Activity No. 4.1	
Switch Case	
Course Code: CPE007	**Program:** Computer Engineering
Course Title: Programming Logic and Design	**Date Performed: 09/11/25**
Section: CPE11S1	**Date Submitted: 09/11/25**
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6. Output	

Code:

```cpp
#include <iostream>
#include <iomanip>
#include <cmath>

int main() {

    int Phys, Bio, Math;
    int Ave = 0;
        std::cout << "------------------------------" << std::endl;
        std::cout << "[ Input Physics Grade ] ==> ";
        std::cin >> Phys;
        std::cout << "------------------------------" << std::endl;
        std::cout << "[ Input Biology Grade ] ==> ";
        std::cin >> Bio;
        std::cout << "------------------------------" << std::endl;
        std::cout << "[ Input Math Grade ] ==> ";
        std::cin >> Math;

        Ave = (Phys + Bio + Math) / 3;

        std::cout << std::endl;
        std::cout << "==================================" << std::endl << "\n";
```

```cpp
        switch(Ave / 10) {
            case 9:
                if (Ave >= 90) {
                    std::cout << "Average Grade is: " << Ave << "%" << std::endl;
                    std::cout << "Grade Level: A";
                }
                break;

            case 8:
                if (Ave >= 80) {
                    std::cout << "Average Grade is: " << Ave << "%" << std::endl;
                    std::cout << "Grade Level: B";
                }
                break;

            case 7:
                if (Ave >= 70) {
                    std::cout << "Average Grade is: " << Ave << "%" << std::endl;
                    std::cout << "Grade Level: C";
                }
                break;

            case 6:
                if (Ave >= 60) {
                    std::cout << "Average Grade is: " << Ave << "%" << std::endl;
                    std::cout << "Grade Level: D";
                }
                break;
```

```
53              case 5:
54                  if (Ave >= 50) {
55                      std::cout << "Average Grade is: " << Ave << "%" << std::endl;
56                      std::cout << "Grade Level: E";
57                  }
58                  break;
59
60              case 4:
61                  if (Ave >= 40) {
62                      std::cout << "Average Grade is: " << Ave << "%" << std::endl;
63                      std::cout << "Grade Level: E";
64                  }
65                  break;
66
67              default:
68                  if (Ave < 40) {
69                      std::cout << "Average Grade is: " << Ave << "%" << std::endl;
70                      std::cout << "Grade Level: F";
71                  }
72                  break;
73          }
74      return 0;
75  }
```

Outputs:

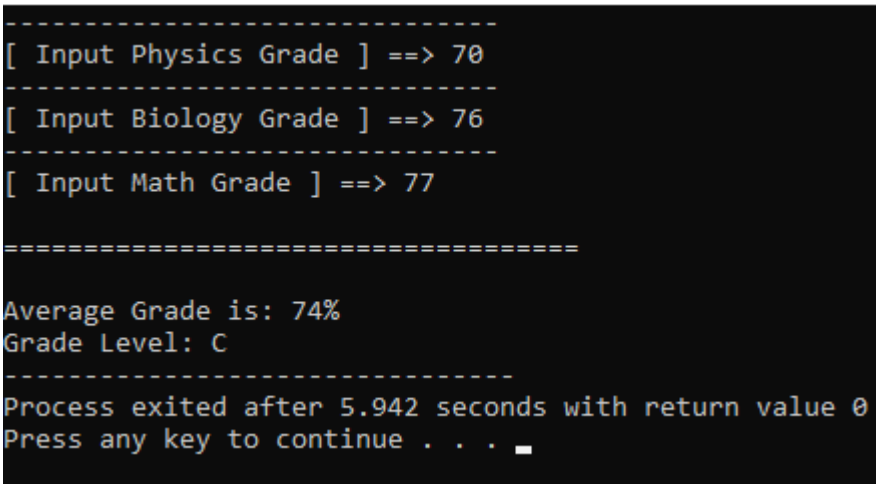
Grade Level: A

```
--------------------------------
[ Input Physics Grade ] ==> 90
--------------------------------
[ Input Biology Grade ] ==> 99
--------------------------------
[ Input Math Grade ] ==> 98

====================================

Average Grade is: 95%
Grade Level: A
--------------------------------
Process exited after 5.27 seconds with return value 0
Press any key to continue . . .
```

