PROJECT REPORT – C PROGRAMMING

STUDENT MANAGEMENT SYSTEM

NAZIRAH BINTI ROHANI @ ALIAS (A184699)

NATRAH BINTI ABDULLAH (A178271)

SASHNEETA A/P SUBAHAR (A174559)

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TTK2053 – COMPUTING PROGRAM

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DR. WANDEEP KAUR

STUDENT MANAGEMENT SYSTEM

1. INTRODUCTION

A higher educational institution usually receive a big number of students entrance each year. Therefore, a good management system is needed to manage numerous inputs, records and information regarding students admission as well as student educational information.

It is extremely important to have a good **Student Management System** that will manage student records. This will overcome existing problems occurring in maintenance of students information. This system is able to store a good amount of student's data hence encourage the process to be paperless and able to reduce unnecessary paperwork in maintaining student's information. This system will also be easily used by system administrator with any academic background thus adding more efficiency in human resource utilization.

This system will have features such as Add, Update and Delete student's records. Besides the main feature mentioned previously, it will also enable administrator to Find student's record using matric number as well as show total number of students currently. This program will be created with C programming and an online compiler OnlineGB.com

2. SYSTEM SPECIFICATION / FUNCTION MODULES

The programming language that will be used in making this system is C programming. The main page is the introduction of the system which also displays the main menu. The main menu consist of options:

TO ADD STUDENT'S PARTICULARS: This will allow the user to enter information of new student.

TO FIND STUDENT'S DETAIL BY MATRIC NUMBER: This function is to find student record for the given matric number.

TO FIND TOTAL NUMBER OF STUDENTS: This function allows user to view the total number of students in system currently as well as know how many more students' data can be added into system.

TO DELETE A STUDENT'S DETAILS BY MATRIC NUMBER: This function is to delete the specific student's details for the given matric number.

TO UPDATE STUDENT'S DETAILS BY MATRIC NUMBER: This function is to update specific student's details for the given matric number.

EXIT: If the user wants to take a break or has finish up the task, then this function allows users to quit from the system and close.

3. PROGRAM (INPUT AND OUTPUT / OUTPUT) SPECIFICATIONS

NO.	DATA	DATA TYPE	SIZE
1.	First Name	Char	50
2.	Last Name	Char	50
3.	Matric Number Justification: Initially, we thought of allowing user to input matric number of student, in the format of UKM Student's matric number(ex: A123456). However we realized allowing user to input char and integer as a string together, might allow human error. That leads to system inefficiency as well. Therefore, we changed Matric Number type to Integer where our system Automatically adds the char 'A' preceding user's input for matric number. This allows us to achieve the format desired for matric number as well as prevent human error.	Char CHANGED TO : Integer	7 CHANGED TO 6
4.	CGPA	Double	2 Decimal places

NO.	DATA	DATA TYPE	SIZE
	Justification: There are chances for student's CGPA to have more than 2 decimal places. Restricting CGPA to 2 decimal places might round off the actual CGPA. Moreover, float allows up to 6 decimal places which means more precision and student can enter their exact CGPA. Therefore, we chose to use float rather than double.	CHANGED TO: Float	CHANGED TO: 6 decimal places
5.	Registered Courses ID Justification: Initially, we thought of allowing user to input Courses ID, in the format of UKM Courses ID(ex: TTTK1234). Allowing extra size, we allocated the size of 10 instead of 8 for Courses ID previously. However we realized allowing user to input char and integer as a string together, might allow human error during input. That leads to system inefficiency as well. Therefore, we changed the Course ID type to Integer and limited system to allow 4 integer only for Courses ID(ex: TTTK1234(old format) >- 1234(new format)). This will prevent human errors.	Char CHANGED TO: Integer	10 CHANGED TO: 4

