finances are available for implementing the proposed solution.

Considering the project at hand, the feasibility shows that the management will derive optimal benefit in the long run. The aim of the government to ensure a healthy and virile population as well as sustenance of the industrial growth of the state through water supply will be achieved.

3.4 OPERATION

It is however important to note that computerization is meant to enhance operational efficiency and effectiveness, it is also meant to simplify repetitive, boring or monotonous activities which are not handled properly by humans. It thus becomes essential that all hands must be on deck to achieve the desired results and as such, the primary responsibility of the operation is the actual computerized processing of any job that enter or

leaves the computer. Controlling of data to processing, supplies tapes, disc and feeding of data into the computer and operating necessary hardware then distribute to management information on a timely basis and to maintain records on equipment utilization.

It oversees all data base activities to ensure prompt system response, satisfactory user support and data security measures to restrict unauthorized access It also prepare and maintain a data base dictionary which offers standardize procedure for access to the database.

3.5 COST BENEFIT ANALYSIS

Cost-benefit analysis of installing computer determines it's economic feasibility. In so doing equipment cost, installing cost, developing cost, personal cost and operating cost have to be taken into consideration.

In addition to the already operational cost, the following expenses will be incurred;

-Equipment cost/Installation	865,000.00
-Training cost	35,000.00
-Accommodation, Furniture, Fittings & other expenses	<u>220,000.00</u>
	<u>=N=1,120,000.00</u>

Revenue generation preview	=N=
1980	217,041.42
1981	368,952.37
1997	21,867,442.12
1998	21,093,076.40
1999	16,401,842.83
2000	47,508,274.36

Expected revenue generation after implementation of this project is Seventy Eight million, Four hundred and Fourteen thousand Naira (=N=78,414,000.00) only, that is, 21365 domestic customers at =N=300.00 X 12 =76,914,000.00 and 50 business customers at various rate approximated to 1,500,000.00.

From the above, there is about 60.6% increase in the working capital, that is, revenue generated less operating expenses as against the year 2000. It is economically worthwhile to invest in computerization of revenue generation.

The output of computerization in terms of revenue generation and it's filling system vis-à-vis increase in quality (portable) water supply to the populace of the state can not be over emphasized. The project will save the Board a lot of stress and time than using manual filing system.

3.6 TESTING THE PROGRAM

When the program is test run, a parallel running scheme of change over is used that is, processing correct data by both the old and the new system to compare the results. The following is revealed: -

- a) Retrieval time: – The information retrieval time in the existing manual procedure will be reduced by over 90% thereby confirming that it takes less than 10% of time in computerizing activities.
- b) Accuracy of Information: - In testing the program, it's realized that stored information in respect of revenue generation remained accurate for over the period of this study and is assumed to remain same for a long period.
- c) Loss of Data: – Every data fed into the system is secured. In other words, the frequently reported cases of data loss that is peculiar to manual system are completely eliminated. Access to the information computed can also be restricted and known to the user only with the use of a password that is, a code known only to the primary user of the information.
- d) Data storage – Since the capacity of the hard disk of the system is high, the test revealed that data management by way of storage is very efficient. Individual files maintained separate columns for names, and location alphabetically in the memory location.

CHAPTER FOUR

4.0 SOFTWARE DEVELOPMENT/IMPLEMENTATION

4.1 INTRODUCTION

It is necessary to express the requirement in a number of ways as it regards software development. The requirement must initially be expressed in terms that the user can understand and agree to ultimately. These requirements will be presented to the computers in the form understandable by it, that is a program. The program is nowadays designed in a descriptive language (Pseudocode) or in a diagrammatic representation (Flowchart) and there from coded into a statement or several statements of high level language.

The principle of Modular programming (which is dividing a program into smaller units performing specific task or solving a specific problem) is applied in this project work. Instead of writing a bulky and cumbersome program in which errors would be difficult to detect and debug, it is subdivided into smaller units. This principle also helps especially where program is too large to be loaded into memory at once.

