```
#equality check
#include<stdio.h>
int main(){
   int a,b;
   printf("enter 2 numbers");
   scanf("%d%d",&a,&b);
   if(a==b){
      printf("both are equal");
   }else{
      printf("both are not equal");
   }
   return 0;
}
```

```
#greater number
#include<stdio.h>
int main(){
   int a,b;
   printf("enter 2 numbers");
   scanf("%d%d",&a,&b);
   if(a>b){
      printf("%d is greater",a);
   }else{
      printf("%d is greater",b);
   }
   return 0;
}
```

```
#positive number
#include<stdio.h>
int main(){
   int a;
   printf("enter a number");
   scanf("%d",&a);
   if(a>0){
      printf("the entered number is positive");
   }
   else{
      printf("the entered number is negative");
   }
   return 0;
}
```

```
#rectangle validity
#include<stdio.h>
int main(){
   int length,breadth;
   printf("enter the length & breadth");
   scanf("%d%d",&length,&breadth);
   if(a>0 && b>0){
      printf("entered rectangle is valid");
   }else{
      printf("not a valid traingle");
   }
```

```
}


#pass or fail
#include<stdio.h>
int main(){
   int a;
   printf("enter the grade");
   scanf("%d",&a);
   if(a>=40){
      printf("passed");
   }
   else{
      printf("failed");
   }
   return 0;
}


#number in the range
#include<stdio.h>
int main(){
   int a;
   printf("enter the number");
   scanf("%d",&a);
   if(a>10 && a<50){
      printf("within the range");
   }
   else{
```

```
        printf("Not in the range");
    }
    return 0;
}


#verify alphabet
#include<stdio.h>
int main(){
    char ch;
    printf("enter the char");
    scanf("%c",&ch);
    if(ch>'a' && ch<'z'){
        printf("within the range");
    }
    else{
        printf("Not in the range");
    }
    return 0;
}


#age comparison
#include<stdio.h>
int main(){
   int age1,age2;
   printf("enter 2 ages");
   scanf("%d%d",&age1,&age2);
   if(age1>age2){
```

```
      printf("age1 is greater");
   }else if(age2>age1){
      printf("age 2 is greater");
   }else{
      printf("Equal ages");
   }
}
```

```
#weight check
#include<stdio.h>
int main(){
   int a;
   printf("enter the weight");
   scanf("%d",&a);
   if(a>50){
      printf("failed");
   }
   else{
      printf("passed");
   }
   return 0;
}
```

```
#compare the rectangles
#include<stdio.h>
int main(){
   int l1,b1,l2,b2;
```

```
   printf("enter the length and breadth for rectangle1");
   scanf("%d%d",&l1,&b1);
   int a1=l1*b1;
   printf("enter the length and breadth for rectangle2");
   scanf("%d%d",&l2,&b2);
   int a2=l2*b2;
   if(a1>a2){
      printf("rectangle 1 is larger");
   }else{
      printf("rectangle 2 is larger");
   }
}
```

---

*bitwise AND

```
#include<stdio.h>
int main(){
   int a,b;
   printf("enter 2 numbers");
   scanf("%d%d",&a,&b);
   printf("the result of AND operation = %d",a&b);
}
```

*biwise OR

```
#include<stdio.h>
int main(){
   int a,b;
   printf("enter 2 numbers");
   scanf("%d%d",&a,&b);
   printf("the result of OR operation = %d",a|b);
}

#biwise XOR
#include<stdio.h>
int main(){
   int a,b;
   printf("enter 2 numbers");
   scanf("%d%d",&a,&b);
   printf("the result of XOR operation = %d",a^b);
}



#biwise NOT
#include<stdio.h>
int main(){
   int a;
   printf("enter a number");
   scanf("%d",&a);
   printf("the result of complement operation = %d",~a);
}
```

#5

```
#include <stdio.h>
int main() {
   int n, p;
   printf("Enter an integer: ");
   scanf("%d", &n);
   printf("Enter the position to toggle the bit: ");
   scanf("%d", &p);
   int m = 1 << p;
   n = n ^ m;
   printf("The new number after toggling the bit at position %d is: %d\n", p, n);
   return 0;
}
```

#6

```
#include <stdio.h>
int main() {
   int n, p;
   printf("Enter an integer: ");
   scanf("%d", &n);
   printf("Enter the position to set the bit to 1: ");
   scanf("%d", &p);
   int m = 1 << p;
   n = n | m;
   printf("The new number after setting the bit at position %d to 1          is: %d\n", p, n);
   return 0;
}
```

