


Hei Wang Andre Law

4017 5600

Due on May 10, 2021

I certify that this submission is my original work and
meets the faculty's Expectations of Originality.

4017 5600 

Driver.cpp

```
1 // COEN 243 Project, Week 10
2 // Hei Wang Andre Law, 4017 5600
3 // Program: System that Handles the Records of Students at Concordia
4 // File: driver.cpp
5
6 #include <iostream>
7 #include <fstream>
8 #include <array>
9 #include <string>
10 #include <algorithm>
11 #include "student.h"
12 #include "faculty.h"
13 using namespace std;
14
15 int main() { // main function to test the whole system
16     //-----Faculty Start-----//
17     Faculty fa; // assign object "Faculty" to fa
18     int count;
19     int numSize1 = 41; // lines of 1 txt file
20     int numSize2 = 82; // lines of 2 txt files
21     int numSize3 = 123; // lines of 3 txt files
22     const int arraySize = 123;
23     string numMax;
24     int counterGpa = 0;
25
26     // reads studentCivil.txt and create a dynamic array
27     string* lineCivil = fa.getFile("studentCivil.txt", numSize1, &count);
28
29     // reads studentMech.txt and create a dynamic array
30     string* lineMech = fa.getFile("studentMech.txt", numSize1, &count);
31
32     // reads studentElecComp.txt and create a dynamic array
33     string* lineElecComp = fa.getFile("studentElecComp.txt", numSize1, &count);
34
35     // obtain highest number for each txt file
36     for (int i = 5; i < numSize1-8; i = i + 8) {
37         if (lineCivil[5] < lineCivil[i])
38             lineCivil[5] = lineCivil[i];
39     }
40 }
```

The highest gpa in this faculty is 4.1

Fill in the information of five students.
The following will be for student number ONE
First Name: Sam
Last Name : Tippet
Id: 123112233
Date of Birth: 1998
GPA (0 - 4.4): 2
Start Year: 2010
Completed Credit: 60
Program (B, M, P): B

The following will be for student number TWO
First Name: Park
Last Name : Pepper
Id: 987987987
Date of Birth: 2002
GPA (0 - 4.4): 3
Start Year: 2020
Completed Credit: 35
Program (B, M, P): B

The following will be for student number THREE
First Name: Larl
Last Name : Sarl
Id: 1122112211
Date of Birth: 2000
GPA (0 - 4.4): 3.5
Start Year: 2018
Completed Credit: 90
Program (B, M, P): B

The following will be for student number FOUR
First Name: Amy
Last Name : Yam
Id: 43434343
Date of Birth: 1999
GPA (0 - 4.4): 3.9
Start Year: 2020
Completed Credit: 90
Program (B, M, P): M

The following will be for student number FIVE
First Name: Tem
Last Name : Mark
Id: 654321
Date of Birth: 2000
GPA (0 - 4.4): 4.3
Start Year: 2019
Completed Credit: 45
Program (B, M, P): P

```
38         lineCivil[5] = lineCivil[i];
39     }
40     for (int i = 5; i < numSize1- 8; i = i + 8) {
41         if (lineMech[5] < lineMech[i])
42             lineMech[5] = lineMech[i];
43     }
44     for (int i = 5; i < numSize1- 8; i = i + 8) {
45         if (lineElecComp[5] < lineElecComp[i])
46             lineElecComp[5] = lineElecComp[i];
47     }
48
49     fa.highestGpa(lineCivil[5], lineMech[5], lineElecComp[5]);
50
51     /*Pseudo-Code:
52     * 1-Combine lineCivil, lineMech and lineElecComp into a single dynamic array
53     * 2-Member function for numOfUnderGrad:
54     *   a-Use linear search array => Find amount of M (masters) and P (Ph.D)
55     *   b-Use linear search array => Find amount of B (bachelor) with completed
56     *   c-Total num of students - (part a + part b) = numOfUnderGrad
57     * 3-Member function for numOfGrad:
58     *   a-Add part a and part b from point 2
59     * 4-Member function for AvgunderGrad:
60     *   a-For every underGrad found previously, determine their info and locate
61     *   b-Add specific array pointer, then divide by numOfUnderGrad for the aver
62     * 5-Member function for avgGrad:
63     *   a-For all graduate found earlier, determine their info, locate their gpa
64     *   b-Add this array pointer together and divide by total amount of graduate
65     */
66
67     //fa.numUnderGrad();
68     //fa.numGrad();
69     //fa.avgunderGrad();
70
71     //-----Faculty End-----//
72     //-----Student Start-----//
73     Student st1; // assign object "Student" to st1
74     Student st2; // assign object "Student" to st2
75     Student st3; // assign object "Student" to st3
76     Student st4; // assign object "Student" to st4
```

