Topics Of Structure Programming-01

I. Input Output
II. Operator
III. Math.h
IV. Conditional logic
V. Switch
VI. Conditional Operator
VII. Loop
VIII. Series

Every Chapter Have Following Three Parts

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1. Problems.
2. Solves.
3. Home Works.

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Welcome To Programming World

Input Output

01. Write a program that print a massage.

```
#include<stdio.h>
int main ()
{
	printf("Z.H Sikder University Of Science & Technology");
	return 0;
}
```

02. An integer variable n contains 5. Write a program that print the value of n.

```
#include<stdio.h>
int main ()
{
	int n;
	n=5;
	printf("The value of n is = %d", n);
	return 0;
}
```

03. Write a program that read and display an integer number.

```
#include<stdio.h>
int main ()
{
	int n;
	printf("Enter N = ");
	scanf("%d", &n);
	printf("The integer number is : %d", n);
	return 0;
}
```

04. Write a program that read and display floating point number.

```
#include<stdio.h>
int main ()
{
	int n;
	printf("Enter N = ");
	scanf("%d", &n);
	printf("The integer number is : %d", n);
	return 0;
}
```

05. Write a program that read and display long number.

```
#include<stdio.h>
int main ()
{
	long n;
	printf("Enter N = ");
	scanf("%ld", &n);
	printf("The long number is : %ld", n);
	return 0;
}
```

06. Write a program that read and display double number.

```
#include<stdio.h>
int main ()
{
	double n;
	printf("Enter N = ");
	scanf("%lf", &n);
	printf("The double number is : %lf", n);
	return 0;
}
```

07. Write a program that read and display any character.

```
#include<stdio.h>
int main ()
{
	char ch;
	printf("Enter Any Character = ");
	scanf("%c", &ch);
	printf("The Character Is : %c", ch);
	return 0;
}
```

08. Write a program that read any character and display its ASCII value.

```
#include<stdio.h>
int main ()
{
	char ch;
	printf("Enter Any Character = ");
	scanf("%c", &ch);
	printf("The ASCII Value Is : %d", ch);
	return 0;
}
```

09. Write a program that read ASCII value and display its equivalent character.

```
#include<stdio.h>
int main ()
{
	char ch;
	printf("Enter ASCII value = ");
	scanf("%d", &ch);
	printf("The Character Is : %c", ch);
	return 0;
}
```

10. Write a program that read any lower case character and display in upper case.

```
#include<stdio.h>
int main ()
{
	char lower, upper;
	printf("Enter any lower case character : ");
	scanf("%c", &lower);
	upper = lower-32;
	printf("The Upper case character is : %c", lower-32);
	return 0;
}
```

11. Write a program that read any upper case character and display in lower case.

```
#include<stdio.h>
int main ()
{
	char upper, lower;
	printf("Enter any upper case character : ");
	scanf("%c", &upper);
	lower = upper+32;
	printf("The lower case character is : %c", upper+32);
	return 0;
}
```

12. Write a program that read any decimal number and display its equivalent octal number.

```
#include<stdio.h>
int main ()
{
	int n;
	printf("Enter any Decimal number  = ");
	scanf("%d", &n);
	printf("Equivalent Octal number is : %o. ", n);
	return 0;
}
```

13. Write a program that read any decimal number and display its equivalent hexadecimal number.

```
#include<stdio.h>
int main ()
{
	int n;
	printf("Enter any Decimal number  = ");
	scanf("%d", &n);
	printf("Equivalent Hexadecimal number is : %x. ", n);
	return 0;
}
```

14. Write a program that read any octal number and display its equivalent decimal number.

```
#include<stdio.h>
int main ()
{
	int n;
	printf("Enter Octal any number  = ");
	scanf("%o", &n);
	printf("Equivalent Decimal number is : %d ", n);
	return 0;
}
```

15. Write a program that read any hexadecimal number and display its equivalent decimal number.

```
#include<stdio.h>
int main ()
{
	int n;
	printf("Enter any Hexadecimal number  = ");
	scanf("%x", &n);
	printf("Equivalent Decimal number is : %d ", n);
	return 0;
}
```

16. Write a program that read and display a word.

```
#include<stdio.h>
int main ()
{
        char st[15];
        printf("Enter Any Word : ");
        scanf("%s", &st);
        printf("The Word Is : %s", st);
        return 0;
}
```

17. Write a program that read and display a line of text.

```
#include<stdio.h>
int main ()
{
        char st[100];
        printf("Enter Any Line : ");
        gets(st);
        printf("The Word Is : %s", st);
        return 0;
}
```

18. Write a program that read any date in the format DD/MM/YYYY and display day, month. Year separately.

```
#include<stdio.h>
int main ()
{
        int d, m, y;
        printf("Enter any date in format (DD/MM/YYYY) : ");
        scanf("%d%d%d", &d, &m, &y);
        printf("\nDay = %d\nMonth = %d\nYear = %d",d,m,y);
        return 0;
}
```

Operator

01. Write a program that read two integer and display sum.

```
#include<stdio.h>
int main ()
{
	int a, b, sum;
	printf("Enter A = ");
	scanf("%d", &a);
	printf("Enter B = ");
	scanf("%d", &b);
	sum = a+b;
	printf("The Sum Is : %d", sum);
	return 0;
}
```

02. Write a program that read two integer and display subtracts.

```
#include<stdio.h>
int main ()
{
	int a, b, sub;
	printf("Enter A = ");
	scanf("%d", &a);
	printf("Enter B = ");
	scanf("%d", &b);
	sub = a-b;
	printf("The Subtracts Is : %d", sub);
	return 0;
}
```

03. Write a program that read two integer and display product.

```
#include<stdio.h>
int main ()
{
```

```
	int a, b, pro;
	printf("Enter A = ");
	scanf("%d", &a);
	printf("Enter B = ");
	scanf("%d", &b);
	pro = a*b;
	printf("The Product Is : %d", pro);
	return 0;
}
```

04. Write a program that read two integer and display divide two integer.

```
#include<stdio.h>
int main ()
{
	int a, b;
	float div;
	printf("Enter A = ");
	scanf("%d", &a);
	printf("Enter B = ");
	scanf("%d", &b);
	div =(float)a/b;
	printf("The divide Is : %.2f", div);
	return 0;
}
```

05. Write a program that read and divide two floating point number.

```
#include<stdio.h>
int main ()
{
	float a, b;
	printf("Enter A = ");
	scanf("%d", &a);
	printf("Enter B = ");
	scanf("%d", &b);
```

```
        printf("The divide Is : %.2f", a/b);
        return 0;
}
```

06. Write a program that read two integer and display remainder.

```
#include<stdio.h>
int main ()
{
        int a, b, rem;
        printf("Enter A = ");
        scanf("%d", &a);
        printf("Enter B = ");
        scanf("%d", &b);
        rem = a%b;
        printf("Remainder : %d", rem);
        return 0;
}
```

07. Write a program that read radius of a circle and display area.

```
#include<stdio.h>
int main ()
{
        float r, area;
        printf("Enter Radius : ");
        scanf("%f", &r);

        area = 3.1416*r*r;

        printf("The Area Is %.2f: ", area);

        return 0;

}
```

08. Write a program that read radius of a circle and display area.

```
#include<stdio.h>
#include<math.h>
int main ()
{
	float r, area;
	printf("Enter Radius : ");
	scanf("%f", &r);

	area = M_PI*r*r;

	printf("The Area Is %.2f: ", area);

	return 0;

}
```

09. Write a program that read radius of a circle and display area.

```
#include<stdio.h>
#define pi 3.1416
int main ()
{
	float r, area;
	printf("Enter Radius : ");
	scanf("%f", &r);

	area = pi*r*r;

	printf("The Area Is %.2f: ", area);

	return 0;

}
```

