## Decision making Statements (if else):- Used for making Choices among the Given options.

```
int main ()
{
    float Per;
    Printf ("Enter Percentage : ");
    Scanf ("%f", &Per);
    if (Per >=50)
    {
        Printf ("Pass \n");
        Printf ("Congrats");
    }
    else
    {
        Printf ("FAIL \n");
        Printf ("BLNT");
    }
    Printf ("\n Thanks");
}
```

if block

common place

```
Ent Per : 80
Pass ✓
Congrats ✓
Thanks
Ent Per 40
FAIL
BLNT
Thanks
```

≥ 50

| (A) | (B) |
|---|---|
| if (condition) | if (condition) |
| { ——— } | { ——— } |
| else | else |
| { ——— } | ——— |
| ——— | ——— |
| common place | common place |

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## Electricity Bill

| Units | bill |
|---|---|
| <= 500 | bill = units x 5 |
| else | bill = units x 7 |

+ 18 % GST
Gross?

```
int main ( )
{
    int units;
    float bill, gst, gross;
    Printf ("Enter Units : \n");
    Scanf ("%d", & units)
    if (units <= 500)
        bill = units x 5;
    else
        bill = units x 7;
    gst = bill x 18/100;
    Gross = bill + gst;
    Printf ("Gross Bill = %f", gross);
}
```

```
int main ( )
{
    int age;
    Printf ("Enter age : \n");
    Scanf ("%d", & age);
if (age < 18)
{ Printf (" Sorry \n");
  Printf (" try next time");
}
else
{ Printf ("You can vote");
  Printf ("Congrats");
}
Printf. ("\n thanks");
}
```

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# Home Work

**Program - 1 :-** Input Radius if it is < 10 then calculate area of circle, else calculate volume of cylinder.

⇒

```
int main ()
{
    float r, h, AC, VC;
    Printf ("Enter the value of r & h : \n");
    Scanf ("%f %f", &r, &h);
        AC = 3.14 * r * r ;
        VC = 3.14 * r * r * h ;
    if (r < 10)
        Printf ("Area of Circle = %f", AC);
    else
        Printf (" Volume of cylinder = %f", VC);
}
```

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**Problem - 2** :- Program to check whether the no. is +ve or -ve

```
int main ()
{
    int n;
    Printf (" Enter the value of n:\n");
    Scanf ("%d", &n);
    if (n<0)
        Printf (" Negative");
    else
        Printf (" Positive");
}
```

---

**Problem - 3** :- Input message sent & Calls, Get mobile bill as shown

→ if msg <= 50 then rs. 10 per msg else rs. 25

→ if Calls <= 200 then .75 else .95

→ add Rs. 100 as rent

→ Calculate tax 12.5%, if bill <= 1000 else 22.5 %. & get gross bill.

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→ int main ()

```
{
    float msg, Calls, Pmsg, Pc, bill, tax, gross
    Printf ("Enter messages & Calls : \n");
    Scanf ("%f %f", & msg, & Calls);
    if (msg <= 50)
        Pmsg = msg * .10;
    else
        Pmsg = msg * 0.25;
    Printf ("Price of messages = %f", Pmsg);
    if (Calls <= 200)
        Pc = Calls * 0.75;
    else
        Pc = Calls * 0.95;
    Printf ("Price of Calls = %f", Pc);
    bill = Pmsg + Pc + 100;
    Printf ("Amount of bill = %f \n", bill);
    if (bill <= 1000)
        tax = 0.125 * bill;
    else
        tax = 0.225 * bill;
    Printf ("Amount of tax = %f \n", tax);
    Gross = bill + tax
}   Printf ("Gross = %f \n", Gross);
```

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Problem - 4 :- Input Purchase Price (PP) & Sale price (SP) · Find out profit or loss with amount.

```
⇒ int main ()
{
    float PP, SP, amount ;
    Printf (" Enter the value of PP, SP: [redacted] : \n");
    Scanf (" %f %f", &PP , &SP);
    if (PP > SP)
        Printf ("Loss [redacted] = %f", PP- SP);
    else
        Printf ("Profit [redacted] = %f.", SP- PP);
}
```

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★ **LADDER if Else** :- Pass / Fail | +ve | -ve etc.

Used for making a choice among more than 2 options.

