IF ELSE STATEMENTS:-

- **if SYNTAX :-**

```
if( condition ) {
        block of code to perform;
}
```

- **If-else SYNTAX :-**

```
if ( condition ) {
        block of code if condition is true;
} else {
        block of code if condition is false;
}
```

- **If-else ladder SYNTAX:-**

```
if ( condition 1 ) {
        block of code if condition is true;
} else if ( condition 2 ) {
        block of code if condition is true;
} else if ( condition 3 ) {
        block of code if condition is true;
} else if ( condition 4 ) {
        block of code if condition is true;
} else {
        block of code if all condition is false;
}
```

1. Even / Odd

```c
#include <stdio.h>
int main() {
    int n;
    scanf("%d", &n);
    if (n % 2 == 0)
        printf("Even\n");
    else
        printf("Odd\n");
    return 0;
}
```

Yeh tho khair clear hi hoga jaise isme h ke n ko aagar 2 se divide karenge tho remainder zero bachega agar 0 bachega tho even nhi tho odd

Waise hi n agar 0 se badan tho positive or chota tho negative

2. Positive, Negative, Zero

```c
#include <stdio.h>
int main() {
    int n;
    scanf("%d", &n);
    if (n == 0) printf("Zero\n");
    else if (n > 0) printf("Positive\n");
    else printf("Negative\n");
    return 0;
}
```

3. Larger of Two Numbers

```c
#include <stdio.h>
int main() {
    int a, b;
    scanf("%d %d", &a, &b);
    if (a > b) printf("%d is larger\n", a);
    else if (b > a) printf("%d is larger\n", b);
    else printf("Equal\n");
    return 0;
}
```

4. Largest of Three Numbers

```c
#include <stdio.h>
int main() {
    int a, b, c;
    scanf("%d %d %d", &a, &b, &c);
    if (a >= b && a >= c) printf("%d\n", a);
    else if (b >= a && b >= c) printf("%d\n", b);
    else printf("%d\n", c);
    return 0;
}
```

5. Leap Year

```
#include <stdio.h>
int main() {
    int y;
    scanf("%d", &y);
    if ((y % 400 == 0) || (y % 4 == 0 && y % 100 != 0))
        printf("Leap Year\n");
    else
        printf("Not Leap Year\n");
    return 0;
```

6. Grade Calculator

```
#include <stdio.h>
int main() {
    int marks;
    scanf("%d", &marks);
    if (marks < 0 || marks > 100) {
        printf("Invalid marks\n");
        return 0;
    }
    if (marks >= 90) printf("Grade: A\n");
    else if (marks >= 75) printf("Grade: B\n");
    else if (marks >= 50) printf("Grade: C\n");
    else if (marks >= 33) printf("Grade: D\n");
    else printf("Grade: F\n");

    if (marks >= 33) printf("Pass\n");
    else printf("Fail\n");
    return 0;
}
```

7. Vowel or Consonant

```
#include <stdio.h>
#include <ctype.h>
int main() {
    char ch;
    scanf(" %c", &ch);
    if (!isalpha(ch)) {
        printf("Invalid input\n");
        return 0;
    }
    ch = tolower(ch);
    if (ch=='a'||ch=='e'||ch=='i'||ch=='o'||ch=='u')
        printf("Vowel\n");
    else
        printf("Consonant\n");
    return 0;
}
```

Point Quadrant

```
#include <stdio.h>
int main() {
    int x, y;
    scanf("%d %d", &x, &y);
    if (x==0 && y==0) printf("Origin\n");
    else if (x==0) printf("Y-axis\n");
    else if (y==0) printf("X-axis\n");
    else if (x>0 && y>0) printf("1st Quadrant\n");
    else if (x<0 && y>0) printf("2nd Quadrant\n");
    else if (x<0 && y<0) printf("3rd Quadrant\n");
    else printf("4th Quadrant\n");
    return 0;
}
```