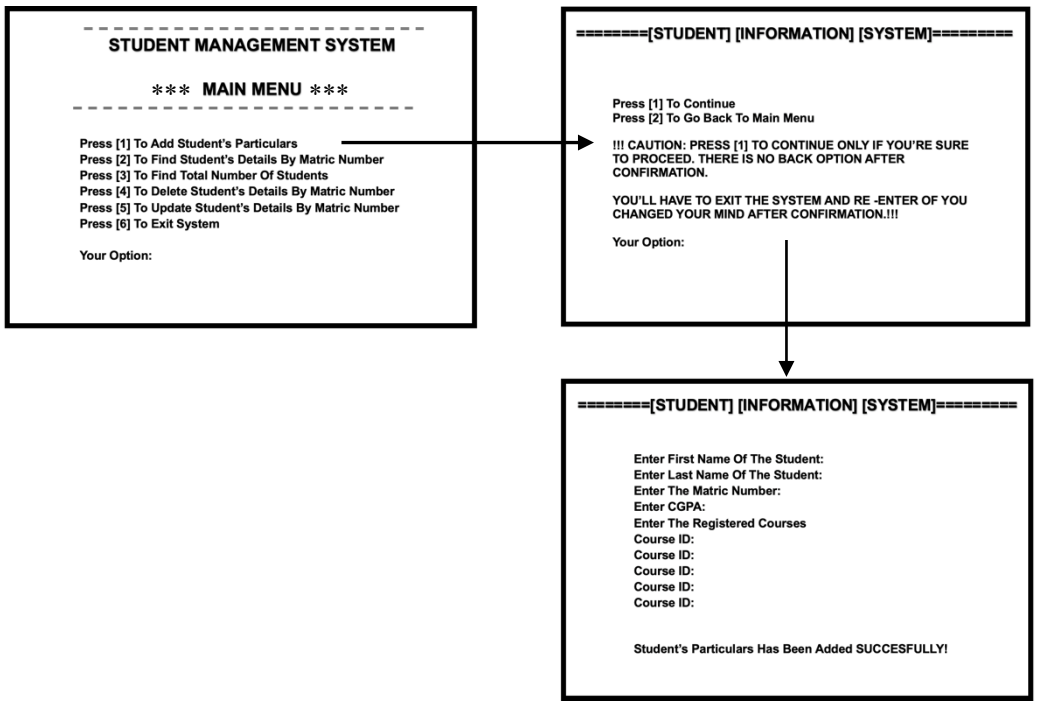
NO.	ITEM NAME	DESCRIPTION
1.	Add Student Particulars	This function gets data(First Name, Last Name, Matric Number, CGPA, Registered Courses ID (5 courses)) from user and add a student to the list of students. Justification: Previously we thought of allowing 5 courses at maximum which means students can register less than 5 courses, and the number of courses registered by each

NO.	ITEM NAME	DESCRIPTION
		student varies. However, we decided to fix the number of courses registered by students to 5 to allow a standard, fixed storage of courses ID registered by each student.
2.	Update Student Particulars	This function is to update the student particulars. User chooses desired field to update based on data given in fields during Add Student Details function by using student's matric number.
3.	Delete A Student Record	This function is to delete the student record for the given matric number.
4.	Find Student By The Given Matric Number	This function is to find the student record for the given matric number.
5.	Total Number Of Students	This function allows user to view the total number of students in system currently as well as know how many more students' data can be added (maximum 100) into system.