5, 7, 8, 10

+ve | -ve | zero

Syntax :-

```
if (Condition - 1)
{
  ====
}
else
  if (Condition - 2)
  {
    ====
  }
  else
  {
    ====
  }

Common
Place
  ====
```

200 if | 200 else

2 options — 1 if
— 1 else

4 options — 3 if
— 3 else

# Electricity Bill

Bill ? GST ?

Gross ?

| Units | RPU |
|---|---|
| <= 500 | RPU = 5 |
| <= 700 | RPU = 7 |
| <= 900 | RPU = 9 |
| else | 10 |

Set Ho Jaye

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```
int main ()
{ int units;
  float bill, gst, gross;
  Printf (" Enter units :");
  Scanf ("%d", & units);
  if (units <= 500)
    { RPU = 5;
    }
  else if (units <= 700)
    { RPU = 7;
    }
  else if (units <= 900)
    { RPU = 9;
    }
  else { RPU = 10;
    }
  bill = units x RPU;
  gst = bill x 18/100;
  Gross = bill + gst;
  Printf (" gross Bill = %f, gross);
}
```

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## ★ Logical Operators :-

① And ( && ) ② OR ( || ) ③ Not ( ! )

Used when multiple Conditions should be true for making a choice, Can be used for range.

| Condition - 1 | Condition - 2 | Result |
|---|---|---|
| T | T | T |
| T | F | F |
| F | Not checked | F |

| | | |
|---|---|---|
| F | F | F |
| F | T | F |

```
int main()
{
    int P2, AIR;
    Printf (" Enter the marks in P2 and Rank in AIR :");
    Scanf ("%d %d", &P2, &AIR);
    if (P2 >= 90 && AIR <= 100)
    {
        Printf (" Yes");
    }
    else
    {
        Printf (" No");
    }
}
```

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② OR (||) :- Used when one of the Conditions is true.

| Condition-1 | Condition-2 | Result |
|---|---|---|
| F | T | T |
| F | F | F |
| T | Not checked | T |

| | | |
|---|---|---|
| T | ~~F~~ | T |
| T | ~~T~~ | T |

③ Not (!) :- It neglects the result of an Expression.

→ Zero / Non-Zero

| Condition | Result |
|---|---|
| !T | F |
| !F | T |

```
int x = !5
```

$\boxed{0}$

```
int y = !(-7)
```

$\boxed{0}$

```
if (!(2<=3))
    Printf ("Hello");
Else {
    Printf ("Hi");
}
```

```
int z = !0;
```

$\boxed{1}$

```
int b = !2 <=3
```

$\boxed{1}$

```
int c = !2 + 3
```

0

$\boxed{3}$

# Max. of 3 No.s

```
if {(A>B && A>C)
  }   Printf ("A");
else if{(B>A && B>C)
    } Printf ("B");
  Else {
      Printf ("C");
      }
```

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# Home Work

Q - Program for grade of a Student [A, B, C, D, E] using ~~Letter~~ if - else.

A -

```
int main ()
{
    int marks;
Printf("Enter marks:");
Scanf("%d", &marks);
    if (marks >= 90 && marks <= 100)
    {
        Printf (" Grade A");
    }
    else if (marks >= 80 && marks <= 90)
    {
        Printf (" Grade B");
    }
    else if (marks >= 70 && marks <= 80)
    {
        Printf (" Grade C");
    }
    else if (marks >= 60 && marks <= 70)
    { Printf (" Grade D");
    }
    else
    { Printf (" Grade E");
    }
}
```

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Q- Program for Electricity Bill. Follow the instructions written Below : if units <= 200 → 2
<= 400 → 3
<= 600 → 4
else 5

Apply 10% Tax and get Gross bill.

A -

```
int main ()
{
    int units; float Gross bill, bill; int RPU;
    Printf ("Enter units Consumed ;");
    Scanf ("%d", & units);
    if (units <= 200)
    {   R.P.U = 2;
    }
    else if (units <= 400)
    {   RPU = 3;
    }
    else if (units <= 600)
    {   RPU = 4;
    }
    else
    {   RPU = 5;
    }
    bill = units x RPU;
    Gross bill = (10/100 x Bill) + Bill
    Printf ("Gross Bill : %f, Gross Bill")
}
```

This will not work → (Bill/10)

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Q- Program to check no. is +ve, -ve & zero

A -

```
int main()
{
    int a;
    Printf(" Enter the Value of a : ");
    Scanf(" %d", &a);
    if (a>0)
    {
        Printf(" Numbare is Positive");
    }
    else if (a==0)
    {
        Printf(" 0");
    }
    else
    {
        Printf(" Number is negative");
    }
}
```

This is wrong why? ←

---

<u>Correct ans</u> :-