Marks with Boundaries

```
#include <stdio.h>
int main() {
    int m1, m2, m3;
    scanf("%d %d %d", &m1, &m2, &m3);
    if (m1<0||m1>100||m2<0||m2>100||m3<0||m3>100) {
        printf("Invalid marks\n");
        return 0;
    }
    int total = m1+m2+m3;
    float per = total/3.0;
    printf("Total: %d\n", total);
    printf("Percentage: %.2f\n", per);

    if (m1<33||m2<33||m3<33) {
        printf("Fail\n");
    } else {
        printf("Pass\n");
        if (per>=90) printf("Grade: A\n");
        else if (per>=75) printf("Grade: B\n");
        else if (per>=50) printf("Grade: C\n");
        else printf("Grade: D\n");
    }
    return 0;
}
```

Days in a Month

```
#include <stdio.h>
int main() {
    int m, y, days;
    scanf("%d %d", &m, &y);
    if (m < 1 || m > 12) {
        printf("Invalid month\n");
        return 0;
    }
    if (m==1||m==3||m==5||m==7||m==8||m==10||m==12) days = 31;
    else if (m==4||m==6||m==9||m==11) days = 30;
    else {
        if ((y%400==0) || (y%4==0 && y%100!=0)) days = 29;
        else days = 28;
    }
    printf("%d\n", days);
    return 0;
}
```

Triangle Validity & Type

```c
#include <stdio.h>
int main() {
    int a, b, c;
    scanf("%d %d %d", &a, &b, &c);
    if (a <= 0 || b <= 0 || c <= 0) {
        printf("Invalid sides\n");
        return 0;
    }
    if (a+b>c && a+c>b && b+c>a) {
        if (a==b && b==c) printf("Equilateral\n");
        else if (a==b || b==c || a==c) printf("Isosceles\n");
        else printf("Scalene\n");
    } else {
        printf("Not a triangle\n");
    }
    return 0;
}
```

Simple Calculator

```c
#include <stdio.h>
int main() {
    double a, b;
    char op;
    scanf("%lf %lf %c", &a, &b, &op);
    if (op == '+') printf("%.2lf\n", a + b);
    else if (op == '-') printf("%.2lf\n", a - b);
    else if (op == '*') printf("%.2lf\n", a * b);
    else if (op == '/') {
        if (b == 0) printf("Error: Division by zero\n");
        else printf("%.2lf\n", a / b);
    }
    else if (op == '%') {
        if ((int)b == 0) printf("Error: Modulo by zero\n");
        else printf("%d\n", (int)a % (int)b);
    }
    else printf("Invalid operator\n");
    return 0;
}
```

Palindrome Number

```c
#include <stdio.h>
int main() {
    int n, rev=0, temp;
    scanf("%d", &n);
    if (n < 0) {
        printf("Not Palindrome\n");
        return 0;
    }
    temp = n;
    while (temp > 0) {
        rev = rev*10 + temp%10;
        temp /= 10;
    }
    if (rev == n) printf("Palindrome\n");
    else printf("Not Palindrome\n");
    return 0;
}
```

- Koii sa agar common na ho toh if else walon ko bhi switch statement se kar sakte h tho try kar lena waise itna concept building ke liye bahut baaki bahut se questions h iske jo hume diye the who aage daal arah try karna ho tho

17 Write a program to find a greater number from given 3 different numbers

18 Write a program to find a greater number from 3 numbers

19 Write a program to find a greater number from given 4 different numbers

20 Write a program to find a greater number from given 5 different numbers

21 Write a program to perform addition, subtraction, multiplication, division of 2 numbers as per user choice

22 Write a program to print entered digit in word using if else statement.

Find greatest among 3 different numbers

// Algorithm:

// 1. Start

// 2. Input 3 different numbers

// 3. Use if-else to compare all

// 4. Print largest

// 5. Stop

```
#include <stdio.h>
#include <conio.h>
void main() {
   int a, b, c;
   clrscr();
   printf("Enter 3 different numbers: ");
   scanf("%d %d %d", &a, &b, &c);
   if(a > b && a > c)
      printf("%d is greatest", a);
   else if(b > a && b > c)
      printf("%d is greatest", b);
   else
      printf("%d is greatest", c);
   getch();
}
```