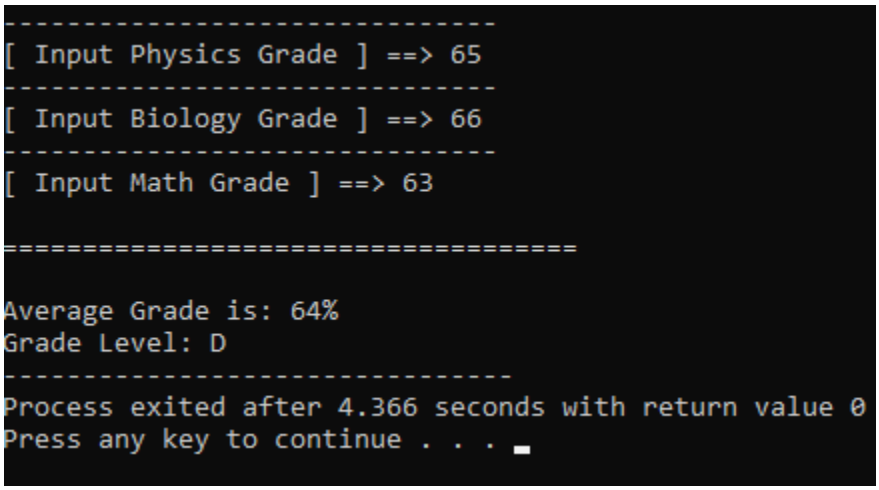
Grade Level: B

```
--------------------------------
[ Input Physics Grade ] ==> 80
--------------------------------
[ Input Biology Grade ] ==> 81
--------------------------------
[ Input Math Grade ] ==> 84

====================================

Average Grade is: 81%
Grade Level: B
--------------------------------
Process exited after 8.124 seconds with return value 0
Press any key to continue . . .
```