```
int main()
{
    int a;
    Printf(" Enter the value of a: ");
    Scanf("%d", &a);
    if (a>0)
    {
        Printf(" Number is Positive");
    }
    else if (a<0)
    {
        Printf(" Number is negative");
    }
    else {Printf("0");
}
```

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Q- Program to check Profit, loss or nothing & what is amount

A -

```
int main()
{
    float PP, SP, amount;
    Printf ("Enter the value of PP and SP :\n")
    Scanf ("%f %f", &PP, &SP);
    if (PP < SP)
      { amount = SP - PP;
        Printf ("Profit = %f", amount);
    else if (PP > SP)
      {
        Printf ("Loss = %f", PP- SP);
      }
    else {
        Printf ("No Profit No Loss");
      }
```

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Q- Program to check Leap year

A -

```
int main()
{
    int year;
        Printf ("Enter the year : ");
        Scanf ("%d", & year);
    if ( year % 4 == 0 || year % 100 != 0 || year % 400 == 0)
    {
        Printf ("This is a leap year");
    }
    else
    {
        Printf ("This is not a leap year");
    }
```

Q- Program for greatest of four numbers

A -

```
int main()
{
    int A, B, C, D;
    if (A > B && A > C && A > D)
    { Printf ("A is greatest");
    }
    else if (B > A && B > C && B > D)
    { Printf ("B is greatest");
    }
    else if (C > A && C > B && C > D)
    { Printf ("C is greatest");
```

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```
Else
{
    Printf (" D is greatest");
}
```

Q- Program for greatest of 3 Numbers without using if-else ladder and && operator.

A —

```
int main ( )
{
  int A, B, C;
  if (A > B)
    {
      MAX = A;
    }
  else
    { MAX = B;
    }

  if (MAX > C)
    {
      MAX = MAX;
    }
  else
    {
      MAX = C;
    }
  Printf ("%d , MAX);
}
```

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## ☆ Relational operators :-

<, >, <=, >=, ==

**Equality operator**

Used to check the equality of 2 values.

if Equal → True
else → False.

Eg:-

```
// odd / even
int main ()
{ int N;
  Printf ("Enter N:");
  Scanf ("%d", &N);
If (N%2 == 0)
  { Printf ("Even");
  }
else
  { Printf ("odd");
  }
```

!=

**Not Equal to**

if Equal → False
else → True

```
if (N%2 != 0)
  { Printf ("odd");
  }
else
  { Printf ("Even");
  }
```

**!==** → no operator.

= → Assignment operator.

it is used to assign the values to variable.

int x = 2;
[2]

5 = x; // error
[2]
(L value Required)

5 = 1

## ☆ Conditional | Ternary operators :-

It is used for making a choice among the given options, (like, if-else) But here we use [?] and [:] operators, instead of if and else.

**Syntax :-** (Condition ? Statement-1 : Statement-2);

(Then, else)

Eg :-

```
(A > B ? Printf ("A") : Printf ("B"));

(Per > 60 ? Printf ("Pass") : Printf ("Fail"));
```

OR

```
int max = (A > B ? A : B);
```

```
int RPU = (units <= 500 ? 5 : units <= 700 ? 7 : 10);
bill = units x RPU;
```

## ☆ Some advanced Technicals :-

(1)

```
if (Condition)
{ St - 1
  St - 2 }
else
  St - 3
  St - 4
```

Common place

| T | F |
|---|---|
| 1<br>2<br>4 | 3<br>4 |

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(2) if (condition)

St - 1

St - 2

St - 3

Common place

| T | F |
|---|---|
| 1<br>2<br>3 | 2<br>3 |

---

(3) if (condition)

{ St - 1

St - 2

}

St - 3

Common place

| T | F |
|---|---|
| 1<br>2<br>3 | 3 |

---

(4) if (condition);

St - 1

else

St - 2

St - 3

Misplaced else (it will show error).

