APPROVAL PAGE

This project has been read and approved as meeting the requirements of the department of Mathematics and computer science, FUT, Minna.

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ABSRACT

The existing transcript preparation in Usman Danfodiyo University Sokoto is being done manually. During this work the existing system is analysed, there after t the problems (If any) of the system are identified and a computer version is designed to automate the transcript preparation taken into consideration the problems identified (If any) in the old system.

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Abubakar Roko
September, 1998

CHAPTER ONE

INTRODUCTION

Numbers, letters, words, and special symbols which themselves have no meaning are refereed to as Data. For examples, the digits '070132' constitutes Data, since it is meaningless by itself because it could refer to the Admission Number of a student in a school, the number of hours worked by an employee and so on. Once we know what the sequence refers to, then it becomes meaningful and can be called information.

Stored data is an extremely valuable asset for any person or organisation. Any reasonable self-contained commercial, scientific, technical organisation relies on data to conduct it's daily activities. With or without computers people organize data for storage and use. Computers in organisation and over-increasing sophistication of data-processing system have highlighted the importance of data as one of the most valuable organisational resources.

It is from the manipulation and interpretation of data that information is generated and, in turn, used in decision making process. To maintain information and make sure that information is the overall purpose of a computerised system.

Even though computers have penetrated our society far more deeply than the average person realises, many organisations process their data manually thereby generating information which among other things is not timely, accurate and consistence. The benefits of using computers to process

data over the manual version of data processing are tremendous. This may be the reason why organisations are now going for computers. Let us ascertain ourselves with the existence of these benefits from the quotation below:
' Yesterday people questioned our ability to build a digit computer.Today the computer has already shown that it is one of the man's great tools, and that its potential benefits for mankind are tremendous. But these benefits are not inevitable, nor are they unmitigated. We will have to work hard to realize the benefit fully.................
It is important for us to remember and for rest of the world to realize that the computer has begun an information revolution that will profoundly affect the lives of everyone. I realize that these are strong words.
....
The computers and modern information processing techniques do far more than amplify man's physical force, which was the basis of amplify man's ability to manipulate information.' (Auerbach, 1920.).

Usmanu Danfodiyo University Sokoto, one of the second generation university, is one of the organisations that does not enjoy these tremendous computer benefits especially in the Area of manipulation and interpretation of student records. It is situated some twelve kilometres to the North of Sokoto city.
Like some other universities, the university is made up of Academic division, Bursary division, Registry division and

Works and Services division. Each division contains sub-units. For instance, the registry division which is charged with the responsibility of administration contains the Establishment unit, Academic records office and so on.

ACADEMIC RECORD OFFICE

This office is charged with the responsibilities of maintaining students record (personal and academic). The office is headed by Examination and record officer. Old students of the university go to the office to request either for their certificates or records to be sent to a particular organisation or institution they wished to go. When an old-student applied for his/her record to be sent to let's say an institution, the office will check his/her record, extract some of his/her personal data and ALL his/her academic record, compile and write these on a sheet of paper. This paper formed is called the TRANSCRIPT.

The important of this transcript depend on the place the student wishes to go. For example , if the student wants to further his/her studies, his/her transcript must be sent to his proposed institution, which will use the transcript to know:

(1) Whether or not the student is qualified for admission by looking at the class he/she scored.

(2) If admitted, the proposed institution will know which course to give the student.

(3) All the courses the student took during his/her

undergraduate days. So that if admitted, he/she can be asked to sit for course(s) he/she have not done (if any). Some organisations after employing a person will need to know his/her records in school, especially his/her academic records may be to confirmed his/her certificate and know his/her area of specialization in the right department.

AIMS AND OBJECTIVES

This work is aimed at studying how a student transcript is being formed manually and how a computer version can be designed to replace the old version to allow the university enjoy the benefits of using computer for data processing.

CHAPTER TWO

2.1 ANALYSIS OF THE EXISTING SYSTEM

The existing transcript preparation is performed manually. The.transcript is only prepared, if an old-student comes to request for his/her transcript to be sent to a particular institution or organisation. The student usually write application wishing their transcript to be sent to the mentioned places. Therefore his/her files in the Academic Record Office will be traced by the officer incharge and subsequently some of his/her personal and all of his/her academic data will be manually record onto a sheet of paper. After which it will be sent to the student's faculty examination officer to check the authentification of the recording.

This section analyses the existing system in order to identify how it works and the problems that may exit so that a computer version can be designed.

2.1.1 CATEGORIES OF DATA TRANSACTIONS

Here we describe the different categories of data transaction. We have:

(a) APPLICATION LETTER

This must contains student admission number, year of graduation, his/her current address, and of course the institution/organisation (plus address) the student proposing to go.

(b) PERSONAL PARTICULARS FORM

At the beginning of each academic year, the newly admitted students present to the academic officer their letters of admission and original credentials for scrutiny.

A student is then entered into the admission register and given admission number. Each student collected and fills a copy of the personal particulars form by providing all the necessary information about him/herself.

(c) SENATE FORMAT RESULTS

At the end of every session each lecturer submits the results of his/her course(s) to the departmental examination officer. The results for the students will then compiled and passed to the faculty examination officer. Before sending to the faculty examination office, the grades are computed and tabulated, and printed for senate sub-committee on examination, this tabulated copy of students examination record (sent to the faculty examination office) is called senate format result.

The senate format results (approved by the senate sub-committee on examination) will be collected by the academic record office for documentation.

2.2.2 THE EXISTING SYSTEM PROCESSES

The purpose of this system is to produce a transcript. The existing system uses three data files to record student data from the student's application letter file, personal data file and senate format result files.

The system involves seven processes as shown by the data flow shown in the figure below:

The processes are now described in turn, and along the way, the four data files are described.

2.2.2.1 COLLECTION OF PERSONAL DATA FORMS

Collection of personal data forms process involves the collection of personal data forms filled by all newly admitted students and filling them into a file called students personal data file.

2.2.2.2 COLLECTION OF SENATE FORMAT RESULTS

This process involves receiving of senate format results from the faculty examination office and filling them into a file called students examination records.

2.2.2.3 TREATMENT OF STUDENTS APPLICATIONS

If an old student request his/her transcript to be sent to his proposed institution, he will be requested to write an application which will be filed by the record officer in a file called Application Letters. Thereafter the student records will be checked to start drafting the transcript.

2.2.2.4 DRAFTING TRANSCRIPT

This process involves the collection of data from both the students personal data and student examination records files to form a draft copy of a transcript which will later be sent to the faculty examination office for correction.

2.2.2.5 DRAFTING TRANSCRIPT VERIFICATION

This process involve sending the draft transcript to the faculty office where all necessary correction will be made by checking all the student's record in the faculty with those on the transcript (draft). The process also involve receiving the corrected draft transcript from the faculty office.

2.2.2.6 AUTHENTIFICATION

This process involve preparing the corrected draft transcript using a type-writer and then sending it to the registrar's office for the registrar's signature. It also involve receiving the authentified copies, one for posting and the duplicate copy will be filed in a file called transcripts file.

2.2.2.7 POSTING

This involves enveloping one copy of the authentified copy of the transcript and checking the application file for the address of the school proposing to go by the student. Thereafter, the address will be written on the envelop stamped and signed, then posted to the addressed institution.