4.2 Choice of Programming language and her features.

For the purpose of this project, TURBO BASIC compiler is used because of the following features: -

- i) Absence of line-numbers which is a must in all Basic Interpreters.

- ii) Ability to accept programs that has line number without any problem.
- iii) It is user-friendly, that is, it is easy to learn, and it has the advantage of allowing conversation with the computer (interactive programming).
- iv) It supports the use of pull-down menus for system commands (like RUN, SAVE, LOAD, EXIT, etc.) This allows for quicker execution of these commands.
- v) It makes communication with the computer natural, simple & straight forward,
- vi) TURBO BASIC program files can be converted to executable files, (that is, files with extension EXE) which can be run from the DOS prompt.
- vii) It also supports instant syntax checking as instructions are entered and it gives instant help on errors.
- viii) TURBO BASIC Computer also comes along with a tutor, which allows the user to learn more about the computer and how to use it when writing programs.

4.3 OPERATIONAL MANUAL

Software development will be incomplete until the program had been written and tested for a substantive period of time and documented. The operational manual is an important part of documentation. The following steps are taken when activating the program.

Step 1 Booting the system from the hard disk, successful booting will lead the user to windows desktop.

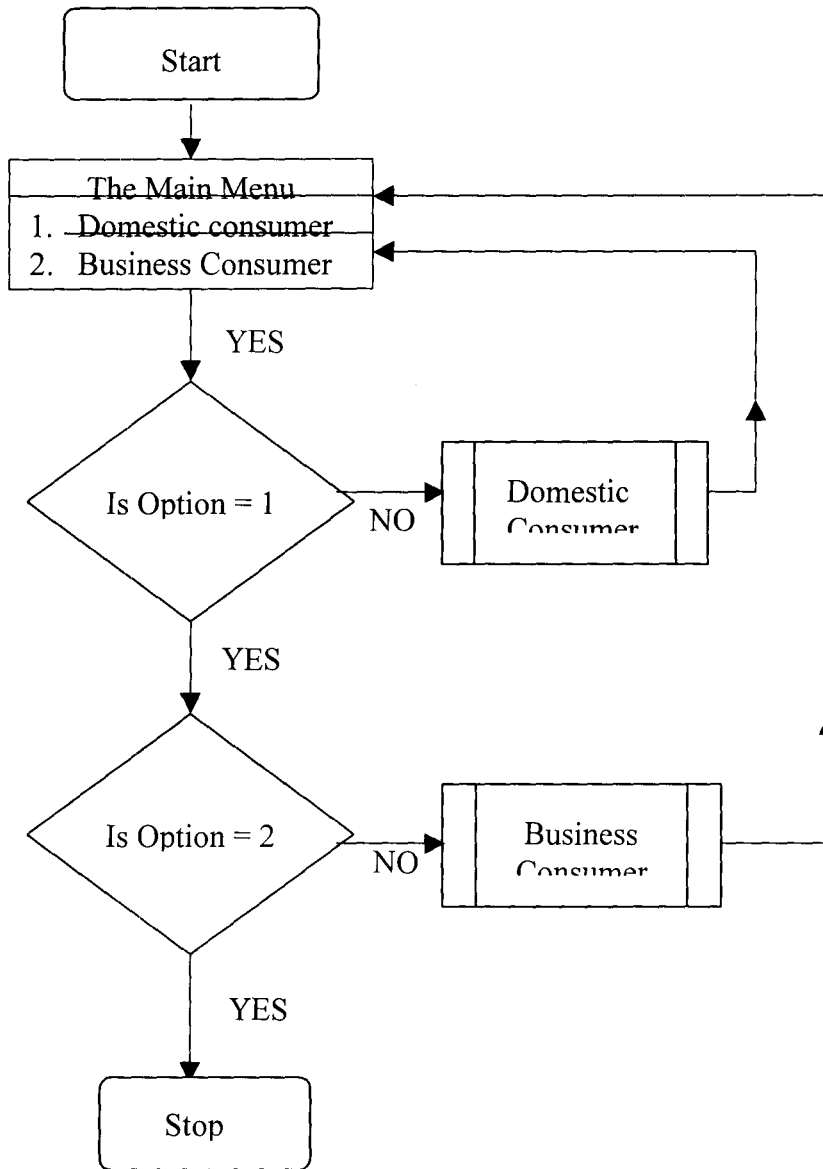
Step 2 At the windows desktop, check the taskbar and click start menu from where you move to the program menu.