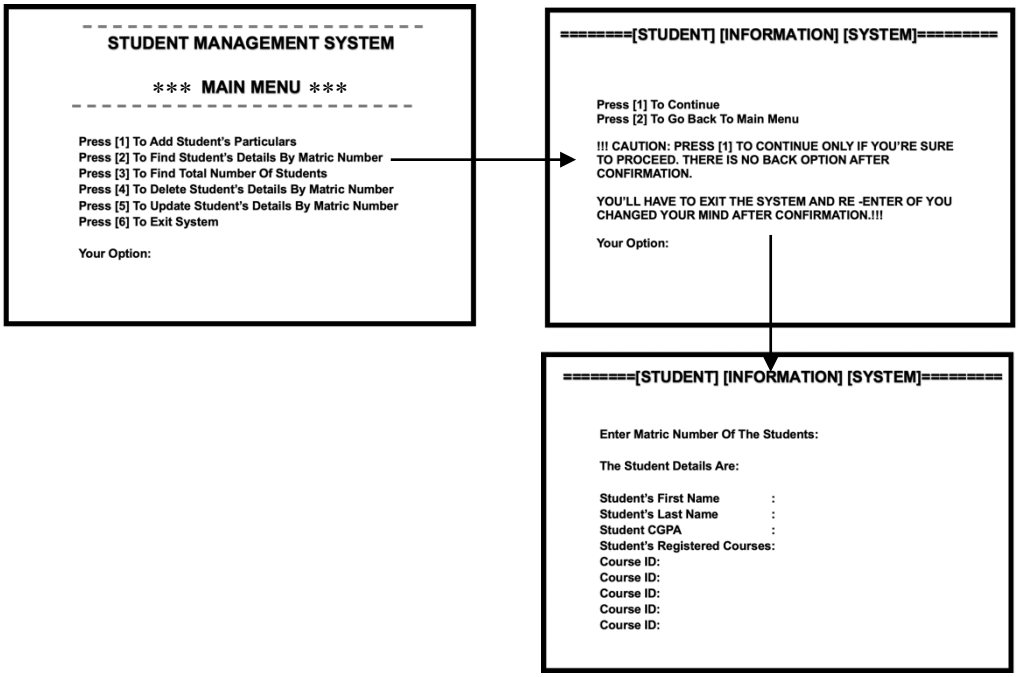
4. SCREEN DESIGN

The following are the system screen design from the Main Page to Total Number of Student's.

