Assignment 4.1	
Switch Case	
Course Code: CPE007	**Program:** Computer Engineering
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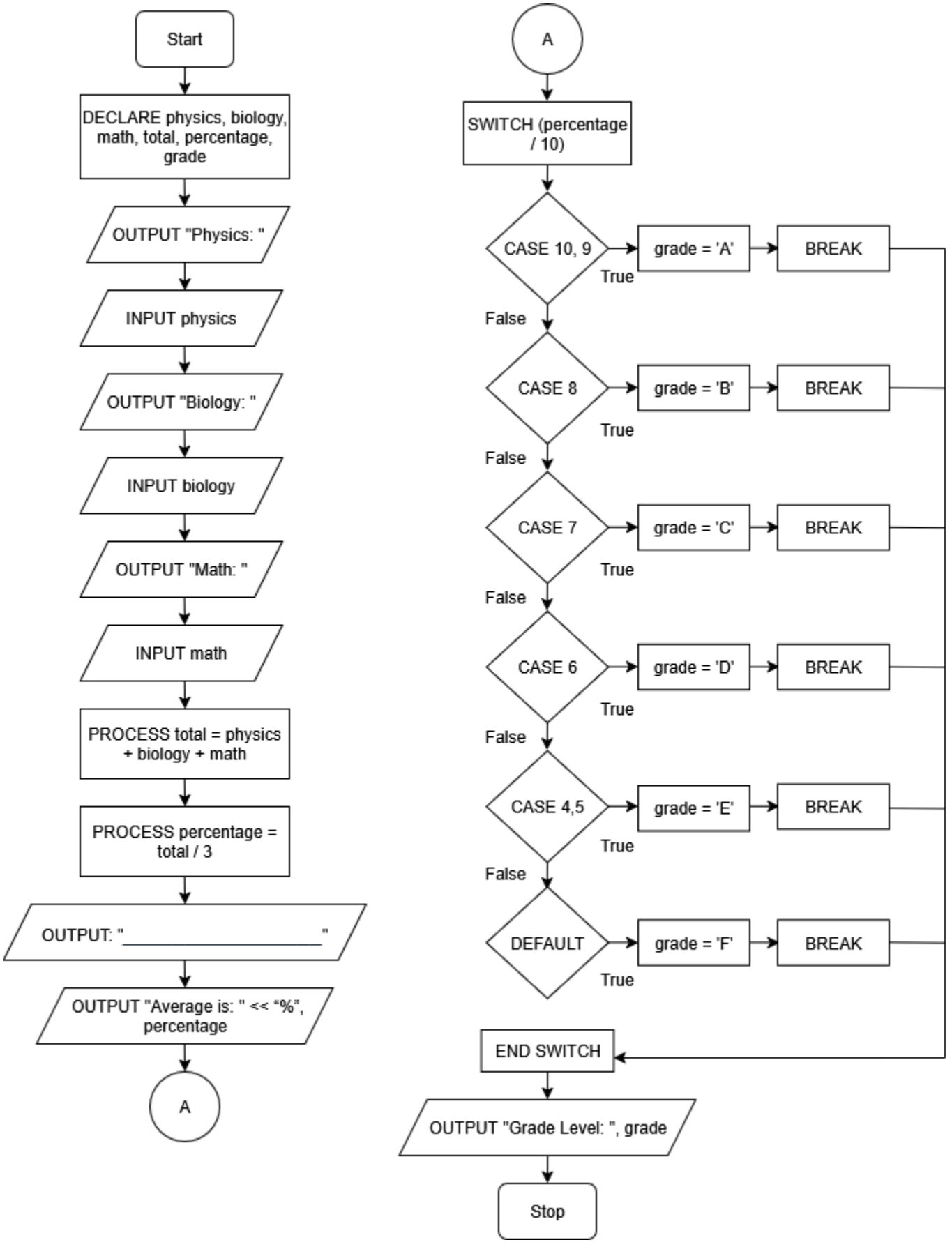
6. Output

Pseudocode:

```
START
 DECLARE physics, biology, math, total, percentage, grade
 OUTPUT "Physics: "
 INPUT physics
 OUTPUT "Biology: "
 INPUT biology
 OUTPUT "Math: "
 INPUT math
 PROCESS total = physics + biology + math
 PROCESS percentage = total / 3
 OUTPUT "_____"
 OUTPUT "Average is: " << “%”, percentage
 SWITCH (percentage / 10)
  CASE 10, 9
   grade = 'A'
   BREAK
  CASE 8
   grade = 'B'
   BREAK
  CASE 7
   grade = 'C'
   BREAK
  CASE 6
   grade = 'D'
   BREAK
  CASE 4, 5
   grade = 'E'
   BREAK
  DEFAULT
   grade = 'F'
   BREAK
 END SWITCH
 OUTPUT "Grade Level: ", grade
STOP
```

Flow chart:


Start
DECLARE physics, biology, math, total, percentage, grade
OUTPUT "Physics: "
INPUT physics
OUTPUT "Biology: "
INPUT biology
OUTPUT "Math: "
INPUT math
PROCESS total = physics + biology + math
PROCESS percentage = total / 3
OUTPUT: "_____"
OUTPUT "Average is: " << "%", percentage
A
A
SWITCH (percentage / 10)
CASE 10, 9
True
grade = 'A'
BREAK
False
CASE 8
True
grade = 'B'
BREAK
False
CASE 7
True
grade = 'C'
BREAK
False
CASE 6
True
grade = 'D'
BREAK
False
CASE 4,5
True
grade = 'E'
BREAK
False
DEFAULT
True
grade = 'F'
BREAK
END SWITCH
OUTPUT "Grade Level: ", grade
Stop

Code:

```cpp
#include <iostream>
using namespace std;

int main() {
    int physics, biology, math;
    float total, percentage;
    char grade;
    cout << "Physics: ";
    cin >> physics;
    cout << "Biology: ";
    cin >> biology;
    cout << "Math: ";
    cin >> math;
    total = physics + biology + math;
    percentage = total / 3.0;
    cout << "________________" << endl;
    cout << "Average is: " << percentage << "%" << endl;

    switch ((int)percentage / 10) {
        case 10:
        case 9: grade = 'A'; break;
        case 8: grade = 'B'; break;
        case 7: grade = 'C'; break;
        case 6: grade = 'D'; break;
        case 5:
        case 4: grade = 'E'; break;
        default: grade = 'F'; break;
    }

    cout << "Grade Level: " << grade << endl;

    return 0;
}
```

Output:

```
Physics:80

Biology:80

Math:80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Average is: 80%
Grade Level: B

Process finished with exit code 0
```

7. Supplementary Activity

8. Conclusion

What I learned in this activity is that I learned deeper about switch-case statement. The switch-case statement is used to identify which statement or code block must be executed based on the value of the single integral-type variable. In my opinion, switch-case statement can be more efficient than if-else statement because it utilizes jump table on which when the switch value is expressed, it will serve as an index in the table and it will jump to the correct case statement or code block to execute the intended statement. So if you do not need multiple and longer conditions, switch-case statement can be an option for coders to execute control structures.