Lab # 5: More Control Statements

EC-102 – Computer Systems and Programming

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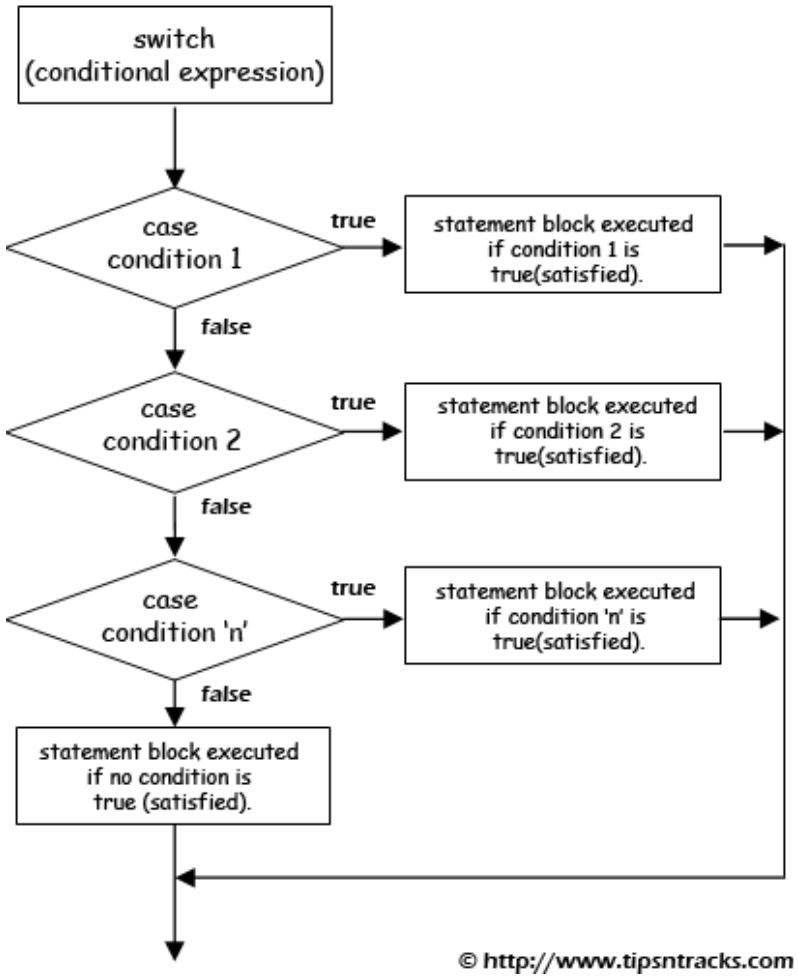
Outline

The `switch` Statement - Introduction

- Large decision tree
- All the decisions depend on the value of the same variable
- May be used instead of nested `if...else` statement



The switch Statement - Syntax

```
1  switch(n)
2  {
3      case 1:
4      statement 1;
5      statement 2;
6      break;
7
8      case 2:
9      statement 1;
10     statement 2;
11     break;
12
13     case 3:
14     statement;
15     break;
16
17     default:
18     statement;
19 }
```

- The keyword switch is followed by a switch variable in parentheses (Line 1)
- Braces are used to delimit all case statements
- Each case keyword is followed by a constant which is not in parentheses but is followed by a colon (Lines 3, 8 and 13)
- The data type of the case constants should match that of the switch variable
- default keyword gives the switch construction a way to take an action if the value of the variable does not match any of the case constants (Line 17)

The `break` Statement

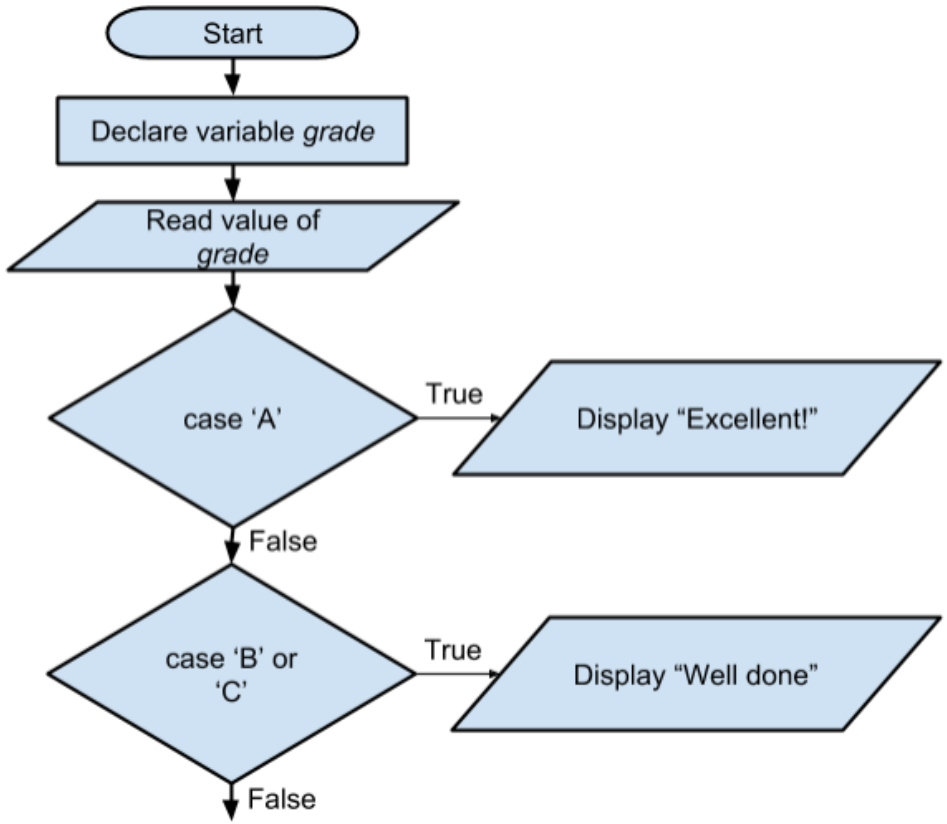
- Causes the entire `switch` statement to exit
- Control goes to the first statement following the end of the `switch` contruction

Solved Example

Algorithm

1. Start
2. Declare variable `grade`
3. Read value of `grade`
4. If grade is 'A' then display 'Excellent!'
5. Else if grade is 'B' or 'C' then display 'Well done'
6. Else if grade is 'D' then display 'You passed'
7. Else if grade is 'F' then display 'Better try again'
8. Else display 'Invalid grade'
9. Stop

Flowchart



Solved Example

```
1  #include <iostream>
2  using namespace std;
3
4  int main ()
5  {
6      char grade;
7      cout << "Enter a grade (eg. A, B etc): ";
8      cin >> grade;
9      switch(grade)
10     {
11     case 'A' :
12         cout << "Excellent!" << endl;
13         break;
14     case 'B' :
15     case 'C' :
16         cout << "Well done" << endl;
17         break;
18     case 'D' :
19         cout << "You passed" << endl;
20         break;
```

Solved Example

```
21      case 'F' :
22          cout << "Better try again" << endl;
23          break;
24      default :
25          cout << "Invalid grade" << endl;
26      }
27      return 0;
28  }
```

Exercise

Develop a basic calculator using `switch` statement which is capable of performing addition, subtraction, multiplication and division

- Ask the user to enter two numbers and the type of arithmetic operation to be performed
- Use `char` data type for the variable handling the operator