10. Write a program that read temperature in Celsius and display in Fahrenheit.

```
#include<stdio.h>
int main ()
{
	float c, f;

	printf("Enter Celsius temperature : ");

	scanf("%f", &c);

	f = (float)9/5*c+32;
	printf("Fahrenheit = %.2f", f);
	return 0;
}
```

11. Write a program that read temperature in Fahrenheit and display in Celsius.

```
#include<stdio.h>
int main ()
{
	float f, c;

	printf("Enter Fahrenheit temperature : ");

	scanf("%f", &f);

	c = (float)5/9*f-32;
	printf("Celsius = %.2f", c);
```

```
    return 0;
}
```

12. Write a program that read two number and display bitwise AND.

```
#include<stdio.h>
int main ()
{
    int a, b, bitwise;
    printf("Enter A = ");
    scanf("%d", &a);
    printf("Enter B = ");
    scanf("%d", &b);
    bitwise = a&b;
    printf("Bitwise AND Number Is : %d", bitwise);
    return 0;
    }
```

13. Write a program that read two number and display bitwise OR.

```
#include<stdio.h>
int main ()
{
    int a, b, bitwise;
    printf("Enter A = ");
    scanf("%d", &a);
```

```
    printf("Enter B = ");
    scanf("%d", &b);
    bitwise = a|b;
    printf("Bitwise OR Number Is: %d", bitwise);
    return 0;
}
```

14. Write a program that read a number and divide by two using shift operator.

```
#include<stdio.h>
int main ()
{
    int n;
    printf("Enter N = ");
    scanf("%d", &n);
    n = (n>>1);
    printf("Number is : %d", n);
    return 0;
    }
```

15. Write a program that read a number and multiply by two using shift operator.

```
#include<stdio.h>
int main ()
{
    int n;
```

```
    printf("Enter N = ");
    scanf("%d", &n);
    n = (n<<1);
    printf("Number is : %d", n);
    return 0;
    }
```

16. Write a program that read a number and multiply by five using shift operator.

```
#include<stdio.h>
int main ()
{
    int n;
    printf("Enter N = ");
    scanf("%d", &n);
    n = (n<<2)+n;
    printf("Number is : %d", n);
    return 0;
    }
```

17. Write a program that read a number and mod by 4 using bitwise AND.

```
#include<stdio.h>
int main ()
{
    int n;
```

```
    printf("Enter N = ");
    scanf("%d", &n);
    printf("The Number Is : %d", n&3);
    return 0;
}
```

18. Write a program that read a number and mod by 7 using bitwise AND.

```
#include<stdio.h>
int main ()
{
    int n;
    printf("Enter N = ");
    scanf("%d", &n);
    printf("The Number Is : %d", n&6);
    return 0;
}
```

✓Math.h

01. Write a program than read any integer and display its absolute value.

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

```
int main()

{
   int n,abs(n);
   printf("Enter N = ");
   scanf("%d", &n);
   printf("The Absolute Value Is : abs(%d)=%d", n,abs(n));
   return 0;
}
```

02. Write program that read a program any angle T and display sin (T).

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

int main()

{
   int T;
   printf("Enter Any Angle T : ");
   scanf("%d", &T);
   printf("Sin (%d) = %.3f",T,sin((T*M_PI)/180));
   return 0;
}
```

03. Write a program that read any angle (T) and display cos (T)

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

int main()

{
   int T;
   printf("Enter Any Angle T : ");
   scanf("%d", &T);

   printf("Cos (%d) = %.3f",T,cos((T*M_PI)/180));
   return 0;
}
```

04. Write a program that read any angle (T) and display tan (T)

```
#include<stdio.h>
#include<math.h>
int main()
{
   int T;
```

```
    printf("Enter Any Angle T : ");
    scanf("%d", &T);
    printf("Tan (%d) = %.3f",T,tan((T*M_PI)/180));
    return 0;
}
```

05. Write a program that read any angle (T) and display cot (T)

```
#include<stdio.h>
#include<math.h>
int main()
{
    int T;
    printf("Enter Any Angle T : ");
    scanf("%d", &T);
    printf("Cot (%d) = %.3f",T,1/tan((T*M_PI)/180));
    return 0;
}
```

06. Write a program that read any angle (T) and display sec(T)

```
#include<stdio.h>
#include<math.h>
int main()
```

```
{
   int T;
   printf("Enter Any Angle T : ");
   scanf("%d", &T);
   printf("sec (%d) = %.3f",T,1/cos((T*M_PI)/180));
   return 0;
}
```

07. Write a program that read any angle (T) and display cosec (T).

```
#include<stdio.h>
#include<math.h>
int main()
{
   int T;
   printf("Enter Any Angle T : ");
   scanf("%d", &T);
   printf("cosec (%d) = %.3f",T,1/sin((T*M_PI)/180));
   return 0;
}
```

08. Write a program that read a value (T) and display sin^-1(T) (sin inverse (T).

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

```
#include<math.h>
int main()
{
   float T;
   printf("Enter Any Value T : ");
   scanf("%f", &T);
   printf("sin inverse (%f) = %.3f",T,asin((T*180)/M_PI));
   return 0;
}
```

09. Write a program that read a value T and display cos inverse (T).

```
#include<stdio.h>
#include<math.h>
int main()
{
   float T;
   printf("Enter Any Value T : ");
   scanf("%f", &T);
   printf("cos inverse (%f) = %.3f",T,acos((T*180)/M_PI));
   return 0;
}
```

10. Write a program that read any angle T and display tan inverse (T).

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

int main()
{
   float T;
   printf("Enter Any Value T : ");
   scanf("%f", &T);
   printf("tan inverse (%f) = %.3f",T,atan((T*180)/M_PI));
   return 0;
}
```

11. Write a program that read a value T and display cot inverse (T).

```
#include<stdio.h>
#include<math.h>
int main()
{
   float T;
   printf("Enter Any Value T : ");
   scanf("%d", &T);
   printf("cot inverse (%f) = %.3f",T,atan((1.0/T)*180)/M_PI));
   return 0;
}
```

12. Write a program that read a value T and display see inverse (T).

```
#include<stdio.h>
#include<math.h>
int main()
{
   float T;
   printf("Enter Any value T : ");
   scanf("%f", &T);
   printf("sec inverse (%f) = %.3f",T,acos(((1.0/T)*180)/M_PI));
   return 0;
}
```

13. Write a program that read a value T and display cosec inverse (T).