ITEMS TO BE CALCULATED

While drafting the transcript the following items need to be calculated:

(1) Unit this session

This is obtained by adding the units assigned to all the courses offered by the student this session. For example, if a student has registered the following courses

MAT 101 - 3

MAT 102 - 5

BIO 209 - 10

BCH 001 - 9

His units this session = 3 + 5 + 10 + 9 = 27

(2) Units to data

This is obtained by adding all previously registered units and those of the present session. For example, if the candidate was registered 3 years ago, and that in the first session he registered 25 units, and 30 units in the second session and his present session bears another 27, then the

Units to date = Units first session + units second session + units present session

= 25 + 30 + 27 = 82

However, any course that was registered more than once it's units should be summed only once, otherwise every time the units are added, the sum of repeated units should be subtracted from the total.

For example, if both the maths courses in example (1) above were repeated during the second session then

Units to date = 82 - (3+5) = 82 - 8 = 74

(3) GP this session

This is obtained by multiplying units this session of each course offered by the student with its corresponding grade points then finally adding all the products. The result in the GP this session.

For example, from the previous example if we assign grades to the courses like

MAT 101 - 3 - A

MAT 102 - 5 - F

BIO 101 - 10 - B

BCH 001 - 9 - C, then

GP this session = (3x5) + (5x0) + (10x4) + (9x3)

= 15 + 0 + 40 + 27 = 82

(4) Grade Point to date

The sum of the GPS of the different session so that if GP at UGI = 82 and GP at UGII = 40, then

GP to date = 82 + 40 = 122

(5) Grade Point Average (G.P.A)

G.P.A =(G.P/Units) for the level or period in question

For example,

(i) G.P.A this session =

G.P this session/ Unit this session

(ii) G.P.A to date = G.P to date/Units to date

2.2.3 DESCRIPTION OF DATA ON A TRANSCRIPT

Usman Danfodiyo University Sokoto transcript consists of the University's name and it's emblem, then followed by the student's faculty as the transcript heading. Immediately below the heading, is a rectangular portion which is divided into two parts. The first and upper part consists of the student's personal data. Such as Student's name, Admission number, Degree-sought, Birth-date, Place of Birth, etc. The second part consists of the student's academic records in columns. The number of columns depend on the degree sought. The first column is usually for 100 level and is levelled UGI, the second column is for 200 level and is levelled UGII and so on.

Each column consists of two parts, the first part consists of all the courses offered, their names, their units, grades scored and the grade points for each course. While the second part consists of the total units to date, total grade points to date, and total grade point average to date. The grade point average determines the days of the students. Immediately below all these is the registrar's signature.

Below and outside the rectangular portion is a Footnote which explains some of the provides the range of marks a student will score for him to be graded with either A or B or C or D or E or F. It also provide the grade point average range that determines which class a particular student belongs.

Figure 2. is a photocopy of a transcript.

2.4.0 PROBLEMS OF THE EXISTING SYSTEM

The current manual student record system as operated by the university has a lot of problem which makes it very difficult to keep effective, uptodate and reliable information on student personal and academic life in the university some of the problems includes:-

2.4.1 LACK OF CONSISTENCY FROM THE PART OF STUDENTS as regard their personal information such as Name and address.

2.4.2 STUDENT EXAMINATION RESULTS ARE SUBMITTED in pieces which makes filing them very difficult.

2.4.3 INEFFICIENT FILING SYSTEM which results in missing records for some students which make it very difficult to trace the records of a graduated student.

2.4.4 LACK OF UP-TO-DATE OVERALL INFORMATION ON STUDENT records of days as a student in the university most especially where a student changes his/her faculty and/or department of study.

2.4.5 PROMPT TO ERROR : The processing of transcript involves the series of calculations right from the first year to the last year of a students. Performing such calculation manually with modern calculating machine is bound to resolve in errors.

2.4.6 DUE TO LACK OF ORGANISED SYSTEM OF PRODUCTION student grades production is cumbersome and full of errors which causes a lot of delay and wastage thereby a student will spend months struggling for his/her transcript before it will be sent to his proposed institution or organisation.

CHAPTER THREE

3.1 DESIGN OF THE NEW SYSTEM

In chapter two, the existing transcript preparation was analysed and its problems identified. This chapter describes the computer version of the system, which was designed, taking the problems of the existing system identified in the last chapter, into account. The requirements, which must be satisfied by the new system inorder to overcome the problems of the existing system, are first identified description of the design for the new system.

REQUIREMENT

To overcome the problems of the existing system listed in section a computer version of the system is required, satisfying the following requirements:

(a) the new system should automate the processing of both personal and academic records of the student, which is currently being done manually.

(b) the new system should generate a report which should be similar to the one now generate by the existing system.

(c) after processing, the new system should display the results on the screen and allow the user to confirm the result before printing it.

(d) the same method of calculating described in chapter two, should be adopted by the new system.

(e) the new system should be password protected on that only authorised users can have access to it.

3.2 FILES & PROCESSES

Files

The designed system uses three computer files to store data, namely: student files, course file, student course file. These files are described in turn

(a) The Student File

This file is created right from the date a student is confirmed to be admitted to the university. It is used to record important personal data of the student such as Admission Numbers, Surname, Other Name, Date of Birth, State of Origin, Degree Sought, Sex, Major Course, Faculty and Current Address.Figure 3.1 shows the format of the file.

(b) Course File:

This file is created inorder to record the all courses available under the student faculty. It is also used to record the title of the course their units and the year in which a particular course is taken (C-year). The file is shown in figure 3.2

(c) StCourse File:

Within a faculty a student is expected to take not all courses under the faculty. Consequently stcourse file is used to record only those courses offered by the students with the faculty. The student admission no (AD-No), course code, Grade scored (Grade), courses year (year) and session in which the course is taken (Y-Date), are all contained in stcourse file shown in

FIELD TYPES

The new system allows two types of fields as described below

(a) Character

This is used to store character strings and can be used to store a string of up to a maximum of twenty five characters. example of character fields are s-name, state, title etc.

(b) Numeric

This is used to store numerical data such as unit and year.

3.3 SYSTEM SPECIFICATION

3.3.1 Output Requirement:

The output to be obtained from the new system is just the transcript described in chapter two fig 3.4 is a transcript generated by the new system for a candidate

3.3.2 Input Requirement:

The input to the system are as follows:

_ Students personal information form showing, admission number, last name, middle name, first name, date of birth, sex, state of origin, and permanent home addresses.

_ Student course registration forms showing admission number, session, name of student, faculty of registration, subject of study, list of courses for registration for each of the subjects showing course code, course title, number of units, semester(s) offered.

_ Examination grades by faculty and course level, admission number, name of student, courses registered, unit of each course, and grades obtained.

3.4 IMPLEMENTATION OF THE NEW SYSTEM

The designed system was implemented using Dbase IV for DOS. This section describes how thew implemented application system works, showing how each of the functions required of the system are performed. The detail program listing for the system is given in chapter four. How to log in to the system is first described, then the main screen of the system is described, and finally a detail description of the various options which can be selected from the main screen.

3.4.1 LOGGING IN TO THE SYSTEM

To log in to the system, assuming that Dbase IV has been installed and the system files are copied in their appropriate directory, let's say the directory's name is trans. The DbaseIV software must first be started which displays it's main screen containing the menu bar. The application system can then be started by typing :

```
DO gatepass
```

at the dot-front and pressing the return key.