Step 3. Xray the program submenu to confirm if the compiler program(software)-TURBOBASIC is install into the system and therefrom click to select(execute).

Step 4. Insert the floppy diskette that contains the project program into Drive A.From the file menu, successful booting will lead the user to 3.5 floppy (A:) from where the project program will be opened.

4.4 MENUS/OUTPUT DISCRIPTION

4.4.1 FLOWCHART



Foot Note:

Terminal Symbols	Decision Symbols	Sub-Routine Symbols	Processing Symbols	Flow Lines Symbols

4.4.2 OPENING MENU

On the activation of the opening program (i.e opening Bar), the computer displays the following message

COMPUTERISATION OF REVENUE COLLECTION BILL

(a case study of Niger State Water Board)

Written by

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PGD/MCS/2000/2001/997

Supervised by **DR. YOMI AYESIMI**

Department of Math/Computer Science

FUT MINNA

There will be about fifteen second delay before the screen is cleared for the next menu i.e THE MAIN MENU.

4.4.3 THE MAIN MENU

The main menu of the revenue collection bill is broken down into two(2) parts, that is, the domestic consumers and the business consumers. The Modular principle used in programming the menu enables us to detect errors, debug errors and effect corrections in a very short time.

The charge(revenue collectable) in respect of domestic consumers as far as

the Board is concerned is lower than that of business consumers but the method of charge is the same. Flat rate are often used in most cases, though meters can be introduced depending on the location and the rate of consumption.

Each consumer is given a unified code system that will dispitch the area, zone,round, folio number and the type of customer. The Area code gives the headquarter administration, the zone code shows the commercial zone within which the consumers' premises is situated. The round code is to ease the distribution of the bills that is, the consumers living in the same area whose bills can be distributed at the same time; whereas the folio code shows the identity of individual consumers and the type code identifies whether the conumer is a business or domestic customer.

The list of business customers includes Block making industries, Car wash centres, Tertiary institutions, Federal Government Offices, Clinics, Hospitals, Canteens, Hotels, Filling Strations, Bank Premises, etc.

4.4.4 EXITING PROGRAM

The program consists of two parts, namely: Business and Domestic customer. However, to exit this program, press ESC Key when in the program environment and the DOS prompt will appear on the screen.

CHAPTER FIVE

5.0 SUMMARY AND CONCLUSION

5.1 SUMMARY/RECOMMENDATION

History have it on record that we are living in a changing world. The talk of the day now is information technological development of which computerisation play a greater role. Prof. A.S.Sambo put it this way that “Computer literacy has become an imperative for all information managers and indeed Nigerians as a whole...”. In other words, every one has to imbed computerisation in order to achieve a developmental break through in all ways of life. Niger State Water Board is not an exception.

By the Edict No. 6 of 1976 establishing State Water Board, the Board is comitted to supply water to every hook and corner of the state, operate and maintain the existing water works, etc. These can not be achieve through the meagre manual resources at the Board’s disposal but with computerisation of all sectors, turnover will be high. With the merits of computerisation, the phrase “water supply is a healthy and virile population as well as in the substenance of the individual growth of a community” will be achieved if and only if water supply activities are computerised.

To this end therefore, it is strongly advised that Niger State Revenue Collection Bills should be computerised and subsequently all other sectors

of the Board.

