**INFORMATICS
INSTITUTE OF
TECHNOLOGY**

Individual Coursework

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Algorithm. Student Management System

1. Start.

2. Initialize variables to store student details and user choices.

3. Display the main menu with the following options

   3.1. Enroll a new student.

   3.2 View details of a student.

   3.3 View details of all students by branch.

   3.4 Update student details.

   3.5 Mark attendance.

   3.6 View attendance.

   3.7 Exit.

4. If the user selects option 1

   4.1. Get the student ID and check that it has 9 digits.

   4.2. Get the NIC and check that it has 10 characters.

   4.3. Get the first name and check that it has a maximum of 10 characters.

   4.4 Get the last name and check that it has a maximum of 15 characters.

   4.5 Get the birthday.

   4.6 Get the address and check that it has a maximum of 15 characters.

   4.7 Get the phone number and check that it has 10 characters.

   4.8 Get the tutorial group.

   4.9 Get the center.

5. If the user selects option 2

   5.2. Get the student ID to view details.

   5.3. If the student ID is in the dataset, display the student's details.

6. If the student ID is not found, display "Student details not in database."

7. If the user selects option 3

7.1. First, get the branch name and check if there are any students from this branch.

7.2. If there are students from that branch, display the details of each student.

8. If no students are found in the branch, display "This branch has no students."

9. If the user selects option 4

9.1. First, ask for the student ID to update details.

9.2 Check if the student is in the dataset.

9.3. If the student is found, prompt for their details again and replace the old details.

9.4. If the student is not found, display "This student is not in the database."

10. If the user selects option 5

10.1. Ask for the center name and tutorial group, then filter out matching students.

10.2. Show the student IDs of each one and prompt for attendance (present or absent).

10.3. Save these attendance details in a dictionary.

11. If the user selects option 6

11.1. First, ask for the student ID and check if the student is in the database.

11.2. If the student is found, ask for the time period to view attendance.

11.3. Filter out and display attendance details within the specified time duration.

12. If the user selects option 7, display "Bye" and stop the program.

Test cases

Figure 1 - Test Case 1

Figure	Input	Expected Output	Actual Output	Result
1	No Input(auto print when code start)	Display the main menu and asking a user input.	Display the main menu and asking a user input	Pass

```
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep  5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=================== RESTART: C:\Users\User\Desktop\model 2.py ===================
                IIT Campus

                Main Menu

1. Enroll a new student
2. View details of a student
3. View details of all the students according to the branch
4. Update student details
5. Mark attendance
6. View attendance
7. Exit
                    Your Choice :
```

Figure 1 - Test Case 2

Figure	Input	Expected Output	Actual Output	Result
1	9	==Invalid input. Please enter a number between 1 and 7==	==Invalid input. Please enter a number between 1 and 7==	Pass

```
================= RESTART: C:\Users\User\Desktop\model 2.py ================
                IIT Campus

                Main Menu

1. Enroll a new student
2. View details of a student
3. View details of all the students according to the branch
4. Update student details
5. Mark attendance
6. View attendance
7. Exit
                        Your Choice : 9
Please enter a valid number
                        Your Choice :
```

Figure 1 - Test Case 3

Figure	Input	Expected Output	Actual Output	Result
1	aa	==Invalid input. Please enter a number between 1 and 7==	==Invalid input. Please enter a number between 1 and 7==	Pass

```
=================== RESTART: C:\Users\User\Desktop\model 2.py ==================
                IIT Campus

                Main Menu

1. Enroll a new student
2. View details of a student
3. View details of all the students according to the branch
4. Update student details
5. Mark attendance
6. View attendance
7. Exit
                        Your Choice : aa

== Please enter a valid number ==

                        Your Choice : |
```

Z

Figure 2 - Test Case 1

Figure	Input	Expected Output	Actual Output	Result
2	0123456789 As Student ID	Please Enter 9 Digits Student ID	Please Enter 9 Digits Student ID	Pass

```
                                IIT Campus

                          Enroll a new student

Student ID                              -   0123456789

Please Enter 9 Digits Student ID

Student ID                              -  |
```

Figure 2 - Test Case 2

Figure	Input	Expected Output	Actual Output	Result
2	123456789 As Student ID	Please Enter a Valid NIC	Please Enter a Valid NIC	Pass

```
Student ID                    -   0123456789

Please Enter 9 Digits Student ID

Student ID                    -   123456789
NIC                           -   |
```

