

# **PAPER 102:**

## **PROGRAMMING & PROBLEM SOLVING THROUGH C**

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# CONTROL INSTRUCTIONS

- Control instructions specifies the order in which the various instructions in a program are to be executed.
- They are:
  - Sequence Control Instruction
    - Instructions are executed in same order
  - Decision Control Instruction
    - Allow the computer to take decision
  - Loop Control Instruction
    - Helps computer to execute a group of instructions repeatedly
  - Case Control Instruction
    - Same as Decision Control Instruction

# DECISION CONTROL INSTRUCTION

if Statement:

General Syntax:

if (condition)

statement ;

# RELATIONAL OPERATORS

this expression	is true if
$x == y$	x is equal to y
$x != y$	x is not equal to y
$x < y$	x is less than y
$x > y$	x is greater than y
$x \leq y$	x is less than or equal to y
$x \geq y$	x is greater than or equal to y

# EXAMPLE

```
main( )  
{  
    int num ;  
    printf ( "Enter a number less than 10 " ) ;  
    scanf ( "%d", &num ) ;  
    if ( num <= 10 )  
        printf ( "What an obedient servant you are !" ) ;  
}
```

# TRY THEM

```
if ( 3 + 2 % 5 )
```

```
printf ( "This works" ) ;
```

```
if ( a = 10 )
```

```
printf ( "Even this works" ) ;
```

```
if ( -5 )
```

```
printf ( "Surprisingly even this works" ) ;
```

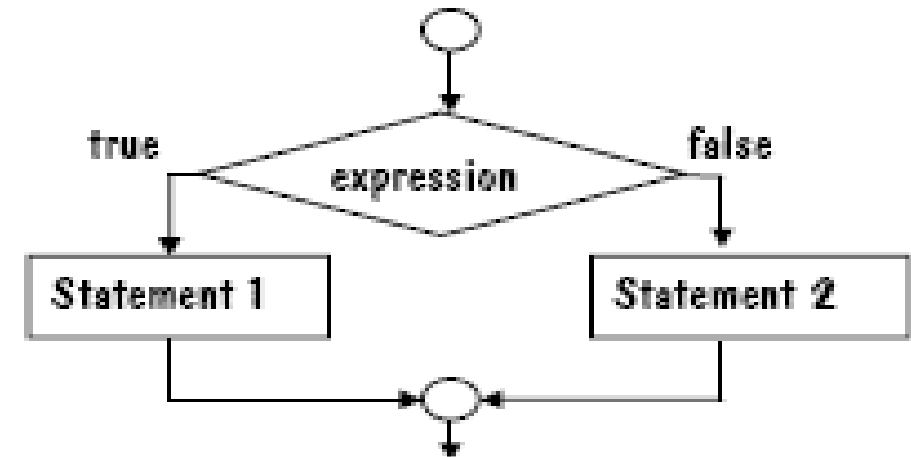
## if statement and if - else statement

- The if — else statement can be used with or without the else. The two forms are:

```
if (expression)
    statement1
```

```
if (expression)
    statement1
else
    statement2
```

- In both cases, when the expression is true, then statement1 is executed. If the expression is false, then, in the first case, statement1 is skipped (not executed), and, in the second case, statement2 after the else is executed.



```
if (a >= 3) a = a - 3;
if (a == 3) a = a * 3;
else a = a * 5;
```

```
if (a >= 3) { a = a - 3;
if ( a == 3) a = a * 3; }
else a = a * 5;
```

# NESTED IF-ELSE

```
int main()
{
    int i;
    printf("enter either 1 or 2");
    scanf("%d",&i);
    if(i==1)
        printf("you would go to heaven");
    else
```

```
{
    if(i==2)
        printf("Hell was created with you in
mind");
    else
        printf("How about mother Earth!");
}
}
```



# PROGRAMS

- While purchasing certain items, a discount of 10% is offered if the quantity purchased is more than 1000. If quantity and price per item are input through the keyboard, write a program to calculate the total expenses.
- The current year and the year in which the employee joined the organization are entered through the keyboard. If the number of years for which the employee has served the organization is greater than 3 then a bonus of Rs. 2500/- is given to the employee. If the years of service are not greater than 3, then the program should do nothing.
- A company insures its drivers in the following cases:
  - ✓ If the driver is married.
  - ✓ If the driver is unmarried, male & above 30 years of age.
  - ✓ If the driver is unmarried, female & above 25 years of age.

# CONTINUED

In all other cases the driver is not insured. If the marital status, sex and age of the driver are the inputs, write a program to determine whether the driver is to be insured or not.