```
#include<stdio.h>
#include<math.h>
int main()
{
   float T;
   printf("Enter Any value T : ");
   scanf("%f", &T);
   printf("cos inverse (%f) = %.3f",T,asin(((1.0/T)*180)/M_PI));
```

```
    return 0;
}
```

14. Write a program that read two numbers (X, Y) and display the value of X^Y.

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

int main()

{
    int X ,Y ,Result;
    printf("Enter The Value of X & Y : ");
    scanf("%d %d", &X,&Y);
    Result=pow(X,Y);
    printf("The Value of X^Y is : %d", Result);
    return 0;
}
```

15. Write a program that read any number and display its square root.

```
#include<stdio.h>
#include<math.h>
int main()
```

```
{
   int X;
   float Square_root;
   printf("Enter The Value of X : ");
   scanf("%d", &X);
   Square_root = sqrt(X);
   printf("The Value of Square RooT is : %.3f",Square_root);
   return 0;
}
```

16. Write a program that read any number X and display e to the power x.

```
#include<stdio.h>
#include<math.h>
int main()
{
        float X,Result;
        printf("Enter Any Number : ");
        scanf("%f", &X);
        Result = exp(X);
        printf("e to the power X is : %.3f", Result);
        return 0;
}
```

17. Write a program that read any number X and display log(X).

```
#include<stdio.h>
#include<math.h>
int main()
{
        float X,Result;
        printf("Enter Any Number : ");
        scanf("%f", &X);
       Result = log(X);
        printf("log(X) is : %.3f", Result);
        return 0;
}
```

18. Write a program that read any number X and display log10 (X).

```
#include<stdio.h>
#include<math.h>
int main()
{
        float X,Result;
        printf("Enter Any Number : ");
        scanf("%f", &X);
```

```
    Result = log10(X);
     printf("log10(X) is : %.3f", Result);
     return 0;
}
```

19. Write a Program that Read any Radius R and display its Area.

```
#include<stdio.h>
#define pi 3.14159
int main(void)
{
   double A,R;
   printf("Enter Any Radius R is : ");
   (scanf("%lf",&R);
   A=pi*R*R;
   printf("A=%.4lf\n", A);
   return 0;
}
```

20. Write a Program that Read any Radius R and display its Area.

```
#include<stdio.h>
#include<math.h>
int main(void)
```

```
{
   double A,R;
   printf("Enter Any Radius R is : ");
   (scanf("%lf",&R);
   A=M_PI*R*R;
   printf("Area =%.4lf\n", A);
   return 0;
}
```

21. Write a program that read any floating point number N and display its greatest integer number.

```
#include<stdio.h>
#include<math.h>
int main(void)
{
   float N, Result;
   printf("Enter Any Floating Point Number : ");
   scanf("%f", &N);
   Result = floor(N);   /*Here floor is a function */
   printf("Original Number Is : %.2f\n", N);
   printf("The Greatest Number is : %.2f\n", Result);
   return 0;
}
```

22. Write a program that read any floating point number and display its Rounded Up number.

```
#include<stdio.h>
#include<math.h>
int main(void)
{
   float N, Result;
   printf("Enter Any Floating Point Number : ");
   scanf("%f", &N);
   Result = ceil(N); /*Here ceil is a function */
   printf("Original Number Is : %.2f\n", N);
   printf("The Number Rounded Up : %.2f\n", Result);
   return 0;
}
```

23. Write a program that read any integer number Dividend and Divisor and display its Quotient & Remainder.

```
#include<stdio.h>
#include<math.h>
int main(void)
{
   int Dividend, Divisor, Quotient, Remainder;
   printf("Enter Dividend Number : ");
```

```
    scanf("%d", &Dividend);
    printf("Enter Divisor Number : ");
    scanf("%d", &Divisor);
    Quotient = Dividend/Divisor;
    Remainder = Dividend%Divisor;
    printf("Quotient Is : %d\n", Quotient);
    printf("Remainder Is : %d\n", Remainder);
    return 0;
}
```

24. Write a program that print the size of every data types in bytes.

```
#include<stdio.h>
#include<math.h>
int main(void)
{
    int A;
    float B;
    double C;
    char D;
    long long int X;
    printf("Size of int: %d bytes\n", sizeof (A));
    printf("Size of float: %d bytes\n", sizeof (B));
    printf("Size of double: %d bytes\n", sizeof (C));
```

```
    printf("Size of char: %d bytes\n", sizeof (D));
    printf("Size of long long int: %d bytes\n", sizeof (X));
    return 0;
}
```

Some Important Home Works For You !!!

1. **Write a program that read three integer numbers and display sum of their every Square Roots.**
2. **Write a program that read three number (A, B, C) and display their Sum in the following format: (AB+BA+CA).**
3. **Write a program that read any negative integer and display its absolute value.**
4. **Write a program that read any value T and display $\cos^2(T) + \sin^2(T)$.**
5. **Write a program that read any value of X & Y and display the following equation: $9x^2 - 30xy + 25y^2$.**
6. **Write a program that read any value of X & Y and display the following equation: $8x^3 + 36x^2y + 54xy^2 + 27y^3$.**

7. **Write a program that contain a floating point number X = sqrt (3) + sqrt(2) and find the result of following equation : $X^3 + X^{-3} = ???$.**

❖ Conditional Logic

01. Write a program that read an integer number X and display it odd number or even number.

```
#include<stdio.h>
int main()
{
        int X;
        printf("Enter Any Integer Number : ");
        scanf("%d", &X);
   if(X%2==0)
      printf("The Number Is Even\n");
   else
      printf("The Number Is Odd\n");
        return 0;
}
```

02. Write a program that read any integer X and print the number is less than or greater than or equal to 10.

```
#include<stdio.h>
int main()
{
        int X;
        printf("Enter Any Integer Number : ");
        scanf("%d", &X);
   if(X<10)
      printf("The Number Is Less Than 10.\n");
   else if(X>10)
      printf("The Number Is Greater Than 10.\n");
   else
      printf("The Number Is Equal To 10.\n");
        return 0;
}
```

03. Write a program that read any integer X and print positive or negative number (where 0 is a positive number).

```
#include<stdio.h>
int main()
{
        int X;
```

```
        printf("Enter Any Integer Number : ");
        scanf("%d", &X);
    if(X>=0)
        printf("Positive Number\n");
    else
        printf("Negative\n");
        return 0;
}
```

04. Write a program that read any character and print vowel or consonant.

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

if(ch=='a'||ch=='e'||ch=='i'||ch=='o'||ch=='u'||ch=='A'||ch=='E'||ch=='I'||ch=
='O'||ch=='U')
        printf("Vowel\n");
    else
        printf("Consonant\n");
        return 0;
```

```
}
```

05. Write a program that read two integer number and display the Maximum number.

```
#include<stdio.h>
int main()
{
   int A,B,Maximum;
       printf("Enter A = ");
       scanf("%d", &A);
       printf("Enter B = ");
       scanf("%d", &B);
   if(A>B)
      Maximum=A;
   else
      Maximum=B;
   printf("The Maximum Number Is : %d\n",Maximum);
       return 0;
}
```

06. Write a program that read two integer number and display the Minimum number.

```
#include<stdio.h>
int main()
```

```
{
   int A,B,Minimum;
        printf("Enter A = ");
        scanf("%d", &A);
        printf("Enter B = ");
        scanf("%d", &B);
   if(A<B)
      Minimum=A;
   else
      Minimum=B;
   printf("The Minimum Number Is : %d\n",Minimum);
        return 0;
}
```

07. Write a program that read three numbers and display Maximum number.

```
#include<stdio.h>
int main()
{
   int A,B,C,Maximum;
   printf("Enter A = ");
   scanf("%d",&A);
   printf("Enter B = ");
   scanf("%d",&B);
```

```
    printf("Enter C = ");
    scanf("%d",&C);
    if(A>B)
    {
       if(A>C)
          Maximum=A;
       else
          Maximum=C;
    }
    else
    {
       if(B>C)
          Maximum=B;
       else
          Maximum=C;
    }
    printf("MAXIMUM = %d\n", Maximum);
    return 0;
}
```

08. Write a program that read three number and display Minimum number.

```
#include<stdio.h>
int main()
```

```
{
   int A,B,C,Minimum;
   printf("Enter A = ");
   scanf("%d", &A);
   printf("Enter B = ");
   scanf("%d", &B);
   printf("Enter C = ");
   scanf("%d", &C);
   if(A<B)
   {
      if(A<C)
         Minimum=A;
      else
         Minimum=C;
   }
   else
   {
      if(B<C)
         Minimum=B;
      else
         Minimum=C;
   }
   printf("MINIMUM NUMBER : %d\n", Minimum);
```

```
    return 0;
}
```

09. Write a program that read three number and display Medium number.