---

(5) if (condition);

St - 1

St - 2

St - 3

Common place

| T | F |
|---|---|
| 1<br>2<br>3 | 1<br>2<br>3 |

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⑥ if (Condition)

St - 1

else ;

St - 2

St - 3

Commonplace

| T | F |
|---|---|
| 1<br>2<br>3 | 2<br>3 |

---

⑦ • if (7) → Non-zero value → True

{Hello; ✓
}

else
{Hi;
}

• if (!7) → 0 → zero value → False

{ Real;
}

else
{ Java; ✓
}

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# HOME WORK [ Short Ques. if-else ]

(1)
```
int main ()
{
    int a=7, b=8, c;
    if (a==b)
        c = a+b;
        c = a*b;
    Printf ("%d", c);
}
```

⇒ Here, if (Condition) is false,

$\therefore$ $C = a * b$

Hence, $\boxed{C = 56}$

---

(2)
```
int main ()
{
    int a =7, b =8, c;
    if (a<b)
        c = a+b;
        c = a*b;
    Printf ("%d", c);
}
```

⇒ Here, if (condition) is True, but $c = a * b$ over take $c = a+b$

$\therefore$ ~~c = a+b~~ $\therefore c = a * b$

~~c = 15~~ $\boxed{\therefore c = 56}$

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(3)

```
int main ()
{
    char V1 = 'B';
    int V2 = 66;
    if (V1 == V2)
        Printf ("hello");
    else
        Printf ("hi");
}
```

⇒ Here, we know ASCII value of B = 66

∴ if (Condition) is true

∴ Print → Hello.

---

(4)

```
int main ()
{
    if (!5 < 4)
        Printf ("Banglore");
    else
        Printf ("Computer");
}
```

→ !5 = 0 < 4, ∴ if (Condition) is True

∴ Print → Banglore.

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(5)

```
int main ()
{
    int V=10 , R;
      if (V <=7)
          R = 2;
      if (V<=8)
          R=3;
      if (V<=9)
          R=4;
      else
          R=5;
      Printf ("%d", R);
}
```

if there is else b/w if's & V=1 then, R=4 bcz, if there is without else then over right values.

⇒ V=10 ; ∴ $\boxed{R = 5}$

---

(6)

```
int main ()
{ if (2<3)
  { if (3<7)
    { if (7<9)
          Printf ("banglore");
      else
          Printf ("Computer");
    }
    Printf ("Education");
  }
  else
    Printf ("Bathinda");
    Printf ("India");
}
```

⇒ Banglore
Education
India

Scanned with CamScanner

(7)

```
int main ()
{ if (!8-8)
      Printf ("om");
  else Printf ("Rom");
}
```

⇒ !8-8 = -8 → Non-zero value → True

∴ Print → om

---

(8)

```
int main ()
{ if (2<=3)
      Printf ("Real \n");
  else
      Printf ("Java \n");
      Printf ("BCE");
}
```

⇒ Real
BCE

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(9)

```
int main ()
{
    if (5<=7)
        Printf ("Banglore");
        Printf ("\n Computer");
    else
        Printf ("Education");
        Printf ("Bathinda");
}.
```

⇒ Error, Blocks Required, bcz there are two statements in if.

---

(10)

```
int main ()
{
    if (110 >= 20)
        Printf ("Sun");
    else
    {
        Printf ("Soft - Technologies \n");
        Printf ("India");
    }
    Printf ("\n done");
}
```

⇒ Sun
Done.

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Q-11 Write a short note on 'if' block?

A-11 If in a program, let

```
int main ()
{   if (2 < 3)
    {
        printf ("oh really");
        printf ("This is true");
        printf ("Great");
    }
    else
        printf ("Lol");
}
```

if blocks

→ This whole program will show error if we didn't use blocks because we give multiple statements without using block (without block we can done only with one statement) but with block, number of statements will be executed.

---

Q-12 Write a short note on 'else' block?

A-12 Else saying without block I can pick only first statement it is my rule, I can't change if you want to execute number of statements you can use block (name :- else block) but one thing when you give me 2 statements first I pick because it is mine, but the next I cast in common place.

```
else
{
    Printf ("Good Luck");
    Printf ("Good Love");
}
```

→ This is mine

go in Common place

} → Now both are mine.

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(13)

```
int main ()
{
    if (Printf ("Hello"))
    {
        Printf ("\n Programmers")
    }
    Printf ("\n Fine?");
}
```

⇒ Hello
Programmers
Fine?