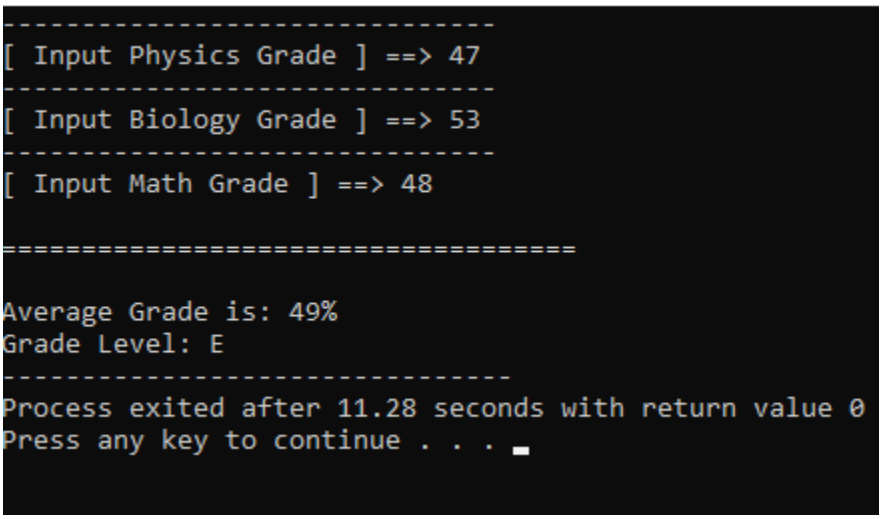
Grade Level: C



Grade Level: D



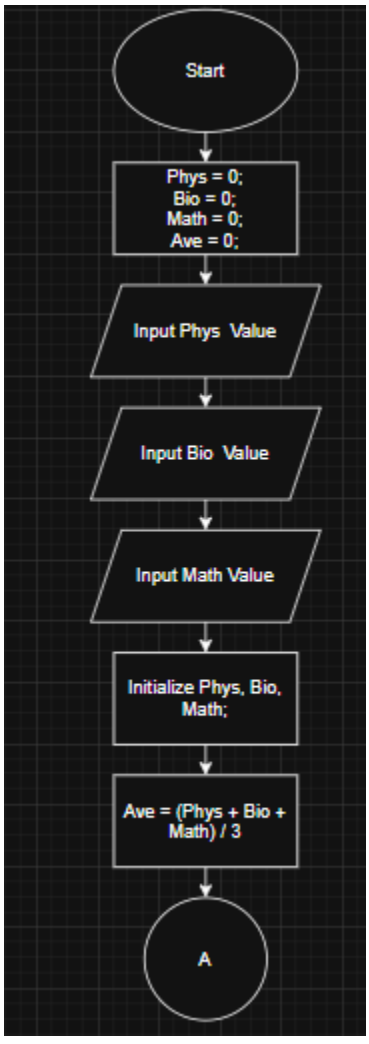
Grade Level: E

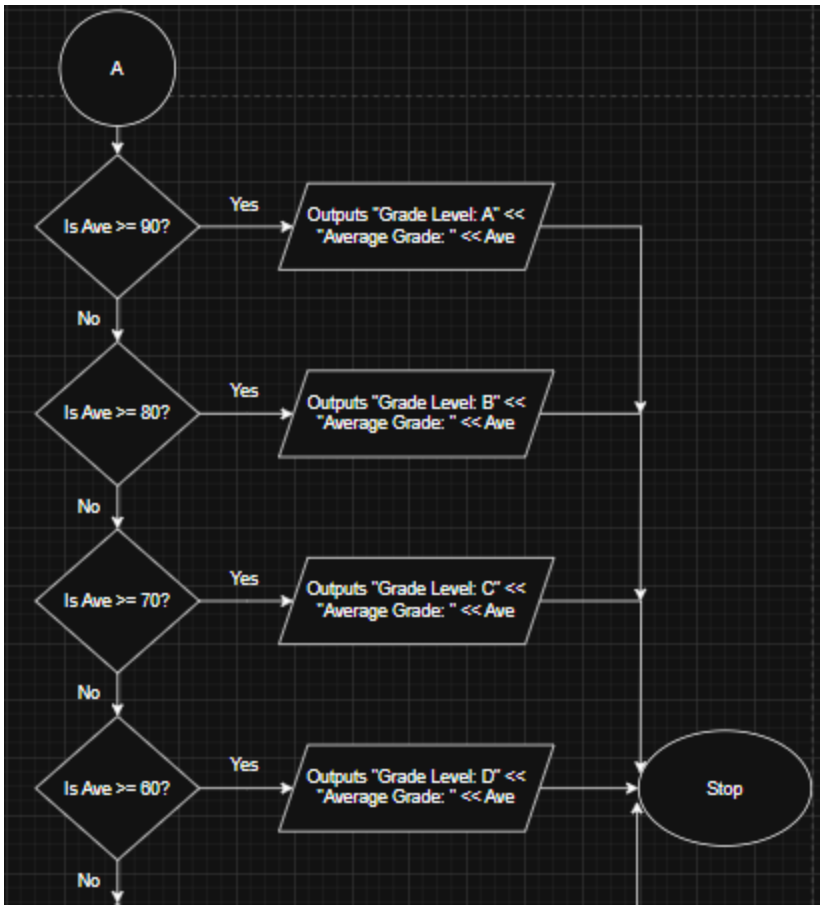


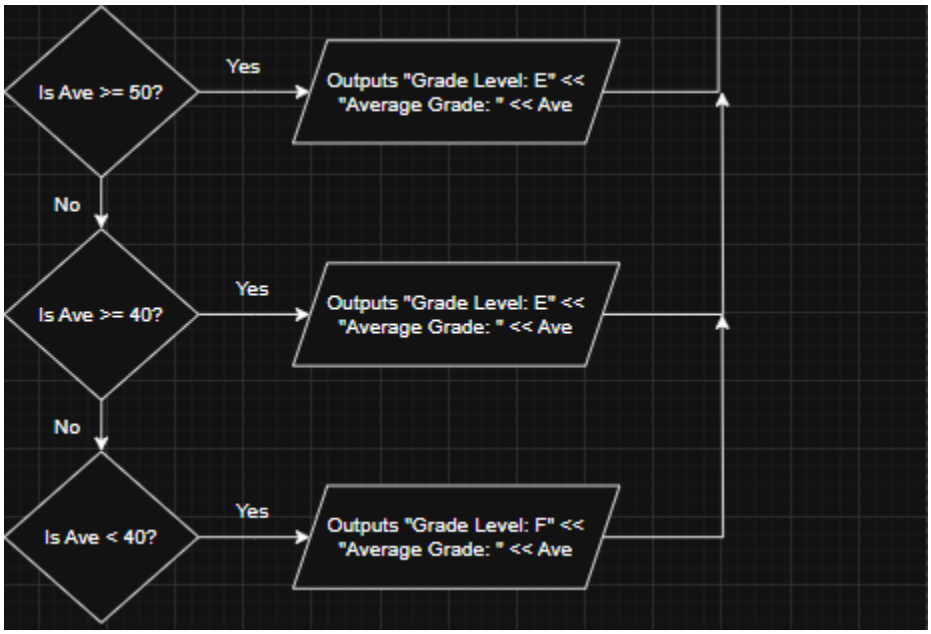
Grade Level: F

```
-------------------------------
[ Input Physics Grade ] ==> 25
-------------------------------
[ Input Biology Grade ] ==> 30
-------------------------------
[ Input Math Grade ] ==> 28

===================================

Average Grade is: 27%
Grade Level: F
-------------------------------
Process exited after 8.825 seconds with return value 0
Press any key to continue . . .
```

Flowchart:




A
Is Ave >= 90?
Yes
Outputs "Grade Level: A" <<
"Average Grade: " << Ave
No
Is Ave >= 80?
Yes
Outputs "Grade Level: B" <<
"Average Grade: " << Ave
No
Is Ave >= 70?
Yes
Outputs "Grade Level: C" <<
"Average Grade: " << Ave
No
Is Ave >= 60?
Yes
Outputs "Grade Level: D" <<
"Average Grade: " << Ave
No
Stop


Is Ave >= 50?
Yes
Outputs "Grade Level: E" <<
"Average Grade: " << Ave
No
Is Ave >= 40?
Yes
Outputs "Grade Level: E" <<
"Average Grade: " << Ave
No
Is Ave < 40?
Yes
Outputs "Grade Level: F" <<
"Average Grade: " << Ave

Pseudocode:

```
Start
INITIALIZE Phys = 0;
INITIALIZE Bio= 0;
INITIALIZE Math = 0;
INITIALIZE Ave = 0;
INPUT Phys Value;
INPUT Bio Value;
INPUT Math Value;
INITIALIZE Ave = (Phys + Bio + Math) / 3;
IF Ave >= 90;
   OUTPUT “Average Grade is: ” << Ave;