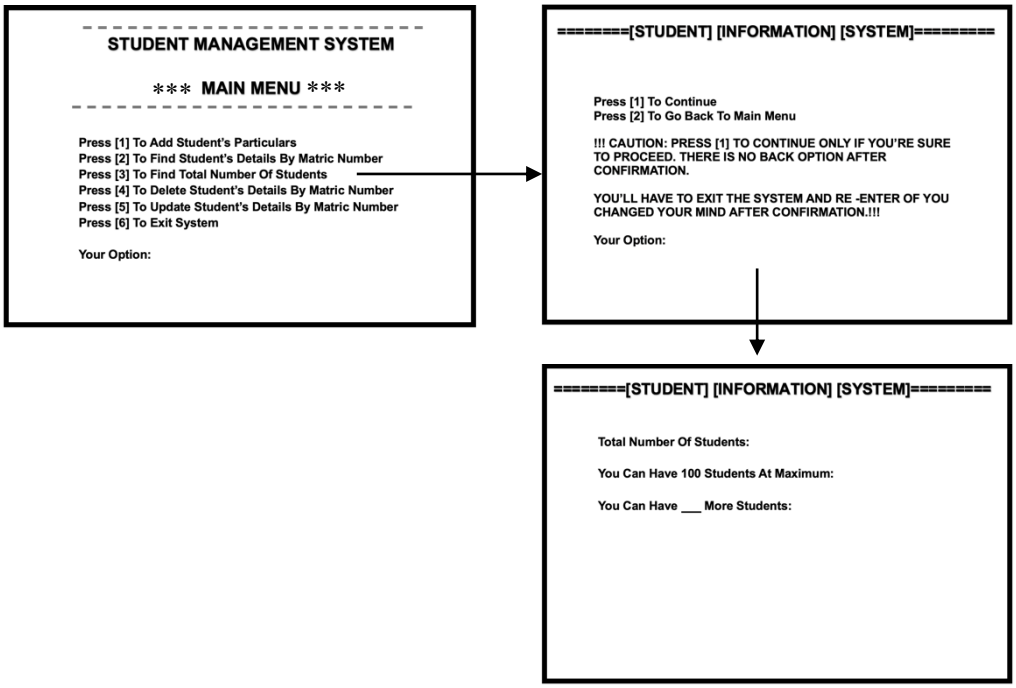
4.1 To Add Student



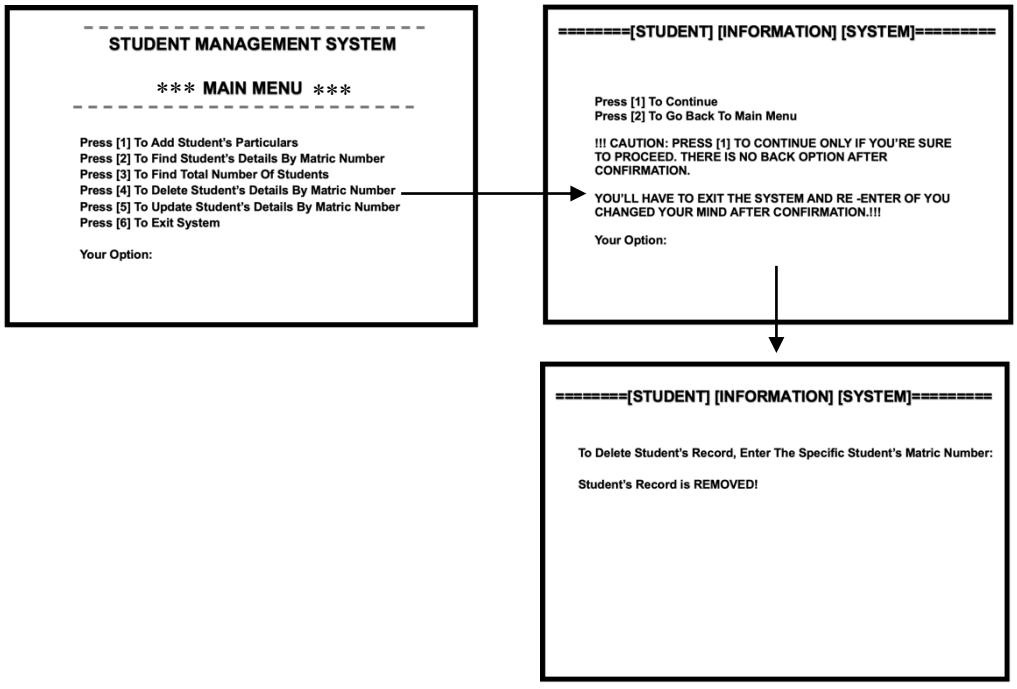
4.2 To Find Student's Details By Matric Number



