Unit IV- Part 03
(Selection Statements in C)

Lecture Slide

AS2023

Objectives

By the end of this session, students will be able to:

- Explain all variants of selection statement
- Write a program using those selection statements
- Choose the appropriate selection statement for the given problem

Selection Statements

- On the basis of application it is essential to
  - Alter the flow of program
  - Test the logical conditions
  - Control the flow of execution
- C languages support the following selection statement
  - if statement
  - switch statement
  - Conditional operator statement
  - goto statement
- These statements are called decision-making statements
- Also know as control statement
- Generally three version: one-way, two-way and multi-way

if Statement

- Used to control the flow of the execution of the statement
- used with conjunction with an test expression
- It takes the following form
  - ***if(test expression)***
- Some examples of decision making with if statements
  - if(bank balance is zero)

    Borrow money
  - if (room is dark)

    put on light

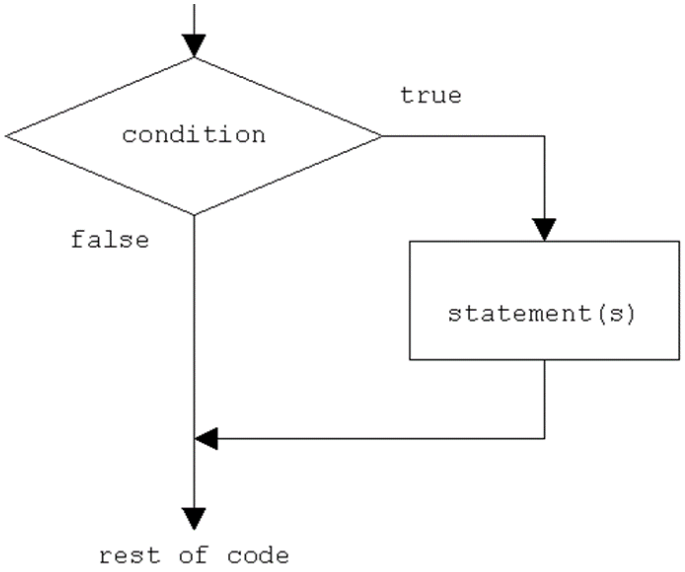
if Statement Cont..

- if statement can be implemented in the following form
  - Simple if statement
  - if…else statement
  - Nested if…else statement
  - else if ladder

Simple *if* statement

- One way decision statement
- The general form of simple if statement is

```
if(condition)
{
        Statement(s);
}
Statement-x;
```

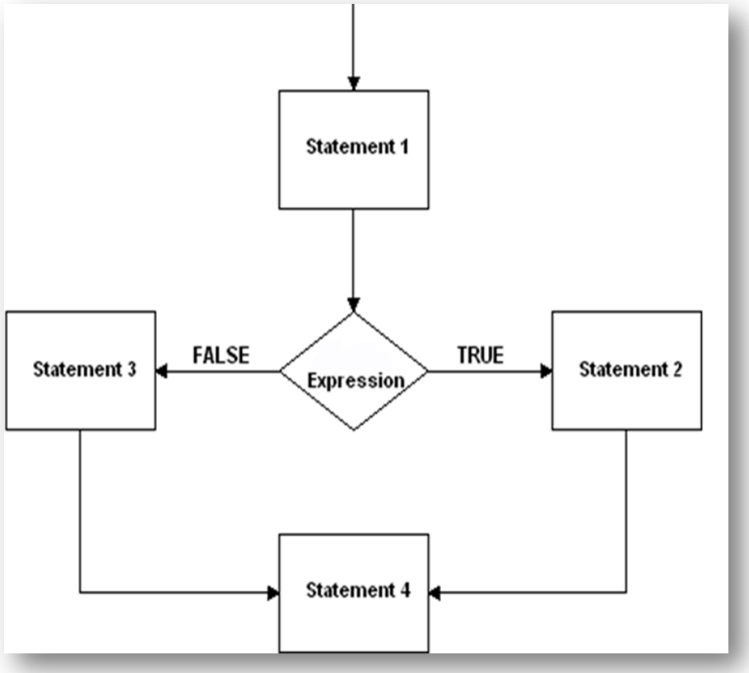


- Statement block may be single statement or group of statements
- **Example:** To check whether the entered number is less than 10?