Figure 2 - Test Case 3

Figure	Input	Expected Output	Actual Output	Result
2	abc As NIC	Going to the Student NIC input section.	Going to the Student NIC input section.	Pass

```
Please Enter a 9 Digits Student ID

Student ID                    -   123456789
NIC                           -   abc

Please Enter a Valid NIC

NIC                           -   |
```

Figure2 - Test Case 4

Figure	Input	Expected Output	Actual Output	Result
2	1234567890 As NIC	Going to the First Name input section.	Going to the First Name input section.	Pass

```
Please Enter a Valid NIC

NIC                             -   1234567890
First Name                      -  |
```

Figure 3 - Test Case 1

Figure	Input	Expected Output	Actual Output	Result
3	111111111	This student is not in the database	This student is not in the database	Pass

```
7. Exit
                          Your Choice :2

                IIT Campus

           View details of a students

Student ID                          -  111111111

 This student is not in the database

Student ID                          -  |
```

Figure 3 - Test Case 2

Figure	Input	Expected Output	Actual Output	Result
3	123456789	Print Student ID,NIC,First Name,Last Name,Tutorial Group & Center	Print Student ID,NIC,First Name,Last Name,Tutorial Group & Center	Pass

```
 This student is not in the database

Student ID                      -   123456789

NICs                            -   1234567890
Phone Number                    -   0123456789
First Name                      -   gihan
Last Name                       -   pasindu
Tutorial Group                  -   d
Center                          -   colombo

Do you want to view another student's details (yes/no)?
```

Figure 3 - Test Case 3

Figure	Input	Expected Output	Actual Output	Result
3	"no"	Print main menu again.	Print main menu again.	Pass

```
Do you want to view another student's details (yes/no)?no


                IIT Campus

                Main Menu

1. Enroll a new student
2. View details of a student
3. View details of all the students according to the branch
4. Update student details
5. Mark attendance
6. View attendance
7. Exit
                        Your Choice :
```

Figure 4- Test Case 1

Figure	Input	Expected Output	Actual Output	Result
4	"colombo" as branch name	Print NIC, Student ID, First Name, Last Name and Tutorial group of the all students in colombo branch	Print NIC, Student ID, First Name, Last Name and Tutorial group of the all students in colombo branch	Pass

```
                IIT Campus

                Main Menu

1. Enroll a new student
2. View details of a student
3. View details of all the students according to the branch
4. Update student details
5. Mark attendance
6. View attendance
7. Exit
                        Your Choice :3

                IIT Campus

        View details of all the students

Branch Name                 -  colombo

NIC                 Student ID              First Name           Last Name         Tut Group

1234567890          123456789               gihan                     pasindu                   d

Do you want to update student details (yes/no)?
```

Figure 4- Test Case 2

Figure	Input	Expected Output	Actual Output	Result
4	"galle" as branch name	Print NIC, Student ID, First Name, Last Name and Tutorial group of the all students in galle branch	Print NIC, Student ID, First Name, Last Name and Tutorial group of the all students in galle branch	Pass

```
            IIT Campus

    View details of all the students

Branch Name              -  galle

NIC              Student ID              First Name              Last Name          Tut Group

1111111111       111111111               gayan                   lakmal                       d

Do you want to update student details (yes/no)?
```

Figure 4- Test Case 3

Figure	Input	Expected Output	Actual Output	Result
4	"kurunagala" as branch name	Print NIC, Student ID, First Name, Last Name and Tutorial group of the all students in kurunagala branch	Print NIC, Student ID, First Name, Last Name and Tutorial group of the all students in kurunagala branch	Pass

```
            IIT Campus

      View details of all the students

Branch Name              -   kurunagala

NIC                 Student ID          First Name          Last Name        Tut Group

2222222222          222222222           sadun                  kalhara                  f

Do you want to update student details (yes/no)?
```

Figure 5- Test Case 1

Figure	Input	Expected Output	Actual Output	Result
5	123456789	Asking NIC	Asking NIC	Pass

```
7. Exit
                        Your Choice :4

                IIT Campus

        Update Student Details

Student ID                      -   123456789
NICs                            -   |
```

Figure 5- Test Case 2

Figure	Input	Expected Output	Actual Output	Result
5	111112222	Please enter valid student id or this student not in database	Please enter valid student id or this student not in database	Pass

```
                    Update Student Details

Student ID                        -   111112222
Please enter valid student id or this student not in database
Student ID                        -   |
```