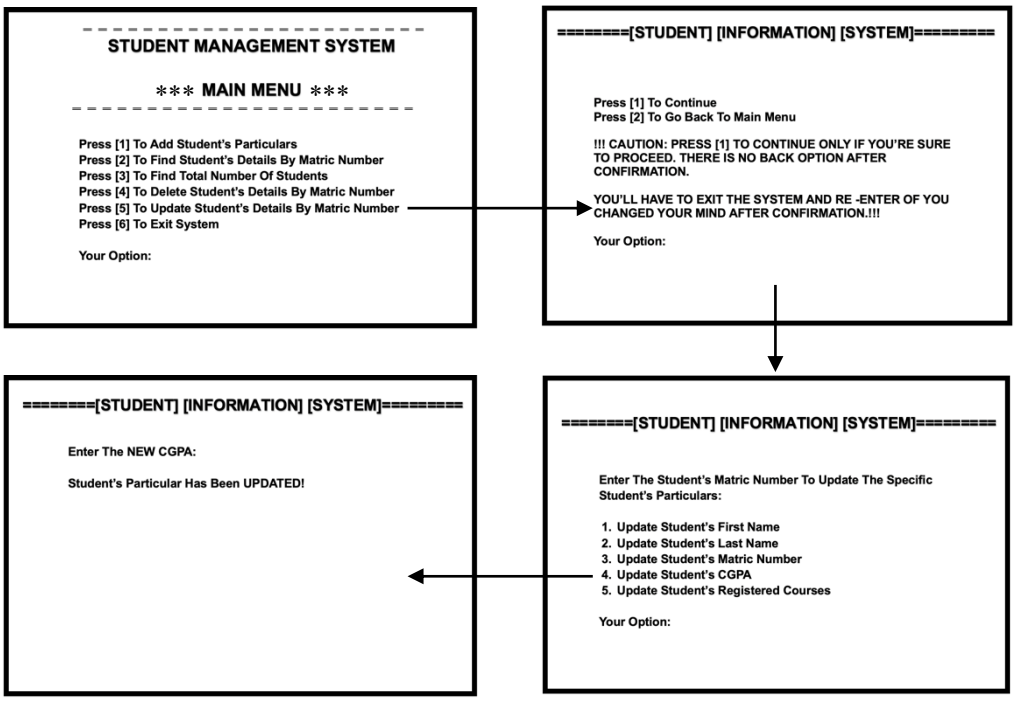
4.3 To Find Total Number of Students



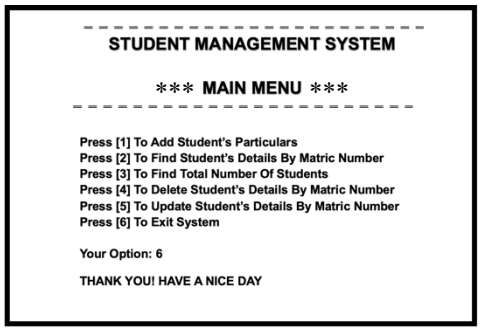
4.4 To Delete Student's Details by Matric Number



4.5 To Update Student's Details By Matric Number

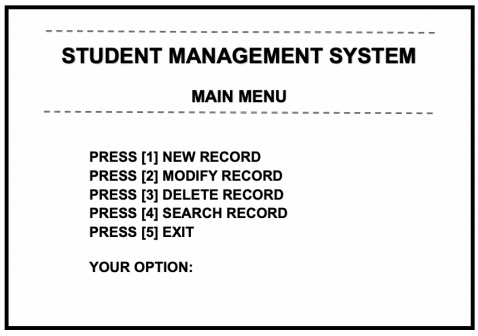


4.6 To Exit System

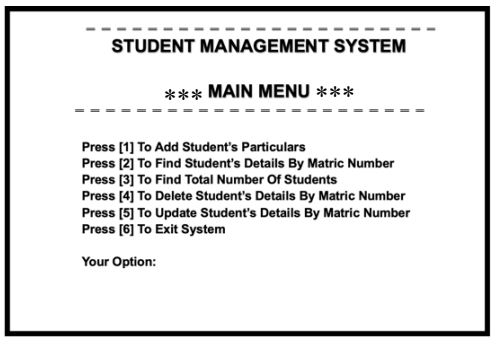


There are few changes made on the main screen design. The old design was too simple and we believe it will not convey the overall intention of the system. There for we added little touch on the design, making it more user understandable and visually aesthetic. Below is the difference between the old main screen design and the new main screen design.

Old main screen design:-



New main screen design:-



5. PROCESSING AND VALIDATION

A. OPTIONS

The acceptable entry for the Main Menu's choices are from 1 – 6. If entry is not within the range, then error message pops up "SORRY, INVALID OPTION! PLEASE ENTER A VALID OPTION FROM THE MENU LIST. THANK YOU.

B. TO ADD STUDENT'S PARTICULARS

Before adding student's particulars, user is required to choose to Press 1 to Continue or Press 2 to Exit to the main menu. Once proceeded by Press 1, a reminder message will pop up "CAUTION: PRESS [1] TO CONTINUE ONLY If YOU'RE SURE TO PROCEED. THERE IS NO BACK OPTION AFTER CONFIRMATION. YOU'LL HAVE TO EXIT THE SYSTEM AND RE-ENTER IF YOU CHANGED YOUR MIND AFTER CONFIRMATION. There are 5 student particulars that must be fill in. Once all details are filled up, a message will show "STUDENT'S PARTICULARS HAS BEEN ADDED SUCCESFULLY!" and screen will go back to the Main Menu. All student's particular MUST be filled in according to Input/Output specification. Matric number must be 6 integer only otherwise an error message will show "INVALID! Need 6 Characters Of Input". While for uniqueness of matric number of each student, if there are any duplicate matric numbers, an error message will show "INVALID! This Student ID ALREADY EXIST!". For registered course option, only four integer input is required otherwise an error message will show "INVALID Course ID! Only 4 digits required.

