**CMPE 30052**

**Data Structures and Algorithms**

**Final Project Requirement**

**Transcript Generation System**

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**Course/Year/Section:**

BSCOE 2-1

**Class Schedule:**

3:00 – 5:00 PM | WEDNESDAY


**Date Submitted:**

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**Submitted to:**

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## I. FUNCTIONS

**1. def startFeature(self)**

This function lets the user choose the student level (U, G, or B) and also asks for the degree (M, D, or B0) under the G and B student level options. Then, the system will rest for a few seconds, send you back to the menu window and keep track of what you chose.



**2. def resetVariables(self)**

Resets the variables to give space for new student

**3. def setStudentList(self)**

Read student details CSV file, save each row as a dictionary then append that dictionary to student

**4. def setStudentLevel(self)**

Ask the user to choose their student level and, if they have one, their type or degree.

**5. def setDegreeLevel(self)**

Prompt user to enter degree level

**6. def setStudentID(self)**

Prompt user to enter student ID and check if it exists in the data list

**7. def setStudentInfos(self)**

Save student information relevant to the user

**8. def isStudentRegistered(self)**

Checks if the student information given is registered in the student details csv

**9. def setStudentGrade(self)**

Read the csv file of the student, then save it to student grades

**10. def setHistory(self)**

Read the csv file of the student's previous request and save it in history

**11. def saveHistory(self)**

Save previous requests of the student via txt file

**12. def recordRequest(self, request)**

Record this request with the current date and time, save it in history list via append

**13. def menuFeature(self)**

Show all available options in menu. Asks for a choice, then redirect to that feature



**14. def detailsFeature(self, student)**

Display Details and save it in a text file.It gives information about the student, such as his or her name, stdID, number of terms, college, and department.



**15. def statisticsFeature(self, student_level, student_id)**

Show some statistics about the student's grade/record. Examples are average grade per term, minimum and maximum grades. After showing and saving the student's records, the program will clear the screen of all written information, let you rest for a few seconds, and then send you back to the menu window.

```
=============================================
Undergraduate Level
=============================================
Overall average (major and minor) for all terms: 97
Average (major and minor) of each term:
        Term 1: 96
        Term 2: 98
        Term 3: 97
        Term 4: 99

Maximum grade(s) and in which term(s): 99 in term 4, 1, 3
Minimum grade(s) and in which term(s): 95 in term 1
Do you have any repeated course(s)?: Y


Press enter to proceed ...
```

### 16. def majorTranscriptFeature(self, student_level, student_id, student)

Shows the transcript of the student's major courses. It lists the major courses, the average number of major courses taken in each term, and the average number of major courses taken from the first term to the last.



```
Name: Edgar Esguerra Jr.              Student ID: 2021-05780-MN-0
College: College1                     Department: BSCOE2
Major: 5                              Minor: 5
Level: U                              Number of terms: 4

=============================================
Term 1
=============================================
Course ID          Course Name          Credit Hours   Grade
  CS 241         Systems Programming         4           99
  CS 411          Database Systems           3           95
  CS 427       Software Engineering I        4           97

Overall Major Average: 97           Term Major Average: 97

=============================================
Term 2
=============================================
Course ID          Course Name          Credit Hours   Grade
  CS 438      Communication Networks         4           98

Overall Major Average: 97           Term Major Average: 98

=============================================
Term 3
=============================================
Course ID          Course Name          Credit Hours   Grade
  CS 461        Operating Systems            3           97

Overall Major Average: 97           Term Major Average: 97

=============================================
Term 4
=============================================
No registered major course this term.


Press enter to proceed ...
```

### 17. def minorTranscriptFeature(self, student_level, student_id, student)

It shows the student's transcript based on the courses they took in college. This transcript lists the minor courses, the average number of minor courses taken each term, and the average number of minor courses taken from the first term until the last term.

```
Name: Edgar Esguerra Jr.                    student ID: 2021-05780-MN-0
College: College1                           Department: BSCOE2
Major: 5                                     Minor: 5
Level: U                                     Number of terms: 4

=============================================
Term 1
=============================================
Course ID              Course Name            Credit Hours   Grade
  CS 101      Introduction to Computer Science     2           96

Overall Minor Average: 97                  Term Minor Average: 96

=============================================
Term 2
=============================================
Course ID              Course Name            Credit Hours   Grade
  CS 225      Data Structures and Algorithms        2           98

Overall Minor Average: 97                  Term Minor Average: 98

=============================================
Term 3
=============================================
Course ID              Course Name            Credit Hours   Grade
  CS 361         Computer Security I               3           96
  CS 357         Numerical Methods I               2           99

Overall Minor Average: 97                  Term Minor Average: 97

=============================================
Term 4
=============================================
Course ID              Course Name            Credit Hours   Grade
  CS 460      Introduction to Cryptography          3           99

Overall Minor Average: 97                  Term Minor Average: 99


Press enter to proceed ...
```