Start Year: 2019
Completed Credit: 45
Program (B, M, P): P

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA
1

Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
1
Sam

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA
2

Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321

No issues found

```

75 Student st3; // assign object "Student" to st3
76 Student st4; // assign object "Student" to st4
77 Student st5; // assign object "Student" to st5
78
79 // input variables, used in filling the txt file
80 string fName; // first name
81 string lName; // last name
82 int id; // student id
83 int birth; // date of birth
84 float gpa; // student gpa
85 int startYear; // start year date
86 float comCre; // completed credit
87 string program; // program (bachelor, master, Ph.D)
88
89 int numFunc = 0; // switch, number input performing the selected function
90 int numId; // switch, number input selecting the right student
91 float numCompareGpa1 = 0; // student 1, compare gpa function
92 float numCompareGpa2 = 0; // student 2, compare gpa function
93 int numId1; // switch, number input selecting the first student
94 int numId2; // switch, number input selecting the second student
95
96 // Request input to fill in the student.txt file, repeat five times
97 // and assign set functions for each.
98 cout << "Fill in the information of five students.";
99 cout << "\nThe following will be for student number ONE";
100 cout << "\nFirst Name: "; cin >> fName; st1.setfName(fName);
101 cout << "Last Name : "; cin >> lName; st1.setlName(lName);
102 cout << "Id: "; cin >> id; st1.setId(id);
103 cout << "Date of Birth: "; cin >> birth; st1.setDateBirth(birth);
104 cout << "GPA (0 - 4.4): "; cin >> gpa; st1.setGpa(gpa);
105 cout << "Start Year: "; cin >> startYear; st1.setStartYear(startYear);
106 cout << "Completed Credit: "; cin >> comCre; st1.setCompCredit(comCre);
107 cout << "Program (B, M, P): "; cin >> program; st1.setProgram(program);
108
109 cout << "\nThe following will be for student number TWO";
110 cout << "\nFirst Name: "; cin >> fName; st2.setfName(fName);
111 cout << "Last Name : "; cin >> lName; st2.setlName(lName);
112 cout << "Id: "; cin >> id; st2.setId(id);
113 cout << "Date of Birth: "; cin >> birth; st2.setDateBirth(birth);

```

```

11. Print Student Info
12. Compare GPA
2
Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
1
Tippot
Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA
3
Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
4
43434343
Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA

```

No issues found

```

112 cout << "Id: "; cin >> id; st2.setId(id);
113 cout << "Date of Birth: "; cin >> birth; st2.setDateBirth(birth);
114 cout << "GPA (0 - 4.4): "; cin >> gpa; st2.setGpa(gpa);
115 cout << "Start Year: "; cin >> startYear; st2.setStartYear(startYear);
116 cout << "Completed Credit: "; cin >> comCre; st2.setCompCredit(comCre);
117 cout << "Program (B, M, P): "; cin >> program; st2.setProgram(program);
118
119 cout << "\nThe following will be for student number THREE";
120 cout << "\nFirst Name: "; cin >> fName; st3.setfName(fName);
121 cout << "Last Name : "; cin >> lName; st3.setlName(lName);
122 cout << "Id: "; cin >> id; st3.setId(id);
123 cout << "Date of Birth: "; cin >> birth; st3.setDateBirth(birth);
124 cout << "GPA (0 - 4.4): "; cin >> gpa; st3.setGpa(gpa);
125 cout << "Start Year: "; cin >> startYear; st3.setStartYear(startYear);
126 cout << "Completed Credit: "; cin >> comCre; st3.setCompCredit(comCre);
127 cout << "Program (B, M, P): "; cin >> program; st3.setProgram(program);
128
129 cout << "\nThe following will be for student number FOUR";
130 cout << "\nFirst Name: "; cin >> fName; st4.setfName(fName);
131 cout << "Last Name : "; cin >> lName; st4.setlName(lName);
132 cout << "Id: "; cin >> id; st4.setId(id);
133 cout << "Date of Birth: "; cin >> birth; st4.setDateBirth(birth);
134 cout << "GPA (0 - 4.4): "; cin >> gpa; st4.setGpa(gpa);
135 cout << "Start Year: "; cin >> startYear; st4.setStartYear(startYear);
136 cout << "Completed Credit: "; cin >> comCre; st4.setCompCredit(comCre);
137 cout << "Program (B, M, P): "; cin >> program; st4.setProgram(program);
138
139 cout << "\nThe following will be for student number FIVE";
140 cout << "\nFirst Name: "; cin >> fName; st5.setfName(fName);
141 cout << "Last Name : "; cin >> lName; st5.setlName(lName);
142 cout << "Id: "; cin >> id; st5.setId(id);
143 cout << "Date of Birth: "; cin >> birth; st5.setDateBirth(birth);
144 cout << "GPA (0 - 4.4): "; cin >> gpa; st5.setGpa(gpa);
145 cout << "Start Year: "; cin >> startYear; st5.setStartYear(startYear);
146 cout << "Completed Credit: "; cin >> comCre; st5.setCompCredit(comCre);
147 cout << "Program (B, M, P): "; cin >> program; st5.setProgram(program);
148 cout << endl;
149
150 // while loop for set/get and member functions, continues until -1