C. TO FIND STUDENT DETAILS BY MATRIC NUMBER

When required Student's particulars is added, user may choose to find students details by using student's matric number. User is required to choose to Press 1 to Continue or Press 2 to Exit to the Main Menu. Once proceeded with Press 1, a reminder message will pop up "CAUTION: PRESS [1] TO CONTINUE ONLY If YOU'RE SURE TO PROCEED. THERE IS NO BACK OPTION AFTER CONFIRMATION. YOU'LL HAVE TO EXIT THE SYSTEM AND RE-ENTER IF YOU CHANGED YOUR MIND AFTER CONFIRMATION. When student's matric number is entered by user and matches any matric number that is already in record, student's particulars that was added during (ADD STUDENT) will show. Otherwise, if user entered matric number that isn't in the record, user will be redirected to main menu again; no student record will be displayed.

D. TO DELETE STUDENT'S RECORD DETAILS BY MATRIC NUMBER

User may choose To Delete Students Details By Student's Matric Number. User is required to choose to Press 1 to Continue or Press 2 to Exit to the Main Menu. Once proceeded with Press 1, a reminder message will pop up "CAUTION: PRESS [1] TO CONTINUE ONLY If YOU'RE SURE TO PROCEED. THERE IS NO BACK OPTION AFTER CONFIRMATION. YOU'LL HAVE TO EXIT THE SYSTEM AND RE-ENTER IF YOU CHANGED YOUR MIND AFTER CONFIRMATION. When student's matric number is entered and matches with any matric number that is already in system, student's record will be deleted and a confirmation message "Student's Record is REMOVED" will appear. Otherwise, if user entered matric number that isn't in the record, user will be redirected to main menu again.

E. TO UPDATE STUDENT'S DETAILS BY MATRIC NUMBER

When user Press Option to Update Student's particular, user must first choose whether to Press 1 to Continue or Press 2 to Exit to the Main Menu. Once proceeded with Press 1, a reminder message will pop up "CAUTION: PRESS [1] TO CONTINUE ONLY If YOU'RE SURE TO PROCEED. THERE IS NO BACK OPTION AFTER CONFIRMATION. YOU'LL HAVE TO EXIT THE SYSTEM AND RE-ENTER IF YOU CHANGED YOUR MIND AFTER CONFIRMATION. User is required to enter student's matric number. If user entered matric number matches with any matric

number that is already in system, user is asked to choose an option between options 1 to option 5 on which particular of student to be updated. Once updated, a message will show Student's Particular Has Been Updated". Otherwise, if user entered matric number that isn't in the record, user will be redirected to main menu again.

F. TO EXIT SYSTEM

There is only 1 option to exit the system. A message will show "THANK YOU! HAVE A NICE DAY" and system will exit.

6. PSEUDOCODES FOR EACH MODULES

PROGRAM STARTS
DECLARE integer i as 0
ASSIGN first name as char array range 50
ASSIGN last name as char array range 50
SET integer for matric number
SET cgpa as in float
SET course id in integer within array range 5
ASSIGN course_name as char array range 5
SET student number in array 100

A. ADD STUDENT MODULE

SET integer j as 0 , k as 0 and duplicate as 0
DECLARE bool check_matric equal to true
PROMPT the user to enter first name of student
STORE the name in student first name
PROMPT the user to enter last name of student
STORE the name in student last name
USE while to check_matric
ASSIGN matric_id as char array range 7
SET integer length_id start from 0
Declare integer duplicate_matric equal to zero

PROMPT the user to enter matric number of the student which start with letter 'A'

