1 – Takes two integer and prints them.

```c
#include <stdio.h>

int main()
{
    int num1, num2;
    printf("Please enter two integer number = ");
    scanf("%d %d", &num1, &num2);

    printf("Numbers are = %d, %d", num1, num2);

    return 0;
}
```

2 – Prints float, double and character.

```c
#include <stdio.h>

int main()
{
    float num1 = 10.5;
    double num2 = 10.555;
    char ch = 'A';

    printf("Number 1 is = %f\n", num1);
    printf("Number 2 is = %.2lf\n", num2);
    printf("Character is = %c\n", ch);

    return 0;
}
```

3 – Takes float numbers and prints them.

```c
#include <stdio.h>

int main()
{
    float num1, num2;
    printf("Enter two float number = ");
    scanf("%f %f", &num1, &num2);

    printf("Numbers are = %.2f, %.2f", num1, num2);

    return 0;
}
```

4 – Takes integer and float number and prints them.

```c
#include <stdio.h>

int main()
{
    int num1;
    float num2;
    printf("Enter a integer and a float number = ");
    scanf("%d %f", &num1, &num2);

    printf("Numbers are = %d, %.2f\n", num1, num2);

    return 0;
}
```

5 – Convert character into ASCII value.

```c
#include <stdio.h>

int main()
{
    char ch;
    printf("Enter any character = ");
    scanf("%c", &ch);

    printf("The ASCII value is = %d\n", ch);

    return 0;
}
```

6 – Size of operator.

```c
#include <stdio.h>

int main()
{
     int i;
     float f;
     double d;
     char ch;

     printf("Size of integer   = %d bytes\n", sizeof(i));
     printf("Size of float     = %d bytes\n", sizeof(f));
     printf("Size of double    = %d bytes\n", sizeof(d));
     printf("Size of character = %d bytes\n", sizeof(ch));

     return 0;
}
```

7(1) – Lower to Uppercase letter.

```c
#include <stdio.h>

int main()
{
    char lower;
    printf("Enter any lowercase letter = ");
    scanf("%c", &lower);

    printf("The uppercase letter is = %c\n", lower -
32);

    return 0;
}
```

7(2) – Lower to Uppercase letter using library function.

```c
#include <stdio.h>

int main()
{
    char lower, upper;
    printf("Enter any lowercase letter = ");
    scanf("%c", &lower);

    upper = toupper(lower);

    printf("The uppercase letter is = %c\n", upper);

    return 0;
}
```

8(1) – Upper to Lowercase letter.

```c
#include <stdio.h>

int main()
{
     char upper;
     printf("Enter any uppercase letter = ");
     scanf("%c", &upper);

     printf("The lowercase letter is = %c\n", upper + 32);

     return 0;
}
```

8(2) – Upper to Lowercase letter using library function.

```c
#include <stdio.h>

int main()
{
     char upper, lower;
     printf("Enter any uppercase letter = ");
     scanf("%c", &upper);

     lower = tolower(upper);

     printf("The lawercase letter is = %c\n", lower);

     return 0;
}
```

9(1) – Decimal to Octal.

```c
#include <stdio.h>

int main()
{
     int num;
     printf("Enter any decimal number = ");
     scanf("%d", &num);

     printf("The Octal number is = %o\n", num);

     return 0;
}
```

9(2) – Octal to Decimal.

```c
#include <stdio.h>

int main()
{
     int num;
     printf("Enter any octal number = ");
     scanf("%o", &num);

     printf("The decimal number is = %d\n", num);

     return 0;
}
```

9(3) – Decimal to Hexa.

```c
#include <stdio.h>

int main()
{
     int num;
     printf("Enter any decimal number = ");
     scanf("%d", &num);

     printf("The hexadecimal number is = %x\n", num);

     return 0;
}
```

9(4) – Hexa to Decimal.

```c
#include <stdio.h>

int main()
{
     int num;
     printf("Enter any hexadecimal number = ");
     scanf("%x", &num);

     printf("The decimal number is = %d\n", num);

     return 0;
}
```

9(5) – Octal to Hexa.

```c
#include <stdio.h>

int main()
{
     int num;
     printf("Enter any octal number = ");
     scanf("%o", &num);

     printf("The hexadecimal number is = %x\n", num);

     return 0;
}
```

9(5) – Hexa to Octal.

```c
#include <stdio.h>

int main()
{
     int num;
     printf("Enter any hexadecimal number = ");
     scanf("%x", &num);

     printf("The Octal number is = %o\n", num);

     return 0;
}
```

9(7) – Binary to Decimal.

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

int main()
{
     char binary[] = "10110";
     int length = 5;
     int position = 4;
     int decimal = 0;
     int i;

     for (i = 0; i < length; i++)
     {
          decimal = decimal + (binary[i] - '0') * pow(2,
position);
          position--;
     }
     printf("Decimal value is = %d\n", decimal);

     return 0;
}
```

9(8) – Binary to Decimal from the user.

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

int main()
{
     char binary[65];
     int length;
     int position;
     int decimal = 0;
     int i;

     printf("Enter the binary number = ");
     scanf("%s", &binary);

     length = strlen(binary);
     position = length - 1;

     for (i = 0; i < length; i++)
     {
          decimal = decimal + (binary[i] - '0') * pow(2,
position);
          position--;
     }
     printf("Decimal value is = %d\n", decimal);

     return 0;
}
```

9(9) – Decimal to Binary.

```c
#include <stdio.h>

int main()
{
     int decimalnumber = 22;
     int binarynumber = 0;
     int rem, temp = 1;

     while (decimalnumber != 0)
     {
          rem = decimalnumber % 2;
          decimalnumber = decimalnumber / 2;
          binarynumber = binarynumber + rem * temp;
          temp = temp * 10;
     }

     printf("The binary number is = %d\n", binarynumber);

     return 0;
}
```

9(10) – Decimal to Binary from the user.

```c
#include <stdio.h>

int main()
{
	int decimalnumber;
	int binarynumber = 0;
	int rem, temp = 1;

	printf("Enter any decimal number = ");
	scanf("%d", &decimalnumber);

	while (decimalnumber != 0)
	{
		rem = decimalnumber % 2;
		decimalnumber = decimalnumber / 2;
		binarynumber = binarynumber + rem * temp;
		temp = temp * 10;
	}

	printf("The binary number is = %d\n", binarynumber);

	return 0;
}
```

10 & 11 – Takes two integer and display sum, average.

```c
#include <stdio.h>

int main()
{
    float num1, num2, sum, avg;

    printf("Please enter two number = ");
    scanf("%f %f", &num1, &num2);

    sum = num1 + num2;
    avg = sum / 2;

    printf("The sum is = %.2f\n", sum);
    printf("The average is = %.2f\n", avg);

    return 0;
}
```

12 – Add, Sub, Division, Multiplication, Remainder.

```c
#include <stdio.h>

int main()
{
    float num1, num2, result;
    printf("Enter two number = ");
    scanf("%f %f", &num1, &num2);

    result = num1 + num2;
    printf("Sum is = %.2f\n", result);

    result = num1 - num2;
    printf("Sub is = %.2f\n", result);

    result = num1 * num2;
    printf("Mul is = %.2f\n", result);

    result = num1 / num2;
    printf("Div is = %.2f\n", result);

    result = (int)num1 % (int)num2;
    printf("Mod is = %.1f\n", result);

    return 0;
}
```

13 – Area of a Triangle.

```c
#include <stdio.h>

int main()
{
    float base, height, area;
    printf("Enter base and height = ");
    scanf("%f %f", &base, &height);

    area = 0.5 * base * height;      //(float)1/2

    printf("The area of triangle is = %.2f\n", area);

    return 0;
}
```

14 – Area of a Rectangle.

```c
#include <stdio.h>

int main()
{
    float length, width, area;
    printf("Please enter length and width = ");
    scanf("%f %f", &length, &width);

    area = length * width;

    printf("The area of rectangul is = %.2f\n",
area);

    return 0;
}
```

15 – Area of a triangle given three arms length.