if else Statement

- Extension of simple if statement
- General form

```
if(test expression){
 Statement-2;
}
else{
 statement-3;
}
Statement-4;
```

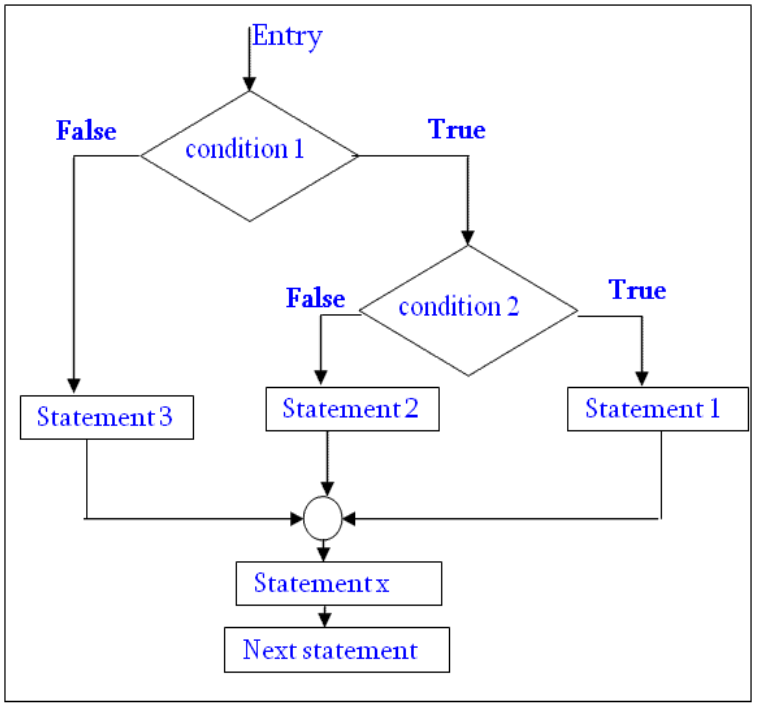


- **Example:** add two numbers and check if the sum is in the range of 100 - 200 or not. Print a message for each.

Nested *if else* Statement

- When a series of decisions are involved, we may have to use more than one if…else statement in nested form
- General form

```
if(condtion 1) {
          if(condtion 2) {
                    Statement-1;
          }
          else {
                    statement2;
          }
}
else{
 statement-3;
}
Statement-x;
```