```
#include<stdio.h>
int main()
{
    int A,B,C,Medium;
    printf("Enter A = ");
    scanf("%d", &A);
    printf("Enter B = ");
    scanf("%d", &B);
    printf("Enter C = ");
    scanf("%d", &C);
    if(A>B)
    {
        if(A>C)
        {
            if(B>C)
                Medium=B;
            else
                Medium=C;
        }
```

```
        else
            Medium=A;
    }
    else
    {
        if(B>C)
        {
            if(A>C)
                Medium=A;
            else
                Medium=C;
        }
        else
            Medium=B;
    }
    printf("MEDIUM NUMBER : %d\n", Medium);
    return 0;
}
```

10. Write a program that read marks and display pass or fail.

```
#include<stdio.h>
int main()
{
```

```
    int Marks;
    printf("Enter Marks = ");
    scanf("%d", &Marks);
    if(Marks >= 40)
        printf("Pass\n");
    else
        printf("Fail\n");
    return 0;
}
```

11. Write a program that read your age and display you can give vote or not eligible for voting.

```
#include<stdio.h>
int main()
{
    int age;
    printf("Input Your Age:");
    scanf("%d",&age);
    if(age >=18)
        printf("You can vote");
    else
        printf("You are not eligible for voting");
    return 0;
}
```

12. Write a program that read any marks and display result in division.

```
#include<stdio.h>
int main()
{
   int Marks;
   printf("Enter Marks = ");
   scanf("%d", &Marks);
   if(Marks >= 60 && Marks <=100)
      printf("First Division\n");
   else if (Marks >=45 && Marks <60)
      printf("Second Division\n");
   else if(Marks >=33 && Marks <45)
      printf("Third Division\n");
   else
      printf("Fail Division\n");
   return 0;
}
```

13. Write a program that read Marks and display result in grade & point (According to University result sheet).

```
#include<stdio.h>
int main()
```

```
{
   int Marks;
   printf("Enter Marks = ");
   scanf("%d", &Marks);
   if(Marks >=80 && Marks <=100)
      printf("Grade 'A+'\nPoint = 4.00\n");
   else if (Marks >=75 && Marks <80)
      printf("Grade 'A'\nPoint = 3.75\n");
   else if(Marks >=70 && Marks <75)
      printf("Grade 'A-'\nPoint = 3.50\n");
   else if(Marks >=65 && Marks <70)
      printf("Grade 'B+'\nPoint = 3.25\n");
   else if (Marks >=60 && Marks <65)
      printf("Grade 'B'\nPoint = 3.00\n");
   else if(Marks >=55 && Marks <60)
      printf("Grade 'B-'\nPoint = 2.75\n");
   else if(Marks >=50 && Marks <55)
      printf("Grade 'C+'\nPoint = 2.50\n");
   else if(Marks >=45 && Marks <50)
      printf("Grade 'C'\nPoint =2.25\n");
   else if(Marks >=40 && Marks <45)
      printf("Grade 'D'\nPoint =2.00\n");
   else
```

```
        printf("Grade 'F'\nPoint =0.00\n");
    return 0;
}
```

14. Write a program that read any year and display leap year or not leap year.

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

15.Write a program that read three numbers(A,B,C) and determine the roots of the following equation : AX^2+BX+c=0.

```
#include<stdio.h>
#include<math.h>
int main()
{
   float A,B,C,D;
   float X1,X2,P,Q;
   printf("Enter A = ");
   scanf("%f", &A);
   printf("Enter B = ");
   scanf("%f", &B);
   printf("Enter C = ");
   scanf("%f", &C);
   D=B*B-4*A*C;
   if(D>0)
   {
      X1=(-B+sqrt(D))/(2*A);
      X1=(-B+sqrt(D))/(2*A);
      printf("\nX1= %.2f\nX2= %.2f\n", X1,X2);
   }
   else if(D<0)
```

```
    {
        P= -B/(2*A);
        Q=sqrt(-D)/(2*A);
        printf("\nX1= %.2f + %.2f \nX2=  %.2f - %.2f\n",P,Q,P,Q);
    }
    else
    {
        X1=X2=-B/(2*A);
        printf("\nX1= %.2f\nX2= %.2f\n", X1,X2);
    }
    return 0;
}
```

16. Write a program in C that Check whether Alphabet or not.

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

    if( (ch>='a'&& ch<='z') || (ch>='A' && ch<='Z'))
       printf("%c is an alphabet.",ch);
```

```
    else
       printf("%c is not an alphabet.",ch);
    return 0;
}
```

17. Write a program that read three numbers and display Maximum using only if statement.

```
#include<stdio.h>
int main(void)
{
    int A, B, C;
    printf("Enter A = ");
    scanf("%d", &A);
    printf("Enter B = ");
    scanf("%d", &B);
    printf("Enter C = ");
    scanf("%d", &C);
    if(A>=B && A>=C)
        printf("Maximum Number is : %d\n", A);
    if(B>=A && B>=C)
        printf("Maximum Number is : %d\n", B);
    if(C>=A && C>=B)
        printf("Maximum Number is : %d\n", C);
    return 0;
```

```
}
```

18. Write a program that read three numbers and display Maximum.

```
#include<stdio.h>
int main(void)
{
   int A, B, C;
   printf("Enter A = ");
   scanf("%d", &A);
   printf("Enter B = ");
   scanf("%d", &B);
   printf("Enter C = ");
   scanf("%d", &C);
   if(A>=B && A>=C)
      printf("Maximum Number is : %d\n", A);
   if(B>=A && B>=C)
      printf("Maximum Number is : %d\n", B);
   else
      printf("Maximum Number is : %d\n", C);
   return 0;
}
```

19. Write a program that read two integer and one calculate operator character and display summation, subtraction, multiply, divide and remainder.

```
#include<stdio.h>
#include<math.h>
int main(void)
{
   int A, B, Math;
   char Ch;
   printf("Enter A then Operator Symbol Ch = and B = \n");
   scanf("%d%c%d", &A, &Ch, &B);
   if(Ch=='+')
      Math = A+B;
   else if(Ch=='-')
      Math = A-B;
   else if(Ch=='*')
      Math = A*B;
   else if(Ch=='/')
      Math = (A/B);
   else if(Ch=='%')
      Math = A%B;
   printf("\n");
   printf("The Result is : %d\n", Math);
```

```
    return 0;
}
```

20. Write a program that read two floating point number and one calculate operator character and display summation, subtraction, multiply, divide and remainder.

```
#include<stdio.h>
#include<math.h>
int main(void)
{
    float A, B, Math;
    char Ch;
    printf("Enter A then Operator Symbol Ch = and B = \n");
    scanf("%f%c%f", &A, &Ch, &B);
    if(Ch=='+')
        Math = A+B;
    else if(Ch=='-')
        Math = A-B;
    else if(Ch=='*')
        Math = A*B;
    else if(Ch=='/')
        Math = (A/B);
    else if(Ch=='%')
        Math = fmod(A,B);  /* fmod() is Function */
```

```
    printf("\n");
    printf("The Result is : %.2f\n", Math);
    return 0;
}
```

Some Important Home Works For You!!!

1.Write a program that read three numbers and display Maximum, Medium, Minimum number.

2.Write a program that read two number and display it's each are equal or not equal.

3.Write a program that read two integer number and print they are multiple or not multiple.

4.Write a program that any number 1 to 10 and display equivalent roman number.

5.Write a program that read your age and display you have national ID card or Smart card or just birthday card. Hare 1 to 11 got only birthday card and 12 to 17 got Smart card or 18 up got national ID card.