(14)

```
int main ()
{
  char choice;
  int option;
  Printf ("Enter your choice");
  Printf ("\n m → message");
  Printf ("\n C → Call Register");
  Scanf ("%c", & choice);
  Switch (choice)
  {
    Case 'm' : Case 'm'.
    Printf ("\n Enter your option :");
    Printf ("\n 1 → create message");
    Printf ("\n 2 → in box");
    Scanf ("%d", & option)
    Switch (option)
    {
      Case 1 :
        Printf ("Type your message");
        break;
      Case 2:
        Printf ("Aman \n Raman");
        break;
    }
    break;
  Case 'c' : Case 'c' :
    Printf ("Call information");
    break;
  Default
      Printf ("Wrong choice");
  }
}
```

⇒ Enter your choice
m → Message
C → Call Register

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Q- Swap the two numbers if they are not Same.

⇒

```
int main ()
{
    int a, b, temp;
    Printf ("Enter the value of a, b : \n");
    Scanf ("%d %d", &a, &b)

    if (a != b)
    {
        temp = a;
        a = b;
        b = temp;
        Printf ("Now, after Swap a = %d , b = %d", a, b);
    }

    else
        Printf ("Numbers are same, So swapping does not make
                any sense");
}
```

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Q- Write a Program for grade of student using Conditional operators.

A -

```
intemain ()
{

Char Grade = (Per > 90 ? 'A' : Per > 80 ? 'B' : Per > 70 ? 'C' : D);
printf("%c", grade);
}
```

---

Q- Write a Program for greatest of four numbers using Conditional operators.

A

```
int main ()
{

int MAX = (A>B && A>C && A>D ? A : B>A && B>C && B>D ? B :
C>A && C>B && C>D ? C : D);
printf("MAX=%d", MAX);
}
```

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# Class Work

Q- Greatest of 3 Numbers using nested if.

A -

```
int main ()
{
    Printf ("Enter the value of A, B, C : \n");
    Scanf ("%d%d %d, &A, &B, &C);

    if (A > B)
    { if (A > C)
        Printf ("A is greatest");
      else Printf ("C");
    }
    else if (B > C)
        Printf ("B is greatest");
    else
        Printf ("C is greatest");
}
```

Homework :-

Q- Program for greatest of 4 numbers using nested if

3 numbers using Conditional & nested operators.

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(ii) Nested if (if () within if ()) :- It is used when the execution of child Condition depends upon parent Condition.

```
int main ().
{
    int Per, exp ;
    printf ("Enter Value of Per and Exp : \n\n");
    Scanf ("%d %d", & Per, & exp);
    if (exp >= 2)  // Parental Condition
    {
        if (Per >= 90)  // child Condition
            Printf ("Senior Program");
        else
            Printf ("Junior program");
    }
    else
    {   Printf ("Trainee");
    }
```

⇒ We Can do this also by Conditional operator :

```
( exp >= 2 ? Per >= 90 ? Printf ("S.P") : Printf ("J.P") : Printf
("Trainee"));
```

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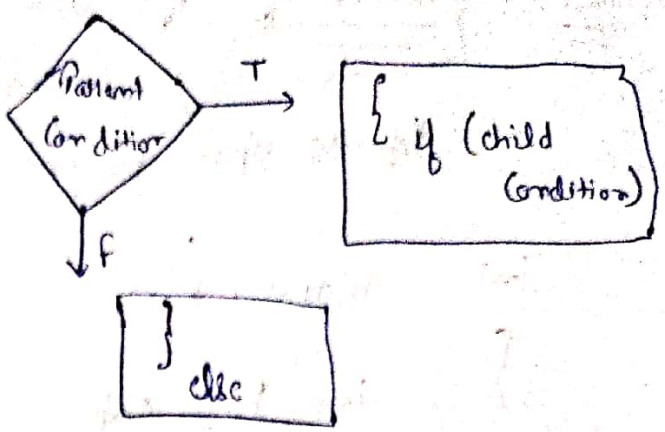
## Chakhan-View Breaker ⟹

```
if (Parent Condition) T ↓ F ↑
{
    if (Parent Condition) T ↓ F ↑
    (Child Condition)
    {
        if (Child Condition) T ↓ F ↑
        {
            ==
        }
        else
        {
            ==
        }
    }
    else
    {
        ==
    }
}
else
{
    ==
}
```




```
if (Parent Condition)
{
    if (Child Condition)
    {
        ↓
        ==
    }
    else
    {
        ==
    }
}
else
{
    ==
}
```

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# Home Work

Q- Write a program for greatest of four numbers using nested if-

A -

```
int main ( )
{
    int A, B, C, D;
    Printf (" Enter the Value of A, B, C, D ; \n\n\n");
    Scanf (" %d%d %d %d", &A, &B, &C, &D);
    if (A>B)
    {
      if (A>C)
      {
        if (A > D)
          Printf (" A is greatest");
        else
          Printf (" D is greatest");
      }
      else if (B>D)
      {
        if (B>C)
          Printf (" B is greatest");
        else
          Printf (" C is greatest");
      }
      else if (C>D)
```

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Q- Write a Program for greatest of four numbers using nested if.