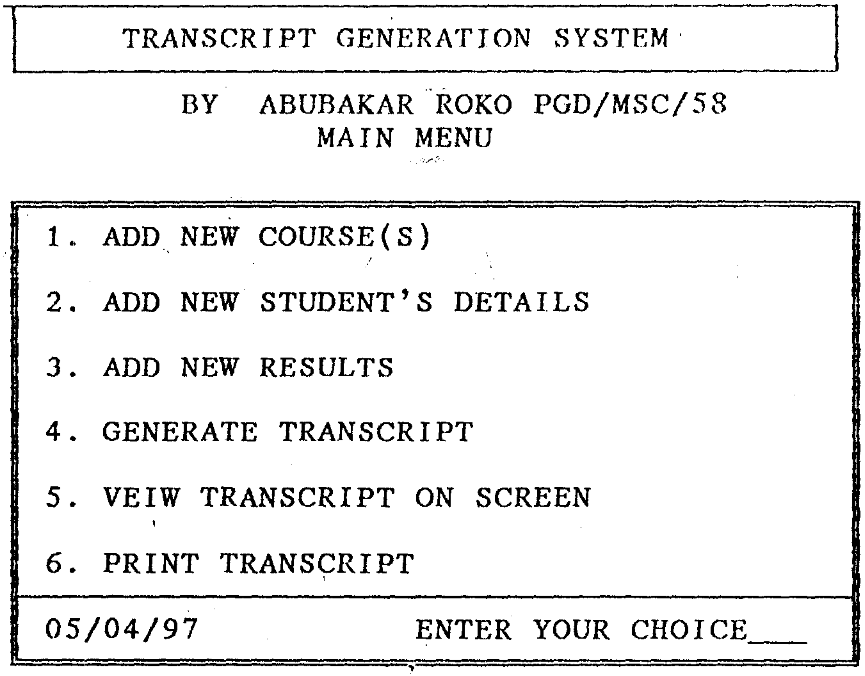
Starting the system as descried above,displays the following message, requesting the user to supply the password.

```
**** ENTER PASSWORD****
```

Thus, to be able to use the system, a user must be issued a password by the administrator of the system. After the input is supplied, the system then checks it's validity, and if it is found to be valid, the application system is started, displaying it's main screen which is described next.

3.4.2 THE SYSTEM MAIN SCREEN

The figure below shows the main screen of the new system for transcript generation.



TRANSCRIPT GENERATION SYSTEM

BY ABUBAKAR ROKO PGD/MSC/58
MAIN MENU

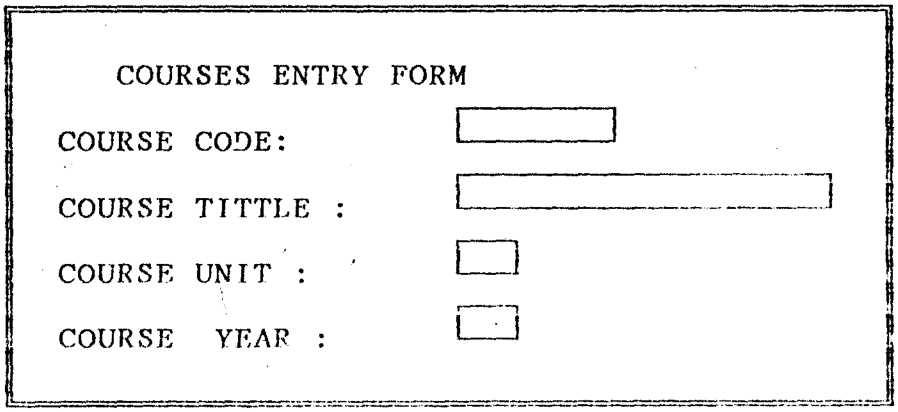
1. ADD NEW COURSE(S)
2. ADD NEW STUDENT'S DETAILS
3. ADD NEW RESULTS
4. GENERATE TRANSCRIPT
5. VEIW TRANSCRIPT ON SCREEN
6. PRINT TRANSCRIPT

05/04/97 ENTER YOUR CHOICE___

At the top of the main screen, the systems name followed by the project writer's name, are displayed. The remainder of the screen provides six menu options label from 1-6. An option can be selected by typing the number of the option to perform the indicated function. The options are now described in detail in the following sections.

3.4.3 ADD NEW COURSE(S) OPTION

On selecting the ADD NEW course option by typing 1 from the main menu screen, the following box is displaced.



COURSES ENTRY FORM

COURSE CODE: □

COURSE TITTLE : □

COURSE UNIT : □

COURSE YEAR : □

This box is called course entry form. This option allows the user to enter course code, course title, unit and course year, and finally press the return key. After pressing the return key, the following message is displayed

```
DO YOU WISH TO ENTER ANOTHER COURSE? (Y/N) □
```

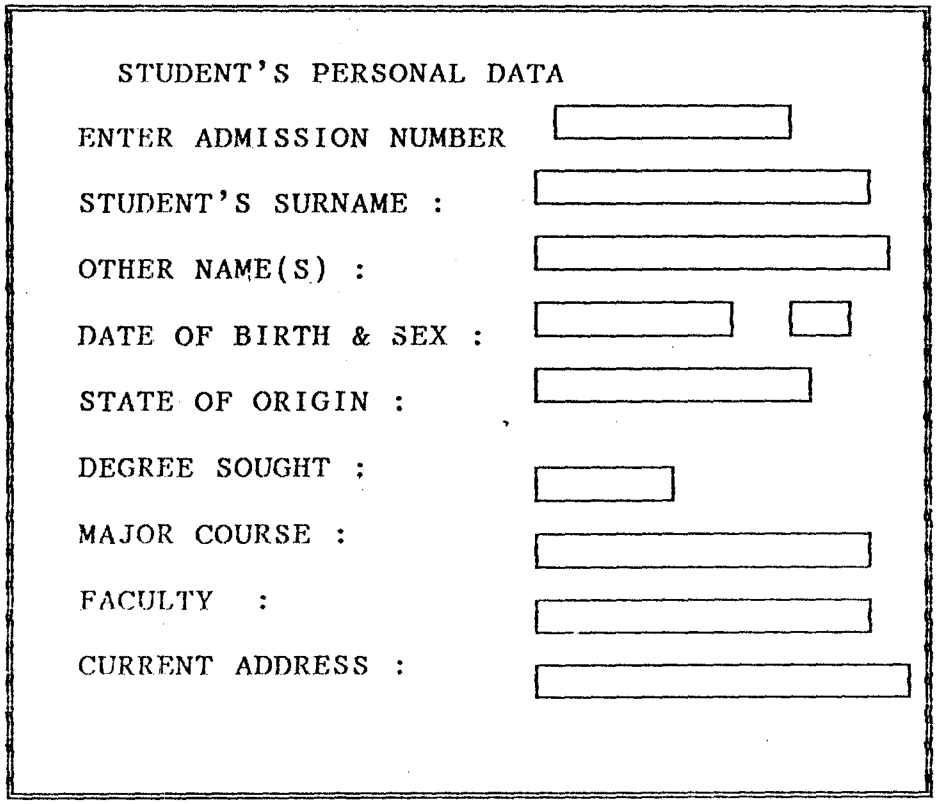
if the course does not exist otherwise the following message will be displayed.

```
COURSE ALREADY EXIST
DO YOU WISH TO ENTER ANOTHER COURSE? (Y/N) □
```

The message is just to inform the user whether or not the course exists and allows you to enter another one. Otherwise it takes the user back to the main menu.