Output:

Enter 3 different numbers: 9 1 3

9 is greatest

Find greatest among 4 different numbers

// Algorithm:

// 1. Start

// 2. Input 4 different numbers

// 3. Compare all using if-else

// 4. Print the greatest

// 5. Stop

```
#include <stdio.h>
#include <conio.h>
void main() {
   int a, b, c, d;
   clrscr();
   printf("Enter 4 different numbers: ");
   scanf("%d %d %d %d", &a, &b, &c, &d);
   if(a > b && a > c && a > d)
      printf("%d is greatest", a);
   else if(b > a && b > c && b > d)
      printf("%d is greatest", b);
   else if(c > a && c > b && c > d)
      printf("%d is greatest", c);
   else
      printf("%d is greatest", d);
   getch();
}
```

Output:

Enter 4 different numbers: 1 2 9 3

9 is greatest

Find greatest among 5 different numbers

```
// Algorithm:
// 1. Start
// 2. Input 5 different numbers
// 3. Compare all
// 4. Print largest
// 5. Stop

#include <stdio.h>
#include <conio.h>

void main() {
   int a, b, c, d, e;
   clrscr();
   printf("Enter 5 numbers: ");
   scanf("%d %d %d %d %d", &a, &b, &c, &d,
&e);
   if(a > b && a > c && a > d && a > e)
      printf("%d is greatest", a);
   else if(b > a && b > c && b > d && b > e)
      printf("%d is greatest", b);
   else if(c > a && c > b && c > d && c > e)
      printf("%d is greatest", c);
   else if(d > a && d > b && d > c && d > e)
      printf("%d is greatest", d);
   else
      printf("%d is greatest", e);
   getch();
}
```

Output:

```
Enter 5 numbers: 10 5 25 7 3
25 is greatest
```

Calculator: +, −, ×, ÷ of 2 numbers (if-else menu)

```
// Algorithm:
// 1. Start
// 2. Input two numbers and choice
// 3. Use if-else to perform selected operation
// 4. Print result
// 5. Stop

#include <stdio.h>
#include <conio.h>

void main() {
   int a, b, choice;
   clrscr();
   printf("Enter two numbers: ");
   scanf("%d %d", &a, &b);
   printf("1.Add  2.Subtract  3.Multiply  4.Divide\n
   Enter your choice: ");
   scanf("%d", &choice);

   if(choice == 1)
      printf("Sum = %d", a + b);
   else if(choice == 2)
      printf("Difference = %d", a - b);
   else if(choice == 3)
      printf("Product = %d", a * b);
   else if(choice == 4)
      printf("Division = %.2f", (float)a / b);
   else
      printf("Invalid Choice");

   getch();
}
```

Output:

```
Enter two numbers: 10 5
1.Add  2.Subtract  3.Multiply  4.Divide
Enter your choice: 3
Product = 50
```

Print digit in words using if-else

```
// Algorithm:
// 1. Start
// 2. Input a digit (0–9)
// 3. Use if-else to match and print word
// 4. Stop

#include <stdio.h>
#include <conio.h>

void main() {
   int digit;
   clrscr();
   printf("Enter a digit (0-9): ");
   scanf("%d", &digit);

   if(digit == 0) printf("Zero");
   else if(digit == 1) printf("One");
   else if(digit == 2) printf("Two");
   else if(digit == 3) printf("Three");
   else if(digit == 4) printf("Four");
   else if(digit == 5) printf("Five");
   else if(digit == 6) printf("Six");
   else if(digit == 7) printf("Seven");
   else if(digit == 8) printf("Eight");
   else if(digit == 9) printf("Nine");
   else printf("Invalid digit");

   getch();
}
```