   OUTPUT “Grade Level A: ” << Ave;
ELSE IF ave >= 80;
   OUTPUT “Average Grade is: ” << Ave;
   OUTPUT “Grade Level B: ” << Ave;
ELSE IF ave >= 70;
   OUTPUT “Average Grade is: ” << Ave;
   OUTPUT “Grade Level C: ” << Ave;
ELSE IF ave >= 60;
   OUTPUT “Average Grade is: ” << Ave;
   OUTPUT “Grade Level D: ” << Ave;
ELSE IF ave >= 50;
   OUTPUT “Average Grade is: ” << Ave;
   OUTPUT “Grade Level E: ” << Ave;
ELSE IF ave >= 40;
   OUTPUT “Average Grade is: ” << Ave;
   OUTPUT “Grade Level E: ” << Ave;
ELSE ave < 40;
   OUTPUT “Average Grade is: ” << Ave;
   OUTPUT “Grade Level F: ” << Ave;
End
```

7. Supplementary Activity

8. Conclusion

This activity has flawlessly created a variety of code structure that I can furtherly improvise and develop into a more structured programming, Specially with the use of Switch Case (The main topic of this Activity), and further more on creating conditional logic to help you categories functions. The Switch (Ave / 10), is known as the common reduction of how to simplify the range from 90-99 to 9, which is helpful specially in range grading category in identifying the grade level of the total average. The cases are simplified according to their number, such as, 8 = 80=89, 7 = 79,70 etc., and inside the cases are the functions that will be used once the expression's condition is met. As per usual, the Lines are just to organize and to make the program more cleaner.

9. Assessment Rubric