01. Write a program read any digit and display by their spelling.

```
# include<stdio.h>
int main ()
{
   int N;
   scanf("%d",&N);

   switch (N)
   {
   case 0:
      printf("ZERO\n");
      break;
   case 1:
      printf("ONE\n");
      break;
   case 2:
      printf("TWO\n");
      break;
   case 3:
      printf("THREE\n");
      break;
   case 4:
```

```
        printf("FOUR\n");
        break;
    case 5:
        printf("FIVE\n");
        break;
    case 6:
        printf("SIX\n");
        break;
    case 7:
        printf("SEVEN\n");
        break;
    case 8:
        printf("EIGHT\n");
        break;
    case 9:
        printf("NINE\n");
        break;
    default:
        printf("NOT A SINGLE DIGIT\n");
        break;
    }
    return 0;
}
```

02. Write a program that read your marks and display your grade.

```
#include<stdio.h>
int main()
{
   int Marks;
   scanf("%d", &Marks);
   switch(Marks/10)
   {
      case 10:
         printf("Grade 'A+'\n");
         break;
      case 9:
         printf("Grade 'A+'\n");
         break;
      case 8:
         printf("Grade 'A+'\n");
         break;
      case 7:
         printf("Grade 'A'\n");
         break;
      case 6:
         printf("Grade 'A-'\n");
```

```
            break;
        case 5:
            printf("Grade 'B'\n");
            break;
        case 4:
            printf("Grade 'C'\n");
            break;
        default :
            printf("Grade 'F'\n”);
            break;
    }
    return 0;
}
```

03. Write a program that any number and display Month name according to number.

```
#include<stdio.h>
int main()
{
    int N;
    scanf("%d", &N);
    switch(N)
    {
        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");
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("\n");
            break;
    }
    return 0;
}
```

04. Write a program that read any day and display its spelling.

```
#include<stdio.h>
int main(void)
{
    int day;
```

```
    printf("Enter Day :");
    scanf("%d",&day);
    switch (day)
{
      case 1 :
        printf("Saturday\n");
        break;
      case 2 :
        printf("Sunday\n");
        break;
      case 3 :
        printf("Monday\n");
        break;
      case 4 :
        printf("Tuesday\n");
        break;
      case 5 :
        printf("Wednesday\n");
        break;
      case 6 :
        printf("Thursday\n");
        break;
      case 7 :
```

```
        printf("Friday\n");
        break;
    default :
        printf("Not an allowable day number\n");
        break;
  }
 return 0;
}
```

Some Important Home Works For You!!!

01. Write a program that read any number in single digit and print their equivalent Roman spelling.

02. Write a program that read an integer it contains yours class roll and display yours name according to roll number.

03. Write a program that Read any grade and print your performance according to your grade. [N.B. Hare Grade 'A+' is Excellent & 'A' is Best & 'A-' is Batter & 'B' is Good & 'C' is Not very bad & 'D' is Pass But Not Good and 'F' is Fail Try again.

04. Write a program that read two integer and one calculate operator character and display summation, subtraction, multiply, divide and remainder.

Conditional Operator

01. Write a program that read two number and display Maximum number.

```
#include<stdio.h>
int main(void)
{
   int A, B, Maximum;
   printf("Enter A = ");
   scanf("%d",&A);
   printf("Enter B = ");
   scanf("%d",&B);
   Maximum=(A>B)? A : B;
   printf("Maximum Number : %d\n",Maximum);
   return 0;
}
```

02. Write a program that read two number and display Maximum number.

```
#include<stdio.h>
int main(void)
{
   int A, B, Maximum;
   printf("Enter A = ");
   scanf("%d", &A);
   printf("Enter B = ");
   scanf("%d", &B);
   printf("Maximum Number : %d\n",(A>B)? A : B);
   return 0;
}
```

03. Write a program that read three number and display Maximum number.

```
#include<stdio.h>
int main(void)
{
   int A, B, C, Maximum;
   printf("Enter A = ");
```

```
    scanf("%d",&A);
    printf("Enter B = ");
    scanf("%d",&B);
    printf("Enter C = ");
    scanf("%d",&C);
    Maximum=(A>B)? (A>C)? A : C : (B>C)? B : C;
    printf("Maximum Number is : %d\n", Maximum);
    return 0;
}
```

04. Write a program that read three number and display Maximum number.

```
#include<stdio.h>
int main(void)
{
    int A, B, C, Maximum;
    printf("Enter A = ");
    scanf("%d",&A);
    printf("Enter B = ");
    scanf("%d",&B);
    printf("Enter C = ");
```

```
    scanf("%d",&C);
    printf("Maximum Number is : %d\n", (A>B)? (A>C)? A : C :
(B>C)? B : C);
    return 0;
}
```

05. Write a program that read three number and display medium number.

```
#include<stdio.h>
int main(void)
{
    int A, B, C, Medium;
    printf("Enter A = ");
    scanf("%d",&A);
    printf("Enter B = ");
    scanf("%d",&B);
    printf("Enter C = ");
    scanf("%d",&C);
    Medium=(A>B)? (A>C)? (B>C)? B : C : A : (B>C)? (A>C)?
A : C : B;
    printf("Medium Number is : %d\n", Medium);
```

```
    return 0;
}
```

06. Write a program that read your Marks and print Pass or Fail.

```
#include<stdio.h>
int main(void)
{
    int Marks;
    printf("Enter Marks = ");
    scanf("%d", &Marks);
    printf("%s", (Marks>=33)? "Pass" : "Fail");
    return 0;
}
```

07. Write a program that read an integer number and print Odd or Even.

```
#include<stdio.h>
int main(void)
{
    int N;
    printf("Enter Any Number = ");
```

```
    scanf("%d",&N);
    printf("%s", (N%2==0)? "Even" : "Odd");
    return 0;
}
```

08. Write a program that read any year and print Leap year or Not Leap year.

```
#include<stdio.h>
int main(void)
{
    int Year;
    printf("Enter Any Year = ");
    scanf("%d",&Year);
    printf("%s", (Year%4==0 && Year%100!=0)? "Leap Year" :
(Year%400==0)? "Leap Year" : "Not Leap Year");
    return 0;
}
```

Some Important Home Works For You!!!

01. Write a program that read two numbers and display Minimum Number.

02. Write a program that read three numbers and display Minimum Number.

03. Write a program that read your age and display you can give vote or no permit.

04. Write a program that read your result in grade and display your division. [N.B. Where grade 'A' is first division & 'B' is second division & 'C' is third division].