A -

```
int main()
{
    int A, B, C, D;
    Printf (" Enter the Value of A, B, C, D : \n \n \n");
    Scanf ("%d %d %d %d", &A, &B, &C, &D);
    if (A > B)
    {
        if (A > C)
        {
            if (A > D)
                Printf ("A is greatest");
            else
                Printf ("D is greatest");
        }
        else if (B > C)
            Printf ("B is greatest");
            else if (C > D)
                Printf ("C is greatest");
            else
                Printf ("D is greatest");
    }
    else if (D > B)
        Printf ("D is greatest");
    else
        Printf ("B is greatest");
}
```

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Q- Write a Program for greatest of 4 numbers. using nested if.

A -

```
int main ( )
{
    int A, B, C, D;
    Printf (" Enter the value of A, B, C, D : \n");
    Scanf ("%d %d %d %d", &A, &B, &C, &D);
    if (A > B)
    {
        if (A > C)
        {
            if (A > D)
            Printf (" A is greatest, A");
            else
            Printf (" D is greatest");
        }
        else ~~if (B > C)~~
            ~~Printf (" B is greatest");~~
            ~~else~~ if (C > D)
            Printf (" C is greatest");
            else
            Printf (" D is greatest", C)
    }
    else
    if (B > C)
    {
        ~~else if (D > B)~~
        ~~Printf (" D is greatest");~~
        ~~else if (C > B)~~
        ~~Printf (" C is greatest", C);~~
        ~~else Printf (" B is greatest");~~
```

C → D

B, C, D

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Q- Write a Program for greatest of 3 Numbers Using Conditional operator and nested if.

A -

```
int main ()
{
    int A, B, C, D;
    Printf (" Enter the Value of A, B, C, D : \n");
    Scanf (" %d %d %d %d , &A, &B, &C, &D);

max = (A>B ? A>C ? A->D ? Printf ("A is greatest", A) : (D)
      : B>C ? Printf ("B") ? D>C? Printf ("D") : Printf ("C") ?
      D>B ? Printf ("D") ? C>B? Printf ("C") : Printf ("B"))
      : C>D? C : D : B>C ? B>D? B : D : C>D?C : D);
```

A > B ✓
A > C ✗

Q- Write a Program for greatest of 4 no.'s using nested if.

⇒

```
int main ()
{
    Printf (" Enter the Value of A,B, C,D : \n");
    Scanf (" %d %d %d %d", &A, &B, &C, &D);
    if (A>B)
    {
        if (A>C)
        {
            if (A> D)
                Printf (" A is greatest");
            else
                Printf (" D is greatest");
        }
        else if (C>D)
                Printf (" C is greatest");
            else
                Printf (" D is greatest");
    }
    else if (B>C)
    {
        if (B>D)
            Printf (" B is greatest");
        else
            Printf (" D is greatest");
    }
    else if (C>D)
            Printf (" C is greatest");
        else
            Printf (" D is greatest");
}
```

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for 5 no's :-

```
int main ()
{
    if (A > B)
    {
        if (A > C)
        {
            if (A > D)
            {
                if (A > E)
                    Printf ("A is greatest");
                else
                    Printf ("E is greatest");
            }
            else if (D > E)
                Printf ("D is greatest");
            else
                Printf ("E is greatest");
        }
        else if (C > D)
        {
            if (B > D)
                Printf ("B is greatest");
            else
                Printf ("D is greatest");
        }
        else if (D > E)
            Printf ("D is greatest");
        else
            Printf ("E is greatest");
    }
    else if
```

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# Nesting of greatest of 5 No.'s

```
int main ()
{
    if (A>B)
    {
        if (A>C)
        {
            if (A>D)
            {
                if (A>E)
                    Printf (" A is greatest");
                else
                    Printf ("E is greatest");
            }
            else if (D>E)
                Printf (" D is greatest");
            else
                Printf (" E is greatest");
        }
        else if (C>D)
        {
            if (C>E)
                Printf ("C is greatest");
            else
                Printf (" E is greatest");
        }
        else if (D>E)
            Printf (" D is greatest");
        else
            Printf (" E is greatest");
    }
```