```

11. Print Student Info
12. Compare GPA
4

Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
4
1999

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA
5

Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
2
3

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA

5 No issues found

```

149 // while loop for set/get and member functions, continues until -1
150 // -1: stops this loop, 1 to 8: get functions, 9 to 12: member functions
151 while (numFunc != -1) {
152     cout << "\n\nNumber input which performs the following member functions:
153     cout << "\n-1. Terminate this section";
154     cout << "\n1. Get First Name";
155     cout << "\n2. Get Last Name ";
156     cout << "\n3. Get Id ";
157     cout << "\n4. Get Date of Birth ";
158     cout << "\n5. Get GPA (0 - 4.4) ";
159     cout << "\n6. Get Start Year ";
160     cout << "\n7. Get Completed Credit ";
161     cout << "\n8. Get Program ";
162     cout << "\n9. Complete Program (0:False, 1:True";
163     cout << "\n10. Student Status";
164     cout << "\n11. Print Student Info";
165     cout << "\n12. Compare GPA\n";
166
167     // user select which function to perform with a switch case
168     cin >> numFunc;
169     switch (numFunc) {
170     case 1: // get first name case
171         cout << "\nWhich student? (Enter Number): ";
172         cout << "\n1. " << st1.getId();
173         cout << "\n2. " << st2.getId();
174         cout << "\n3. " << st3.getId();
175         cout << "\n4. " << st4.getId();
176         cout << "\n5. " << st5.getId() << endl;
177         // user determine specific student through Id
178         cin >> numId;
179         switch (numId) {
180         case 1:
181             cout << st1.getfName();
182             break;
183         case 2:
184             cout << st2.getfName();
185             break;
186         case 3:
187
11. Print Student Info
12. Compare GPA
8
Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
1
8
Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True
10. Student Status
11. Print Student Info
12. Compare GPA
9
Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
3
0
Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True
10. Student Status
11. Print Student Info
12. Compare GPA

```

```

186         break;
187     case 3:
188         cout << st3.getfName();
189         break;
190     case 4:
191         cout << st4.getfName();
192         break;
193     case 5:
194         cout << st5.getfName();
195         break;
196     default:
197         cout << "This isn't an option";
198     }
199     break;
200 case 2: // get last name case
201     cout << "\nWhich student? (Enter Number): ";
202     cout << "\n1. " << st1.getId();
203     cout << "\n2. " << st2.getId();
204     cout << "\n3. " << st3.getId();
205     cout << "\n4. " << st4.getId();
206     cout << "\n5. " << st5.getId() << endl;
207     // user determine specific student through Id
208     cin >> numId;
209     switch (numId) {
210     case 1:
211         cout << st1.getlName();
212         break;
213     case 2:
214         cout << st2.getlName();
215         break;
216     case 3:
217         cout << st3.getlName();
218         break;
219     case 4:
220         cout << st4.getlName();
221         break;
222     case 5:
223         cout << st5.getlName();
224         break;

```

10. Student Status
11. Print Student Info
12. Compare GPA
10

Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
1
C

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA
11

Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
1
Sam
Tippot
123112233
1998
2
2019
60
B

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth

6 No issues found

<pre> 222 case 5: 223 cout << st5.getIdName(); 224 break; 225 default: 226 cout << "This isn't an option"; 227 } 228 break; 229 case 3: // get id case 230 cout << "\nWhich student? (Enter Number): "; 231 cout << "\n1. " << st1.getId(); 232 cout << "\n2. " << st2.getId(); 233 cout << "\n3. " << st3.getId(); 234 cout << "\n4. " << st4.getId(); 235 cout << "\n5. " << st5.getId() << endl; 236 // user determine specific student through Id 237 cin >> numId; 238 switch (numId) { 239 case 1: 240 cout << st1.getId(); 241 break; 242 case 2: 243 cout << st2.getId(); 244 break; 245 case 3: 246 cout << st3.getId(); 247 break; 248 case 4: 249 cout << st4.getId(); 250 break; 251 case 5: 252 cout << st5.getId(); 253 break; 254 default: 255 cout << "This isn't an option"; 256 } 257 break; 258 case 4: // get date of birth id case 259 cout << "\nWhich student? (Enter Number): "; 260 cout << "\n1. " << st1.getId(); </pre>	<pre> 2019 60 8 Number input which performs the following member functions: -1. Terminate this section 1. Get First Name 2. Get Last Name 3. Get Id 4. Get Date of Birth 5. Get GPA (0 - 4.4) 6. Get Start Year 7. Get Completed Credit 8. Get Program 9. Complete Program (0:False, 1:True) 10. Student Status 11. Print Student Info 12. Compare GPA 11 Which student? (Enter Number): 1. 123112233 2. 987987987 3. 1122112211 4. 43434343 5. 654321 5 Tem Mark 654321 2000 4.3 2019 45 P Number input which performs the following member functions: -1. Terminate this section 1. Get First Name 2. Get Last Name 3. Get Id 4. Get Date of Birth 5. Get GPA (0 - 4.4) 6. Get Start Year 7. Get Completed Credit 8. Get Program 9. Complete Program (0:False, 1:True) 10. Student Status 11. Print Student Info 12. Compare GPA </pre>
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6
✓ No issues found