(ত্রিভুজ এর তিন বাহুর দৈর্ঘ্য দেওয়া থাকলে ত্রিভুজের ক্ষেত্রফল নির্ণয় করার সি প্রোগ্রাম)

```c
#include <stdio.h>

int main()
{
    double a, b, c, s, area;
    printf("Enter the value of a b and c = ");
    scanf("%lf %lf %lf", &a, &b, &c);

    s = (a + b + c) / 2;
    area = sqrt(s * (s - a) * (s - b) * (s - c));

    printf("The area is = %.2lf\n", area);

    return 0;
}
```

16 – Area of a Circle.

```c
#include <stdio.h>

int main()
{
    float radius, area;
    printf("Enter the radius of the circle = ");
    scanf("%f", &radius);

    area = 3.1416 * radius * radius;

    printf("The area is = %.2f\n", area);

    return 0;
}
```

17(1) – Celcious to Farenheit.

```c
#include <stdio.h>

int main()
{
     float f, c;
     printf("Enter the celcious temperatre = ");
     scanf("%f", &c);

     f = (c * 1.8) + 32;

     printf("The Farenheit temperature is = %.2f\n", f);

     return 0;
}
```

17(2) – Farenheit to Celcious.

```c
#include <stdio.h>

int main()
{
     float f, c;
     printf("Enter the farenheit temperatre = ");
     scanf("%f", &f);

     c = (f - 32) / 1.8;

     printf("The Celcious temperature is = %.2f\n", c);

     return 0;
}
```

18(1) – Swapping two number using temporary variable.

```c
#include <stdio.h>

int main()
{
     int num1 = 10;
     int num2 = 5;
     int temp;

     temp = num1;
     num1 = num2;
     num2 = temp;

     printf("After swapping number 1 is = %d\n", num1);
     printf("After swapping number 2 is = %d\n", num2);

     return 0;
}
```

18(2) – Swapping two number without temporary variable.

```c
#include <stdio.h>

int main()
{
     int num1 = 10, num2 = 5;

     num1 = num1 - num2;          //10-5 = 5
     num2 = num1 + num2;          //5+5  = 10
     num1 = num2 - num1;          //10-5 = 5

     printf("So, the number 1 is = %d\n", num1);
     printf("So, the number 2 is = %d\n", num2);

     return 0;
}
```

19 – Quadratic equation($ax^2 + bx + c$).

```c
#include <stdio.h>

int main()
{
    double a, b, c, d, x1, x2;
    printf("Enter the value of a, b, c = ");
    scanf("%lf %lf %lf", &a, &b, &c);

    d = sqrt(b * b - 4 * a * c);
    x1 = (-b + d) / 2;
    x2 = (-b - d) / 2;

    printf("X1 = %.2lf\n", x1);
    printf("X2 = %.2lf\n", x2);

    return 0;
}
```

20 – Absolute value print.

```c
#include <stdio.h>

int main()
{
     double result = abs(-7);
     printf("The value is = %.2lf\n", result);

     return 0;
}
```

21(1) – Square root.

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

int main()
{
     double result = sqrt(49);
     printf("The value is = %.2lf\n", result);

     return 0;
}
```

21(2) – Suare root from the user.

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

int main()
{
     double num, result;
     printf("Enter any number = ");
     scanf("%lf", &num);

     result = sqrt(num);

     printf("The value is = %.2lf\n", result);

     return 0;
}
```

22(1) – Power.

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

int main()
{
     double result = pow(5, 2);
     printf("The value is = %.2lf\n", result);

     return 0;
}
```

22(2) – Power from the user.

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

int main()
{
     double num1, num2, result;
     printf("Please enter two number = ");
     scanf("%lf %lf", &num1, &num2);

     result = pow(num1, num2);

     printf("The valur is = %.2lf\n", result);

     return 0;
}
```

/*২৩ নাম্বার নাই*/

24(1, 2, 3) – log(), log10(), exp.

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

int main()
{
     double a = 10.5, b = 1, c = 2;
     double result1 = log(a);
     double result2 = log(b);
     double result3 = exp(c);

     printf("log(%.2lf) = %.2lf\n", a, result1);
     printf("log(%.2lf) = %.2lf\n", b, result2);
     printf("exp(%.2lf) = %.2lf\n", c, result3);

     return 0;
}
```

24(4, 5, 6) – sin, cos, tan.

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

int main()
{
     double a = 2, b = 3, c = 4;
     double result1 = sin(a);
     double result2 = cos(b);
     double result3 = tan(c);

     printf("Sin(%.2lf) = %.2lf\n", a, result1);
     printf("cos(%.2lf) = %.2lf\n", b, result2);
     printf("tan(%.2lf) = %.2lf\n", c, result3);

     return 0;
}
```

25 – Round, Trunc, Ceil, Floor.

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

int main()
{
    double a = 5.55, b = 5.25, c = 5.25, d = 5.25;
    double resulta = round(a);
    double resultb = trunc(b);
    double resultc = ceil(c);
    double resultd = floor(d);

    printf("Round-%.2lf = %.2lf\n", a, resulta);
    printf("Round-%.2lf = %.2lf\n", b, resultb);
    printf("Round-%.2lf = %.2lf\n", c, resultc);
    printf("Round-%.2lf = %.2lf\n", d, resultd);

    return 0;
}
```

//round - দশমিক এর পর ৫ এর বড় হলে পরের পূর্নসংখ্য প্রিন্ট করবে।
//trunc - দশমিক এর পরের সংখ্যগুলো বাদ পড়ে যাবে।
//ceil - দশমিক এর পর কেবল পূর্নসংখ্য প্রিন্ট করবে(যেমন - ২.৩ থাকলে ৩)।
//floor - দশমিক এর আগের কেবল পূর্নসংখ্য প্রিন্ট করবে(যেমন - ২.৩ থাকলে ২)।

26 – Assignment operator.

```c
#include <stdio.h>

int main()
{
    int a = 5, b = 10;
    a += 2;      //a = a+2 = 7.
    b *= 5;      //b = b*5 = 50.

    printf("%d\n%d\n", a, b);

    return 0;
}
```

27 (1, 2, 3, 4, 5) – Unary Operator.

```c
#include <stdio.h>

int main()
{
	int x1 = 10, x2 = 10, x3 = 10, x4 = 10, x5 = 10;
	int y1 = +x1, y2 = -x2, y3 = x3--, y4 = --x4, y5 = x5++;

	printf("y1 = %d\n", y1);	//10
	printf("y2 = %d\n", y2);	//-10
	printf("y3 = %d\n", y3);	//10
	printf("y4 = %d\n", y4);	//9
	printf("y5 = %d\n", y5);	//10

	return 0;
}
```

27(6)

```c
#include <stdio.h>

int main()
{
	int x = 10;
	printf("%d\n", x++);	//10
	printf("%d\n",   x);	//11
	printf("%d\n", ++x);	//12
	printf("%d\n",   x);	//12
	printf("%d\n", x--);	//12
	printf("%d\n",   x);	//11
	printf("%d\n", --x);	//10

	return 0;
}
```

28 – Determine a number even or odd.

```c
#include <stdio.h>

int main()
{
     int num;
     printf("Enter the number = ");
     scanf("%d", &num);

     if (num % 2 == 0)
     {
          printf("This is even number\n");
     }
     else
     {
          printf("This is odd number\n");
     }

     return 0;
}
```

29 – Multiple Common Statement.

```c
#include <stdio.h>

int main()
{
     int time = 10;
     if (time == 10)
     {
          printf("Good Morning\n");
          printf("Golam Kibria\n");
     }
     else
     {
          printf("Sorry it's not morning\n");
          printf("Golam Kibria you can sleep little more\n");
     }

     return 0;
}
```

30 – Large number between the two number.

```c
#include <stdio.h>

int main()
{
     int num1, num2;
     printf("Please enter two number = ");
     scanf("%d %d", &num1, &num2);

     if (num1 > num2)
     {
          printf("Large number is = %d\n", num1);
     }
     else if (num2 > num1)
     {
          printf("Large number is = %d\n", num2);
     }
     else
     {
          printf("Numbers are equal\n");
     }

     return 0;
}
```

31 – Determine marks.

```c
#include <stdio.h>

int main()
{
	int num;
	printf("Please enter a number = ");
	scanf("%d", &num);

	if (num >= 80)
	{
		printf("Your grade is A+");
	}
	else if (num >= 70)
	{
		printf("Your grade is A");
	}
	else if (num>=60)
	{
		printf("Your grade is A-");
	}
	else if (num<33)
	{
		printf("FAIL!!");
	}

	return 0;
}
```

32 – Determine a number is positive or negative.