**18. def fullTranscriptFeature(self, student_level, student_id, student)**

Shows the transcript of the student's courses (both major and minor courses). It shows the student's major and minor courses on his or her transcript. This transcript shows the courses, the average of the courses in each term, and the average for all terms up to the last term.

```
Name: Edgar Esguerra Jr.                    student ID: 2021-05780-MN-0
College: College1                           Department: BSCOE2
Major: 5                                     Minor: 5
Level: U                                     Number of terms: 4

=============================================
Term 1
=============================================
Course ID              Course Name            Credit Hours   Grade
  CS 241         Systems Programming               4           99
  CS 411          Database Systems                 3           95
  CS 101      Introduction to Computer Science     2           96
  CS 427       Software Engineering I              4           97

Overall Average: 97                        Term Average: 96

=============================================
Term 2
=============================================
Course ID              Course Name            Credit Hours   Grade
  CS 225      Data Structures and Algorithms        2           98
  CS 438        Communication Networks              4           98

Overall Average: 97                        Term Average: 98

=============================================
Term 3
=============================================
Course ID              Course Name            Credit Hours   Grade
  CS 361         Computer Security I               3           96
  CS 461          Operating Systems                3           97
  CS 357         Numerical Methods I               2           99

Overall Average: 97                        Term Average: 97

=============================================
Term 4
=============================================
Course ID              Course Name            Credit Hours   Grade
  CS 460      Introduction to Cryptography          3           99

Overall Average: 97                        Term Average: 99


Press enter to proceed ...
```

**19. def previousRequestsFeature(self, history, student_id)**

It shows what this student has asked for in the past. A student, for example, asked for a major transcript last term and a full transcript this term.

```
Request      Date        Time
=====================================
  Details    28/02/2023   22:10
Statistics   28/02/2023   22:11
  Major      28/02/2023   22:12
  Minor      28/02/2023   22:12
  Full       28/02/2023   22:13

Press enter to proceed ...
```

## 20. def newStudentFeature(self)

With this feature, the user can start the program for another student after wiping the screen clean of all previous information.

```
Student Transcript Generation System
=====================================
1. Student Details
2. Statistics
3. Transcript based on major courses
4. Transcript based on minor courses
5. Full transcript
6. Previous transcript requests
7. Select another student
8. Terminate system
=====================================
Enter your Feature: 7
```

```
Select Student Level:
Undergraduate (U)
Graduate (G)
Both (B)

Choice:
```

```
Select Student Level:
Undergraduate (U)
Graduate (G)
Both (B)

Choice: G

Select your level type:
Master (M)
Doctorate (D)
Both (B0)

Choice: 2021-05784-MN-0

Please use: M/D/B0

Choice: M

Enter your Student ID: 2021-05784-MN-0

A student with the given information doesn't exists. Try Again.

Press enter to proceed ...
```

## 21. def terminateFeature(self)

With this feature, the user can end the program, and at the same time, the number of requests made during the session will be shown on the screen.

```
There was a total of 7 requests this session.
The program is closing ...
Goodbye!
```

## 22. def menuManager(self)

Asks user which feature to use, then redirects to that feature.