<pre> 259 cout << "\nwhich student? (Enter Number): "; 260 cout << "\n1. " << st1.getId(); 261 cout << "\n2. " << st2.getId(); 262 cout << "\n3. " << st3.getId(); 263 cout << "\n4. " << st4.getId(); 264 cout << "\n5. " << st5.getId() << endl; 265 // user determine specific student through Id 266 cin >> numId; 267 switch (numId) { 268 case 1: 269 cout << st1.getDateBirth(); 270 break; 271 case 2: 272 cout << st2.getDateBirth(); 273 break; 274 case 3: 275 cout << st3.getDateBirth(); 276 break; 277 case 4: 278 cout << st4.getDateBirth(); 279 break; 280 case 5: 281 cout << st5.getDateBirth(); 282 break; 283 default: 284 cout << "This isn't an option"; 285 } 286 break; 287 case 5: // get gpa case 288 cout << "\nwhich student? (Enter Number): "; 289 cout << "\n1. " << st1.getId(); 290 cout << "\n2. " << st2.getId(); 291 cout << "\n3. " << st3.getId(); 292 cout << "\n4. " << st4.getId(); 293 cout << "\n5. " << st5.getId() << endl; 294 // user determine specific student through Id 295 cin >> numId; 296 switch (numId) { 297 case 1: </pre>	<pre> Number input which performs the following member functions: -1. Terminate this section 1. Get First Name 2. Get Last Name 3. Get Id 4. Get Date of Birth 5. Get GPA (0 - 4.4) 6. Get Start Year 7. Get Completed Credit 8. Get Program 9. Complete Program (0:False, 1:True 10. Student Status 11. Print Student Info 12. Compare GPA 12 Choose two student to compare their GPA. 1. 123112233 2. 987987987 3. 1122112211 4. 43434343 5. 654321 Student n.1: 1 Student m.2:2 3 Number input which performs the following member functions: -1. Terminate this section 1. Get First Name 2. Get Last Name 3. Get Id 4. Get Date of Birth 5. Get GPA (0 - 4.4) 6. Get Start Year 7. Get Completed Credit 8. Get Program 9. Complete Program (0:False, 1:True 10. Student Status 11. Print Student Info 12. Compare GPA </pre>
---	---

No issues found

```
296 switch (numId) {
297     case 1:
298         cout << st1.getGpa();
299         break;
300     case 2:
301         cout << st2.getGpa();
302         break;
303     case 3:
304         cout << st3.getGpa();
305         break;
306     case 4:
307         cout << st4.getGpa();
308         break;
309     case 5:
310         cout << st5.getGpa();
311         break;
312     default:
313         cout << "This isn't an option";
314 }
315 break;
316 case 6: // get start year case
317     cout << "\nWhich student? (Enter Number): ";
318     cout << "\n1. " << st1.getId();
319     cout << "\n2. " << st2.getId();
320     cout << "\n3. " << st3.getId();
321     cout << "\n4. " << st4.getId();
322     cout << "\n5. " << st5.getId() << endl;
323     // user determine specific student through Id
324     cin >> numId;
325     switch (numId) {
326     case 1:
327         cout << st1.getStartYear();
328         break;
329     case 2:
330         cout << st2.getStartYear();
331         break;
332     case 3:
333         cout << st3.getStartYear();
334         break;
```

```
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321

Student n.1: 1
Student m.2:2
3

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA

Choose two student to compare their GPA.
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321

Student n.1: 1
Student m.2:5
4.3

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA
```

No issues found

```
333         cout << st3.getStartYear();
334         break;
335     case 4:
336         cout << st4.getStartYear();
337         break;
338     case 5:
339         cout << st5.getStartYear();
340         break;
341     default:
342         cout << "This isn't an option";
343     }
344     break;
345 case 7: // get completed credit case
346     cout << "\nWhich student? (Enter Number): ";
347     cout << "\n1. " << st1.getId();
348     cout << "\n2. " << st2.getId();
349     cout << "\n3. " << st3.getId();
350     cout << "\n4. " << st4.getId();
351     cout << "\n5. " << st5.getId() << endl;
352     // user determine specific student through Id
353     cin >> numId;
354     switch (numId) {
355     case 1:
356         cout << st1.getCompCredit();
357         break;
358     case 2:
359         cout << st2.getCompCredit();
360         break;
361     case 3:
362         cout << st3.getCompCredit();
363         break;
364     case 4:
365         cout << st4.getCompCredit();
366         break;
367     case 5:
368         cout << st5.getCompCredit();
369         break;
370     default:
371         cout << "This isn't an option";
    }
```