Output:

```
Enter a digit (0-9): 7
Seven
```

14. Check whether number is even or odd

```
// Algorithm:
// 1. Start
// 2. Input number
// 3. Check n%2 == 0
// 4. Print result
// 5. Stop


#include <stdio.h>
#include <conio.h>


void main() {
   int num;
   clrscr();
   printf("Enter a number: ");
   scanf("%d", &num);
   if(num % 2 == 0)
      printf("Even number");
   else
      printf("Odd number");
   getch();
}
```

Output:

```
Enter a number: 5
Odd number
```

Switch – Case STATEMENTS:-

- **Switch – Case SYNTAX :-**

```
    switch (expression)
{
      case value1:
                  // Code to execute if expression ==
                     value1
                   break; // Optional: exits the switch
                                statement
    case value2:
                 // Code to execute if expression ==
                     value2
                  break;
    // ... more cases

    default:
                  // Code to execute if no case
                     matches (optional)
                   break;
                    // Optional: exits the switch
                    statement
}
```

Switch case apan use karte h taaki ek hi chiz ki kai saari values pe agar hume koi kaam karwana h tho woh particular value pe alag alag task perform kara sake

Day of Week Program

```c
#include <stdio.h>
int main() {
    int day;
    printf("Enter day number (1-7): ");
    scanf("%d", &day);

    switch(day) {
        case 1: printf("Monday\n"); break;
        case 2: printf("Tuesday\n"); break;
        case 3: printf("Wednesday\n"); break;
        case 4: printf("Thursday\n"); break;
        case 5: printf("Friday\n"); break;
        case 6: printf("Saturday\n"); break;
        case 7: printf("Sunday\n"); break;
        default: printf("Invalid day!\n");
    }
    return 0;
}
```

Waise hi day ka number input kiye uske according saare hi print kar diye

Month Name Program

```c
#include <stdio.h>
int main() {
    int month;
    printf("Enter month number (1-12): ");
    scanf("%d", &month);

    switch(month) {
        case 1: printf("January\n"); break;
        case 2: printf("February\n"); break;
        case 3: printf("March\n"); break;
        case 4: printf("April\n"); break;
        case 5: printf("May\n"); break;
        case 6: printf("June\n"); break;
        case 7: printf("July\n"); break;
        case 8: printf("August\n"); break;
        case 9: printf("September\n"); break;
        case 10: printf("October\n"); break;
        case 11: printf("November\n"); break;
        case 12: printf("December\n"); break;
        default: printf("Invalid month!\n");
    }
    return 0;
}
```

Same months ke sath bhi kiye h

Simple Calculator

```c
#include <stdio.h>
int main() {
    int choice;
    float a, b;
    printf("1. Add\n2. Subtract\n3. Multiply\n4. Divide\n");
    printf("Enter your choice: ");
    scanf("%d", &choice);

    printf("Enter two numbers: ");
    scanf("%f %f", &a, &b);

    switch(choice) {
        case 1: printf("Sum = %.2f\n", a+b); break;
        case 2: printf("Difference = %.2f\n", a-b); break;
        case 3: printf("Product = %.2f\n", a*b); break;
        case 4:
            if(b != 0) printf("Quotient = %.2f\n", a/b);
            else printf("Error! Division by 0.\n");
            break;
        default: printf("Invalid choice!\n");
    }
    return 0;
}
```

Calculator me bhi choice ke hisaab se kya task perform karna h who karwaya h

Grade System

```c
#include <stdio.h>
int main() {
    char grade;
    printf("Enter grade (A, B, C, D, F): ");
    scanf(" %c", &grade);

    switch(grade) {
        case 'A': printf("Excellent!\n"); break;
        case 'B': printf("Good!\n"); break;
        case 'C': printf("Average!\n"); break;
        case 'D': printf("Below Average!\n"); break;
        case 'F': printf("Fail!\n"); break;
        default: printf("Invalid grade!\n");
    }
    return 0;
}
```