5.2 CONCLUSION

It has been a common knowledge that many people drink and use water without minding it's source and the need for payment. In the light of this, Niger State Water Board is not generating enough revenue to meet her operational financial requirements. Hence production of computerised revenue collection bills, with good distribution network and it's implementation to the later, the above situation will be remedied. The outstanding balance on individual customers' account will be clearly seen, follow-up exercise intensify and subsequently payment will lead to more revenue generation.

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Paper presented to the National Public
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April 2001.

PROGRAM CODE

```
05 CLS:COLOR 4,0,0
PRINT TAB(3);"[COMPUTERISATION OF REVENUE BILL (A CASE STUDY OF
NIGER STATE WATER BOARD)]"
    DELAY 1
    PRINT
    PRINT
    PRINT TAB(35); "WRITTEN BY"
    DELAY 1
    PRINT
    PRINT
    PRINT TAB(31); "TSADO MATTHEW YISA"
    DELAY 1
    PRINT
    PRINT
    PRINT TAB (30);"PGD/MCS/2000/2001/997"
    DELAY 1
    PRINT
    PRINT
    PRINT TAB(25); "SUPERVISED BY DR. YOMI AIYESIMI"
    DELAY 1
    PRINT
    PRINT
    PRINT TAB(20)"DEPARTMENT OF MATHEMATICS/COMPUTER SCIENCE"
    DELAY 1
    PRINT
    PRINT
    PRINT TAB(21); "FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA"
    DELAY 2
    PRINT
    PRINT
REM CLS
```

```

10 CLS:ON ERROR GOTO 999
30 CLS: COLOR 1,7,4
   COLOR 9
   FOR Y=2 TO 9
     LOCATE Y,4
     PRINT STRING$(0,CHR$(176))
   NEXT Y
   COLOR 1
   FOR K=2 TO 9
     LOCATE K, 20
     PRINT STRING$(40,CHR$(219))
   NEXT K
   LOCATE 24,55: COLOR 0, 3
   PRINT " PRESS [ESC] TO QUIT "
   MEN1$ = "[1] INDIVIDUAL"
   MEN2$ = "[2] ORGANISATION"
   LOCATE 1,1: COLOR 4 : PRINT "[TOPIC : COMPUTERISATION OF REVENUE
BILL (A CASE STUDY OF N/STATE WATER BOARD)]"
   LOCATE 2, 34: COLOR 15 : PRINT " (THE MENU)"
   PRINT
   REM LOCATE 10, 4 : COLOR 0, 3 :REM PRINT "          "
   LOCATE 10, 20: COLOR 4 : PRINT "USE" : LOCATE 10, 25 : PRINT " ":
   LOCATE 10, 25: PRINT STRING$( 1,25)+ STRING$(1,24)
   LOCATE 10, 30: PRINT "KEYS TO SELECT AND PRESS";
   LOCATE 10, 57: PRINT CHR$(17)+CHR$(196)+CHR$(217)
   COLOR 6,1
   LOCATE 4,32 : PRINT MEN1$
   LOCATE 6,32 : PRINT MEN2$
   Y1 = 4
   Y6 = Y1
   COLOR 0, 3: LOCATE Y1,32 : PRINT MEN1$
   MEN22$ = MEN1$
   DO