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True
10. Student Status
11. Print Student Info
12. Compare GPA

Choose two student to compare their GPA.
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321

Student n.1: 4
Student m.2:5
4.3

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True
10. Student Status
11. Print Student Info
12. Compare GPA

% No issues found

```

370         default:
371             cout << "This isn't an option";
372         }
373         break;
374     case 8: // get program case
375         cout << "\nWhich student? (Enter Number): ";
376         cout << "\n1. " << st1.getId();
377         cout << "\n2. " << st2.getId();
378         cout << "\n3. " << st3.getId();
379         cout << "\n4. " << st4.getId();
380         cout << "\n5. " << st5.getId() << endl;
381         // user determine specific student through Id
382         cin >> numId;
383         switch (numId) {
384             case 1:
385                 cout << st1.getProgram();
386                 break;
387             case 2:
388                 cout << st2.getProgram();
389                 break;
390             case 3:
391                 cout << st3.getProgram();
392                 break;
393             case 4:
394                 cout << st4.getProgram();
395                 break;
396             case 5:
397                 cout << st5.getProgram();
398                 break;
399             default:
400                 cout << "This isn't an option";
401             }
402         break;
403     case 9: // complete program function case
404         cout << "\nWhich student? (Enter Number): ";
405         cout << "\n1. " << st1.getId();
406         cout << "\n2. " << st2.getId();
407         cout << "\n3. " << st3.getId();
408         cout << "\n4. " << st4.getId();

```

```

10. Student Status
11. Print Student Info
12. Compare GPA
11

Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
3
Lar1
Sar1
1122112211
2000
3.5
2018
90
8

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA
11

Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
2
Park
Pepper
987987987
2002
3
2020
35
8

```

```

408 cout << "\n4. " << st4.getId();
409 cout << "\n5. " << st5.getId() << endl;
410 // user determine specific student through Id
411 cin >> numId;
412 switch (numId) {
413 case 1:
414     cout << st1.completeprogram();
415     break;
416 case 2:
417     cout << st2.completeprogram();
418     break;
419 case 3:
420     cout << st3.completeprogram();
421     break;
422 case 4:
423     cout << st4.completeprogram();
424     break;
425 case 5:
426     cout << st5.completeprogram();
427     break;
428 default:
429     cout << "This isn't an option";
430 }
431 break;
432 case 10: // student status function case
433     cout << "\nWhich student? (Enter Number): ";
434     cout << "\n1. " << st1.getId();
435     cout << "\n2. " << st2.getId();
436     cout << "\n3. " << st3.getId();
437     cout << "\n4. " << st4.getId();
438     cout << "\n5. " << st5.getId() << endl;
439 // user determine specific student through Id
440 cin >> numId;
441 switch (numId) {
442 case 1:
443     cout << st1.studentStatus();
444     break;
445 case 2:
446     cout << st2.studentStatus();

```

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA
3

Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
2
987987987

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA
3

Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
3
1122112211

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name

No issues found

```

445         case 2:
446             cout << st2.studentStatus();
447             break;
448         case 3:
449             cout << st3.studentStatus();
450             break;
451         case 4:
452             cout << st4.studentStatus();
453             break;
454         case 5:
455             cout << st5.studentStatus();
456             break;
457         default:
458             cout << "This isn't an option";
459     }
460     break;
461 case 11: // print student info function case
462     cout << "\nWhich student? (Enter Number): ";
463     cout << "\n1. " << st1.getId();
464     cout << "\n2. " << st2.getId();
465     cout << "\n3. " << st3.getId();
466     cout << "\n4. " << st4.getId();
467     cout << "\n5. " << st5.getId() << endl;
468     // user determine specific student through Id
469     cin >> numId;
470     switch (numId) {
471     case 1:
472         st1.printStdInfo();
473         break;
474     case 2:
475         st2.printStdInfo();
476         break;
477     case 3:
478         st3.printStdInfo();
479         break;
480     case 4:
481         st4.printStdInfo();
482         break;
483     case 5:

```

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA
1

Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
2
Park

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA
1

Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
3
Larl

Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name

No issues found

```

482         break;
483     case 5:
484         st5.printStdInfo();
485         break;
486     default:
487         cout << "This isn't an option";
488     }
489     break;
490 case 12: // compare gpa function case
491     cout << "Choose two student to compare their GPA";
492     cout << "\n1. " << st1.getId();
493     cout << "\n2. " << st2.getId();
494     cout << "\n3. " << st3.getId();
495     cout << "\n4. " << st4.getId();
496     cout << "\n5. " << st5.getId() << endl;
497     // user determine specific student through Id
498     cout << "\nStudent n.1: ";
499     cin >> numId1;
500     cout << "\nStudent m.2: ";
501     cin >> numId2;
502     switch (numId1) { // select first student
503     case 1:
504         numCompareGpa1 = st1.getGpa();
505         break;
506     case 2:
507         numCompareGpa1 = st2.getGpa();
508         break;
509     case 3:
510         numCompareGpa1 = st3.getGpa();
511         break;
512     case 4:
513         numCompareGpa1 = st4.getGpa();
514         break;
515     case 5:
516         numCompareGpa1 = st5.getGpa();
517         break;
518     default:
519         cout << "This isn't an option";
520     }