```c
#include <stdio.h>

int main()
{
    int num;
    printf("Please enter a number = ");
    scanf("%d", &num);

    if (num > 0)
    {
        printf("The number is positive\n");
    }
    else if (num < 0)
    {
        printf("The number is negative\n");
    }
    else
    {
        printf("The number is zero\n");
    }

    return 0;
}
```

33(1) – Vowel or Consonant using relational operator.

```c
#include <stdio.h>

int main()
{
     char ch;
     printf("Enter any character = ");
     scanf("%c", &ch);

     if (ch == 'a')
          printf("Vowel");
     else if (ch == 'e')
          printf("Vowel");
     else if (ch == 'i')
          printf("Vowel");
     else if (ch == 'o')
          printf("Vowel");
     else if (ch == 'u')
          printf("Vowel");
     else if (ch == 'A')
          printf("Vowel");
     else if (ch == 'E')
          printf("Vowel");
     else if (ch == 'I')
          printf("Vowel");
     else if (ch == 'O')
          printf("Vowel");
     else if (ch == 'U')
          printf("Vowel");
     else
          printf("Consonant");

     return 0;
}
```

33(2) – Vowel or Consonant using logical operator.

```c
#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;
}
```

34 – Large number between the three number.

```c
#include <stdio.h>

int main()
{
    int num1, num2, num3;
    printf("Enter the three value = ");
    scanf("%d %d %d", &num1, &num2, &num3);

    if (num1 > num2 && num1 > num3)
        printf("%d is the large number\n", num1);

    else if (num2 > num1 && num2 > num3)
        printf("%d is the large numbre\n", num2);

    else if (num3 > num1 && num3 > num2)
        printf("%d is the large number\n", num3);

    return 0;
}
```

35 – Leap Year.

```c
#include <stdio.h>

int main()
{
     int year;
     printf("Enter a year = ");
     scanf("%d", &year);

     if (year % 400 == 0)
     {
          printf("Leap Year\n");
     }
     else if (year % 4 == 0 && year % 100 != 0)
     {
          printf("Leap Year");
     }
     else
     {
          printf("Not a leap year\n");
     }

     return 0;
}
```

36(1) – Pass or Fail.

```c
#include <stdio.h>

int main()
{
    int marks;
    printf("Please enter your marks = ");
    scanf("%d", &marks);

    if (marks >= 33)
        printf("pass");
    else
        printf("Fail");

    return 0;
}
```

36(2) – Letter grade.

```c
#include <stdio.h>

int main()
{
    int marks;
    printf("Please enter your marks = ");
    scanf("%d", &marks);

    if (marks > 100 || marks < 0)
        printf("Invalid Marks\n");
    else if (marks >= 80 && marks <= 100)
        printf("A+");
    else if (marks >= 70 && marks <= 79)
        printf("A");
    else if (marks >= 60 && marks <= 69)
        printf("A-");
    else if (marks >= 50 && marks <= 59)
        printf("B");
    else if (marks >= 33 && marks <= 49)
        printf("D");
    else
        printf("Fail");

    return 0;
}
```

37 – Capital letter or Small letter.

```c
#include <stdio.h>

int main()
{
     char ch;
     printf("Please inter a character = ");
     scanf("%c", &ch);

     if (ch >= 'A' && ch <= 'Z')
     {
          printf("Capital Letter\n");
     }
     else if (ch >= 'a' && ch <= 'z')
     {
          printf("Small Letter\n");
     }
     else
     {
          printf("Not a letter\n");
     }

     return 0;
}
```

38 – Local Variable

```c
#include <stdio.h>

int main()
{
     int a = 10;
     printf("The value of a = %d\n", a);
     /*This is into the main function so it's called local variable*/

     return 0;
}
```

39 – Read a digit and display it's spelling.

```c
#include <stdio.h>

int main()
{
	int digit;
	printf("Enter any digit = ");
	scanf("%d", &digit);

	switch (digit)
	{
	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 valid digit\n");
	}

	return 0;
}
```

40 – Vowel or Consonant using switch.

```c
#include <stdio.h>

int main()
{
    char ch;
    printf("Enter any character = ");
    scanf("%c", &ch);

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

    return 0;
}
```

41 – Menu Based temperature.

```c
#include <stdio.h>

int main()
{
	int choice;
	float c, f;

	printf("Temperature conversion menu:\n");
	printf("1. Farenheit to Celcious.\n");
	printf("2. Celcious to Farenheit.\n");
	printf("Please enter your choice: ");
	scanf("%d", &choice);

	switch (choice)
	{
	case 1:
		printf("Enter Farenheit tempeature = ");
		scanf("%f", &f);
		c = (f - 32) / 1.8;
		printf("The temperature in Celcious is = %.2f\n", c);
		break;
	case 2:
		printf("Enter Celcious temperature = ");
		scanf("%f", &c);
		f = (c * 1.8) + 32;
		printf("The temperature in Farenheit is = %.2f\n", f);
		break;
	default:
		printf("Not a correct option\n");
	}

	return 0;
}
```

42 – Switch calculator.

```c
#include <stdio.h>

int main()
{
	double num1, num2;
	char operator;
	printf("Enter any operator(+, -, *, /) = \n");
	scanf("%ch", &operator);
	printf("Please enter two number = \n");
	scanf("%lf %lf", &num1, &num2);

	switch (operator)
	{
	case '+':
		printf("%.2lf + %.2lf = %.2lf\n", num1, num2, num1 + num2);
		break;
	case '-':
		printf("%.2lf - %.2lf = %.2lf\n", num1, num2, num1 - num2);
		break;
	case '*':
		printf("%.2lf * %.2lf = %.2lf\n", num1, num2, num1 * num2);
		break;
	case '/':
		printf("%.2lf / %.2lf = %.2lf\n", num1, num2, num1 / num2);
		break;
	default:
		printf("Not a valid operator\n");
	}

	return 0;
}
```

43 – Taking input from user using conditional operator.

```c
#include <stdio.h>

int main()
{
    int num1, num2, large;
    printf("Please enter two number = ");
    scanf("%d %d", &num1, &num2);

    large = (num1 > num2) ? num1 : num2;

    printf("Large number is = %d\n", large);

    return 0;
}
```

44 – Bitwise and , or, xor.

```c
#include <stdio.h>

int main()
{
    int a = 10, b = 5, c;

    c = a & b;
    /*a ও b এর বাইনারি গুণফল এর মান বের করে তা ডেসিমেল আকারে প্রিন্ট করবে*/
    printf("The result is = %d\n", c);
    c = a | b;
    printf("The result is = %d\n", c);
    c = a ^ b;
    printf("The result is = %d\n", c);

    return 0;
}
```

45 (1) – Prints ten times a letter using for loop.

```c
#include <stdio.h>

int main()
{
    int i;
    for (i = 1; i <= 10; i++)
    {
        printf("%d. kibria\n", i);
    }

    return 0;
}
```

45 (2) – Prints ten times a letter using while loop.

```c
#include <stdio.h>

int main()
{
    int i = 1;
    while (i <= 10)
    {
        printf("%d. Kibria\n", i);
        i++;
    }

    return 0;
}
```

45 (3) – Prints ten times a letter using do while loop.

```c
#include <stdio.h>

int main()
{
	int i = 1;
	do
	{
		printf("%d. kibria\n", i);
		i++;
	}
	while (i <= 10);

	return 0;
}
```

46(1) - Even number between 1-100.

```c
#include <stdio.h>

int main()
{
    int i;
    for (i = 2; i <= 100; i = i + 2)
    {
        printf("%d\n", i);
    }

    return 0;
}
```

46(2) - Odd number between 1-100.

```c
#include <stdio.h>

int main()
{
    int i;
    for (i = 1; i <= 100; i = i + 2)
    {
        printf("%d\n", i);
    }

    return 0;
}
```

47 - Uses of break and continue statement.

```c
#include <stdio.h>

int main()
{
    int i;
    for (i = 1; i < 20; i++)
    {
        if (i % 3 == 0)
        {
            continue;
        }
        printf("%d\n", i);
        if (i == 10)
        {
            break;
        }
    }

    return 0;
}
```

48 - Uses of goto keyword.

```c
#include <stdio.h>

int main()
{
    int i = 1;

    kibria:
    printf("%d\n", i);
    i++;
    if (i < 5)
    {
        goto kibria;
    }

    return 0;
}
```

49 - Making a Multiple table.