```

```

a$=INKEY$
SELECT CASE a$
CASE CHR$(0)+CHR$(80):
COLOR 0,3:
Y1=Y1+2
IF Y1 > 6 THEN Y1 = 4
IF Y1 = 4 THEN COLOR 6,1: LOCATE Y6,32: PRINT MEN2$: COLOR
0,3:LOCATE 4,32: PRINT MEN1$
IF Y1 = 6 THEN COLOR 6,1: LOCATE Y6,32: PRINT MEN2$: COLOR
0,3:LOCATE 6,32: PRINT MEN2$
Y6 = Y1
IF Y1=4 THEN MEN22$=MEN1$
IF Y1=6 THEN MEN22$=MEN2$
CASE CHR$(0)+CHR$(72):
COLOR 0,3:
Y1=Y1-2
IF Y1<4 THEN Y1=6
IF Y1=4 THEN COLOR 6,1: LOCATE Y6,32: PRINT MEN22$: COLOR
END SELECT
COLOR 6,1
LOOP UNTIL a$ = CHR$(27)
a$=INKEY$: GOSUB 130
ON KEY (A$=CHR$(27)) GOSUB 130

130 CLS: COLOR 15,1,2
LOCATE 6,10:PRINT "bbbbbbbbbb bbbbbbbbbbb bbbbbbbbbbb bbbbbbbbbbb"
LOCATE 7,10:PRINT "bbb bbb bbb bbb bbb bbb bbb"
LOCATE 8,10:PRINT "bbb bbb bbb bbb bbb bbb bbb"
LOCATE 9,10:PRINT "bbb bbb bbb bbb bbb bbb bbb"
LOCATE 10,10:PRINT "bbb bbbb bbb bbb bbb bbb bbb"
LOCATE 11,10:PRINT "bbb bbb bbb bbb bbb bbb bbb"
LOCATE 12,10:PRINT "bbbbbbbbbb bbbbbbbbbbb bbbbbbbbbbb bbbbbbbbbbb"
LOCATE 14,18:PRINT "bbbbbbbbbb bbb bbb bbbbbbbbbbb "

```

```

LOCATE 15,18:PRINT "bbb bbb bb bb bbb bbb "
LOCATE 16,18:PRINT "bbb bbb bbbbbb bbb bbb "
LOCATE 17,18:PRINT "bbbbbbbbb bbb bbbbbb "
LOCATE 18,18:PRINT "bbb bbb bbb bbb bbb "
LOCATE 19,18:PRINT "bbb bbb bbb bbb bbb "
LOCATE 20,18:PRINT "bbbbbbbbbbbbb bbb bbbbbbbbbbbb "
GOSUB ENTER
IF A$=CHR$(27) THEN END

```

```
140 RETURN
```

```
ENTER:
```

```

LOCATE 15,60:PRINT "PRESS"+CHR$(17)+CHR$(217):A$=INPUT$(1)
CLS
RETURN

```

```
999: COLOR 1,7:CLS
```

```
LOCATE 2,27: COLOR 31,7:? "ERROR!!! ERROR!!! ERROR!!!"
```

```
LOCATE 3,27: PRINT STRING$(26,205)
```

```

LOCATE 4,19: COLOR 15,7:? "AN ERROR HAS BEEN COMMITED DURING
THE PROCESS"

```

```

LOCATE 6,15: ? "OF INPUTTING THE VALUES LEADING TO A BREAK
DESIGN."

```

```
LOCATE 10,28: ? " TO RECTIFY THIS....."
```

```
LOCATE 12,25: ? " PRESS R TO RESTART OR E TO END"
```

```
222 A$=INKEY$: IF A$=" " THEN 222
```

```
IF (A$="R") OR (A$="r") THEN A10
```

```
IF (A$="E") OR (A$="e") THEN 1030
```

```
LOCATE 14,33: COLOR 31,7: ? "R OR E EXPECTED"
```

```
COLOR 15,1: GOTO 222
```

```
A10:
```

```
RESUME 10
```

```
1030 CLS: END
```

```
$INCLUDE "TSADO2.BAS"
```

```
REM $INCLUDE "TSADO3.BAS"
```

40 CLS

COLOR 9,0,0:

OPEN "O", #1, "MATH1.OUT"