```

Number input which performs the following member functions:

- 1. Terminate this section
- 1. Get First Name
- 2. Get Last Name
- 3. Get Id
- 4. Get Date of Birth
- 5. Get GPA (0 - 4.4)
- 6. Get Start Year
- 7. Get Completed Credit
- 8. Get Program
- 9. Complete Program (0:False, 1:True)
- 10. Student Status
- 11. Print Student Info
- 12. Compare GPA

2

Which student? (Enter Number):

- 1. 123112233
- 2. 987987987
- 3. 1122112211
- 4. 43434343
- 5. 654321

4

Yam

Number input which performs the following member functions:

- 1. Terminate this section
- 1. Get First Name
- 2. Get Last Name
- 3. Get Id
- 4. Get Date of Birth
- 5. Get GPA (0 - 4.4)
- 6. Get Start Year
- 7. Get Completed Credit
- 8. Get Program
- 9. Complete Program (0:False, 1:True)
- 10. Student Status
- 11. Print Student Info
- 12. Compare GPA

2

Which student? (Enter Number):

- 1. 123112233
- 2. 987987987
- 3. 1122112211
- 4. 43434343
- 5. 654321

5

Mark

Number input which performs the following member functions:

- 1. Terminate this section
- 1. Get First Name

```
513         numCompareGpa1 = st4.getGpa();
514         break;
515     case 5:
516         numCompareGpa1 = st5.getGpa();
517         break;
518     default:
519         cout << "This isn't an option";
520     }
521     switch (numId2) { // select second student
522     case 1:
523         numCompareGpa2 = st1.getGpa();
524         break;
525     case 2:
526         numCompareGpa2 = st2.getGpa();
527         break;
528     case 3:
529         numCompareGpa2 = st3.getGpa();
530         break;
531     case 4:
532         numCompareGpa2 = st4.getGpa();
533         break;
534     case 5:
535         numCompareGpa2 = st5.getGpa();
536         break;
537     default:
538         cout << "This isn't an option";
539     }
540     // compare gpa function
541     cout << st1.compareGpa(numCompareGpa1, numCompareGpa2);
542     break;
543 default:
544     break;
545 }
546 }
547 //-----Student End-----//
548 return 0;
549 }
550
551
552
```

Microsoft Visual Studio Debug Console

```
11. Print Student Info
12. Compare GPA
2
Which student? (Enter Number):
1. 123112233
2. 987987987
3. 1122112211
4. 43434343
5. 654321
5
Mark
Number input which performs the following member functions:
-1. Terminate this section
1. Get First Name
2. Get Last Name
3. Get Id
4. Get Date of Birth
5. Get GPA (0 - 4.4)
6. Get Start Year
7. Get Completed Credit
8. Get Program
9. Complete Program (0:False, 1:True)
10. Student Status
11. Print Student Info
12. Compare GPA
-1
E:\vsCode\Project Location\COEN 243 Assignments\Project\coen243
ith code 0.
To automatically close the console when debugging stops, enable
le when debugging stops.
Press any key to close this window . . .
```

No issues found

Student.cpp

```
1  // COEN 243 Project, Week 10
2  // Hei Wang Andre Law, 4017 5600
3  // Program: System that Handles the Records of Students at Concordia
4  // File: student.cpp
5
6  #include <iostream>
7  #include <string>
8  #include <fstream>
9  #include "student.h"
10 using namespace std;
11
12 // class implementaion for 'student'
13 Student::Student() {
14     fName = "";
15     lName = "";
16     id = 0;
17     dateBirth = 0;
18     gpa = 0.0;
19     startYear = 0;
20     compCredit = 0.0;
21     program = "";
22 }
23 // All set functions opens an ofstream 'outFile' and check if it exists, if it does
24 // write specific variable into the file, then close it. (Same for all 8 setters)
25 void Student::setfName(string fName) {
26     fName = fName;
27     ofstream outFile;
28     outFile.open("student.txt", ios::app);
29     if (!outFile) {
30         cout << "Error";
31     }
32     else {
33         outFile << fName << endl;
34     }
35     outFile.close();
36 }
37 void Student::setlName(string lName) {
38     lName = lName;
39     ofstream outFile;
40     outFile.open("student.txt", ios::app);
```