```c
#include <stdio.h>

int main()
{
    int i, num;
    printf("Enter any number = ");
    scanf("%d", &num);

    for (i = 1; i <= 10; i++)
    {
        printf("%d X %d = %d\n", num, i, num * i);
    }

    return 0;
}
```

50 - Factorial Print.

```c
#include <stdio.h>

int main()
{
     int i, num, factorial = 1;
     printf("Enter any positive number = ");
     scanf("%d", &num);

     for (i = 1; i <= num; i++)
     {
          factorial = factorial * i;
     }
     printf("The Factorial of %d is = %d\n", num, factorial);

     return 0;
}
```

51 - Prime number print.

```c
#include <stdio.h>

int main()
{
    int num, i, count = 0;
    printf("Enter a number = ");
    scanf("%d", &num);

    for (i = 2; i < num; i++)
    {
        if (num % 2 == 0)
        {
            count++;
            break;
        }
    }
    if (count == 0)
    {
        printf("This is a prime number\n");
    }
    else
    {
        printf("This is not a prime number\n");
    }

    return 0;
}
```

52 - GCD and LCM.

```c
#include <stdio.h>

int main()
{
    int num1, num2, n1, n2, rem, gcd, lcm;
    printf("Please enter two number = ");
    scanf("%d %d", &num1, &num2);

    n1 = num1;
    n2 = num2;

    while (n2 != 0)
    {
        rem = n1 % n2;
        n1 = n2;
        n2 = rem;
    }
    gcd = n1;
    lcm = (num1 * num2) / gcd;

    printf("The GCD is = %d\n", gcd);
    printf("The LCM is = %d\n", lcm);

    return 0;
}
```

53 - Display sum of a digit.

```c
#include <stdio.h>

int main()
{
    int num, temp, rem, sum = 0;
    printf("Enter any number = ");
    scanf("%d", &num);

    temp = num;

    while (temp != 0)
    {
        rem = temp % 10;
        temp = temp / 10;
        sum = sum + rem;
    }
    printf("The sum is = %d\n", sum);

    return 0;
}
```

54 - Reverse an Integer.

```c
#include <stdio.h>

int main()
{
    int num, rem, temp, sum = 0;
    printf("Enter any number = ");
    scanf("%d", &num);

    temp = num;

    while (temp != 0)
    {
        rem = temp % 10;
        temp = temp / 10;
        sum = sum * 10 + rem;
    }
    printf("Reverse of the number is = %d\n", sum);

    return 0;
}
```

55 - Palindrome number.

```c
#include <stdio.h>

int main()
{
    int num, rem, temp, sum = 0;
    printf("Enter any number = ");
    scanf("%d", &num);

    temp = num;

    while (temp != 0)
    {
        rem = temp % 10;
        temp = temp / 10;
        sum = sum * 10 + rem;
    }
    if (sum == num)
    {
        printf("This is a palindrome number\n");
    }
    else
    {
        printf("This is not a palindrome number\n");
    }
    return 0;
}
```

56(1) - Armstrong number or not.

```c
#include <stdio.h>

int main()
{
    int num, i, temp, rem, sum = 0;
    printf("Enter the number = ");
    scanf("%d", &num);

    temp = num;

    while (temp != 0)
    {
        rem = temp % 10;
        temp = temp / 10;
        sum = sum + rem * rem * rem;
    }
    if (sum == num)
    {
        printf("This is a armstrong number\n");
    }
    else
    {
        printf("This is not a armstrong number\n");
    }

    return 0;
}
```

56(2) - Armstrong number between 1-1000.

```c
#include <stdio.h>

int main()
{
	int initialvalue, finalvalue, rem, i, temp, sum = 0;
	printf("Initial value = ");
	scanf("%d", &initialvalue);
	printf("Final value = ");
	scanf("%d", &finalvalue);

	for (i = initialvalue; i < finalvalue; i++)
	{

		temp = i;
		while (temp != 0)
		{
			rem = temp % 10;
			temp = temp / 10;
			sum = sum + rem * rem * rem;
		}
		if (sum == i)
		{
			printf("%d\n", i);
		}
		sum = 0;
	}

	return 0;
}
```

57 - Counting number of a digit in an integer.

```c
#include <stdio.h>

int main()
{
    int num, count = 0;
    printf("Please enter the number = ");
    scanf("%d", &num);

    while (num != 0)
    {
        num = num / 10;
        ++count;
    }
    printf("Total number of digit = %d\n", count);

    return 0;
}
```

58 - Strong number printf. (ফ্যাক্টরিয়াল গুলোর যোগফল ঐ সংখ্যাটির সমান)

```c
//strong number = 145 = 1! + 4! + 5! = 145.

#include <stdio.h>

int main()
{
    int num, i, rem, temp, sum = 0, fact;
    printf("Enter the number = ");
    scanf("%d", &num);

    temp = num;

    while (temp != 0)
    {
        rem = temp % 10;
        temp = temp / 10;
        fact = 1;
        for (i = 1; i <= rem; i++)
        {
            fact = fact * i;
        }
        sum = sum + fact;
    }
    if (sum == num)
    {
        printf("This is a strong number\n");
    }
    else
    {
        printf("This is not a strong number\n");
    }

    return 0;
}
```

59(1). //Basic Multiple Table(নামতা তৈরি করা)

```c
#include <stdio.h>

int main()
{
    int i, n = 5;

    for (i = 1; i <= 10; i++)
    {
        printf("%d X %d = %d\n", n, i, n * i);
    }

    return 0;
}
```

59(2)

```c
//Basic Multiple Table(যোগের মাধ্যমে নামতা তৈরি করা)
#include <stdio.h>

int main()
{
    int i, sum = 0, n = 5;

    for (i = 1; i <= 10; i++)
    {
        sum = sum + n;
        printf("%d X %d = %d\n", n, i, sum);
    }

    return 0;
}
```

60.

```
//১-২০ পর্যন্ত সবগুলো সংখ্যার নামতা
#include <stdio.h>

int main()
{
     int i, j;

     for (i = 1; i <= 20; i++)
     {
          for (j = 1; j <= 10; j++)
          {
               printf("%d X %d = %d\n", i, j, i * j);
          }
          printf("\n");
     }

     return 0;
}
```

Series(সিরিজ)

1. 1 + 2 + 3 + ---------- + n.(Using for loop)

```c
#include <stdio.h>

int main()
{
	int n, i, sum = 0;
	printf("Enter the last number of the series = ");
	scanf("%d", &n);
	printf("1+2+3+-----------+%d\n", n);

	for (i = 1; i <= n; i = i+1)
	{
		sum = sum + i;
	}
	printf("%d\n", sum);

	return 0;
}
```

2. 1 + 3 + 5 + ---------- + n.(Using for loop)

```c
#include <stdio.h>

int main()
{
	int n, i, sum = 0;
	printf("Enter the last number of the series = ");
	scanf("%d", &n);
	printf("1+3+5+-----------+%d\n", n);

	for (i = 1; i <= n; i = i + 2)
	{
		sum = sum + i;
	}
	printf("%d\n", sum);

	return 0;
}
```

3. 2 + 4 + 6 + ---------- + n.(Using for loop)

```c
#include <stdio.h>

int main()
{
	int n, i, sum = 0;
	printf("Enter the last number of the series = ");
	scanf("%d", &n);
	printf("2+4+6+-----------+%d\n", n);

	for (i = 2; i <= n; i = i + 2)
	{
		sum = sum + i;
	}
	printf("%d\n", sum);

	return 0;
}
```

4. 1 + 2 + 3 + ---------- + n.(Using while loop)

```c
#include <stdio.h>

int main()
{
	int n, i = 1, sum = 0;
	printf("Enter the last number of the series = ");
	scanf("%d", &n);

	printf("1 + 2 + 3 + --------------+%d\n", n);
	while (i <= n)
	{
		sum = sum + i;
		i = i + 1;
	}
	printf("%d\n", sum);

	return 0;
}
```

5. 1 + 3 + 5 + ---------- + n.(Using while loop)

```c
#include <stdio.h>

int main()
{
	int n, i = 1, sum = 0;
	printf("Enter the last number of the series = ");
	scanf("%d", &n);

	printf("1 + 3 + 5 + --------------+%d\n", n);
	while (i <= n)
	{
		sum = sum + i;
		i = i + 2;
	}
	printf("%d\n", sum);

	return 0;
}
```

6. 2 + 4 + 6 + ---------- + n.(Using while loop)

```c
#include <stdio.h>

int main()
{
	int n, i = 2, sum = 0;
	printf("Enter the last number of the series = ");
	scanf("%d", &n);

	printf("2 + 4 + 6 + --------------+%d\n", n);
	while (i <= n)
	{
		sum = sum + i;
		i = i + 2;
	}
	printf("%d\n", sum);

	return 0;
}
```

7. 1*2 + 2*3 + 3*4 +----------+n1*n2.