#7

```
#include <stdio.h>
int main() {
   int n, p;
   printf("Enter an integer: ");
   scanf("%d", &n);
   printf("Enter the position to clear the bit: ");
   scanf("%d", &p);
   int m = ~(1 << p);
   n = n & m;
   printf("The new number after clearing the bit at position %d is: %d\n", p, n);
   return 0;
}
```

#1

```
#include<stdio.h>
int main(){
int num;
printf("enter a number");
scanf("%d",&num);
if(num>50 && num%5==0){
   printf("given integer is greater than 50 and multiple of 5\n");
}else{
   printf("the gievn integer doesnot satisfy the criteria\n");
}
```

```
if(num&1==1){
   printf("The least significant bit of is set");
}else{
   printf("The least significant bit is not set");
}
}
```

#2

```
#include<stdio.h>
int main(){
   int n,a;
   printf("enter the number");
   scanf("%d",&n);
   printf("enter the position");
   scanf("%d",&a);
   int m =1<<a;
   n=n^m;
   printf("the output after toggling is %d\n",n);
   if(n>0 && n%2==0){
      printf("toggled number is positive number and divisible by 2\n");
   }else{
      printf("toggled number is either not positive or not divisble by 2");
   }
}
```

#3

```
#include<stdio.h>
int main(){
   int age;
   int verification=0;
   printf("enter your age");
   scanf("%d",&age);
   if(age>=18){
      int id;
      printf("enter your id number");
      scanf("%d",&id);
      int mask=1<<0;
      if((mask&id)!=verification){
         printf("eligible to vote");
      }else{
         printf("not eligible to vote");
      }
   }else{
      printf("not eligible to vote");
   }
}
```

#4

```
#include<stdio.h>
int main(){
   int n, pos, dec, range;
   printf("Enter 1 to set the bit\nEnter 2 to clear the bit: ");
   scanf("%d", &dec);
```

```
if(dec == 1) {
   printf("Enter the number and position to set the bit: ");
   scanf("%d %d", &n, &pos);
   int mask = 1 << pos;
   n = n | mask;
   printf("After setting the bit, the value is: %d\n", n);
   printf("Enter a range: ");
   scanf("%d", &range);
   if (n % 2 != 0 && (n > 0 && n < range)) {
      printf("The number is odd and is in the given range.\n");
   } else {
      printf("The number does not meet the criteria.\n");
   }
} else if(dec == 2) {
   // Clear the bit
   printf("Enter the number and position to clear the bit: ");
   scanf("%d%d", &n, &pos);
   int mask = ~(1 << pos);
   n = n & mask;
   printf("After clearing the bit, the value is: %d\n", n);
   printf("Enter a range: ");
   scanf("%d", &range);
   if (n % 2 != 0 && (n > 0 && n < range)) {
      printf("The number is odd and is in the given range.\n");
   } else {
      printf("The number does not meet the criteria.\n");
   }
} else {
   printf("Enter a valid option.\n");
```

```
    }
    return 0;
}
```

#5

```
#include<stdio.h>
int main() {
    int a, b, sum, pro;
    printf("Enter 2 numbers: ");
    scanf("%d%d", &a, &b);
    sum = a + b;
    pro = a * b;
    if (sum > 100 && pro % 4 == 0) {
        printf("Meets the criteria\n");
        int mask = 1 << 1;
        if (a & mask) {
            printf("Second bit set to 1\n");
        } else {
            printf("Second bit not set\n");
        }
    } else {
        printf("Doesn't meet the criteria\n");
    }

    return 0;
}
```

----------control statements----------

#1

```
#include<stdio.h>
int main(){
   int a;
   printf("enter a number");
   scanf("%d",&a);
   if(a>0){
      printf("positive number")
   }else if(n<0){
      printf("negative number")
   }else{
      printf("zero");
   }
}
```

#2

```
#include<stdio.h>
int main(){
   int a;
   printf("enter a number");
   scanf("%d",&a);
   if(a%3==0){
      printf("divisible");
   }else{
      printf("not divisible");
```

```
    }
}
```

#3

```
#include<stdio.h>
int main(){
    int a;
    printf("enter a number");
    scanf("%d",&a);
    if(a%2==0){
        printf("even");
    }else{
        printf("odd");
    }
}
```