3.4.4 ADD THE STUDENTS DETAILS.

In this case typing 2 from the main menu and pressing the return key will display the following box called STUDENT'S



STUDENT'S PERSONAL DATA

ENTER ADMISSION NUMBER □

STUDENT'S SURNAME : □

OTHER NAME(S) : □

DATE OF BIRTH & SEX : □ □

STATE OF ORIGIN : □

DEGREE SOUGHT : □

MAJOR COURSE : □

FACULTY : □

CURRENT ADDRESS : □

This option allows the user to enter mostly the personal data of the candidate such as his Name, State of Origin, Sex, Current.Address,etc. After entering the Data the user will then type RETURN key. If record exists the message will be displayed

```
     THE STUDENT WAS REGISTERED
     DO YOU WISH TO ENTER ANOTHER STUDENT ? (Y/N)   | Y|
```

otherwise the message is displayed

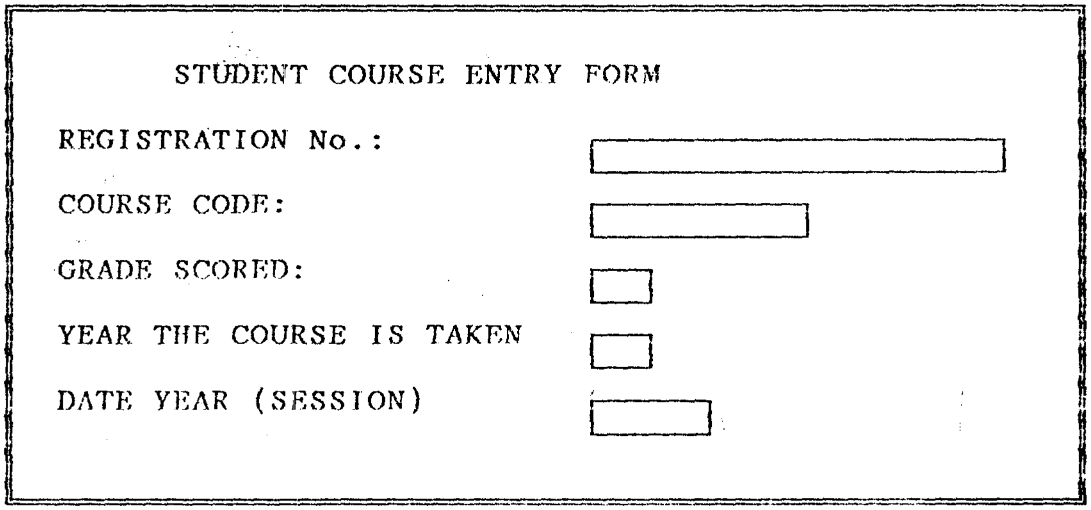
```
     DO YOU WISH TO ENTER ANOTHER STUDENT ? (Y/N)   |Y|
```

The user can then PRESS Y to continue or N to go back to the system main menu.

3.4.5 ADD NEW RESULT

This option will be displayed by typing 3 from the main menu and pressing the return key. It consist of five student's data.

It function is to allow the user to enter ONLY those course(s) offered by the candidate within his faculty.



STUDENT COURSE ENTRY FORM

REGISTRATION No.: □

COURSE CODE: □

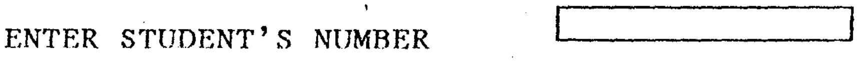
GRADE SCORED: □

YEAR THE COURSE IS TAKEN □

DATE YEAR (SESSION) □

3.4.6 GENETRATE TRANSCRIPT

This option is activated when the user tpye 4 from the main menu . It is used to process a candidate transcript when the user enters the candidate's number. It display the following message



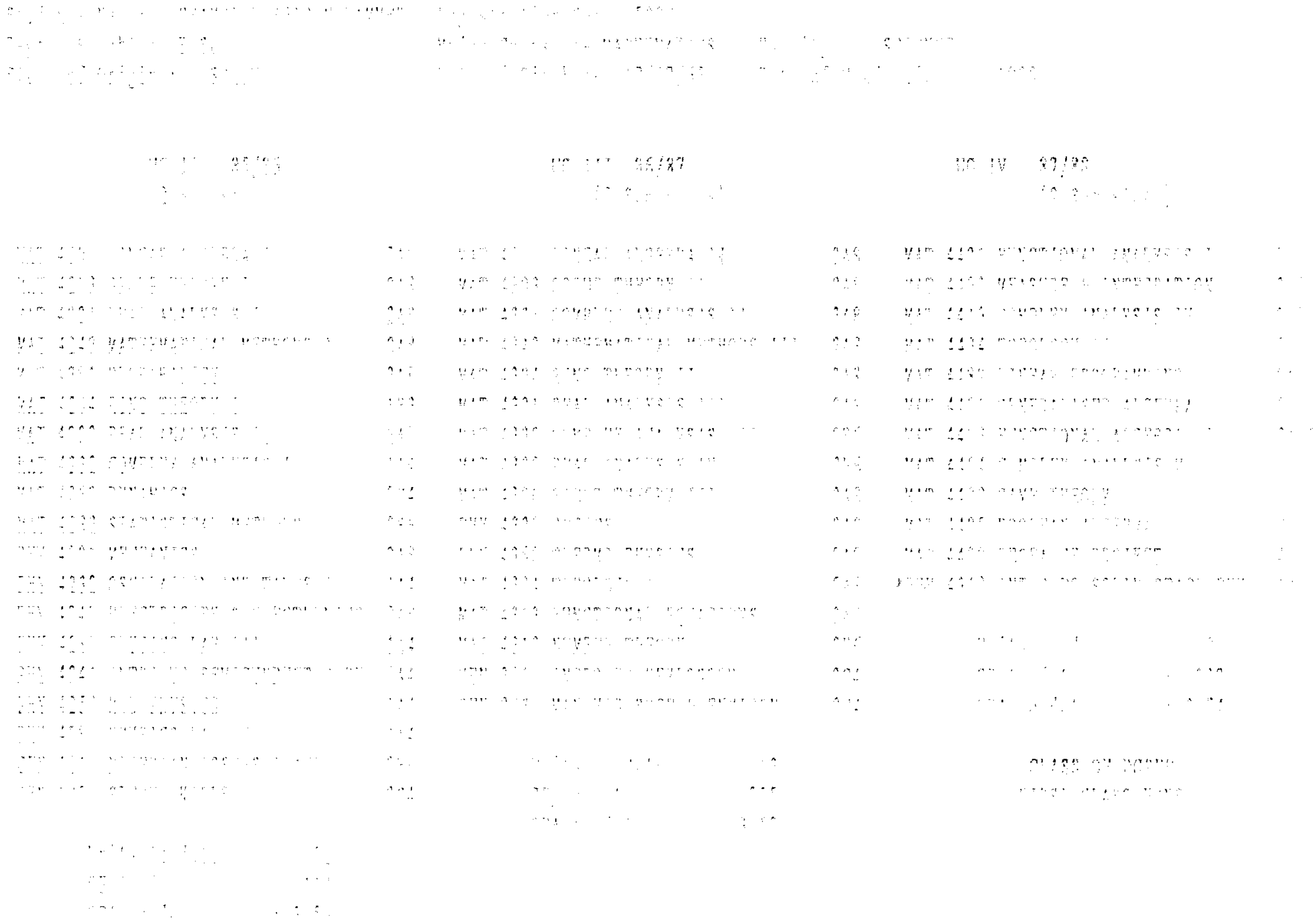
ENTER STUDENT'S NUMBER □

3.4.7 VEIW TRANSCRIPT ON SCREEN

This allows the user to see the transcript on the screen.It

3.4.8 PRINT TRANSCRIPT

This option allows user to print the transcript of a student whose Admission Number is supplied. A copy of transcript generated by system is shown below.