05. Write a program that read any number and display it positive or negative.

06. Write a program that read three numbers and display Maximum, Medium, and Minimum Number.

❖ Loop

01. Write a program that read an integer number and print first 10 integer number.

```
#include<stdio.h>
int main(void)
{
```

```
    int i, N=10;
    for(i=1; i<=10; i++)
        printf("%d\n", i );
    return 0;
}
```

02. Write a program that read an integer number N and display all Even number till N.

```
#include<stdio.h>
int main(void)
{
    int i, N;
    printf("Enter N = ");
    scanf("%d", &N);
    for(i=0 ; i<=N ; i=i+2)
    printf("%d\n", i);
    return 0;
}
```

03. Write a program that read any positive integer and display sum of its digits.

```
#include<stdio.h>
int main(void)
{
```

```
    int n, Sum=0;
    printf("Enter N = ");
    scanf("%d", &n);
    while(n>0)
    {
       Sum=Sum+n%10;
       n=n/10;
    }
    printf("Sum of Digits : %d\n", Sum);
    return 0;
}
```

04. Write a program that read any positive integer and display sum of its digits.

```
#include<stdio.h>
int main(void)
{
    int N, i, Sum=0;
    printf("Enter any integer number : ");
    scanf("%d", &N);
    for(; N>0 ;)
    {
       Sum = Sum + N%10;
           N=N/10;
```

```
    }
    printf("Sum of Digit is : %d", Sum);
    return 0;
}
```

05. Write a program that read any positive integer and display its reverse.

```
#include<stdio.h>
int main(void)
{
    int n , Reverse=0;
    printf("Enter N = ");
    scanf("%d", &n);
    while(n>0)
    {
        Reverse=Reverse*10+n%10;
        n=n/10;
    }
    printf("Reverse Number is : %d\n", Reverse);
    return 0;
}
```

06. Write program that read any integer number N and print Prime or Not Prime number.

```
#include<stdio.h>
int main(void)
{
   int i, N, Check=0;
   printf("Enter Any Number For Check : ");
   scanf("%d", &N);
   for(i=2 ; i<N ; i++)
   {
      if(N%i==0)
         Check=1;
   }
   if(Check==1)
      printf("Not Prime Number\n");
   else
      printf("Prime Number\n");
   return 0;
}
```

07. Write a program that read any integer number and display its digital root.

```
#include<stdio.h>
int main()
{
   int n,Digital_Root;
```

```
    printf("Enter Any Integer Number : ");
    scanf("%d", &n);
    while(n>9)
    {
        Digital_Root=0;
        while(n>0)
        {
            Digital_Root=Digital_Root+n%10;
            n=n/10;
        }
        n=Digital_Root;
    }
    printf("Digital Root is : %d\n", Digital_Root);
    return 0;
}
```

08. Write a program that read any integer number and test Prime or Not Prime.

```
#include<stdio.h>
int main(void)
{
    int i,N,Check;
    printf("Enter Any Number For Check : ");
    scanf("%d", &N);
```

```
    if(N<2)
        Check=0;
    else
    {
        Check=1;
        for(i=2 ; i<N ; i++)
        {
        if(N%i==0)
            Check=0;
        }
    }

    if(Check==1)
        printf("Prime Number\n");
    else
        printf("Not Prime Number\n");
    return 0;
}
```

09. Write a program that read any integer number and test Prime or Not Prime.

```
#include<stdio.h>
int main(void)
{
```

```
    int i, N, Check;
    printf("Enter Any Number For Check : ");
    scanf("%d", &N);
    if(N<2)
       Check=0;
    else
    {
       Check=1;
       for(i=2 ; i<N/2 ; i++)
       {
       if(N%i==0)
          Check=0;
       }
    }

    if(Check==1)
       printf("Prime Number\n");
    else
       printf("Not Prime Number\n");
    return 0;
}
```

10. Write a program that print all prime numbers from 1 to n.

```
#include<stdio.h>
#include<math.h>
int main(void)
{
   int i,j,N,Check,t;
   printf("Enter N = ");
   scanf("%d", &N);
   for(i=2 ; i<N ; i++)
   {
      Check=1;
      t=sqrt(i);
      for(j=2 ; j<=t ; j++)
      {
         if(i%j==0)
         Check=0;
      }
      if(Check==1);
         printf("%d\n", i);
   }
   return 0;
}
```

11. Write a program that print all prime number from M to N (M<N).

```
#include<stdio.h>
int main(void)
{
   int M, N, i, j, Check;
   printf("Enter M = ");
   scanf("%d", &M);
   printf("Enter N = ");
   scanf("%d", &N);
   printf("Prime Number between %d to %d\n", M, N);
   for(i=M+1 ; i<N ; i++)
   {
      Check=0;
      for(j=2 ; j<i/2 ; j++)
      {
         if(i%j==0)
         {
            Check=1;
            break;
         }
      }
      if(Check==0)
```

```
            printf("%d\n", i);
    }
    return 0;
}
```

11. Write a program that read an integer number and find out number of digits in integer number (using for loop).

```
#include<stdio.h>
int main(void)
{
    int N,Count;
    printf("Enter N = ");
    scanf("%d", &N);
    for(Count=0 ; N>0 ; Count++)
    {
        N=N/10;
    }
    printf("The Count Number Is : %d\n", Count);
    return 0;
}
```

12. Write a program that count total prime numbers 1 to N.

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

```
#include<math.h>
int main(void)
{
   int i, j, t, N, Check, Count=0;
   printf("Enter N = ");
   scanf("%d", &N);
   for(i=2 ; i<=N ; i++)
   {
      Check=1;
      t=sqrt (i);
      for(j=2 ; j<=t ; j++)
      {
         if(i%j==0)
         {
            Check=0;
            break;
         }
      }
      if(Check==1)
         Count++;

   }
   printf("The Count Number is : %d\n", Count);
```

```
    return 0;
}
```

13. Write a program that print first N Fibonacci number (using for loop).

```
#include<stdio.h>
int main(void)
{
    int A, B, C, N, i;
    printf("How Many Number : ");
    scanf("%d", &N);
    A=0; B=1;

    for (i=1 ; A<=N ; i++)
    {
        printf("%d\n",A);
        C=A+B;
        A=B;
        B=C;
    }
    return 0;
}
```

14. Write a program that print first N Fibonacci number (using while loop).

```
#include<stdio.h>
int main(void)
{
    int A, B, C, N, i;
    printf("How Many Number : ");
    scanf("%d", &N);
    A=0; B=1;
```

```
    while(A<=N)
    {
       printf("%d\n", A);
       C=A+B;
       A=B;
       B=C;
    }
    return 0;
}
```

15. Write a program that print Nth Number is Fibonacci or Not Fibonacci Number.

```
#include<stdio.h>
int main (void)
{
    int N, i;
    long A,B,C;
printf("Enter A Number To Check Nth Number is  Fibonacci   or Not : ");
    scanf("%d", &N);
    A=0; B=1;

    for (i=1 ; i<=N ; i++)
    {
       if(i==N)
       printf("%d\n", A);
       C=A+B;
       A=B;
       B=C;
    }
    if(A==N)
       printf("Fibonacci Number\n");
    else
       printf("Not Fibonacci Number\n");
    return 0;
```

```
}
```

16. Write a program that read any number and check Fibonacci or Not Fibonacci Number.

```
#include<stdio.h>
int main()
{
 int a, b, c, next, N;
 printf("Enter any number: ");
 scanf("%d", &N);
 if((N==0)||(N==1))
   printf("\n%d is a Fibonacci Number",N);
 else
 {
   a=0;
   b=1;
   c=a+b;
   while(c<N)
   {
     a=b;
     b=c;
     c=a+b;
   }
   if(c==N)
     printf("\n%d is a Fibonacci Number\n",N);
   else
     printf("\n%d is not a Fibonacci Number\n",N);
 }
 return 0;
}
```

17. Write a program that read any number and display Strong or Not Strong Number.

```
#include<stdio.h>
int main(void)
{
```

```
    int i,fact,N,Rem,Sum=0,Check;
    printf("Enter a Number : ");
    scanf("%d", &N);
    Check=N;
    while(N)
    {
       i=1; fact=1;
       Rem=N%10;
       while(i<=Rem)
       {
          fact=fact*i;
          ++i;
       }
       Sum=Sum+fact;
       N=N/10;
    }
    if(Sum==Check)
       printf("%d is Strong Number\n", Check);
    else
       printf("%d is Not Strong Number\n", Check);
    return 0;
}
```