#4

```
#include<stdio.h>
int main(){
    int a;
    printf("enter the marks");
    scanf("%d",&a);
    if(a>=40){
        printf("pass");
    }else{
        printf("fail");
    }
}
```

#5

```
#include<stdio.h>
int main(){
   int a,b,c;
   printf("enter the 3 sides of triangle\n");
   scanf("%d%d%d",&a,&b,&c);
   if(a>0 && b>0 &&c>0){
      printf("valid triangle\n");
      if(a==b && a==c){
         printf("Equilateral traingle\n");
      }else{
         printf("not an equillateral triangle");
      }
   }else{
      printf("Not a valid traingle");
   }
}
```

#6

```
#include<stdio.h>
int main()
{
   int mp,mm;
   printf("enter the marks in mathematics");
   scanf("%d",&mm);
   printf("enter the marks in physics");
   scanf("%d",&mp);
   if(mp&&mm>=50){
```

```
        int total=mp+mm;
        if(total>=120){
            printf("eligible");
        }else{
            printf("Not eligible");
        }
    }else{
        printf("not eligible");
    }
}
```

#7

```
#include<stdio.h>
int main(){
    int marks;
    printf("enter the marks");
    scanf("%d",&marks);
    if(marks>=90){
        printf("Grade A");
    }
    else if(marks>=75){
        printf("Grade B");
    }
    else if(marks>=50){
        printf("Grade C");
    }
    else if(marks<50){
        printf("fail");
    }
```

```
    else{
        printf("enter a valid input")
    }
}

#8
#include<stdio.h>
int main(){
    int n;
    printf("enter a number");
    scanf("%d",&n);
    if(n>0){
        printf("positive");
    }else if(n<0){
        printf("negative");
    }else{
        printf("zero");
    }
}

#9
#include<stdio.h>
int main(){
    int units;
    printf("enter the bill units");
    scanf("%d",&units);
    if(units<=100){
        units*=5;
    }else if(units<=200 && units>100){
```

```
        units*=7;
    }else if(units>200){
        units*=10;
    }else{
        printf("enter a valid amount or  unit");
    }
    printf("total amount=%d",units);



}

#10
#include<stdio.h>
int main()
{
    int day;
    printf("enter the day");
    scanf("%d",&day);
    switch(day){
        case 1:
            printf("the day is monday");
            break;
        case 2:
            printf("the day is tuesday");
            break;
        case 3:
            printf("the day is wednesday");
            break;
        case 4:
```

```
        printf("the day is Thursday");
        break;
    case 5:
        printf("the day is friday");
        break;
    case 6:
        printf("the day is saturday");
        break;
    case 7:
        printf("the day is sunday");
        break;
    default:
        printf("enter a valid value");
  }
}
```

#1

```
#include<stdio.h>
int main()
{
  int day;
  printf("enter the day");
  scanf("%d",&day);
  switch(day){
    case 1:
      printf("the day is monday");
      break;
    case 2:
```

```
            printf("the day is tuesday");
            break;
        case 3:
            printf("the day is wednesday");
            break;
        case 4:
            printf("the day is Thursday");
            break;
        case 5:
            printf("the day is friday");
            break;
        case 6:
            printf("the day is saturday");
            break;
        case 7:
            printf("the day is sunday");
            break;
        default:
            printf("enter a valid value");
    }
}

#2
#include <stdio.h>
int main() {
    int a, b;
    char operation;
    printf("Enter two values a and b: ");
    scanf("%d %d", &a, &b);
```

```
    printf("Enter operation + or - or * or /: ");
    scanf(" %c", &operation);
    switch(operation) {
        case '+':
            printf("result= %d\n", a + b);
            break;
        case '-':
            printf("result = %d\n", a - b);
            break;
         case '*':
            printf("result = %d\n", a*b);
            break;
         case '/':
            printf("result = %d\n", a/b);
            break;
        default:
            printf("Invalid operation\n");
    }
    return 0;
}
```

#3

```
#include<stdio.h>
int main(){
    char c;
    printf("enter a charcter");
    scanf("%c",&c);
```

```
   switch(c){
      case 'a':
         printf("vowel");
         break;
      case 'e':
         printf("vowel");
         break;
      case 'i':
         printf("vowel");
         break;
      case 'o':
         printf("vowel");
         break;
      case 'u':
         printf("vowel");
         break;
      default:
         printf("consonant");
   }
}
```