FOR J = 1 TO 5: CLS

INPUT "S/NO: "; J

IF J > 5 THEN 45

INPUT "CUSTOMERS NUMBER"; CUSTO\$

INPUT "CUSTOMER'S NAME"; NAM\$

INPUT "CUSTOMER'S ADDRESS1"; ADDRESS1\$

INPUT "CUSTOMER'S ADDRESS2"; ADDRESS2\$

INPUT "CUSTOMER'S ADDRESS3"; ADDRESS3\$

INPUT "AREA COVERED: "; AREA\$

INPUT "BILLING BASIS: FLAT OR METER"; BILLING\$

INPUT "TYPE: DOMESTIC CUSTOMER OR BUSINESS CUSTOMER)"; TYPE\$

INPUT "RATE"; RT

REM INPUT "ARREARS: MONEY OWED AND OVERDUE FOR PAYMENT"; AR

INPUT "AMOUNT PAID: PER MONTH"; AP

AR=0

AR=OB+AR

TD=RT+AR

OB=TD-AP

CLS:COLOR 10,0,0

PRINT "S/NO: "; J

PRINT "THIS IS SAVED TO THE FILE: "; n\$

PRINT STRING\$(75, "-")

PRINT TAB(30); "TYPE: "; TYPE\$

PRINT "CUSTOMER'S NUMBER: "; TAB(25); CUSTO\$

PRINT "CUSTOMER'S NAME: "; TAB(25); NAM\$

PRINT "CUSTOMER'S ADDRESS1: "; TAB(25); ADDRESS1\$

PRINT "CUSTOMER'S ADDRESS2: "; TAB(25); ADDRESS2\$

PRINT "CUSTOMER'S ADDRESS3: "; TAB(25); ADDRESS3\$

PRINT "AREA COVERED: "; TAB(25); AREA\$

PRINT "BILLING BASIS: "; TAB(25); BILLING\$

```

PRINT "TYPE: "; TAB(25);TYPE$
PRINT "RATE"; TAB(25); USING "####.##";RT
PRINT "ARREARS: "; TAB(25);USING "####.##";AR
PRINT "TOTAL DUE: ";TAB(25);USING "####.##";TD
PRINT "AMOUNT PAID: "; TAB(25);USING "####.##";AP
PRINT "OUTSTANDING BALANCE: "; TAB(25);USING "####.##";OB
PRINT STRING$(75,"-")
PRINT #1, "S/NO: ";J
PRINT #1, STRING$(75,"-")
PRINT #1, TAB(30);"INDIVIDUAL CUSTOMER"
PRINT #1, "CUSTOMER'S NUMBER: ";TAB(25);CUSTO$
PRINT #1, "CUSTOMER'S NAME: ";TAB(25);NAM$
PRINT #1, "CUSTOMER'S ADDRESS1: ";TAB(25);ADDRESS1$
PRINT #1, "CUSTOMER'S ADDRESS2: ";TAB(25);ADDRESS2$
PRINT #1, "CUSTOMER'S ADDRESS3: ";TAB(25);ADDRESS3$
PRINT #1, "AREA COVERED: "; TAB(25);AREA$
PRINT #1, "BILLING BASIS: ";TAB(25); BILLING$
PRINT #1, "TYPE: "; TAB(25);TYPE$
PRINT #1, "RATE"; TAB(25); USING "####.##";RT
PRINT #1, "ARREARS: "; TAB(25);USING "####.##";AR
PRINT #1, "TOTAL DUE: ";TAB(25);USING "####.##";TD
PRINT #1, "AMOUNT PAID: "; TAB(25);USING "####.##";AP
PRINT #1, "OUTSTANDING BALANCE: "; TAB(25);USING "####.##";OB
PRINT #1, STRING$(75,"-")
PRINT "PRESS ENTER KEY TO CONTINUE"
REM G$="PRESS ENTER KEY TO CONTINUE"
REM FOR X=1 TO 27:LOCATE 22,X+24:COLOR 10,0:?MID$(G$,X,1):NEXT:
A$=INPUT$(1)
REM GOTO 40
REM PRINT "PRESS Y TO ENTER MORE RECORDS OR N TO GOTO MENU"
REM 333 A$=INKEY$:IF A$="" THEN 333
REM IF (A$="Y") OR (A$="y") THEN 42
REM IF (A$="N") OR (A$="n") THEN 45