✓ No issues found

Ln: 30 Ch: 19 Col: 25 TABS

```
37 void Student::setName(string lname) {
38     lname = lname;
39     ofstream outFile;
40     outFile.open("student.txt", ios::app);
41     if (!outFile) {
42         cout << "Error";
43     }
44     else {
45         outFile << lname << endl;
46     }
47     outFile.close();
48 }
49 void Student::setId(int Id) {
50     id = Id;
51     ofstream outFile;
52     outFile.open("student.txt", ios::app);
53     if (!outFile) {
54         cout << "Error";
55     }
56     else {
57         outFile << id << endl;
58     }
59     outFile.close();
60 }
61 void Student::setDateBirth(int datebirth) {
62     dateBirth = datebirth;
63     ofstream outFile;
64     outFile.open("student.txt", ios::app);
65     if (!outFile) {
66         cout << "Error";
67     }
68     else {
69         outFile << dateBirth << endl;
70     }
71     outFile.close();
72 }
73 void Student::setGpa(float Gpa) {
74     gpa = Gpa;
75     ofstream outFile;
76     outFile.open("student.txt", ios::app);
```

```

76     outFile.open("student.txt", ios::app);
77     if (!outFile) {
78         cout << "Error";
79     }
80     else {
81         outFile << gpa << endl;
82     }
83     outFile.close();
84 }
85 void Student::setStartYear(int startyear) {
86     startYear = startyear;
87     ofstream outFile;
88     outFile.open("student.txt", ios::app);
89     if (!outFile) {
90         cout << "Error";
91     }
92     else {
93         outFile << startYear << endl;
94     }
95     outFile.close();
96 }
97 void Student::setCompCredit(float compcredit) {
98     compCredit = compcredit;
99     ofstream outFile;
100    outFile.open("student.txt", ios::app);
101    if (!outFile) {
102        cout << "Error";
103    }
104    else {
105        outFile << compCredit << endl;
106    }
107    outFile.close();
108 }
109 void Student::setProgram(string prog) {
110     program = prog;
111     ofstream outFile;
112     outFile.open("student.txt", ios::app);
113     if (!outFile) {
114         cout << "Error";
115     }

```

```

112     outFile.open("student.txt", ios::app);
113     if (!outFile) {
114         cout << "Error";
115     }
116     else {
117         outFile << program << endl;
118     }
119     outFile.close();
120 }
121
122 // A;; get functions simply return specific variable of the called function
123 string Student::getfName() {
124     return fName;
125 }
126 string Student::getlName() {
127     return lName;
128 }
129 int Student::getId() {
130     return id;
131 }
132 int Student::getDateBirth() {
133     return dateBirth;
134 }
135 float Student::getGpa() {
136     return gpa;
137 }
138 int Student::getStartYear() {
139     return startYear;
140 }
141 float Student::getCompCredit() {
142     return compCredit;
143 }
144 string Student::getProgram() {
145     return program;
146 }
147
148 // complete program boolean function
149 bool Student::completeprogram() {
150     // check which program student is enrolled. then
151     // compare completed credits to said program

```

```

150 // check which program student is enrolled. then
151 // compare completed credits to said program
152 // return true(1) when completed, otherwise false(0)
153 if (program == "B") {
154     if (compCredit >= 140)
155         return true;
156     else
157         return false;
158 }
159 else if (program == "M") {
160     if (compCredit >= 16)
161         return true;
162     else
163         return false;
164 }
165 else if (program == "P") {
166     if (compCredit >= 12)
167         return true;
168     else
169         return false;
170 }
171 else {
172     cout << "Invalid.";
173     return 0;
174 }
175 }
176
177 // student status function, checks gpa range and returns
178 // appropriate letter grade of the student
179 string Student::studentStatus() {
180     if (gpa >= 3.5)
181         return "A+";
182     else if (gpa >= 3.0)
183         return "A";
184     else if (gpa >= 2.5)
185         return "B";
186     else if (gpa >= 2.0)
187         return "C";
188     else
189         return "D";

```

```
coen243project → Student completeprogram0
180     if (gpa >= 3.5)
181         return "A+";
182     else if (gpa >= 3.0)
183         return "A";
184     else if (gpa >= 2.5)
185         return "B";
186     else if (gpa >= 2.0)
187         return "C";
188     else
189         return "D";
190 }
191
192 // print student info function, 'cout' all 8 attributes
193 void Student::printStdInfo() {
194     cout << fName << endl;
195     cout << lName << endl;
196     cout << id << endl;
197     cout << dateBirth << endl;
198     cout << gpa << endl;
199     cout << startYear << endl;
200     cout << compCredit << endl;
201     cout << program << endl;
202 }
203
204 // compare gpa function, take in two floats and compares them
205 // return the higher gpa
206 float Student::compareGpa(float gpa1, float gpa2) {
207     if (gpa1 > gpa2)
208         return gpa1;
209     else
210         return gpa2;
211 }
```