STORE the number in student matric

PRINT the matric_id

SET length_id equal to string length of matric_id

IF length_id not equal to 6

THEN print INVALID! need 6 characters of input! TRY AGAIN

SET duplicate_matric equal to 1

SET to print matric number if check_matric is true

ELSE for 0 duplicate matric

USE for when integer y is 0, y less than i and increment the y

IF student array i matric equal to student array y matric

THEN print INVALID! This Student ID ALREADY EXISTS! TRY AGAIN

SET duplicate_matric equal to 1

BREAK

IF not duplicate_matric

THEN check_matric be false

PROMPT the use to enter the cgpa of the student

STORE the value in cgpa

PROMPT the user to enter registered course id

WHILE integer less then 5

SET integer duplicated as 0

SET length for integer as 0

ASSIGN char course_name array 5

PRINT course ID

STORE value of id in course id

DECLARE length equal to string length of course_name

IF length not equal to 4

THEN print INVALID! Course ID requires only four digits! TRY AGAIN

SUBTRACT integer j with 1

FOR integer y equal to 0 , y less then j and incrementing y

IF student course_id array j equal to student course_id array y

PRINT INVALID! This Course ID ALREADY EXISTS!TRY AGAIN

SET duplicated equal to 1

BREAK

IF not duplicated

INCREMENT j

SET i equal to addition of i and 1

PRINT Student's Particulars Has Been Added SUCCESSFULLY

B. FIND STUDENT MODULE

DECLARE x s integer

PROMPT user to enter matric number of student start with letter 'A'

STORE the value in x

FOR(integer j start with 0 hence j less then equal to integer i by incrementing j)

IF (integer x equal to array student j in matric)

PRINT detail of student

SHOW student first name

SHOW student last name

SHOW student cgpa

SHOW student registered course id

FOR(integer m equal to 0 hence m less than equal to 4 by incrementing m)

PRINT each course id register by the student

BREAK

C. FIND TOTAL NUMBER OF STUDENT MODULE

PRINT statement total number of student found

PRINT statement maximum number of student can be added is 100

PRINT statement balance number of student that can be added

D. DELETE STUDENT MODULE

SET a as integer
PRINT statement delete student record by entering specific student matric number starting with letter 'A'
STORE the value in a
FOR (integer j start with 0 hence integer j must less then equal integer i by incrementing j)
IF (a equal to student array integer j in matric)
FOR (integer k should be equal to integer j hence k must less then 100 by incrementing k)
array student k equal to array student where k added with 1
SET i as decrement
PRINT statement Student's Record Is REMOVED

E. UPDATE STUDENT MODULE

PROMPT the user to enter student matric number that to be updated by begin with letter 'A'
SET integer q as 0 and duplicate as 0
ASSIGN check_matric as Boolean which equal to true
PROMPT the user to enter matric number to be updated starting with letter'A'
SET x as integer
STORE the value in x
FOR(integer j start with 0 hence integer j must less then equal integer i by incrementing j)
IF (x equal to array student integer j in matric)
GIVE user option to choose for update
DECLARE z as integer
PROMPT the user to enter the option
STORE the value in z
USE switch integer z
for case 1 :
PROMPT the user to enter new first name if choose option 1

STORE the value in array student j in first name

BREAK

for case 2 :

PROMPT the user to enter new last name if choose option 2

STORE the value in array student j in last name

BREAK

for case 3 :

PROMPT the user to enter new matric number if choose option 3

STORE the value in array student j in matric

BREAK

for case 4 :

PROMPT the user to enter new cgpa if choose option 4

STORE the value in array student j in cgpa

BREAK

for case 5 :

PROMPT the user to enter new id of registered course if choose option 5

STORE the value in array student j in course id

BREAK

PRINT statement Student's Particular Has Been UPDATED!

F. DRIVE CODE MODULE

DECLARE choice and count as integer

WHILE integer is 1

PRINT title for main screen

PRINT statement menu option

SHOW to user the option for next step

PROMPT the user to enter choice

STORE the value in choice

SWITCH for choice

case 1:

PRINT statement to enter 1 to continue

PRINT statement to enter 2 to go back to main menu

PRINT statement !!! CAUTION: PRESS [1] TO CONTINUE ONLY If YOU'RE SURE TO PROCEED. THERE IS NO BACK OPTION AFTER CONFIRMATION.YOU'LL HAVE TO EXIT THE SYSTEM AND RE-ENTER IF YOU CHANGED YOUR MIND AFTER CONFIRMATION. !!!