Traffic Light System

```c
#include <stdio.h>
int main() {
    char color;
    printf("Enter traffic light color (R/G/Y): ");
    scanf(" %c", &color);

    switch(color) {
        case 'R': case 'r': printf("STOP!\n"); break;
        case 'G': case 'g': printf("GO!\n"); break;
        case 'Y': case 'y': printf("WAIT!\n"); break;
        default: printf("Invalid color!\n");
    }
    return 0;
}
```

Vowel or Consonant

```c
#include <stdio.h>
int main() {
    char ch;
    printf("Enter a character: ");
    scanf(" %c", &ch);

    switch(ch) {
        case 'a': case 'e': case 'i': case 'o': case 'u'
        case 'A': case 'E': case 'I': case 'O': case 'U'
            printf("Vowel\n"); break;
        default:
            printf("Consonant\n");
    }
    return 0;
}
```

7. Even or Odd

```c
#include <stdio.h>
int main() {
    int num;
    printf("Enter a number: ");

    scanf("%d", &num);

    switch(num % 2) {
        case 0: printf("Even\n"); break;
        case 1: printf("Odd\n"); break;
    }
    return 0;
}
```

8. Area Calculator

```c
#include <stdio.h>
int main() {
    int choice;
    float r, l, b, s;
    printf("1. Circle\n2. Rectangle\n3. Square\n");
    printf("Enter your choice: ");
    scanf("%d", &choice);

    switch(choice) {
        case 1:
            printf("Enter radius: ");
            scanf("%f", &r);
            printf("Area = %.2f\n", 3.14*r*r);
            break;
        case 2:
            printf("Enter length and breadth: ");
            scanf("%f %f", &l, &b);
            printf("Area = %.2f\n", l*b);
            break;
        case 3:
            printf("Enter side: ");
            scanf("%f", &s);
            printf("Area = %.2f\n", s*s);
            break;
        default:
            printf("Invalid choice!\n");
    }
    return 0;
}
```

9. Currency Converter

```c
#include <stdio.h>
int main() {
    int choice;
    float inr;
    printf("1. INR to USD\n2. INR to EUR\n3. INR to YEN\n");
    printf("Enter your choice: ");
    scanf("%d", &choice);

    printf("Enter amount in INR: ");
    scanf("%f", &inr);

    switch(choice) {
        case 1: printf("USD = %.2f\n", inr*0.012); break;
        case 2: printf("EUR = %.2f\n", inr*0.011); break;
        case 3: printf("YEN = %.2f\n", inr*1.73); break;
        default: printf("Invalid choice!\n");
    }
    return 0;
}
```

Mini ATM Program

```c
#include <stdio.h>
int main() {
    int choice;
    float balance = 1000, amount;
    printf("1. Balance Check\n2. Withdraw\n3. Deposit\n4. Exit\n");

 printf("Enter your choice: ");
 scanf("%d", &choice);

 switch(choice) {
     case 1:
         printf("Current Balance = %.2f\n", balance);
         break;
     case 2:
         printf("Enter amount to withdraw: ");
         scanf("%f", &amount);
         if(amount <= balance) {
             balance -= amount;
             printf("Withdraw Successful. New Balance = %.2f\n", balance);
         } else {
             printf("Insufficient Balance!\n");
         }
         break;
     case 3:
         printf("Enter amount to deposit: ");
         scanf("%f", &amount);
         balance += amount;
         printf("Deposit Successful. New Balance = %.2f\n", balance);
         break;
     case 4:
         printf("Thank you! Exiting...\n");
         break;
     default:
         printf("Invalid choice!\n");
    }
    return 0;
}
```

- Koii sa agar common na ho toh if else walon ko bhi switch statement se kar sakte h tho try kar lena waise itna concept building ke liye bahut baaki bahut se questions h iske jo hume diye the who aage daal arah try karna ho tho