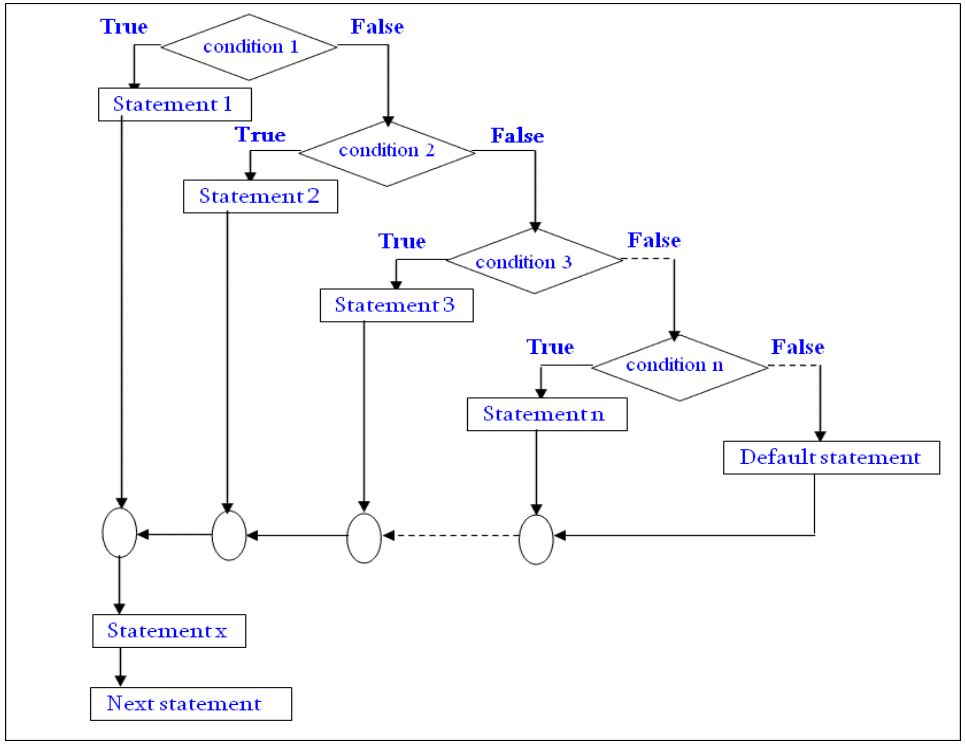


- **Example:** Check whether the given input number is within the range of 10-100 and print the message accordingly

else if ladder

- Another way of putting ifs together when multipath decision are involved
- Multipath decision is chain of ifs in which statements associated with each else is an if
- General form

```
if(condtion 1){
     statement-1
}
else if (condition 2){
     statement-3;
}
     else if (condition 3){
               statement-3;
     }
       else{
            default-statement;
     }
Statement-x;
```



else if ladder cont..

- From the above block, following rules can be described for applying *if*...*else*...*if* statements
  - Nested if else can be chain with one another
  - If the condition is false, the controls passes to else block where condition is again checked with the if statement. This process continues until there is no if statement in the last else block
  - If one of the if statement satisfies the condition, other nested else if will not be executed

else if ladder cont..

- Write a program to calculate the energy bill. Read the starting and ending meter reading. The charges are as follows

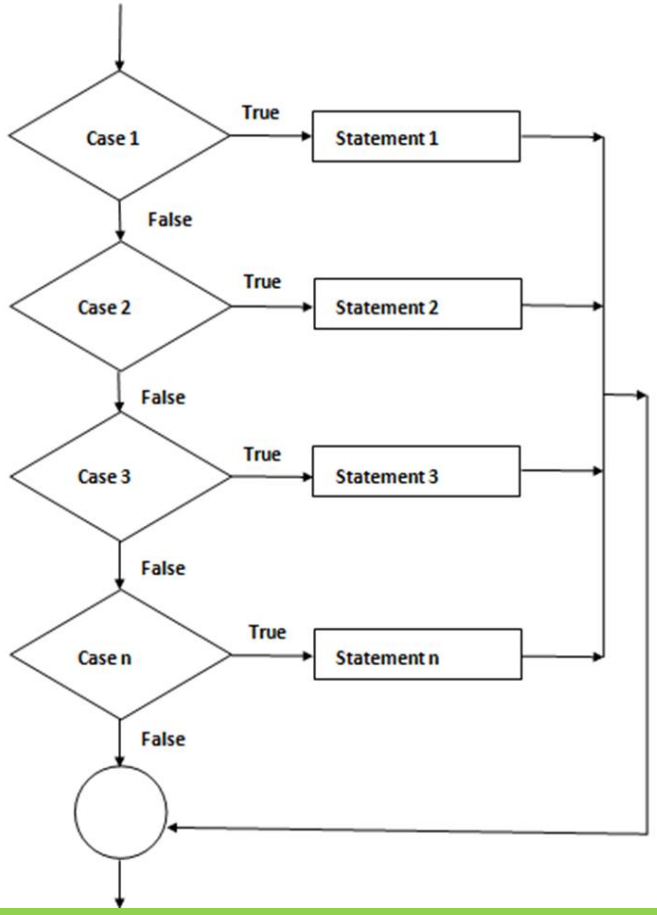
no. of Units consumed	**Rates(Nu.)**
more than 200	3.5
100-200	2.5
less than 100	1.5

switch Statement

- Multiway decision statement
- The general form of switch statement

is as follows

```
switch(expression){
 case value-1:
        block-1;
        break;
 case value-2:
        block-2;
        break;
default:
        default-block;
        break;
}
```



Thank you