PROMPT user to enter choice

STORE the value in option

IF option equal to 1

THEN add_student

ELSE IF option equal to 2

GO TO main

ELSE print statement SORRY,INVALID OPTION! PLEASE ENTER A VALID OPTION FROM THE MENU LIST. THANK YOU.

BREAK

case 2:

PRINT statement to enter 1 to continue

PRINT statement to enter 2 to go back to main menu

PRINT statement !!! CAUTION: PRESS [1] TO CONTINUE ONLY If YOU'RE SURE TO PROCEED. THERE IS NO BACK OPTION AFTER CONFIRMATION.YOU'LL HAVE TO EXIT THE SYSTEM AND RE-ENTER IF YOU CHANGED YOUR MIND AFTER CONFIRMATION. !!!

PROMPT user to enter choice

STORE the value in option

IF option equal to 1

THEN find_matric

ELSE IF option equal to 2

GO TO main

ELSE print statement SORRY,INVALID OPTION! PLEASE ENTER A VALID OPTION FROM THE MENU LIST. THANK YOU.

BREAK

case 3:

PRINT statement to enter 1 to continue

PRINT statement to enter 2 to go back to main menu

PRINT statement !!! CAUTION: PRESS [1] TO CONTINUE ONLY If YOU'RE SURE TO PROCEED. THERE IS NO BACK OPTION AFTER CONFIRMATION.YOU'LL HAVE TO EXIT THE SYSTEM AND RE-ENTER IF YOU CHANGED YOUR MIND AFTER CONFIRMATION. !!!

PROMPT user to enter choice

STORE the value in option

IF option equal to 1

THEN total_students

ELSE IF option equal to 2

GO TO main

ELSE print statement SORRY,INVALID OPTION! PLEASE ENTER A VALID OPTION FROM THE MENU LIST. THANK YOU.

BREAK

case 4:

PRINT user to enter 1 to continue

PRINT user to enter 2 to go back to main menu

PRINT statement !!! CAUTION: PRESS [1] TO CONTINUE ONLY If YOU'RE SURE TO PROCEED. THERE IS NO BACK OPTION AFTER CONFIRMATION.YOU'LL HAVE TO EXIT THE SYSTEM AND RE-ENTER IF YOU CHANGED YOUR MIND AFTER CONFIRMATION. !!!

PROMPT user to enter choice

STORE the value in option

IF option equal to 1

THEN delete_student

ELSE IF option equal to 2

GO TO main

ELSE print statement SORRY,INVALID OPTION! PLEASE ENTER A VALID OPTION FROM THE MENU LIST. THANK YOU.

BREAK

case 5:

PRINT user to enter 1 to continue

PRINT statement to enter 2 to go back to main menu

PRINT statement !!! CAUTION: PRESS [1] TO CONTINUE ONLY If YOU'RE SURE TO PROCEED. THERE IS NO BACK OPTION AFTER CONFIRMATION.YOU'LL HAVE TO EXIT THE SYSTEM AND RE-ENTER IF YOU CHANGED YOUR MIND AFTER CONFIRMATION. !!!

PROMPT user to enter choice

STORE the value in option

IF option equal to 1

THEN update_student

ELSE IF option equal to 2

GO TO main

ELSE print statement SORRY,INVALID OPTION! PLEASE ENTER A VALID OPTION FROM THE MENU LIST. THANK YOU.

BREAK

case 6:

PRINT statement THANK YOU! HAVE A NICE DAY!

EXIT 0

BREAK

PRINT statement SORRY,INVALID OPTION! PLEASE ENTER A VALID OPTION FROM THE MENU LIST. THANK YOU

BREAK

PROGRAM ENDS

7. FLOW CHART FOR OVER ALL MODULES