Student.h

```
coen243project Student
1 // COEN 243 Project, Week 10
2 // Hei Wang Andre Law, 4017 5600
3 // Program: System that Handles the Records of Students at Concordia
4 // File: student.h
5
6 #include <string>
7 using namespace std;
8
9 // clas definition for 'student'
10 class Student {
11     private: // data member
12         string fName; // first name
13         string lName; // last name
14         int id; // student id
15         int dateBirth; // date of birth
16         float gpa; // student gpa
17         int startYear; // start year
18         float compCredit; // completed credit
19         string program; // program
20
21     public: // member function
22         Student(); // constructor
23         // setters
24         void setfName(string);
25         void setlName(string);
26         void setId(int);
27         void setDateBirth(int);
28         void setGpa(float);
29         void setStartYear(int);
30         void setCompCredit(float);
31         void setProgram(string);
32
33         // getters
34         string getfName();
35         string getlName();
36         int getId();
37         int getDateBirth();
38         float getGpa();
39         int getStartYear();
40         float getCompCredit();

```

% No issues found Ln: 43 Ch: 24 Co

```
coen243project Student
25 void setlName(string);
26 void setId(int);
27 void setDateBirth(int);
28 void setGpa(float);
29 void setStartYear(int);
30 void setCompCredit(float);
31 void setProgram(string);
32
33 // getters
34 string getfName();
35 string getlName();
36 int getId();
37 int getDateBirth();
38 float getGpa();
39 int getStartYear();
40 float getCompCredit();
41 string getProgram();
42
43 // 'student' functions
44 bool completeprogram();
45 string studentStatus();
46 void printStdInfo();
47 float compareGpa(float, float);
48 };
49
```


Faculty.cpp

```
1  // COEN 243 Project, Week 10
2  // Hei Wang Andre Law, 4017 5600
3  // Program: System that Handles the Records of Students at Concordia
4  // File: faculty.cpp
5
6  #include <iostream>
7  #include <string>
8  #include <fstream>
9  #include "faculty.h"
10 using namespace std;
11
12 // class implementaion for 'faculty'
13 Faculty::Faculty() { // constructor
14     highNumCivil = 0.0;
15     highNumMech = 0.0;
16     highNumElecComp = 0.0;
17 };
18
19 string* Faculty::getFile(string name, const int max, int* count) {
20     string* data = new string[max];
21     ifstream is(name.c_str());
22     *count = 0;
23     while (*count < max && getline(is, data[*count])) {
24         ++*count;
25     }
26     return data;
27 }
28
29
30 // display highest gpa member function
31 void Faculty::highestGpa(string gpa1, string gpa2, string gpa3) {
32     cout << "The highest gpa in this faculty is ";
33     const int numLine = 41;
34     highNumCivil = stof(gpa1); // convert string to float
35     highNumMech = stof(gpa2); // convert string to float
36     highNumElecComp = stof(gpa3); // convert string to float
37     // compare the highest gpa, then print it
38     if (highNumCivil > highNumElecComp && highNumCivil > highNumMech)
39         cout << highNumCivil;
40     else if (highNumElecComp > highNumCivil && highNumElecComp > highNumMech)
```

```
coen243project  → Faculty  highestGpa(string gpa1, string gpa2, string gpa3)
31 void Faculty::highestGpa(string gpa1, string gpa2, string gpa3) {
32     cout << "The highest gpa in this faculty is ";
33     const int numLine = 41;
34     highNumCivil = stof(gpa1); // convert string to float
35     highNumMech = stof(gpa2); // convert string to float
36     highNumElecComp = stof(gpa3); // convert string to float
37     // compare the highest gpa, then print it
38     if (highNumCivil > highNumElecComp && highNumCivil > highNumMech)
39         cout << highNumCivil;
40     else if (highNumElecComp > highNumCivil && highNumElecComp > highNumMech)
41         cout << highNumElecComp;
42     else if (highNumMech > highNumElecComp && highNumMech > highNumCivil)
43         cout << highNumMech;
44     else
45         cout << "Error";
46     cout << endl << endl;
47 }
48
49 void Faculty::numUnderGrad() {
50
51 }
52 void Faculty::numGrad() {
53
54 }
55 void Faculty::avgunderGrad() {
56
57 }
```

Faculty.h

```
coen243project (Global Scope)
1 // COEN 243 Project, Week 10
2 // Hei Wang Andre Law, 4017 5600
3 // Program: System that Handles the Records of Students at Concordia
4 // File: faculty.h
5
6 #include <string>
7 using namespace std;
8
9 // clas definition for 'faculty'
10 class Faculty {
11 private:
12     float highNumCivil; // num being the highest gpa in civil
13     float highNumMech; // num being the highest gpa in mech
14     float highNumElecComp; // num being the highest gpa in elec and comp
15 public:
16     Faculty(); // constructor
17     string *getFile(string, const int, int*);
18     void highestGpa(string, string, string);
19     void numUnderGrad();
20     void numGrad();
21     void avgunderGrad();
22 };
23
```