Figure 5- Test Case 3

Figure	Input	Expected Output	Actual Output	Result
5	Input "yes" to Do you want to save new details (yes/no)?	==========Student details updated========== And print main mune	==========Student details updated========== And print main mune	Pass

```
                Update Student Details

Student ID                      -   123456789
NICs                            -   1234567890
First Name                      -   gihan
Last Name                       -   pasindu
Birth Date                      -   2002.11.12
Permanent Address               -   walasmulla
Phone Number                    -   0718596541
Tutorial Group                  -   d
Center                          -   colombo
Do you want to save new details (yes/no)? :yes

==========Student details updated==========


           IIT Campus

           Main Menu

1. Enroll a new student
2. View details of a student
3. View details of all the students according to the branch
4. Update student details
5. Mark attendance
6. View attendance
7. Exit
                    Your Choice :
```

Figure 6- Test Case 1

Figure	Input	Expected Output	Actual Output	Result
6	"Colombo" to center	Asking tutorial group	Asking tutorial group	Pass

```
                    IIT Campus

                    Main Menu

1. Enroll a new student
2. View details of a student
3. View details of all the students according to the branch
4. Update student details
5. Mark attendance
6. View attendance
7. Exit
                              Your Choice :5

              IIT Campus

            Mark attendance

Center             -      colombo
Tutorial Group     -          |
```

Figure 6- Test Case 2

Figure	Input	Expected Output	Actual Output	Result
6	"d" to tutorial group and 2024.11.12 to date	Print all students one by one in colombo center group d and asking there attendance.	Print all students one by one in colombo center group d and asking there attendance.	Pass

```
7. Exit
                          Your Choice :5

              IIT Campus

              Mark attendance

Center              -       colombo
Tutorial Group      -          d
Date        -          2024.11.14

Student ID          Absent/present

123456789           1

Do you want to save new details (yes/no)? :
```

Figure 6- Test Case 3

Figure	Input	Expected Output	Actual Output	Result
6	""yes " to Do you want to save details?	Print main menu again and ask choice number	Print main menu again and ask choice number	Pass

```
наск асссенчансе

Center            -      colombo
Tutorial Group    -         d
Date              -       2024.11.13

Student ID            Absent/present

123456789             1
Do you want to save details (yes/no)? :yes


              IIT Campus

              Main Menu

1. Enroll a new student
2. View details of a student
3. View details of all the students according to the branch
4. Update student details
5. Mark attendance
6. View attendance
7. Exit
                      Your Choice :|
```

Figure 7- Test Case 1

Figure	Input	Expected Output	Actual Output	Result
7	123456789 as Student ID	Asking start date	Asking start date	Pass

```
                Main Menu

1. Enroll a new student
2. View details of a student
3. View details of all the students according to the branch
4. Update student details
5. Mark attendance
6. View attendance
7. Exit
                        Your Choice :6



                IIT Campus

                Main Menu

Student ID                    -   123456789
From (YYYY.MM.DD)         - |
```

Figure 7- Test Case 2

Figure	Input	Expected Output	Actual Output	Result
7	2024.11.12 as start date 2024.11.13 As end date	2024.11.12 Present 2024.11.13 Absent	2024.11.12 Present 2024.11.13 Absent	Pass

```
                    IIT Campus

                Main Menu

Student ID                        -   123456789
From (YYYY.MM.DD)          - 2024.11.12
To (YYYY.MM.DD)          - 2024.11.13

Date            Present/Absent
-------------------------------
2024.11.12          Present
2024.11.13          Absent
Do you want to check another student (yes/no)
```

Figure 7- Test Case 3

Figure	Input	Expected Output	Actual Output	Result
7	"yes" to Do you want to check another student (yes/no)?	Print main menu again and ask choice number	Print main menu again and ask choice number	Pass

```
              IIT Campus

          Main Menu

Student ID                    -  123456789
From (YYYY.MM.DD)        - 2024.11.12
To (YYYY.MM.DD)        - 2024.11.13

Date          Present/Absent
------------------------------
2024.11.12          Present
2024.11.13          Absent
Do you want to check another student (yes/no)yes

              IIT Campus

          Main Menu

1. Enroll a new student
2. View details of a student
3. View details of all the students according to the branch
4. Update student details
5. Mark attendance
6. View attendance
7. Exit
                    Your Choice :|
```