UG III 86/87

UG IV 87/88

CLASS OF DEGREE

CHAPTER FOUR

```
* This procedure is called GATEPASS it allows user to enter

* his password . It is used to protect unauthorise person

* to use the  system

* PROG NAME:GATEPASS
SET TALK OFF
CLEA
STORE space(4) TO PASS1
STORE .t. TO TRUE, REPLY
DO WHILE TRUE
@ 12,20 SAY "****ENTER PASSWORD ****"GET PASS1
READ
IF PASS1 = "pass"
TRUE=.F.
DO trans
ELSE
CLEA
@  12,20  say  ".....INVALID  PASSWORD,  WANT  TO  TRY  AGAIN
?.."GET REPLY
READ
IF REPLY
 CLEAR
ELSE
 CLEA
 RETURN
ENDIF
TRUE=.T.
ENDIF
ENDDO

*****  IBOKDX.PRG  ***********
*        IBOKDX.prg
*Procedure for multiple indexing to speed up dBASE IV
*applications
*
*Author:K. U. Ibok
*    Bursary
*    University of Abuja
*    A B U J A

*Date:  4/6/94
*Modified and Improved :3/12/94 by Dr. R.O. Anumba
****************************************************
para mdex
mdex=upper(mdex)
SN=1
DO WHILE sn<=3 .AND. len(trim(key(sn)))>0         && There
are <48 openings for an mdx file                             &&
Scan available indices.
  if key(sn)=(mdex)          && If matching key is found,
     m_dx=tag(sn)
     SET ORDER TO &m_dx
```

```
another creating new index.
      return
  endif
  sn=sn+1                && ...else, continue the scan
enddo
 if sn>3                            && If end of scan and
no space for new  index and no key match found.
    DO WHILE LEN(TRIM(tag(1)))<>0
     DELE TAG TAG(1)
    ENDDO
   sn=1
 endif
index on &mdex. tag ('D'+ltrim(str(sn))+'X')
                         && Index dbf with required key
return

************End of Ibokdx.prg *****************



*************** TRANS.PRG  *********************

* This program called TRANS.PRG is used to generate the *

* system main menu .It is invoke by the above program that

* is GATEPASS.

SET DATE TO BRITISH
SET SAFETY OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET CONFIRM ON
SET SCOREBOARD OFF
SET ECHO OFF
CLEAR
THIS_NO =SPACE(8)
RES='N'

DO WHILE .T.
     @ 19,8 TO 19,70
     @ 6,8 TO 21,70 DOUBLE
     @ 1,8 TO 3,70
     @ 2,15 SAY "TRANSCRIPT GENERATION SYSTEM  "
     @ 4,26 SAY "By. Abubakar Roko  PGD/MSC/58 "
     @ 5,30 SAY " MAIN MENU"
     @ 8,15 SAY " 1. ADD NEW COURSE(s)"
     @ 10,15 SAY " 2. ADD NEW STUDENT'S DETAILS"
     @ 12,15 SAY " 3. ADD NEW RESULTS"
     @ 14,15 SAY " 4. GENERATE TRANSCRIPT"
     @ 16,15 SAY " 5. VIEW TRANSCRIPT ON SCREEN"
     @ 18,15 SAY " 6. PRINT TRANSCRIPT"
     @ 20,15 SAY DATE()
     item = 0
     @ 20,45 SAY "ENTER YOUR CHOICE : "
     @ 20,66 GET item PICT '9' RANGE 0,6
     READ
     CLEAR
     DO CASE
        CASE item = 1
           DO CDATA
        CASE item = 2
           DO STHIST
        CASE item = 3
           DO STENTRY
        CASE item = 4
           @ 12,15 SAY "ENTER STUDENT'S NUMBER"
           @ 12,40 GET THIS_NO PICTURE  "!!!!!!!!"
           READ
           DO GENTRS WITH THIS_NO
           CLEAR
        CASE item = 5
           @ 12,15 SAY "ENTER STUDENT'S NUMBER"
           @ 12,40 GET THIS_NO PICTURE  "!!!!!!!!"
           READ
           MODI COMM TRIM(THIS_NO)+'.PRT'
           THIS_NO = SPACE(8)
           CLEAR
        CASE item = 6
           @ 12,15 SAY "ENTER STUDENT'S NUMBER"
           @ 12,40 GET THIS_NO PICTURE  "!!!!!!!!"
           READ
           CLEAR
           @ 12,15 SAY "IS YOUR PRINTER READY? (Y/N)"
           @ 12, 60 GET RES PICT 'Y'
           READ
           IF RES = 'Y'
              !COPY TRIM(THIS_NO)+'.PRT' PRN:
           ENDIF
           CLEAR
        CASE item = 0
           CLEAR
           RETURN
     ENDCASE
ENDDO
```

