C PROGRAMMING
Switch Case

What is Switch Case?

- We use decision making statements in C to control the order of execution of our program. Switch case in C is one of the decision making statements.

- We mostly use switch case we have multiple alternatives to choose from.

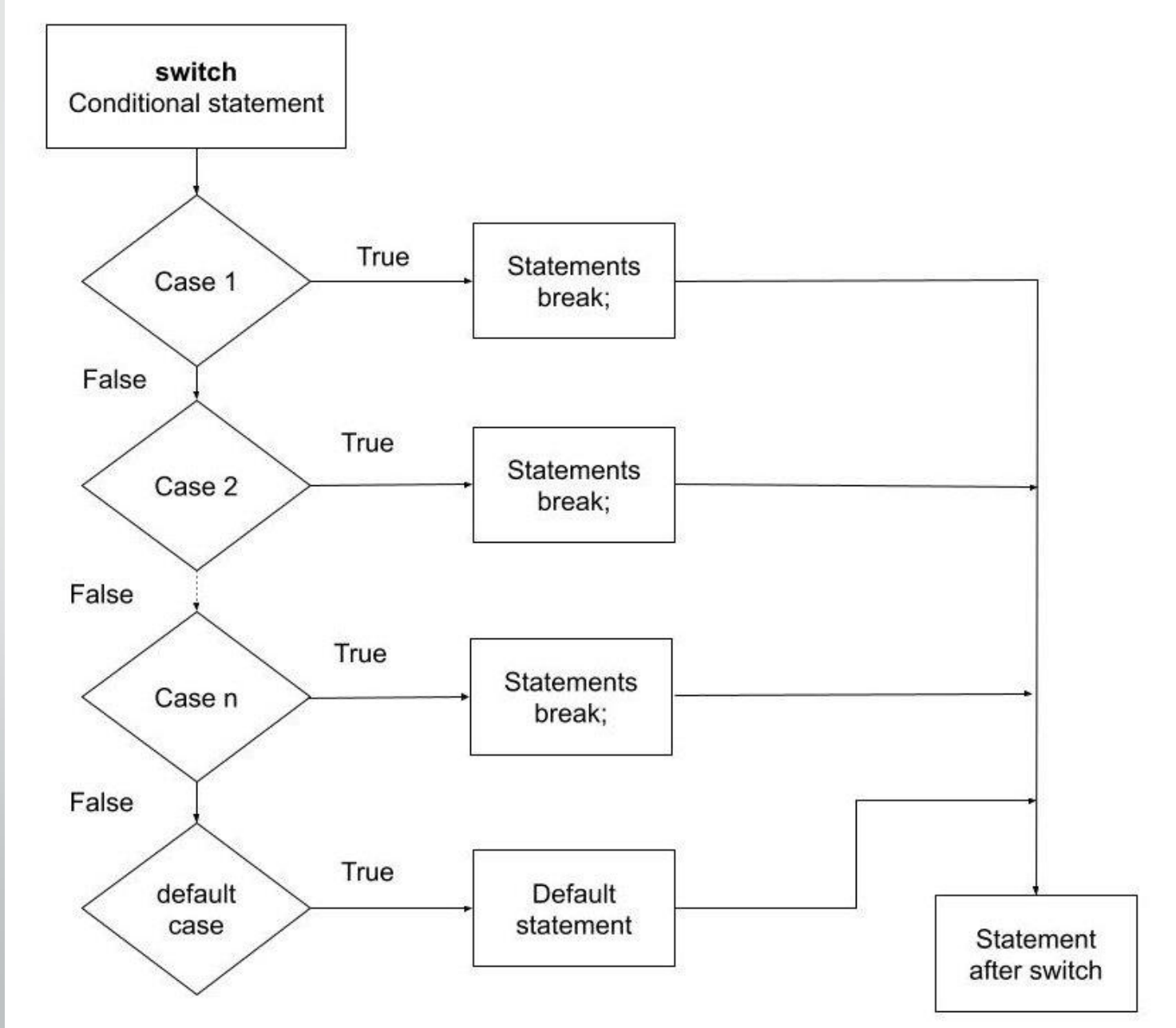
Syntax of switch case

```
switch(expression)
{
    case value1:
        statement_1;
        break;
    case value2:
        statement_2;
        break;
    //we can have as many cases as we want
    case value_n:
        statement_n;
        break;
    default:
        default statement;    //this is not necessary. It is used only for convenience
 }
```

How switch case works

- Firstly, the expression inside the **switch(expression)** is evaluated.
- Then, it is matched with the case value of each statement.
- If it matches with one of the case values, we execute that particular set of statements with which it has matched. If the break statement is used after that case, we break out of switch otherwise keep executing till we reach the end of switch(because there is no break statement) or we reach another break statement.
- If it does not match, we execute the default condition(if present) and come out of switch.

Flowchart for How switch case works



Valid and invalid expressions of switch case

```
int a = 4, b = 6;

float c = 4.5;

char ch1 = 'a', ch2  = 'c';

switch((a * b) % 2)  //valid

switch(c)            //invalid

switch(ch2 + ch1)    //valid
```

Example of switch case

```
#include<stdio.h>

Void main()
{
   // Local Variable Definition
    char grade;
    printf("Enter your grade:\n");
    scanf("%c", &grade);
```

```
switch(grade)
    {
        case 'A':
            printf("Excellent\n");
            break;
        case 'B':
            printf("Keep it up!\n\n");
            break;
        case 'C':
            printf("Well done");
            break;
default:
            printf("Invalid grade\n");
    }
    printf("Your grade is %c\n",grade);
}
```

Important Points for switch case

- **Switch()** can only contain char and int.
- **break** is used to exit from **switch** statement. It is optional.
- **switch** case can be without **default** case.
- A char variable is always initialized within single quotes.
- The expression provided in switch should result in a constant value otherwise it will be invalid.
- The case values should be distinct.
- We can also nest switch statements.