```c
#include <stdio.h>

int main()
{
	int n1, n2, i, j, sum = 0;
	printf("Enter n1 and n2 = ");
	scanf("%d %d", &n1, &n2);

	printf("1*2 + 2*3 + 3*4 + -------+%d*%d\n", n1, n2);
	for (i = 1, j = 2; i <= n1 && j <= n2; i = i + 1, j = j + 1)
	{
		sum = sum + i * j;
	}
	printf("%d\n", sum);

	return 0;
}
```

8. 1*3 + 2*5 + 3*7 +----------+n1*n2.

```c
#include <stdio.h>

int main()
{
	int n1, n2, i, j, sum = 0;
	printf("Enter n1 and n2 = ");
	scanf("%d %d", &n1, &n2);

	printf("1*3 + 2*5 + 3*7 + -------+%d*%d\n", n1, n2);
	for (i = 1, j = 3; i <= n1 && j <= n2; i = i + 1, j = j + 2)
	{
		sum = sum + i * j;
	}
	printf("%d\n", sum);

	return 0;
}
```

9. 1*3*4 + 2*5*6 + 3*7*8 +----------+n1*n2*n3.

```c
#include <stdio.h>

int main()
{
	int n1, n2, n3, i, j, k, sum = 0;
	printf("Enter n1 and n2 = ");
	scanf("%d %d %d", &n1, &n2, &n3);

	printf("1*3*4 + 2*5*6 + 3*7*8 + -------+%d*%d*%d\n", n1, n2, n3);
	for (i = 1, j = 3, k = 4; i <= n1 && j <= n2 && k<=n3; i = i + 1,
j = j + 2, k = k+2)
	{
		sum = sum + i * j * k;
	}
	printf("%d\n", sum);

	return 0;
}
```

10. 1 2 3--------n.

```c
#include <stdio.h>

int main()
{
	int n, i;
	printf("Enter n = ");
	scanf("%d", &n);

	printf("1  2  3----------%d\n", n);
	for (i = 1; i <= n; i = i + 1)
	{
		printf("%d  ", i);
	}

	return 0;
}
```

11. 1 3 5---------n.

```c
#include <stdio.h>

int main()
{
	int n, i;
	printf("Enter n = ");
	scanf("%d", &n);

	printf("1  3  5----------%d\n", n);
	for (i = 1; i <= n; i = i + 2)
	{
		printf("%d  ", i);
	}

	return 0;
}
```

12. 2 4 6---------n.

```c
#include <stdio.h>

int main()
{
	int n, i;
	printf("Enter n = ");
	scanf("%d", &n);

	printf("2  4  6----------%d\n", n);
	for (i = 2; i <= n; i = i + 2)
	{
		printf("%d  ", i);
	}

	return 0;
}
```

13. 1.5 + 2.5 + 3.5 +----------+n.

```c
#include <stdio.h>

int main()
{
	float n, i, sum = 0;
	printf("Enter n = ");
	scanf("%f", &n);

	printf("1.5 + 2.5 + 3.5 +----------+%f\n", n);
	for (i = 1.5; i <= n; i = i+1)
	{
		sum = sum + i;
	}
	printf("%.2f\n", sum);

	return 0;
}
```

14. $1^2 + 2^2 + 3^2$ +----------+n^2

```c
#include <stdio.h>

int main()
{
	int n, i, sum = 0;
	printf("Enter n = ");
	scanf("%d", &n);

	printf("1^2 + 2^2 + 3^3 +-------+%d^%d\n", n, n);
	for (i = 1; i <= n; i = i + 1)
	{
		sum = sum + i * i;
	}
	printf("%d\n", sum);

	return 0;
}
```

15. $1^3 + 2^3 + 3^3 +----------+n^3$

```c
#include <stdio.h>

int main()
{
	int n, i, sum = 0;
	printf("Enter n = ");
	scanf("%d", &n);

	printf("1^3 + 2^3 + 3^3 +-------+%d^%d\n", n, n);
	for (i = 1; i <= n; i = i + 1)
	{
		sum = sum + i * i * i;
	}
	printf("%d\n", sum);

	return 0;
}
```

16. $1^2 + 3^2 + 5^2 +----------+n^2$

```c
#include <stdio.h>

int main()
{
	int n, i, sum = 0;
	printf("Enter n = ");
	scanf("%d", &n);

	printf("1^2 + 3^2 + 5^2 +-------+%d^2\n", n);
	for (i = 1; i <= n; i = i + 2)
	{
		sum = sum + i * i;
	}
	printf("%d\n", sum);

	return 0;
}
```

17 . 1 + ½ + 1/3 +----------+1/n.

```c
#include <stdio.h>

int main()
{
	double n, i, sum = 0;
	printf("Enter the value of n = ");
	scanf("%lf", &n);

	printf("1 + 1/2 + 1/3 +-----------+1/%lf\n", n);
	for (i = 1; i <= n; i = i+1)
	{
		sum = sum + (1 / i);
	}
	printf("%.2lf\n", sum);

	return 0;
}
```

18. 1 × 2 × 3 ×----------× n.

```c
#include <stdio.h>

int main()
{
	int n, i, result = 1;
	printf("Enter the value of n = ");
	scanf("%d", &n);

	printf("1 X 2 X 3 X------------X %d\n", n);
	for (i = 1; i <= n; i = i + 1)
	{
		result = result * i;
	}
	printf("%d\n", result);

	return 0;
}
```

19. 1^2 x 2^2 x 3^2 x----------xn^2

```c
#include <stdio.h>

int main()
{
	int n, i, result = 1;
	printf("Enter the value of n = ");
	scanf("%d", &n);

	printf("1^2 X 2^2 X 3^2 X----------X%d^2\n", n);
	for (i = 1; i <= n; i = i + 1)
	{
		result = result * i * i;
	}
	printf("%d\n", result);

	return 0;
}
```

20. 1^3 x 2^3 x 3^3 x----------xn^3

```c
#include <stdio.h>

int main()
{
	int n, i, result = 1;
	printf("Enter the value of n = ");
	scanf("%d", &n);

	printf("1^3 X 2^3 X 3^3 X----------X%d^3\n", n);
	for (i = 1; i <= n; i = i + 1)
	{
		result = result * i * i * i;
	}
	printf("%d\n", result);

	return 0;
}
```

21. $1^3 \times 3^3 \times 5^3 \times$----------$xn^3$

```c
#include <stdio.h>

int main()
{
	int n, i, result = 1;
	printf("Enter the value of n = ");
	scanf("%d", &n);

	printf("1^3 X 3^3 X 5^3 X----------X%d^3\n", n);
	for (i = 1; i <= n; i = i + 2)
	{
		result = result * i * i * i;
	}
	printf("%d\n", result);

	return 0;
}
```

22. $2^2 \times 4^2 \times 6^2 \times$----------$xn^2$

```c
#include <stdio.h>

int main()
{
	int n, i, result = 1;
	printf("Enter the value of n = ");
	scanf("%d", &n);

	printf("2^2 X 4^2 X 6^2 X----------X%d^2\n", n);
	for (i = 2; i <= n; i = i + 2)
	{
		result = result * i * i;
	}
	printf("%d\n", result);

	return 0;
}
```

23. 1^2 x 3^2 x 5^2 x----------xn^2

```c
#include <stdio.h>

int main()
{
	int n, i, result = 1;
	printf("Enter the value of n = ");
	scanf("%d", &n);

	printf("1^2 X 3^2 X 5^2 X----------X%d^2\n", n);
	for (i = 1; i <= n; i = i + 2)
	{
		result = result * i * i;
	}
	printf("%d\n", result);

	return 0;
}
```

24. 1-2+3-4+5-6+----------+n.//(1+3+5+----)-(2+4+6+-----)