******** CDATA.PRG *****************

This procedure is called CDATA.PRG . It is used to generate ADD NEW COURSE(S) OPTION .It is called by the TRANS.PRG PROCEDURE

```
SET TALK OFF
SET EXACT OFF
CLOSE ALL
```

```
CLEAR
USE COURSE IN 1
SELE 1
DO IBOKDX WITH 'CODE'
CD=SPACE(7)
TL=SPACE(25)
UNT=0
YR=0
ans='Y'
EXIST = .F.
PRIVATE    ll_cursor,  lc_display,  lc_status,  ll_carry,
lc_proc
ll_cursor = SET("CURSOR") = "ON"
SET CURSOR ON
lc_display = SET("DISPLAY")
lc_status = SET("STATUS")

IF lc_status = "OFF"
   SET STATUS ON
ENDIF
DO WHILE ANS='Y'
   @ 1,14 TO 12,65 DOUBLE
   @ 2,24 SAY "COURSES ENTRY FORM"
   @ 4,17 SAY "COURSE CODE:"
   @ 4,38 GET CD PICTURE "!!!!!!!"
   @ 6,17 SAY "COURSE TITTLE:"
   @ 6,38 GET TL PICTURE "!!!!!!!!!!!!!!!!!!!!!!!!!"
   @ 8,17 SAY "COURSE UNIT:"
   @ 8,38 GET UNT PICTURE "9"
   @ 10,17 SAY "COURSE YEAR:"
   @ 10,38 GET YR PICTURE "9"
   READ
  IF SEEK(CD,1)
      EXIST = .T.
  ELSE
   EXIST = .F.
   TL = TRIM(TL)
   APPEND BLANK
   REPLACE CODE WITH CD, TITTLE WITH TL, UNIT WITH UNT,
C_YEAR WITH YR
   ENDIF
   CD=SPACE(7)
   TL=SPACE(25)
   UNT=0
   YR=0
   CLEAR
   IF EXIST
      @ 15,10 SAY 'COURSE ALREADY EXIST'
   ENDIF
  @ 16, 10 SAY 'Do you wish to enter another course? (Y/N)'
   @ 16, 58 GET ANS PICTURE "Y"
   READ
   CLEAR
ENDDO
*-- SET STATUS was ON when you went into the Forms
```

```
IF lc_status = "OFF"  && Entered form with status off
   SET STATUS OFF     && Turn STATUS "OFF" on the way out
ENDIF
IF .NOT. ll_cursor
  SET CURSOR OFF
ENDIF
IF SET( "DISPLAY" ) <> lc_display
  SET DISPLAY TO &lc_display.      && Reset Screen size if
changed
ENDIF
RELEASE lc_fields,lc_status
IF TYPE( "ll_echo" ) = "L"
  IF ll_echo
    SET ECHO ON
  ENDIF
ENDIF
CLOSE ALL
RETURN

********  STHIST.PRG ************

SET TALK OFF
SET EXACT OFF
SET STATUS OFF
CLOSE ALL
CLEAR
USE STUDENT IN 1
SELE 1
DO IBOKDX WITH 'AD_NO'

NUM=SPACE(8)
FN=SPACE(15)
LN=SPACE(25)
DB={ / / }
ST=SPACE(15)
DEG=SPACE(5)
SX=SPACE(1)
MJ=SPACE(15)
FY=SPACE(15)
ADR=SPACE(25)
ANS='Y'
PRIVATE ll_cursor,lc_display,lc_status,ll_carry,lc_proc
ll_cursor=SET("cursor")="ON"
lc_display= SET ("Display")
lc_status=SET("Status")
IF lc_status="OFF"
  SET STATUS ON
ENDIF
DO WHILE ANS='Y'
 @ 1,14 TO 22,75 DOUBLE
 @ 2,24 SAY "STUDENT'S PERSONAL DATA"
 @ 4,17 SAY "ENTER ADMISSION NUMBER:-"
 @ 4,45 GET NUM PICTURE "!!!!!!!!"
 @ 6,17 SAY "STUDENT'S SURNAME:-"
 @ 6,45 GET FN PICTURE "!!!!!!!!!!!!!!!"
 @ 8,17 SAY "OTHER NAME(S):-"
 @ 8,45 GET LN PICTURE "!!!!!!!!!!!!!!!!!!!!!!!!!"
 @ 10,17 SAY "DATE OF BIRTH & SEX:-"
 @ 10,45 GET DB PICTURE "MM/DD/YY"
 @ 10,56 GET SX PICTURE "!"
 @ 12,17 SAY "STATE OF ORIGIN:-"
 @ 12,45 GET ST PICTURE "!!!!!!!!!!!!!!!"
 @ 14,17 SAY "DEGREE SOUGHT:-"
 @ 14,45 GET DEG PICTURE "!!!!!"
* @ 16,17 SAY "SEX:-"
* @ 16,45 GET SX PICTURE "!"
 @ 16,17 SAY "MAJOR COURSE:-"
 @ 16,45 GET MJ PICTURE "!!!!!!!!!!!!!!!"
 @ 18,17 SAY "FACULTY:-"
 @ 18,45 GET FY PICTURE "!!!!!!!!!!!!!!!"
 @ 20,17 SAY "CURRENT ADDRESS:-"
 @ 20,45 GET ADR PICTURE "!!!!!!!!!!!!!!!!!!!!!!!!"
 READ

 IF SEEK(NUM,1)
    EXIST =.T.
 ELSE
    EXIST=.F.

    IF LEN(FN)<15
       FN=FN+SPACE(15-LEN(FN))
    ENDIF

    IF LEN(LN)<25
       LN = LN+SPACE(25-LEN(LN))
    ENDIF

    IF LEN(ST) < 15
        ST=ST+SPACE(15-LEN(ST))
    ENDIF

    IF LEN(MJ)< 15
       MJ=MJ+SPACE(15-LEN(MJ))
    ENDIF

    IF LEN(FY)< 15
       FY=FY +SPACE(15-LEN(FY))
    ENDIF

    IF LEN(ADR) < 25
       ADR=ADR+SPACE(25-LEN(ADR))
    ENDIF

    APPEND BLANK
    REPLACE  AD_NO  WITH  NUM,S_NAME  WITH  FN,O_NAME  WITH
LN,D_OF_B WITH DB,;
            STATE WITH ST,DEGREE WITH DEG,SEX WITH SX,MAJOR
WITH MJ,;
            FACULTY WITH FY,ADDRESS WITH ADR
 ENDIF
 NUM=SPACE(8)
 FN=SPACE(15)
 LN=SPACE(25)
 DB={ / / }
 ST=SPACE(15)
 DEG=SPACE(5)
 SX=SPACE(1)
 MJ=SPACE(15)
 FY=SPACE(15)
 ADR=SPACE(25)

 CLEAR
 IF EXIST
    @ 23,17 SAY "THE STUDENT WAS REGISTERED"
 ENDIF
 @ 24,17 SAY "DO YOU WISH TO ENTER ANOTHER STUDENT? (Y/N)"
 @ 24,71 GET ANS PICTURE "Y"
 READ
 CLEAR
 ENDDO

 IF lc_status="OFF"
    SET STATUS OFF
 ENDIF

 IF .NOT. ll_cursor
   SET CURSOR OFF
 ENDIF
 IF SET("Display") <>lc_display
    SET DISPLAY TO &lc_display
 ENDIF
 RELEASE lc_fields,lc_status
  IF TYPE ("ll_echo")="L"
    IF ll_echo
      set echo ON
    ENDIF
  ENDIF
 CLOSE ALL
 RETURN

****    STENTRY.PRG  ***********

SET TALK OFF
SET EXACT OFF
CLOSE ALL
CLEAR
USE STCOURSE IN 1
SELE 1
DO IBOKDX WITH 'AD_NO+STR(YEAR,1)'
NUM=SPACE(8)
CD=SPACE(7)
GD=SPACE(1)
YR=0
DY=SPACE(5)
ANS='Y'
PRIVATE ll_cursor,lc_display,lc_status,ll_carry,lc_proc
ll_cursor = SET("cursor") ="ON"
SET CURSOR ON
```

```
lc_display =SET("Display")
lc_status =SET("STATUS")
IF lc_status ="OFF"
  SET STATUS ON
ENDIF
DO WHILE ANS='Y'
 @ 1,14 TO 15,65 DOUBLE
 @ 2,24 SAY 'STUDENT COURSE ENTRY FORM'
 @ 4,17 SAY 'REGISTRATION NO.: '
 @ 4,48 GET NUM PICTURE "!!!!!!!!!"
 @ 6,17 SAY 'COURSE CODE:'
 @ 6,48 GET CD PICTURE "!!!!!!!"
 @ 8,17 SAY 'GRADE SCORED:'
 @ 8,48 GET GD PICTURE "!"
 @ 10,17 SAY 'YEAR THE COURSE IS TAKEN:'
 @ 10,48 GET YR PICTURE "9"
 @ 12,17 SAY 'DATE YEAR (SESSION):'