23 Write a program to perform addition, subtraction, multiplication, division of 2 numbers as per user choice
24 Write a program to print entered digit in word using switch case
25 Write a program to find greater number from two different numbers using switch case
26 Write a program to find greater number from given two numbers using switch case
27 Write a program to find greater number from given 3 different numbers using switch case
28 Write a program to find greatest number from 5 numbers using switch case
29 Write a program to find whether an alphabet is vowel or consonant using switch case

Print digit in words using switch-case

// Algorithm:

// 1. Start

// 2. Input digit (0–9)

// 3. Use switch to print word

// 4. Stop

```
#include <stdio.h>
#include <conio.h>

void main() {
   int digit;
   clrscr();
   printf("Enter a digit (0-9): ");
   scanf("%d", &digit);

   switch(digit) {
      case 0: printf("Zero"); break;
      case 1: printf("One"); break;
      case 2: printf("Two"); break;
      case 3: printf("Three"); break;
      case 4: printf("Four"); break;
      case 5: printf("Five"); break;
      case 6: printf("Six"); break;
      case 7: printf("Seven"); break;
      case 8: printf("Eight"); break;
      case 9: printf("Nine"); break;
      default: printf("Invalid digit");
   }
   getch();
}
```

Output:

Enter a digit (0-9): 3

Three

Find greater of two numbers using switch

// Algorithm:

// 1. Start

// 2. Input two numbers

// 3. Use switch with conditional expressions

// 4. Stop

```
#include <stdio.h>
#include <conio.h>

void main() {
   int a, b;
   clrscr();
   printf("Enter two numbers: ");
   scanf("%d %d", &a, &b);

   switch(a > b) {
      case 1: printf("%d is greater", a); break;
      case 0: printf("%d is greater", b); break;
   }
   getch();
}
```

Output:

Enter two numbers: 10 5

10 is greater

26. Greater number from 2 numbers using switch case

Algorithm

1. Start
2. Input two numbers a, b
3. Use switch on (a > b)
4. Print greater number
5. Stop

Code

```
#include <stdio.h>
int main() {
int a, b;
printf("Enter two numbers: ");
scanf("%d %d", &a, &b);
switch(a > b) {
case 1:
printf("Greater number: %d", a);
break;
case 0:
printf("Greater number: %d", b);
break;
}
return 0;
}
```

Output

```
Enter two numbers: 15 27
Greater number: 27
```

27. Greater number from 3 numbers using switch case

Algorithm

1. Start
2. Input three numbers a, b, c
3. Find greater of a and b → store in big
4. Compare big with c
5. Print greatest
6. Stop

Code

```
#include <stdio.h>
int main() {
int a, b, c, big;
printf("Enter three numbers: ");
scanf("%d %d %d", &a, &b, &c);
switch(a > b) {
case 1: big = a; break;
case 0: big = b; break;
}
switch(big > c) {
case 1: printf("Greatest number: %d", big); break;
case 0: printf("Greatest number: %d", c); break;
}
return 0;
}
```

Output

```
Enter three numbers: 25 40 18
Greatest number: 40
```

28. Greatest number from 5 numbers using switch case

Algorithm

1. Start
2. Input five numbers a, b, c, d, e
3. Compare step by step using switch
4. Store max in big
5. Print greatest
6. Stop

Code

```
#include <stdio.h>
int main() {
int a, b, c, d, e, big;
printf("Enter five numbers: ");
scanf("%d %d %d %d %d", &a, &b, &c, &d, &e);
// Compare a and b
switch(a > b) {
case 1: big = a; break;
case 0: big = b; break;
}
// Compare with c
switch(big > c) {
case 1: big = big; break;
case 0: big = c; break;
}
// Compare with d
switch(big > d) {
case 1: big = big; break;
case 0: big = d; break;
}
// Compare with e
switch(big > e) {
case 1: big = big; break;
case 0: big = e; break;
}
printf("Greatest number: %d", big);
return 0;
}
```

Output

```
Enter five numbers: 12 55 34 99 23
Greatest number: 99
```