## 23. def buffer()

Acts as buffer to give enough time for user to read the texts

**24. def clearScreen()**

Clears the screen regardless of the OS

## II. Screenshots of Outputs:

```
Undergraduate (U)
Graduate (G)
Both (B)

Choice: U

Enter your Student ID: 2021-05780-MN-0

Press enter to proceed ...[]
```

```
Student Transcript Generation System
======================================================
1. Student Details
2. Statistics
3. Transcript based on major courses
4. Transcript based on minor courses
5. Full transcript
6. Previous transcript requests
7. Select another student
8. Terminate system
======================================================
Enter your Feature: []
```

```
Name: Edgar Esguerra Jr.
stdID: 2021-05780-MN-0
Level(s): U
Number of Terms: 4
College(s): College1
Department(s): BSCOE2

Press enter to proceed ...[]
```

```
======================================================
Undergraduate Level
======================================================
Overall average (major and minor) for all terms: 97
Average (major and minor) of each term:
        Term 1: 96
        Term 2: 98
        Term 3: 97
        Term 4: 99

Maximum grade(s) and in which term(s): 99 in term 4, 1, 3
Minimum grade(s) and in which term(s): 95 in term 1
Do you have any repeated course(s)?: Y

Press enter to proceed ...[]
```

```
Name: Edgar Esguerra Jr.              student ID: 2021-05780-MN-0
College: College1                     Department: BSCOE2
Major: 5                              Minor: 5
Level: U                              Number of terms: 4


======================================================
Term 1
======================================================
Course ID            Course Name           Credit Hours   Grade
   CS 241          Systems Programming          4           99
   CS 411          Database Systems             3           95
   CS 427          Software Engineering I       4           97

Overall Major Average: 97              Term Major Average: 97


======================================================
Term 2
======================================================
Course ID            Course Name           Credit Hours   Grade
   CS 438          Communication Networks       4           98

Overall Major Average: 97              Term Major Average: 98


======================================================
Term 3
======================================================
Course ID            Course Name           Credit Hours   Grade
   CS 461          Operating Systems            3           97

Overall Major Average: 97              Term Major Average: 97


======================================================
Term 4
======================================================
No registered major course this term.


Press enter to proceed ...[]
```

```
Name: Edgar Esguerra Jr.              student ID: 2021-05780-MN-0
College: College1                     Department: BSCOE2
Major: 5                              Minor: 5
Level: U                              Number of terms: 4

==================================================================
Term 1
==================================================================
Course ID              Course Name          Credit Hours   Grade
   CS 101      Introduction to Computer Science    2          96

Overall Minor Average: 97             Term Minor Average: 96

==================================================================
Term 2
==================================================================
Course ID              Course Name          Credit Hours   Grade
   CS 225      Data Structures and Algorithms      2          98

Overall Minor Average: 97             Term Minor Average: 98

==================================================================
Term 3
==================================================================
Course ID              Course Name          Credit Hours   Grade
   CS 361          Computer Security I             3          96
   CS 357          Numerical Methods I             2          99

Overall Minor Average: 97             Term Minor Average: 97

==================================================================
Term 4
==================================================================
Course ID              Course Name          Credit Hours   Grade
   CS 460       Introduction to Cryptography       3          99

Overall Minor Average: 97             Term Minor Average: 99


Press enter to proceed ...
```

```
Name: Edgar Esguerra Jr.              student ID: 2021-05780-MN-0
College: College1                     Department: BSCOE2
Major: 5                              Minor: 5
Level: U                              Number of terms: 4

==================================================================
Term 1
==================================================================
Course ID              Course Name          Credit Hours   Grade
   CS 241          Systems Programming             4          99
   CS 411          Database Systems                3          95
   CS 101      Introduction to Computer Science    2          96
   CS 427         Software Engineering I           4          97

Overall Average: 97                   Term Average: 96

==================================================================
Term 2
==================================================================
Course ID              Course Name          Credit Hours   Grade
   CS 225      Data Structures and Algorithms      2          98
   CS 438         Communication Networks           4          98

Overall Average: 97                   Term Average: 98

==================================================================
Term 3
==================================================================
Course ID              Course Name          Credit Hours   Grade
   CS 361          Computer Security I             3          96
   CS 461           Operating Systems              3          97
   CS 357          Numerical Methods I             2          99

Overall Average: 97                   Term Average: 97

==================================================================
Term 4
==================================================================
Course ID              Course Name          Credit Hours   Grade
   CS 460       Introduction to Cryptography       3          99

Overall Average: 97                   Term Average: 99


Press enter to proceed ...
```

```
  Request       Date        Time
=================================================
  Details     28/02/2023    22:10
 Statistics   28/02/2023    22:11
   Major      28/02/2023    22:12
   Minor      28/02/2023    22:12
   Full       28/02/2023    22:13

Press enter to proceed ...
```

```
Student Transcript Generation System
=================================================
1. Student Details
2. Statistics
3. Transcript based on major courses
4. Transcript based on minor courses
5. Full transcript
6. Previous transcript requests
7. Select another student
8. Terminate system
=================================================
Enter your Feature: 7
```

```
Select Student Level:
Undergraduate (U)
Graduate (G)
Both (B)

Choice: []

Select Student Level:
Undergraduate (U)
Graduate (G)
Both (B)

Choice: G

Select your level type:
Master (M)
Doctorate (D)
Both (B0)

Choice: 2021-05784-MN-0

Please use: M/D/B0

Choice: M

Enter your Student ID: 2021-05784-MN-0

A student with the given information doesn't exists. Try Again.

Press enter to proceed ...[]

There was a total of 7 requests this session.
The program is closing ...
Goodbye!
```