 @ 12,48 GET DY PICTURE "!!!!!"
 READ
 LOCATE FOR (NUM=AD_NO .AND. CD =CODE) .AND. YR=YEAR
 IF FOUND()
    EXIST=.T.
 ELSE
   EXIST=.F.
   APPEND BLANK
   REPLACE AD_NO WITH NUM,CODE WITH CD,GRADE WITH GD,YEAR
   WITH YR,; Y_DATE WITH DY
 ENDIF
 NUM=SPACE(8)
 CD=SPACE(7)
 GD=SPACE(1)
 DY=SPACE(5)
 YR=0
 CLEAR
 IF EXIST
   @ 15,10 SAY "THE RECORD IS REGISTERED"
 ENDIF
 @ 16,10 SAY "DO YOU WISH TO ENTER ANOTHER COURSE? (Y/N)"
 @ 16,58 GET ANS PICTURE "Y"
 READ
 CLEAR
ENDDO
IF lc_status ="OFF"
  SET STATUS OFF
ENDIF
IF .NOT. ll_cursor
  SET CURSOR OFF
ENDIF
IF set("Display") <> lc_display
   SET Display To &lc_display
ENDIF
RELEASE lc_fields,lc_status
  IF TYPE ("ll_echo") ="L"
   IF ll_echo
     SET ECHO ON
   ENDIF
  ENDIF
CLOSE ALL
RETURN

********  GENTRS.PRG  *********
PARA THIS_NO
FNAME = THIS_NO
******* ensure that THIS_NO is eight characters long ****
IF LEN(THIS_NO)<8
   THIS_NO = THIS_NO + SPACE(8-LEN(THIS_NO))
ENDIF
SET TALK OFF
CLEAR
CLOSE ALL
SET PRINT TO FILE &FNAME
SET PRINT ON
??CHR(15)
USE STUDENT IN 1
SELE 1
DO IBOKDX WITH 'AD_NO'
USE COURSE IN 2
SELE 2
DO IBOKDX WITH 'CODE'
USE STCOURSE IN 3
SELE 3
DO IBOKDX WITH 'AD_NO+STR(YEAR,1)'
FIRST=0
LAST=0
TOTAL_UNIT=0
TOTAL_GP=0
GPTD = 0
G_YEAR = ''
TT = 41
YR2=0
YR3=0
YR4=0
DECLARE CL1[45],CL2[45],CL3[45],CL[135]
STORE '' TO CL1[1],CL2[1],CL3[1],CL[1]
SYST=1
LST=0
FINDSYST=0
DO FIRST_LAST WITH FIRST, LAST
G_YEAR = '19'+SUBSTR(YEAR_DATE(LAST),4)
DO HISHEADER WITH THIS_NO
? SPACE(TT)
? SPACE(TT)
YR = FIRST
DO WHILE YR<=LAST
 ST=CENT(CHR(27)+'E'+UG(YR)+''+YEAR_DATE(YR)+CHR(27)+'F')
   DO PUTCL WITH LEFT(ST,TT),LST
   ST = CENT('(2 Semesters)')
   DO PUTCL WITH LEFT(ST,TT),LST
   DO PUTCL WITH SPACE(TT),LST
   DO DISPLAY WITH THIS_NO, YR, LST
   DO PUTCL WITH SPACE(TT),LST
   ST = CENT('Units to date
   DO PUTCL WITH LEFT(ST,TT),LST
   ST = CENT('GP to date        : '+ STR(TOTAL_GP,4))
   DO PUTCL WITH LEFT(ST,TT),LST
   GPTD = TOTAL_GP/TOTAL_Unit
   ST = CENT('GPA to date       : '+ STR(GPTD, 4,2))
   DO PUTCL WITH LEFT(ST,TT),LST
   DO PUTCL WITH SPACE(TT),LST
   IF (FIRST=2) .AND. (LAST=4)
      DO CASE
         CASE YR=2
             YR2=LST
         CASE YR=3
             YR3=LST-YR2
         CASE YR=4
             YR4=LST-YR3-YR2+2
      ENDCASE
   ENDIF
   YR=YR+1
ENDDO
YR=YR-1
ST = CENT(CHR(27)+'E'+'CLASS OF DGREE'+CHR(27)+'F')
DO PUTCL WITH LEFT(ST,TT),LST
FINDSYST = val(substr(Year_Date(last),4))
SYST= GOT_SYST( FINDSYST)
IF SYST = 1
     DO PUTCL WITH CENT(OLDCLASS(GPTD)),LST
ELSE
     DO PUTCL WITH CENT(CLASS(GPTD)),LST
ENDIF
IF FIRST = 2 .AND. LAST = 4
   DO DISTRI
   M = MAXM(YR2,YR3,YR4)
   DO COMP_CL1 WITH M, YR2
   DO COMP_CL2 WITH M, YR3
   DO COMP_CL3 WITH M, YR4
ELSE
  DO CASE
     CASE MOD(LST,3)=0
        M=INT(LST/3)
     CASE MOD(LST,3)=1
        M= INT(LST/3)+1
        DO PUTCL WITH SPACE(TT), LST
        DO PUTCL WITH SPACE(TT), LST
     CASE MOD(LST,3)=2
        M= INT(LST/3)+1
        DO PUTCL WITH SPACE(TT),LST
    ENDCASE
    DO DISTRI2
ENDIF
I=1
DO WHILE I<=M
  ?CL1[I]+'  '+CL2[I]+'  '+CL3[I]
  I=I+1
ENDDO
SET PRINT OFF
CLOSE PRINTER
CLOSE ALL
CLEAR
RETURN

**********   END OF MAIN PROGRAM  ************

PROC DISTRI2
     I=1
     J=1
     DO WHILE J<=M
         CL1[J] = CL[I]
         J=J+1
         I=I+1
     ENDDO
     J=1
     DO WHILE J<=M
        CL2[J] = CL[I]
        J=J+1
        I=I+1
     ENDDO
     J=1
     DO WHILE J<=M
        CL3[J] = CL[I]
        J=J+1
        I=I+1
     ENDDO
RETURN

PROC DISTRI
     I=1
     J=1
     DO WHILE J<=YR2
         CL1[J] = CL[I]
         J=J+1
         I=I+1
     ENDDO
     J=1
     DO WHILE J<=YR3
        CL2[J] = CL[I]
        J=J+1
        I=I+1
     ENDDO
     J=1
     DO WHILE J<=YR4
        CL3[J] = CL[I]
        J=J+1
        I=I+1
     ENDDO
RETURN

PROC COMP_CL1
     PARA  NEW, OLD
     DO WHILE OLD < NEW
         OLD = OLD +1
         CL1[OLD]=SPACE(TT)
     ENDDO
```

```
RETURN

PROC COMP_CL2
     PARA NEW, OLD
     DO WHILE OLD < NEW
         OLD = OLD +1
         CL2[OLD]=SPACE(TT)
     ENDDO
RETURN

PROC COMP_CL3
     PARA NEW, OLD
     DO WHILE OLD < NEW
         OLD = OLD +1
         CL3[OLD]=SPACE(TT)
     ENDDO
RETURN

FUNC MAXM
     PARA A,B,C
     M=A
     IF M<B
        M=B
     ENDIF
     IF M<C
        M=C
     ENDIF
RETURN M

FUNC CENT
     PARA ST
     IF LEFT(ST,1) = CHR(27)
        CHNO = LEN(ST)-4
     ELSE
        CHNO = LEN(ST)
     ENDIF
     SP = TT-CHNO
     ST = SPACE(SP/2)+ST+SPACE((SP/2)+1)
     ST = LEFT(ST,TT)
RETURN ST

FUNC OLDCLASS
     PARA GP
     DO CASE
        CASE (GP>=3.40)
          DG='FIRST CLASS HONS'
        CASE (GP>=2.75)
          DG='SECOND CLASS HONS., UPPER DIVISION'
        CASE (GP>=2.0)
          DG='SECOND CLASS HONS., LOWER DIVISION'
        CASE (GP>=1.50)
          DG='THIRD CLASS HONS.'
        OTHERWISE
          DG ='PASS'
     ENDCASE
RETURN DG
```

```
FUNC CLASS
     PARA GP
    DO CASE
        CASE (GP >= 4.50)
          DG='FIRST CLASS HONS'
        CASE (GP >= 3.50)
          DG='SECOND CLASS HONS., UPPER DIVISION'