```

```
CLS
NEXT J
CLOSE #1
END
45 RETURN
```

```
50 CLS
  COLOR 9,0,0:
  REM OPEN "O", #2, "MATH2.OUT"
  REM FOR M=1 TO 4 : CLS
  REM INPUT "S/NO: ",M
  DO
    INPUT "ENTER FILENAME: ";n$
  REM  OPEN "O",#2, n$
    OPEN n$ FOR OUTPUT AS #2
    REM IF M>4 THEN 55
    INPUT "CUSTOMERS NUMBER"; CUSTO$
    INPUT "CUSTOMER'S NAME"; NAM$
    INPUT "CUSTOMER'S ADDRESS1";ADDRESS1$
  INPUT "CUSTOMER'S ADDRESS2";ADDRESS2$
  INPUT "CUSTOMER'S ADDRESS3";ADDRESS3$
  INPUT "AREA COVERED:"AREA$
  INPUT "BILLING BASIS: FLAT OR METER"; BILLING$
  INPUT "TYPE: DOMESTIC CUSTOMER OR BUSINESS CUSTOMER)"; TYPES$
  INPUT "RATE"; RT
  REM INPUT "ARREARS: MONEY OWED AND OVERDUE FOR PAYMENT"; AR
  INPUT "AMOUNT PAID:PER MONTH"; AP
  AR=0
  AR=OB+AR
  TD=RT+AR
  OB=TD-AP
  CLS:COLOR 10,0,0
  REM PRINT "S/NO: ";M
```



```

PRINT "THIS IS SAVED TO THE FILE:";n$
PRINT STRING$(75,"-")
PRINT TAB(30);"INDIVIDUAL CUSTOMER"
PRINT "CUSTOMER'S NUMBER:";TAB(25);CUSTO$
PRINT "CUSTOMER'S NAME:";TAB(25);NAM$
PRINT "CUSTOMER'S ADDRESS1:";TAB(25);ADDRESS1$
PRINT "CUSTOMER'S ADDRESS2:";TAB(25);ADDRESS2$
PRINT "CUSTOMER'S ADDRESS3:";TAB(25);ADDRESS3$
PRINT "AREA COVERED:"; TAB(25);AREA$
PRINT "BILLING BASIS:";TAB(25); BILLING$
PRINT "TYPE:"; TAB(25);TYPE$
PRINT "RATE"; TAB(25); USING "#####.##";RT
PRINT "ARREARS: "; TAB(25);USING "#####.##";AR
PRINT "TOTAL DUE:";TAB(25);USING "#####.##";TD
PRINT "AMOUNT PAID:"; TAB(25);USING "#####.##";AP
PRINT "OUTSTANDING BALANCE:"; TAB(25);USING "#####.##";OB
PRINT STRING$(75,"-")
REM PRINT #2, "S/NO:";M
PRINT #2, "THIS IS SAVED TO THE FILE:";n$
PRINT #2, STRING$(75,"-")
PRINT #2, TAB(30);"INDIVIDUAL CUSTOMER"
PRINT #2, "CUSTOMER'S NUMBER:";TAB(25);CUSTO$
PRINT #2, "CUSTOMER'S NAME:";TAB(25);NAM$
PRINT #2, "CUSTOMER'S ADDRESS1:";TAB(25);ADDRESS1$
PRINT #2, "CUSTOMER'S ADDRESS2:";TAB(25);ADDRESS2$
PRINT #2, "CUSTOMER'S ADDRESS3:";TAB(25);ADDRESS3$
PRINT #2, "AREA COVERED:"; TAB(25);AREA$
PRINT #2, "BILLING BASIS:";TAB(25); BILLING$
PRINT #2, "TYPE:"; TAB(25);TYPE$
PRINT #2, "RATE"; TAB(25); USING "#####.##";RT
PRINT #2, "ARREARS: "; TAB(25);USING "#####.##";AR
PRINT #2, "TOTAL DUE:";TAB(25);USING "#####.##";TD
PRINT #2, "AMOUNT PAID:"; TAB(25);USING "#####.##";AP