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```
} else if (B > C)
    {
      if (B > D)
        {
          if (B > E)
            Printf (" B is greatest");
          else
            Printf (" E is greatest");
        }
        else if (D > E)
            Printf (" D is greatest");
          else
            Printf (" E is greatest");
      }
      else if (C > D)
          {
            if (C > E)
              Printf (" C is greatest");
            else
              Printf (" E is greatest");
          }
          else if (D > E)
              Printf (" D is greatest");
            else
              Printf (" E is greatest");
}
```

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// Same Prog. but using Conditional Operators :-

```
int main()
{
    int A, B, C, D, E;
    Printf (" Enter the Value of A, B, C, D, E : \n");
    Scanf (" %d %d %d %d %d", &A, &B, &C, &D, &E);

Char max = ( A > B ? A > C ? A > D ? A > E ? Printf ("A") : Printf ("E")
    : D > E ? Printf ("D") : Printf ("E") : C > D ? C > E
    ? Printf ("C") : Printf ("E") : D > E ? Printf ("D")
    : Printf ("E") : B > C ? B > D ? B > E ? Printf ("B")
    : Printf ("E") : D > E ? Printf ("D") : Printf ("E")
    : C > D ? C > E ? Printf ("C") : Printf ("E")
    : D > E ? Printf ("D") : Printf ("E"));

    Printf (" %C", max);
}
```

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## Switch - Case statements :- It is also used for making a choice among the given options but here we use key words switch, case and default.

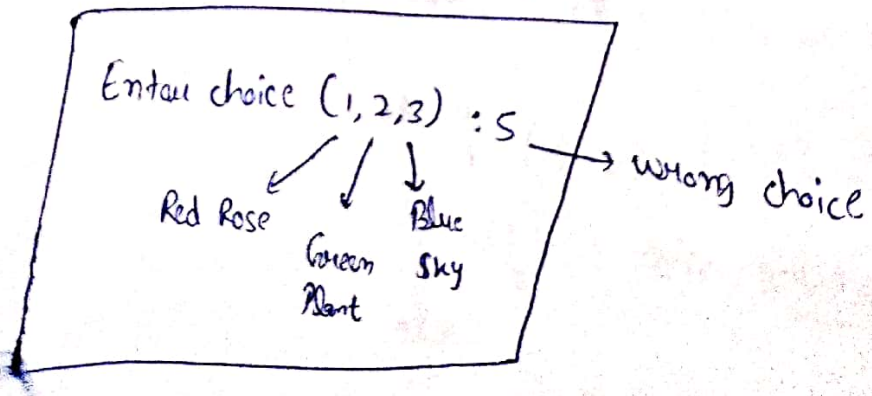
We can't use relational operators, logical operators, float, String Constant.

**Syntax :-**

```
Switch (Integer choice)
{
    Case int | char Constant :
        ==
    Case int | char Constant :
        ==
    :
    default : (optional)
        ==
}
```

$\boxed{==}$ → 'Switch Case'

**Program :-**

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```
int main ( )
{
    int choice ;
    Printf (" Enter choice (1, 2, 3) : \n");
    Scanf ("%d", & choice) ;   // 2 , 5
    Switch (choice)
    {
        Case 1 :
            Printf ("Red \n");
            Printf ("Rose");
            break ;
        Case 2 :
            Printf ("Green \n");
            Printf ("Plant");
            break ;
        Case 3 :
            Printf ("Blue \n");
            Printf ("Sky");
            break
        default :
            Printf ("Wrong choice");
    }
}
```

Case <= 2: ✗

Case 3.0 : ✗

Case "3" : ✗

Case >= 3 && Case <= 4 ✗

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## Same Program using character Constants:

```
int main ()
{
    char choice;
    Printf ("Enter choice (R,G,B) : \n");
    Scanf ("%c", & choice);
    Switch (choice)
    {
      Case 'R':
        Printf ("Real \n");
        Printf ("Rose");
        break;
      Case 'G': Case 'g':
        Printf ("Green \n");
        Printf ("plant");
        break;
      default :.
        Printf ("wrong choice");
        break;
      Case '*' : Case 'B':
      Case 'b':
        Printf ("Blue \n");
        Printf ("Sky");
    }
}
```

Enter choice (R, G, B, b, *);

Red rose

Green plant

Blue sky

Special Symbols also included in char.

```
Switch (1)
{
  Case 1:
    Hello
  Case 1:
    Hi
  Case 2:
    Bye
}
```

Error bcz Identical Cases are not allowed.