        CASE (GP>= 2.40)
          DG='SECOND CLASS HONS.,LOWER DIVISION'
        CASE (GP>=1.50)
          DG='THIRD CLASS HONS.'
        OTHERWISE
          DG='PASS'
        ENDCASE
RETURN DG

PROC FIRST_LAST      && Find the first and last year
   PARA FIRST, LAST
   SELE 3
   POS = RECNO()
   LOCATE FOR AD_NO = THIS_NO
   FIRST = YEAR
   SCAN WHILE (C->AD_NO=THIS_NO)
      LAST = YEAR
   ENDSCAN
   GO POS
RETURN
&& Finds the year date given student year
FUNC YEAR_DATE
   PARA YR
   SELE 3
   POS=RECNO()
   LOCATE FOR (AD_NO = THIS_NO) .AND. (YEAR=YR)
   GOT_IT = Y_DATE
   GO POS
RETURN GOT_IT

FUNC GOT_SYST
 PARA TM
 IF TM >= 92
  SYST = 2
 ELSE
  SYST =1
 ENDIF
RETURN SYST

PROC HISHEADER    && Display Student personal details
   PARA NUM
   SELE 1
   IF SEEK(NUM,1)
       ? 'Students Name:-  '+S_NAME+O_NAME+SPACE(5)
       ?? 'Registration No:-  '+AD_NO
       ? 'Degree Sought :- '+ DEGREE+ SPACE(5)
       ?? 'Major Course :- '+ MAJOR+SPACE(5)
       ?? 'Faculty  :- '+FACULTY
       ? 'State of Origin      '+STATE
       ?? 'Date of Birth :-  '+DTOC(D_OF_B) + SPACE(5)
       ?? 'Date of Graduation  :- '+g_year
   ENDIF
RETURN

PROC DISPLAY  &&Display course code,tittle,etc for a given
year
  PARA NUM,YR,LST
  SELE 3
  IF SEEK(NUM+STR(YR,1),3)
    DO WHILE (C->AD_NO=NUM) .AND. (C->YEAR=YR)
      CH1 = ' '
      IF SYST =1
        PT = OLDWT(GRADE)
      ELSE
        PT = WT(GRADE)
      ENDIF
      CD = SUBSTR(CODE,1,3)+' '+SUBSTR(CODE,4)+' '
      SELE 2
      IF SEEK(C->CODE,2)
        TTL = TITTLE+SPACE(25-LEN(TITTLE))
        TOTAL_GP = TOTAL_GP + PT*UNIT
        TOTAL_UNIT = TOTAL_UNIT + UNIT
        UT= STR(UNIT,3)+C->GRADE
        IF PT*UNIT>=10
          GP= STR(PT*UNIT,2)
        ELSE
          GP= STR(PT*UNIT,1)+' '
        ENDIF
       ENDIF
       IF PT = 0    && If he/she fail this course
        CH1 = '*'
       ELSE
 IF C->YEAR <> C_YEAR  &&If this is not this year's course
  SELE 3
  POS = RECNO()
  TEMP = CODE
  SKIP
  && Has it been taken before
  LOCATE FOR (CODE=TEMP) .AND. (YEAR <YR)
  IF FOUND()
   TOTAL_UNIT = TOTAL_UNIT - B->UNIT
   CH1 = '*'
  ENDIF
  GO POS
  ENDIF
 ENDIF
 SELE 3
 SKIP
 DO PUTCL WITH CH1+CD+TTL+UT+GP,LST
 ENDDO
 ENDIF
RETURN

FUNC WT && Compute GP for a given grade using new system
  PARA LETTER
```

```
   DO CASE
     CASE LETTER = 'A'
          PNT = 5
     CASE  LETTER = 'B'
          PNT = 4
     CASE LETTER = 'C'
          PNT = 3
     CASE LETTER = 'D'
          PNT = 2
     CASE LETTER = 'E'
          PNT = 1
     CASE LETTER = 'F'
         PNT = 0
   ENDCASE
RETURN PNT

FUNC OLDWT  && Compute GP for a given grade,using oldsystem
   PARA LETTER
   DO CASE
     CASE LETTER = 'A'
          PNT = 4
     CASE  LETTER = 'B'
          PNT = 3
     CASE LETTER = 'C'
          PNT = 2
     CASE LETTER = 'D'
          PNT = 1
     CASE LETTER = 'F'
          PNT = 0
   ENDCASE
RETURN PNT

PROC PUTCL
    PARA ST,LST
    LST = LST+1
    CL[LST] = ST
RETURN

FUNC UG
   PARA YR
   DO CASE
      CASE YR = 1
         LV = 'UG I  '
      CASE YR = 2
         LV = 'UG II '
      CASE YR = 3
         LV = 'UG III'
      CASE YR = 4
         LV = 'UG IV '
      CASE YR = 5
         LV = 'UG V  '
      CASE YR = 6
         LV = 'UG VI '
   ENDCASE
RETURN LV
```

Chapter 5

These chapter compares the new system against the existing system showing the advantages contained in the new system over the old system.

(a) Efficiency The processing of the transcripts being done manually by the existing system, and which involve laborious and time consuming arithmetical computations. The system is now automated by the new system, making the handling of the process just a matter of seconds. Thus the new system will save both time and effort.

(b) Accuracy The possibility of making mistakes when processing the transcript have been eliminated by the new system since the algorithms for performing the processes have been built into the system, and the computer simply executes the algorithms, the task which it performed better than humans.

(c) Centralisation When the proposed computer integration of the Nigerian University is completed, the new system can be used as a central system, which apart from avoiding the duplication of effort will also provides a more comprehensive information for each student.

(d) Continuity the new system is very consistent with the existing system.

- The report generated by the new system can be used in exactly the same way as that produce by the old system . The processing of the transcript by the new system follow the same algorithms as the existing system. Thus the users of the existing system will find no significant change in the new system, except that it is automated, making life much easier.

(e) Information Access Accessing information is much faster in the new system since the transcript can be generated at any time and with no effort required from the user other than selecting the appropriate options from the system menu.

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