```c
#include <stdio.h>

int main()
{
	int n, i, even = 0, odd = 0;
	printf("Enter the value of n = ");
	scanf("%d", &n);

	for (i = 1; i <= n; i = i+1)
	{
		if (i % 2 == 0)
		{
			even = even + i;
		}
		else
		{
			odd = odd + i;
		}
	}
	printf("Sum is = %d\n", odd - even);

	return 0;
}
```

25. Fibonacci Series (0 1 1 2 3)

```c
#include <stdio.h>

int main()
{
     int first = 0, second = 1, fibo, count = 0, n;
     printf("Enter range = ");
     scanf("%d", &n);

     while (n > count)
     {
          if (count <= 1)
          {
               fibo = count;
          }
          else
          {
               fibo = first + second;
               first = second;
               second = fibo;
          }
          printf("%d ", fibo);
          count++;
     }

     return 0;
}
```

Patten type – 01

1.

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= row; col++)
        {
            printf("%d  ", col);
        }
        printf("\n");
    }

    return 0;
}
```

```c
2. printf("%d  ", row);
3. printf("%d  ", col % 2);
4. printf("%d  ", row % 2);
5. printf("%c  ", col + 64);
6. printf("%c  ", row + 64);
7. printf("%c  ", col + 96);
8. printf("%c  ", row + 96);
9. printf("*  ");
10.printf("#  ");
```

Patten type – 02.

1.

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = n; row >= 1; row--)
    {
        for (col = 1; col <= row; col++)
        {
            printf("%d  ", col);
        }
        printf("\n");
    }

    return 0;
}
```

```c
2. printf("%d  ", row);
3. printf("%d  ", col % 2);
4. printf("%d  ", row % 2);
5. printf("%c  ", col + 64);
6. printf("%c  ", row + 64);
7. printf("%c  ", col + 96);
8. printf("%c  ", row + 96);
9. printf("*  ");
10.printf("#  ");
```

Patten type – 03.

1.

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= row; col++)
        {
            printf("%d  ", col);//2 space
        }
        printf("\n");
    }
    for (row = n - 1; row >= 1; row--)
    {
        for (col = 1; col <= row; col++)
        {
            printf("%d  ", col);//2 space
        }
        printf("\n");
    }
    return 0;
}
```

```c
2. printf("%d  ", row);//dui bar kory hoby.
3. printf("%d  ", col % 2);
4. printf("%d  ", row % 2);
5. printf("%c  ", col + 64);
6. printf("%c  ", row + 64);
7. printf("%c  ", col + 96);
8. printf("%c  ", row + 96);
9. printf("*  ");
10.printf("#  ");
```

Patten type – 04.

1.

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf("  "); //2 space
        }
        for (col = 1; col <= row; col++)
        {
            printf("%d ", col); //1 space
        }
        printf("\n");
    }

    return 0;
}
```

```c
2. printf("%d ", row);// 1 space.
3. printf("%d ", col % 2);
4. printf("%d ", row % 2);
5. printf("%c ", col + 64);
6. printf("%c ", row + 64);
7. printf("%c ", col + 96);
8. printf("%c ", row + 96);
9. printf("* ");
10.printf("# ");
```

Patten type – 05.

1.

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = n; row >= 1; row--)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf("  "); //2 space
        }
        for (col = 1; col <= row; col++)
        {
            printf("%d ", col); //1 space
        }
        printf("\n");
    }

    return 0;
}
```

```c
2. printf("%d ", row);//1 space.
3. printf("%d ", col % 2);
4. printf("%d ", row % 2);
5. printf("%c ", col + 64);
6. printf("%c ", row + 64);
7. printf("%c ", col + 96);
8. printf("%c ", row + 96);
9. printf("* ");
10.printf("# ");
```

Patten type – 06.

1.

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf("  "); //2 space
        }
        for (col = 1; col <= row; col++)
        {
            printf("%d ", col); //1 space
        }
        printf("\n");
    }
    for (row = n - 1; row >= 1; row--)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf("  "); //2 space
        }
        for (col = 1; col <= row; col++)
        {
            printf("%d ", col); //1 space
        }
        printf("\n");
    }

    return 0;
}
```

```
2. printf("%d ", row);//1 space. dui bar kory hoby.
3. printf("%d ", col % 2);
4. printf("%d ", row % 2);
5. printf("%c ", col + 64);
6. printf("%c ", row + 64);
7. printf("%c ", col + 96);
8. printf("%c ", row + 96);
9. printf("* ");
10.printf("# ");
```

Pattern type- 07

1.

```
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= n; col++)
        {
            printf("%d  ", col); //2 space
        }
        printf("\n");
    }

    return 0;
}
```

(প্যাটান টাইপ ৭ এর ২-১০ নিজে নিজে চেষ্টা করো)

Pattern type- 08

1.

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf("  "); //2 space
        }
        for (col = 1; col <= 2 * row - 1; col++)
        {
            printf("%d ", col);//1 space
        }
        printf("\n");
    }

    return 0;
}
```

(প্যাটান টাইপ ৮ এর ২-১০ নিজে নিজে চেষ্টা করো)

Pattern type- 09

1.

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = n; row >= 1; row--)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf("  "); //2 space
        }
        for (col = 1; col <= 2 * row - 1; col++)
        {
            printf("%d ", col);//1 space
        }
        printf("\n");
    }

    return 0;
}
```

(প্যাটান টাইপ ৯ এর ২-১০ নিজে নিজে চেষ্টা করো)

Pattern type- 10

1.

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf("  "); //2 space
        }
        for (col = 1; col <= 2 * row - 1; col++)
        {
            printf("%d ", col);//1 space
        }
        printf("\n");
    }
    for (row = n - 1; row >= 1; row--)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf("  "); //2 space
        }
        for (col = 1; col <= 2 * row - 1; col++)
        {
            printf("%d ", col);//1 space
        }
        printf("\n");
    }

    return 0;
}
```

(প্যাটান টাইপ ১০ এর ২-১০ নিজে নিজে চেষ্টা করো)

Pattern type- 11

1.

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf(" "); //1 space
        }
        for (col = 1; col <= row; col++)
        {
            printf("%d ", col);//1 space
        }
        printf("\n");
    }

    return 0;
}
```

(প্যাটান টাইপ ১১ এর ২-১০ নিজে নিজে চেষ্টা করো)

Pattern type- 12

1.

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = n; row >= 1; row--)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf(" "); //1 space
        }
        for (col = 1; col <= row; col++)
        {
            printf("%d ", col);//1 space
        }
        printf("\n");
    }

    return 0;
}
```

(প্যাটান টাইপ ১২ এর ২-১০ নিজে নিজে চেষ্টা করো)

Pattern type- 13

1.

```c
#include <stdio.h>

int main()
{
     int n, row, col;
     printf("Enter n = ");
     scanf("%d", &n);

     for (row = 1; row <= n; row++)
     {
          for (col = 1; col <= n - row; col++)
          {
               printf(" "); //1 space
          }
          for (col = 1; col <= row; col++)
          {
               printf("%d ", col);//1 space
          }
          printf("\n");
     }
     for (row = n - 1; row >= 1; row--)
     {
          for (col = 1; col <= n - row; col++)
          {
               printf(" "); //1 space
          }
          for (col = 1; col <= row; col++)
          {
               printf("%d ", col);//1 space
          }
          printf("\n");
     }
     return 0;
}
```

(প্যাটান টাইপ ১৩ এর ২-১০ নিজে নিজে চেষ্টা করো)

Pattern type- 14

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= row; col++)
        {
            printf("%d ", row * col); //1 space
        }
        printf("\n");
    }

    return 0;
}
```

Pattern type- 15

```c
#include <stdio.h>

int main()
{
	int n, row, col;
	printf("Enter n = ");
	scanf("%d", &n);

	for (row = 1; row <= n; row++)
	{
		for (col = 1; col <= n; col++)
		{
			if (row == 1 || row == n || col == 1 || col == n)
			{
				printf("* "); //1 space
			}
			else
			{
				printf("  "); //2 space
			}
		}
		printf("\n");
	}

	return 0;
}
```

Pattern type- 16

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= n; col++)
        {
            if (row == n || col == 1 || row == col)
            {
                printf("* "); //1 space
            }
            else
            {
                printf("  "); //2 space
            }
        }
        printf("\n");
    }

    return 0;
}
```