```

```

PRINT #2, "OUTSTANDING BALANCE: "; TAB(25); USING "#####.##"; OB
PRINT #2, STRING$(75, "-")
INPUT "ADD ANOTHER ENTRY Y OR N AND PRESS ENTER
KEY"; R$; CLS; GOTO 50
LOOP WHILE UCASE$(R$) = "Y"
CLOSE #2
'ECHO THE FILE INPUT AS #2
CLS
PRINT "ENTRIES IN FILE": PRINT
DO WHILE NOT EOF(3)
    LINE INPUT #2, REC$
    PRINT REC$
LOOP
CLOSE #2

REM PRINT "PRESS ANY KEY TO CONTINUE"
REM A$=INPUT$(1)
REM GOTO 50
REM PRINT "PRESS Y TO ENTER MORE RECORDS OR N TO GOTO MENU"
REM 333 A$=INKEY$: IF A$="" THEN 333
REM IF (A$="Y") OR (A$="y") THEN 50
REM IF (A$="N") OR (A$="n") THEN END
CLS
REM NEXT M
CLOSE #2
KILL n$
END
55 RETURN

```

PROGRAM OUTPUT

S/NO: 1

INDIVIDUAL CUSTOMER

CUSTOMER'S NUMBER: 16601
CUSTOMER'S NAME: BABA NDAGI
CUSTOMER'S ADDRESS1: P.O.BOX 331
CUSTOMER'S ADDRESS2: MINNA
CUSTOMER'S ADDRESS3: NIGER STATE
AREA COVERED: MINNA
BILLING BASIS: FLAT
TYPE: INDIVIDUAL CUSTOMER
RATE 100.00
ARREARS: 0.00
TOTAL DUE: 100.00
AMOUNT PAID: 50.00
OUTSTANDING BALANCE: 50.00

S/NO: 2

INDIVIDUAL CUSTOMER

CUSTOMER'S NUMBER: 16602
CUSTOMER'S NAME: SAMUEL GARBA
CUSTOMER'S ADDRESS1: P.M.B 268
CUSTOMER'S ADDRESS2: BIDA
CUSTOMER'S ADDRESS3: NIGER STATE
AREA COVERED: BIDA
BILLING BASIS: FLAT
TYPE: INDIVIDUAL CUSTOMER
RATE 100.00
ARREARS: 0.00
TOTAL DUE: 100.00
AMOUNT PAID: 70.00
OUTSTANDING BALANCE: 30.00

S/NO: 3

INDIVIDUAL CUSTOMER

CUSTOMER'S NUMBER: 16603
CUSTOMER'S NAME: GAMBO AUDU
CUSTOMER'S ADDRESS1: P.O.BOX 540
CUSTOMER'S ADDRESS2: SULEJA
CUSTOMER'S ADDRESS3: NIGER STATE
AREA COVERED: SULEJA
BILLING BASIS: FLAT
TYPE: INDIVIDUAL CUSTOMER
RATE 100.00
ARREARS: 0.00
TOTAL DUE: 100.00
AMOUNT PAID: 35.00
OUTSTANDING BALANCE: 65.00

S/NO: 4

INDIVIDUAL CUSTOMER

CUSTOMER'S NUMBER: 16604
CUSTOMER'S NAME: HARUNA AMOS
CUSTOMER'S ADDRESS1: P.M.B 229
CUSTOMER'S ADDRESS2: KONTAGORA
CUSTOMER'S ADDRESS3: NIGER STATE
AREA COVERED: KONTAGORA
BILLING BASIS: FLAT
TYPE: INDIVIDUAL CUSTOMER
RATE 100.00
ARREARS: 0.00
TOTAL DUE: 100.00
AMOUNT PAID: 45.00
OUTSTANDING BALANCE: 55.00
