

main.cpp

```
1 /*****
2 * Author      : Ivy Fudge
3 * Student ID   : 2973023
4 * Assignment #2 : Repetition & Switch Statement
5 * Class        : CIS5
6 * Section      : MW 2:20PM - 5:30PM
7 * Due Date     : 10/07/2024
8 *****/
9
10 #include <iostream>
11 #include <iomanip>
12 #include <string>
13 using namespace std;
14
15
16 /*****
17 * COMPUTE AVERAGE GRADE SCORE
18 *-----
19 * This program accepts letter grades as input. It will loop until an exit
20 * character is input (x). It averages the grade values and displays it. It
21 * then loops 3 times, making new sets of grades each time. Each letter that is
22 * input is validated to ensure only proper values are processed.
23 *-----
24 * INPUT
25 *   letter      : Input grade letter
26 *   APOINTS     : Points for an A grade
27 *   BPOINTS     : Points for an B grade
28 *   CPOINTS     : Points for an C grade
29 *   DPOINTS     : Points for an D grade
30 *   FPOINTS     : Points for an F grade
31 *
32 * OUTPUT
33 *   accumulator : total score for grades added
34 *   counter      : counter for how many grades are added
35 *   average      : average of grade scores
36 *****/
37
38
39 int main ()
40 {
41     // Initialize variables
42     // Inputs
43     char letter; // Input grade letter
44     const float A_POINTS = 4.0; // Points for an A grade
45     const float B_POINTS = 3.0; // Points for an B grade
46     const float C_POINTS = 2.0; // Points for an C grade
47     const float D_POINTS = 1.0; // Points for an D grade
48     const float F_POINTS = 0.0; // Points for an F grade
49     // Outputs
50     float accumulator = 0.0; // total score for grades added
51     int counter = 0; // counter for how many grades are added
52     float average = 0.0; // average of grade scores
53
54     // Output class header
55     cout << "*****\n" <<
56         " * Author      : Ivy Fudge" <<
57         " * Student ID   : 2973023" <<
```

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```
58     /* Assignment #1 : Basic Input / Output          *\n" <<
59     /* Class      : CIS5                             *\n" <<
60     /* Section    : MW 2:20PM - 5:30PM              *\n" <<
61     /* Due Date   : 9/16/2024                      *\n" <<
62     "*****\n\n";
63
64     // Loop 3 times
65     for (int i = 0; i < 3; i++) {
66         // Reinitialize variables
67         letter = ' ';
68         accumulator = 0.0;
69         counter = 0;
70
71         // List test number
72         cout << "TEST #" << (i + 1) << ":\n\n";
73
74         // Ask for the next letter
75         cout << "\tEnter Letter Grade (enter 'X' to exit): ";
76         // Retrieve the next letter
77         cin >> letter;
78         cin.ignore();
79
80         // Loop until the exit char is input
81         while (letter != 'x' && letter != 'X') {
82             // Switch statement for processing letters
83             switch(letter) {
84                 // For an A grade
85                 case 'A':
86                 case 'a':
87                     accumulator += A_POINTS; // add A score to total
88                     counter++;               // increment the counter
89                     break;
90
91                 // For a B grade
92                 case 'B':
93                 case 'b':
94                     accumulator += B_POINTS; // add B score to total
95                     counter++;               // increment the counter
96                     break;
97
98                 // For a C grade
99                 case 'C':
100                case 'c':
101                    accumulator += C_POINTS; // add C score to total
102                    counter++;               // increment the counter
103                    break;
104
105                // For a D grade
106                case 'D':
107                case 'd':
108                    accumulator += D_POINTS; // add D score to total
109                    counter++;               // increment the counter
110                    break;
111
112                // For a F grade
113                case 'F':
114                case 'f':
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115         accumulator += F_POINTS; // add F score to total
116         counter++;                // increment the counter
117         break;
118
119         // On X, quit the program
120         case 'X':
121         case 'x':
122             break;
123
124         default: // Invalid letter
125             cout << "\n\tInvalid letter grade, please try again\n\n";
126             break;
127     }
128     // Ask for the next letter
129     cout << "\tEnter Letter Grade (enter 'X' to exit): ";
130     // Retrieve the next letter
131     cin >> letter;
132     cin.ignore();
133 }
134 if (accumulator > 0) {
135     // Average the grade scores
136     average = accumulator / counter;
137
138     // Display the average scores
139     cout << fixed << setprecision(0) << endl;
140     cout << "Total Grade Points: " << accumulator << endl;
141     cout << setprecision(2) << "GPA: " << average << "\n\n\n";
142 }
143 }
144
145
146 return 0;
147 }
148
```