Case ' ' → space

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# Home Work

## Program ①:-

Enter choice (1, 2, 3 — 7)
Monday — Sunday

```
int main ()
{
    int choice;
    Printf ("Enter choice (1, 2, 3, 4, 5, 6, 7): \n");
    Scanf ("%d", & choice);
    Switch (choice)
    {
        Case 1:
            Printf ("Monday");
            break;
        Case 2:
            Printf ("Tuesday");
            break;
        Case 3:
            Printf ("Wednesday");
            break;
        Case 4:
            Printf ("Thursday");
            break;
        Case 5:
            Printf ("Friday");
            break;
        Case 6:
            Printf ("Saturday");
            break;
        Case 7:
            Printf ("Sunday");
            break;
        default:
            Printf ("Wrong choice");
    }
}
```

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~~Program (2) :- Calculator~~

~~Enter choice (+, -, *, /)~~
~~A : ?~~
~~B :~~
~~Sum -~~

```
int main()
{
    int choice;
    Printf ("Enter choice ('+', '-', '*', '/') ;
    Scanf ("%c", & choice);
    Switch (choice)
    {
        Case
```

---

Problem - (2) :- Calculator

```
int main()
{ float
    A, B, ; char choice;
  Printf ("Enter A and B : \n")
  Scanf ("%f %f", &A, &B);

  Printf ("Enter choice (+, -, *, /) : \n");
  Scanf ("%c", & choice);
  Switch (choice)
  {
      Case '+' :
      Printf ("%f + %f = %f", A, B, A+B);
      break;
      Case '-' :
      Printf ("%f - %f = %f", A, B, A-B);
      break;
      Case '*' :
      Printf ("%f * %f = %f", A, B, A*B);
      break;
      Case '/' :
      Printf ("%f / %f = %f", A, B, A/B);
      break;
      Default :
      Printf ("Wrong choice");
  }
}
```

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~~Problem - (2) :- Calculator :-~~

```
int main ()
{
    float A, B, choice;
    Printf ("Enter the value of A & B \n");
    Scanf ("%f %f", &A, &B);
    Printf ("Enter choice (+, -, *, /): \n");
    Scanf ("%c", &choice);
    Switch (choice)
    {
        Case '+':
            Printf ("Sum of A + B = %f \n", A+B);
            break;
        Case '-':
            Printf ("Diff of A & B = %f \n", A-B);
            break;
        Case '*':
            Printf ("Multiplication of A & B
```

**Note** :- Always use Printf & Scanf in every case to input values. In Program 2, if we want to input values first then we have to use fFlush (stdin);

i.e :-

```
Print f ("Enter 2 values");
Scanf ("%f %f", &a, &b);
fFlush (stdin);
Printf ("Enter choice:");
```

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Problem - 3 :-

| | |
|---|---|
| Enter choice (2, 3) : | |
| A | 2 |
| B | A |
| Max | B |
| | C |
| | Max. |

```
int main ()
{
    int choice;
    float A, B, C;
    Printf (" Enter choice (2, 3) : \n");
    Scanf ("%d", & choice);
    Printf (" Enter the value of A & B : \n");
    Scanf ("%f %f", &A, & B);
    Switch (choice)
    {
        Case 2 :
            if(A>B)
                A
            else
                B
            break;
        Case 3:
            Scanf(&A, &B, &C);
```

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Problem - 3 :-

Enter choice (2,3)
A B
B C
max. max.

```
int main ()
{
  int choice ;
  float A, B, C;
  Printf (" Enter choice (2, 3) : \n");
  Scanf ("%d", & choice);
  Switch (choice)
  {
      Case 2:
      Printf (" Enter Value of a & b : \n");
      Scanf ("%f%f", & a, & b);
       if (A > B)
         Printf ("%f", a);
       else
         Printf ("%f", b);
         break;

      Case 3:
      Printf (" Enter Value of a, b, c : \n");
      Scanf ("%f %f %f", & a, & b, & c);
        if (A > B && A > c)
            Printf ("%f", A);
        else if (B > A && B > c)
            Printf ("%f", B);
        else
            Printf ("%f", c);
        break;
  }
```

Default

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