18. Write a program that print all Strong numbers M to N (M<N).

```
#include<stdio.h>
int main(void)
{
    int Num, i, fact, Rem, Sum, Check;
    int M, N;
    printf("Enter M : ");
    scanf("%d", &M);
    printf("Enter N : ");
    scanf("%d", &N);
```

```
    printf("Strong number is %d to %d",M , N);

    for(Num=M ; Num<=N ; Num++)
    {
       Check=Num;
       Sum=0;
    while(Check)
    {
       i=1;fact=1;
       Rem=Check%10;
       while(i<=Rem)
       {
          fact=fact*i;
          i++;
       }
       Sum=Sum+fact;
       Check=Check/10;
    }
    if(Sum==Num)
       printf("\nStrong number is : %d\n", Num);
    }
    return 0;
}
```

19. Write a program that read any number and display Palindrome or Not Palindrome Number.

```
#include<stdio.h>
int main(void)

{
   int Num, Rem, Sum=0, Check;
   printf("Enter Any Number : ");
   scanf("%d", &Num);
   Check=Num;
   while(Num)
```

```
    {
        Rem=Num%10;
        Num=Num/10;
        Sum=Sum*10+Rem;
    }
    if(Check==Sum)
        printf("%d is Palindrome\n", Check);
    else
        printf("%d is not Palindrome\n", Check);
    return 0;
}
```

20. Write a program that print all Palindrome Number M to N (M<N).

```
#include<stdio.h>
int main(void)
{
    int Num, i, Rem, Sum, Check;
    int M, N;
    printf("Enter M : ");
    scanf("%d", &M);
    printf("Enter N : ");
    scanf("%d", &N);

    printf("Palindrome number is %d to %d",M , N);

    for(Num=M ; Num<=N ; Num++)
    {
        Check=Num;
        Sum=0;
    while(Check)
    {
        Rem=Check%10;
        Check=Check/10;
        Sum=Sum*10+Rem;
```

```
    }
    if(Sum==Num)
        printf("\nPalindrome number is : %d\n", Num);
    }
    return 0;
}
```

21. Write a program that read any number N and check Armstrong number or Not Armstrong Number (1<=N<1000).

```
#include<stdio.h>
int main(void)
{
    int N,N2,Remainder,Check=0;
    printf("Enter Any Number : ");
    scanf("%d", &N);
    N2=N;
    while(N2!=0)
    {
        Remainder=N2%10;
        Check=Check + Remainder * Remainder * Remainder;
        N2=N2/10;
    }
    if(Check==N)
        printf("%d is an Armstrong Number\n", N);
    else
        printf("%d is an Not Armstrong Number\n", N);
    return 0;
}
```

22. Write a program that print all Armstrong number from M to N (M<N) (here M<=1 & N<1000).

```
#include<stdio.h>
int main(void)
```

```
{
   int i, M, N, Remainder, Temp, Check;
   printf("Enter M = ");
   scanf("%d", &M);
   printf("Enter N = ");
   scanf("%d", &N);
   printf("Print Armstrong number between %d to %d\n",M,N);
   printf("\n");
   for(i=M ; i<=N ; i++)
   {
      Temp =i;
      Check=0;
      while (Temp!=0)
      {
         Remainder=Temp%10;
         Check=Check + Remainder * Remainder * Remainder;
         Temp=Temp/10;
      }
      if(i==Check)
         printf("Armstrong Number is %d\n", i);
   }
   return 0;
}
```

23. Write a program that print all Armstrong number 1 to N.

```
#include<stdio.h>
int main(void)
{
   int i, M, N, Remainder, Temp, Check;
   printf("Enter M = ");
   scanf("%d", &M);
   printf("Enter N = ");
   scanf("%d", &N);
   printf("Print Armstrong number between %d to %d\n", M , N);
```

```
    printf("\n");
    for(i=M ; i<=N ; i++)
    {
        Temp =i;
        Check=0;
        while (Temp!=0)
        {
            Remainder=Temp%10;
            Check=Check + Remainder * Remainder * Remainder;
            Temp=Temp/10;
        }
        if(i==Check)
            printf("Armstrong Number is %d\n", i);
    }
    return 0;
}
```

24. Write a program that read any integer number and display Multiplication table of N.

```
#include<stdio.h>
int main(void)
{
    int i, N;
    printf("Enter Any Integer To Fine Multiplication Table  : ");
    scanf("%d", &N);
    for(i=1 ; i<=10 ; i++)
    {
        printf("%d * %d = %d\n", i, N, N*i);
    }
    return 0;
}
```

25. Write a program that read any integer number and display its Factorial Number.

```
#include<stdio.h>
int main(void)
```

```
{
   int i, N;
   long int Factorial=1;
   printf("Enter Any Integer To Fine Its Factorial  : ");
   scanf("%d", &N);
   if(N<0)
      printf("Error !!! Factorial of negative number doesn't exist.");
   else
   {
      for(i=1 ; i<=N ; i++)
      {
         Factorial=Factorial*i;
      }
      printf("Factorial of %d is : %ld\n", N, Factorial);
   }
   return 0;
}
```

26. Write a program that read any integer number and display its Factors Number.

```
#include <stdio.h>
int main(void)
{
  int N,i;
  printf("Enter Any Positive Integer: ");
  scanf("%d",&N);
  printf("Factors of %d are : ", N);
  for(i=1; i<=N; ++i)
  {
     if(N%i==0)
        printf("%d\t", i);
  }
  return 0;
}
```

27. Write a program that read two numbers and print its Greatest Common Divisor (GCD or HCF).

```
#include<stdio.h>
int main(void)
{
   int Num1, Num2, GCD;
   printf("Enter Number1 = ");
   scanf("%d", &Num1);
   printf("Enter Number2 = ");
   scanf("%d", &Num2);
   while(Num1%Num2!=0)
   {
      GCD=Num1%Num2;
      Num1=Num2;
      Num2=GCD;
   }
   printf("GCD number is : %d\n", Temp);
   return 0;
}
```

28. Write a program that read two numbers and print its Greatest Common Divisor (GCD or HCF).

```
#include<stdio.h>
int main(void)
{
   int Num1, Num2, i, GCD;
   printf("Enter Number1 = ");
   scanf("%d", &Num1);
   printf("Enter Number2 = ");
   scanf("%d", &Num2);
   printf("\n");
   for(i=1 ; i<= Num1 || i<= Num2 ; i++)
   {
      if(Num1%i==0 && Num2%i==0)
         GCD = i;
```

```
    }
    printf("GCD number is : %d\n", GCD);
    return 0;
}
```

29. Write a program that read two numbers and print its Greatest Common Divisor (GCD or HCF).

```
#include<stdio.h>
int main(void)
{
    int Num1, Num2, i, Minimum, GCD;
    printf("Enter Number1 = ");
    scanf("%d", &Num1);
    printf("Enter Number2 = ");
    scanf("%d", &Num2);
    Minimum=(Num1>Num2)?Num2:Num1;
    printf("\n");
    for(i=Minimum ; i>=1 ; --i)
    {
        if(Num1%i==0 && Num2%i==0)
        {
            GCD=i;
            break;
        }
    }
    printf("GCD number is : %d\n", GCD);
    return 0;
}
```

30. Write a program that read two numbers and print its Greatest Common Divisor (GCD or HCF).

```
#include<stdio.h>
int main()
{
    int num1,num2;
    printf("Enter two integers: ");
```

```
    scanf("%d %d",&num1,&num2);
    printf("HCF of %d and %d is ",num1 , num2);
    while(num1!=num2)
    {
        if(num1>num2)
            num1-=num2;
        else
            num2-=num1;
    }
    printf("%d",num1);
    return 0;
}
```