Pattern type- 17

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= n; col++)
        {
            if (row == col || row + col == n+1)
            {
                printf("* "); //1 space
            }
            else
            {
                printf("  "); //2 space
            }
        }
        printf("\n");
    }

    return 0;
}
```

Pattern type- 18

```c
#include <stdio.h>

int main()
{
    int n, row, col, count = 0;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= row; col++)
        {
            printf("%d ", ++count);
        }
        printf("\n");
    }

    return 0;
}
```

Pattern type- 19

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf("  "); //2 space
        }
        for (col = 1; col <= row; col++)
        {
            printf("%d ", col); //1 space
        }
        for (col = row - 1; col >= 1; col--)
        {
            printf("%d ", col); //1 space
        }
        printf("\n");
    }

    return 0;
}
```

Pattern type- 20

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = n; row >= 1; row--)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf("  "); //2 space
        }
        for (col = 1; col <= row; col++)
        {
            printf("%d ", col); //1 space
        }
        for (col = row - 1; col >= 1; col--)
        {
            printf("%d ", col); //1 space
        }
        printf("\n");
    }

    return 0;
}
```

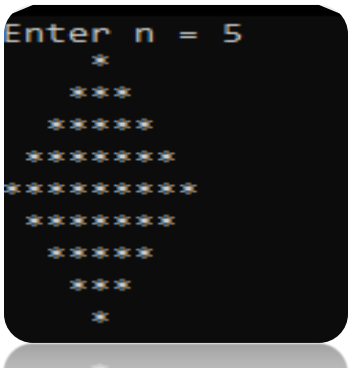
Pattern type- 21

```c
#include <stdio.h>

int main()
{
	int n, row, col;
	printf("Enter n = ");
	scanf("%d", &n);

	for (row = 1; row <= n; row++)
	{
		for (col = 1; col <= n - row; col++)
		{
			printf("  "); //2 space
		}
		for (col = 1; col <= row; col++)
		{
			printf("%d ", col); //1 space
		}
		for (col = row - 1; col >= 1; col--)
		{
			printf("%d ", col); //1 space
		}
		printf("\n");
	}
	for (row = n -1; row >= 1; row--)
	{
		for (col = 1; col <= n - row; col++)
		{
			printf("  "); //2 space
		}
		for (col = 1; col <= row; col++)
		{
			printf("%d ", col); //1 space
		}
		for (col = row - 1; col >= 1; col--)
		{
			printf("%d ", col); //1 space
		}
		printf("\n");
	}

	return 0;
}
```

Pattern type - 22


```c
#include <stdio.h>

int main()
{
     int n, row, col;
     printf("Enter the value of n = ");
     scanf("%d", &n);

     for (row = 1; row <= n; row++)
     {
          for (col = 1; col <= row; col++)
          {
               printf("*");
          }
          printf("\n");
     }
     for (row = n; row >=1; row--)
     {
          for (col = 1; col <= (n-row)+1; col++)
          {
               printf(" ");
          }
          for (col = 1; col <= row; col++)
          {
               printf("*");
          }
          printf("\n");
     }

     return 0;
}
```

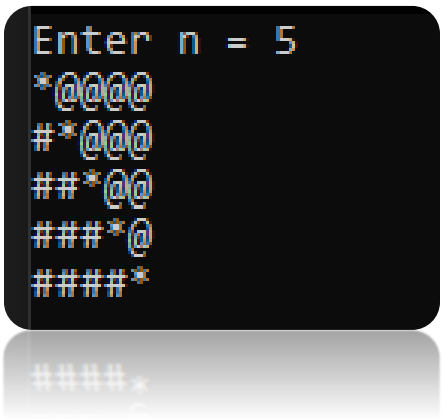
Pattern type - 23




```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter the value of n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf(" ");
        }
        for (col = 1; col <= 2 * row - 1; col++)
        {
            printf("*");
        }
        printf("\n");
    }
    for (row = n-1; row >= 1; row--)
    {
        for (col = 1; col <= n - row; col++)
        {
            printf(" ");
        }
        for (col = 1; col <= 2 * row - 1; col++)
        {
            printf("*");
        }
        printf("\n");
    }

    return 0;
}
```

Pattern type - 24

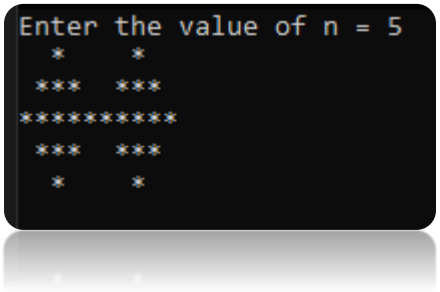
```c
#include <stdio.h>

int main()
{
     int n, row, col;
     printf("Enter the value of n = ");
     scanf("%d", &n);

     for (row = 1; row <= n; row++)
     {
          for (col = 1; col <= n; col++)
          {
               if (row == col)
                    printf("*");
               else if (row > col)
                    printf("#");
               else if (row < col)
                    printf("@");
          }
          printf("\n");
     }

     return 0;
}
```



Pattern type - 25


```c
#include <stdio.h>

int main()
{
	int n, row, col;
	printf("Enter the value of n = ");
	scanf("%d", &n);

	for (row = n-1; row >= 1; row--)
	{
		for (col = 1; col <= row; col++)
		{
			printf("*");
		}
		for (col = 1; col <= (2 * n) - (2 * row); col++)
		{
			printf(" ");
		}
		for (col = 1; col <= row; col++)
		{
			printf("*");
		}
		printf("\n");
	}
	printf("\n");
	for (row = 1; row <= n-1; row++)
	{
		for (col = 1; col <= row; col++)
		{
			printf("*");
		}
		for (col = 1; col <= (2 * n) - (2 * row); col++)
		{
			printf(" ");
		}
		for (col = 1; col <= row; col++)
		{
			printf("*");
		}
		printf("\n");
	}

	return 0;
}
```

Pattern type – 26




```c
#include <stdio.h>

int main()
{
	int n, row, col;
	printf("Enter the value of n = ");
	scanf("%d", &n);

	for (row = 1; row <= n-2; row++)
	{
		for (col = 1; col <= (n-2) - row; col++)
		{
			printf(" ");
		}
		for (col = 1; col <= 2 * row - 1; col++)
		{
			printf("*");
		}
		for (col = 1; col <= ((2 * n-2) - (2 * row))-2; col++)
		{
			printf(" ");
		}
		for (col = 1; col <= 2 * row - 1; col++)
		{
			printf("*");
		}
		printf("\n");
	}
	for (row = (n-2)-1; row >= 1; row--)
	{
		for (col = 1; col <= (n - 2) - row; col++)
		{
			printf(" ");
		}
		for (col = 1; col <= 2 * row - 1; col++)
		{
			printf("*");
		}
		for (col = 1; col <= ((2 * n - 2) - (2 * row)) - 2; col++)
		{
			printf(" ");
		}
		for (col = 1; col <= 2 * row - 1; col++)
		{
			printf("*");
		}
		printf("\n");
	}

	return 0;
}
```

Pattern type – 27

```
Enter n = 5
&         #
##       &&
&&&     ###
####   &&&&
&&&&&#####
```

```c
#include <stdio.h>

int main()
{
     int n, row, col;
     printf("Enter n = ");
     scanf("%d", &n);

     for (row = 1; row <= n; row++)
     {
          for (col = 1; col <= row; col++)
          {
               if (row % 2 == 0)
                    printf("#");
               else
                    printf("&");
          }
          for (col = 1; col <= (2 * n) - (2 * row); col++)
          {
               printf(" ");
          }
          for (col = 1; col <= row; col++)
          {
               if (row % 2 == 0)
                    printf("&");
               else
                    printf("#");
          }
          printf("\n");
     }

     return 0;
}
```

Pattern type - 28

```
Enter n = 5
@ @ @ @ @
@ @   @ @
@   @   @
@ @   @ @
@ @ @ @ @
```

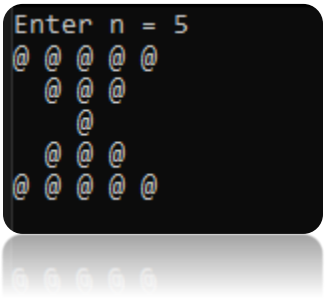
```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= n; col++)
        {
            if (row == 1 || row == n || col == 1 || col == n || row == col || row + col == n + 1)
                printf("@ ");
            else
                printf("  ");
        }
        printf("\n");
    }