#4

```
#include<stdio.h>
int main(){
   int digit;
   printf("enter a digit between 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("Given value not within the range");
    }
}
```

#5

```
#include<stdio.h>
int main()
{
    int month;
    printf("enter the month");
    scanf("%d",&month);
    switch(month){
        case 1:
            printf("the month is january");
            break;
        case 2:
            printf("the month is february");
            break;
        case 3:
            printf("the month is march");
            break;
        case 4:
            printf("the month is april");
            break;
        case 5:
            printf("the month is may");
```

```
        break;
    case 6:
        printf("the month is june");
        break;
    case 7:
        printf("the month is july");
        break;
    case 8:
        printf("the month is august");
        break;
    case 9:
        printf("the month is september");
        break;
    case 10:
        printf("the month is october");
        break;
    case 11:
        printf("the month is november");
        break;
    case 12:
        printf("the month is december");
        break;
    default:
        printf("enter a valid value");
  }
}
```

#6

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

```
int main(){
   char c;
   printf("Enter the grade");
   scanf("%c",&c);
   switch(c){
      case 'A':
         printf("Outstanding");
         break;
      case 'B':
         printf("Excellent");
         break;
      case 'C':
         printf("Good");
         break;
      case 'D':
         printf("Need to improve");
         break;
      case 'E':
         printf("Work harder!");
         break;
      case 'F':
         printf("Falied");
         break;
      default:
         printf("enter a valid grade");
   }
}
```

#7

```
#include <stdio.h>
int main() {
    int choice;
    float a, b;
    printf("Menu:\n");
    printf("1. Addition\n");
    printf("2. Subtraction\n");
    printf("3. Multiplication\n");
    printf("4. Division\n");
    printf("5. Exit\n");
    printf("\nEnter your choice (1-5): ");
    scanf("%d", &choice);
    if (choice != 5) {
        printf("Enter two numbers: ");
        scanf("%f %f", &a, &b);
    }
    switch (choice) {
        case 1:
            printf("Addition: %.2f + %.2f = %.2f\n", a, b, a + b);
            break;
        case 2:
            printf("Subtraction: %.2f - %.2f = %.2f\n", a, b, a - b);
            break;
        case 3:
            printf("Multiplication: %.2f * %.2f = %.2f\n", a, b, a * b);
            break;
        case 4:
            if (b != 0) {
                printf("Division: %.2f / %.2f = %.2f\n", a, b, a / b);
```

```
            } else {
                printf("Error! Division by zero.\n");
            }
            break;
        case 5:
            printf("Exiting program.\n");
            break;
        default:
            printf("Invalid choice! Please try again.\n");
    }

    return 0;
}
```

#8

```
#include<stdio.h>
int main(){
    char c;
    printf("enter the character: ");
    scanf("%c",&c);
    switch(c){
        case 'R':
            printf("stop");
            break;
        case 'Y':
            printf("Get ready!");
            break;
        case 'G':
            printf("Go");
```

```
            break;
        default:
            printf("Invalid input");
    }
}
```

#9

```
#include <stdio.h>
int main() {
    int year;
    printf("Enter a year: ");
    scanf("%d", &year);
    switch (year % 4 == 0) {
        case 1:
            if (year % 100 == 0) {
                if (year % 400 == 0) {
                    printf("%d is a leap year.\n", year);
                } else {
                    printf("%d is not a leap year.\n", year);
                }
            } else {
                printf("%d is a leap year.\n", year);
            }
            break;
        case 0:
            printf("%d is not a leap year.\n", year);
            break;
    }
```

```
    return 0;
}

#10
#include<stdio.h>
int main(){
    int n;
    printf("enter the number ");
    scanf("%d",&n);
    switch(n){
        case 1:
            int r;
            printf("enter the radius of circle ");
            scanf("%d",&r);
            printf("the area of circle = %f",3.14*r*r);
            break;
        case 2:
            int l,b;
            printf("enter the length and breadth of rectangle ");
            scanf("%d%d",&l,&b);
            printf("the area of rectangle = %d",l*b);
            break;
        case 3:
            int s;
            printf("enter the length of one side of square ");
            scanf("%d",&s);
            printf("the area of circle = %d",s*s);
            break;
```

```
        default:
            printf("enter a valid option");
    }
}
```