31. Write a program that read two numbers and print its Least Common Multiple (LCM) in the following formula : LCM = (Num1*Num2)/GCD.

```
#include<stdio.h>
int main()
{
    int Num1,Num2,Temp1,Temp2;
    printf("Enter Number1 : ");
    scanf("%d",&Num1);
    printf("Enter Number2 : ");
    scanf("%d",&Num2);
    Temp1=Num1;
    Temp2=Num2;
    while(Temp1!=Temp2)
    {
        if(Temp1>Temp2)
            Temp1-=Temp2;
        else
            Temp2-=Temp1;
    }
```

```
   printf("LCM of two numbers %d and %d is %d", Num1, Num2,
(Num1*Num2)/Temp1);
   return 0;
}
```

32. Write a program that read two numbers (X, Y) and display X^Y without using building function.

```
#include<stdio.h>
int main(void)
{
   int X, Y, P=1, i;
   printf("Enter X = ");
   scanf("%d", &X);
   printf("Enter Y = ");
   scanf("%d", &Y);
   for(i=1 ; i<=Y ; ++i)
      P=P*X;

   printf("%d to the power %d is : %d\n", X, Y, P);
   return 0;
}
```

33. Write a program that read two numbers (n, r) and display nPr (Permutation).

```
#include<stdio.h>
int main(void)
{
   int n, r, i;
   long p;
   printf("Enter n = ");
   scanf("%d", &n);
   printf("Enter r = ");
   scanf("%d", &r);

   p=1;
   for(i=r+1; i<=n ; ++i)
```

```
        p=p*i;
    printf("\nnPr = %ld\n", p);
    return 0;
}
```

34. Write a program that read two numbers (n, r) and display nPr (Permutation).

```
#include<stdio.h>
int main(void)
{
    int n, r, i;
    long p;
    printf("Enter n = ");
    scanf("%d", &n);
    printf("Enter r = ");
    scanf("%d", &r);
    for(p=1,i=r+1; i<=n ; ++i)
        p=p*i;
    printf("\nnPr = %ld\n", p);
    return 0;
}
```

35. Write a program that read two numbers (n, r) and display nCr (Combination).

```
#include<stdio.h>
int main(void)
{
    int n, r, i;
    long c;
    printf("Enter n = ");
    scanf("%d", &n);
    printf("Enter r = ");
    scanf("%d", &r);
    for(c=1,i=1; i<=r ; ++i)
        c=c*(n-i+1)/i;
    printf("\nnCr = %ld\n", c);
```

```
    return 0;
}
```

36. Write a program that read two numbers (n, r) and display nCr (Combination).

```
#include<stdio.h>
int main(void)
{
    int n, r, i;
    long c;
    printf("Enter n = ");
    scanf("%d", &n);
    printf("Enter r = ");
    scanf("%d", &r);
    if(c-r<r)
        r=n-r;
    for(c=1,i=1; i<=r ; ++i)
        c=c*(n-i+1)/i;
    printf("\nnCr = %ld\n", c);
    return 0;
}
```

Some Important Home Works For You!!!

1. Write a program that print all Even numbers from M to N (M>N).

2. Write a program that print all Odd numbers from M to N (M>N).

3. Write a program that print all prime numbers from M to N (M>N).

4. Write a program that print all prime numbers from M to N (M>N).

5. Write a program that read Sum of first N Even numbers.

❖ Series

- **1+2+3+4+…… upto N^{th} term.**

```
#include<stdio.h>
int main(void)
{
   int i, N, Sum=0;
   printf("How Many Number : ");
   scanf("%d", &N);

   for(i=1 ; i<=N ; ++i)
      Sum=Sum+i;
   printf("Upto %d^th number's Sum is : %d\n", N, Sum);
   return 0;
}
```

- **2+4+6+8+…… upto Nth term.**

```
#include<stdio.h>
int main(void)
{
   int i, N, Sum=0;
   printf("How Many Number : ");
   scanf("%d", &N);

   for(i=1 ; i<=N ; ++i)
      Sum=Sum+2*i;
   printf("Upto %d^th number's Sum is : %d\n", N, Sum);
   return 0;
}
```

- **1+3+5+7+…… upto Nth term.**

```
#include<stdio.h>
int main(void)
{
   int i, N, Sum=0;
   printf("How Many Number : ");
   scanf("%d", &N);

   for(i=1 ; i<=N ; ++i)
      Sum=Sum+2*i-1;
```

```
    printf("Upto %d^th number's Sum is : %d\n", N, Sum);
    return 0;
}
```

- **4+12+20+28+…… upto N^{th} term.**

```
#include<stdio.h>
int main(void)
{
    int i, N, Sum=0;
    printf("How Many Number : ");
    scanf("%d", &N);

    for(i=1 ; i<=N ; ++i)
        Sum=Sum+8*i-1;
    printf("Upto %d^th number's Sum is : %d\n", N, Sum);
    return 0;
}
```

- **2+5+8+11+…… upto N^{th} term.**

```
#include<stdio.h>
int main(void)
{
    int i, N, Sum=0;
    printf("How Many Number : ");
    scanf("%d", &N);
```

```
    for(i=1 ; i<=N ; ++i)
        Sum=Sum+3*i-1;
    printf("Upto %d^th number's Sum is : %d\n", N, Sum);
    return 0;
}
```

- **1.2+2.3+3.4+4.5+…… upto N^{th} term.**

```
#include<stdio.h>
int main(void)
{
    int i, N, Sum=0;
    printf("How Many Number : ");
    scanf("%d", &N);

    for(i=1 ; i<=N ; ++i)
        Sum=Sum+i*(i+1);
    printf("Upto %d^th number's Sum is : %d\n", N, Sum);
    return 0;
}
```

- **2.1+5.3+8.5+…… upto N^{th} term.**

```
#include<stdio.h>
int main(void)
{
```

```
    int i, N, Sum=0;
    printf("How Many Number : ");
    scanf("%d", &N);

    for(i=1 ; i<=N ; ++i)
        Sum=Sum+(3*i-1)*(2*i-1);
    printf("Upto %d^th number's Sum is : %d\n", N, Sum);
    return 0;
}
```

- **$1.2^2+2.3^3+3.4^2+$…… upto N^{th} term.**

```
#include<stdio.h>
int main(void)
{
    int i, N, Sum=0;
    printf("How Many Number : ");
    scanf("%d", &N);

    for(i=1 ; i<=N ; ++i)
        Sum=Sum+i*(i+1)*(i+1);
    printf("Upto %d^th number's Sum is : %d\n", N, Sum);
    return 0;
}
```

- **1.2.3+2.3.4+3.4.5+…… upto N^{th} term.**

```
#include<stdio.h>
int main(void)
{
   int i, N, Sum=0;
   printf("How Many Number : ");
   scanf("%d", &N);

   for(i=1 ; i<=N ; ++i)
      Sum=Sum+i*(i+1)*(i+2);
   printf("Upto %d^th number's Sum is : %d\n", N, Sum);
   return 0;
}
```

Some Important Home Works For You!!!

---

1. **$2.1+5.3+8.5+\ldots\ldots$ upto N^{th} term.**
2. **$2.1+5.3+8.5+\ldots\ldots$ upto N^{th} term.**
3. **$1.3+5.3+7.5+\ldots\ldots$ upto N^{th} term.**
4. **$1^2.2^2+2^2.3^3+3^2.4^2+\ldots\ldots$ upto N^{th} term.**
5. **$2.5.8+5.8.11+8.11.14+\ldots\ldots$ upto N^{th} term.**

6. **5.6.7+6.7.8+7.8.9+…… upto N^{th} term.**
7. **1.2.5.7+3.5.7.9+5.7.9.11+…… upto N^{th} term.**
8. **Write a program that print 1 to N Fibonacci series.**

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