    return 0;
}
```

Pattern type – 29

```
Enter n = 5
@   @
 @ @
  ?
 @ @
@   @
```

```c
#include <stdio.h>

int main()
{
    int n, row, col;
    printf("Enter n = ");
    scanf("%d", &n);

    for (row = 1; row <= n; row++)
    {
        for (col = 1; col <= n; col++)
        {
            if (row == col && row + col == n + 1)
                printf("?");
            else if (row == col || row + col == n + 1)
                printf("@");
            else
                printf(" ");
        }
        printf("\n");
    }

    return 0;
}
```

Pattern type - 30




```c
#include <stdio.h>

int main()
{
     int n, row, col;
     printf("Enter n = ");
     scanf("%d", &n);

     for (row = 1; row <= n; row++)
     {
          for (col = 1; col <= n; col++)
          {
               if (row == 1 || row == n || row == col || row
+ col == n + 1 || col == n - 2)
                    printf("@ ");
               else
                    printf("  ");
          }
          printf("\n");
     }

     return 0;
}
```

Array(অ্যারে)

1(1). অ্যারের মাধ্যমে যোগফল নির্ণয়।

```c
#include <stdio.h>

int main()
{
     int num[] = { 10, 20, 30, 40, 50 };
     int sum;

     sum = num[0] + num[1] + num[2] + num[3] + num[4];
     printf("The sum is = %d\n", sum);

     return 0;
}
```

1(2). অ্যারের মাধ্যমে কাঙ্ক্ষিত সংখ্যাটি প্রিন্ট।

```c
#include <stdio.h>

int main()
{
     int num[] = { 10, 20, 30, 40, 50 };
     int sum;

     sum = num[0] + num[1] + num[2] + num[3] + num[4];
     printf("The sum is = %d\n", sum);
     printf("I wanted to print number = %d\n", num[2]);

     return 0;
}
```

2(1). অ্যারের মাধ্যমে যোগফল এবং এভারেজ নির্ণয়।

```c
#include <stdio.h>

int main()
{
     int num[5] = { 10, 20, 30, 40, 50 };
     int i, sum = 0;

     for (i = 0; i < 5; i++)
     {
          sum = sum + num[i];
     }
     printf("The sum is = %d\n", sum);
     printf("The average is = %.2f\n", (float)sum / 5);

     return 0;
}
```

2(2). অ্যারের মাধ্যমে ইউজার হুতে ইনপুট নিয়ে যোগফল এবং এভারেজ নির্ণয়।

```c
#include <stdio.h>

int main()
{
	int num[10];
	int n, i, sum = 0;
	printf("How many numbers = ");
	scanf("%d", &n);
	printf("\nEnter numbers = ");
	for (i = 0; i < n; i++)
	{
		scanf("%d", &num[i]);
	}
	for (i = 0; i < n; i++)
	{
		sum = sum + num[i];
	}
	printf("The sum is = %d\n", sum);
	printf("\nThe average is = %.2f\n", (float)sum / n);

	return 0;
}
```

3(1)- অ্যারের মাধ্যমে সবচেয়ে বড় সংখ্যাটি নির্ণয়।

```c
#include <stdio.h>

int main()
{
    int num[] = { 2, 4, 5, 6, 1, 8, 9 };
    int i, position;
    int max = num[0];

    for (i = 1; i < 7; i++)
    {
        if (num[i] > max)
        {
            max = num[i];
            position = i;
        }
    }
    printf("\nThe maximum number is = %d\n", max);
    printf("The position is = %d\n", position);

    return 0;
}
```

3(2)- অ্যারের মাধ্যমে ইউজার হতে ইনপুট নিয়ে সবচেয়ে বড় সংখ্যাটি নির্ণয়।

```c
#include <stdio.h>

int main()
{
     int num[10], n, i, position;
     printf("How many numbers = ");
     scanf("%d", &n);
     printf("\nPlease enter numbers = ");
     for (i = 0; i < n; i++)
     {
          scanf("%d", &num[i]);
     }

     int max = num[0];

     for (i = 1; i < n; i++)
     {
          if (num[i] > max)
          {
               max = num[i];
               position = i;
          }
     }
     printf("\nThe maximum number is = %d\n", max);
     printf("\nThe position of maximum number is = %d\n",
position);

     return 0;
}
```

3(3)- অ্যারের মাধ্যমে সবচেয়ে ছোট সংখ্যাটি নির্ণয়।(চেষ্টা করলেই পারবে)

3(4)- অ্যারের মাধ্যমে ইউজার হতে ইনপুট নিয়ে সবচেয়ে ছোট সংখ্যাটি নির্ণয়।

```c
#include <stdio.h>

int main()
{
    int num[10], n, i, position;
    printf("How many numbers = ");
    scanf("%d", &n);
    printf("\nPlease enter numbers = ");
    for (i = 0; i < n; i++)
    {
        scanf("%d", &num[i]);
    }

    int min = num[0];

    for (i = 1; i < n; i++)
    {
        if (min > num[i])
        {
            min = num[i];
            position = i;
        }
    }
    printf("\nThe minimum number is = %d\n", min);
    printf("\nThe position of minimum number is = %d\n",
position);

    return 0;
}
```

4. Fibonacci series using array.

```c
#include <stdio.h>

int main()
{
    int n, i, num[100];
    printf("How many fibonacci numbers = ");
    scanf("%d", &n);

    num[0] = 0;
    num[1] = 1;

    for (i = 2; i < n; i++)
    {
        num[i] = num[i - 2] + num[i - 1];
    }
    //printf("\n"); (না দিলেও হবে)
    for (i = 0; i < n; i++)
    {
        printf("%d ", num[i]);
    }

    return 0;
}
```

5(1)- Linear search(লিনিয়ার সার্চ).

```c
#include <stdio.h>

int main()
{
    int num[] = { 4, 5, 6, 8, 9, 11, 12 };
    int value, position = 0, i;
    printf("Enter the value you want to search = ");
    scanf("%d", &value);

    for (i = 0; i < 7; i++)
    {
        if (value == num[i])
        {
            position = position + i;
            break;
        }
    }
    if (position == -1)
    {
        printf("Value is not found\n");
    }
    else
    {
        printf("Value is found at position %d",
position);
    }

    return 0;
}
```

5(2)- Linear search from the user.

```c
#include <stdio.h>

int main()
{
    int num[5];
    int value, position = 0, i, n;
    printf("Enter number = ");
    scanf("%d", &n);
    for (i = 0; i < n; i++)
    {
        scanf("%d", &num[i]);
    }
    printf("Enter the value you want to search = ");
    scanf("%d", &value);

    for (i = 0; i < n; i++)
    {
        if (value == num[i])
        {
            position = position + i;
            break;
        }
    }
    if (position == -1)
    {
        printf("Value is not found\n");
    }
    else
    {
        printf("Value is found at position %d",
position);
    }

    return 0;
}
```

5(3)- Binary search(বাইনারি সার্চ).

```c
#include <stdio.h>

int main()
{
	int num[] = { 1,4,6,8,9,11,14,15,20,25,33,83,87,97,99,100 };
	int value = 97;
	int lowindex = 0;
	int highindex = 15;
	int midindex;

	while (lowindex <= highindex)
	{
		midindex = (lowindex + highindex) / 2;
		if (value == num[midindex])
		{
			break;
		}
		else if (value > num[midindex])
		{
			lowindex = midindex + 1;
		}
		else
		{
			highindex = midindex - 1;
		}
	}
	if (lowindex > highindex)
	{
		printf("%d is not in the number\n", value);
	}
	else
	{
		printf("Value is found at position = %d\n", midindex);
	}

	return 0;
}
```

5(4)- Binary search from the user.

```c
#include <stdio.h>

int main()
{
	int num[5], i, n;
	printf("Enter number = ");
	scanf("%d", &n);
	for (i = 0; i <= n; i++)
	{
		scanf("%d", &num[i]);
	}
	int value;
	printf("Enter the value you want to search = ");
	scanf("%d", &value);
	int lowindex = 0;
	int highindex = n;
	int midindex;

	while (lowindex <= highindex)
	{
		midindex = (lowindex + highindex) / 2;
		if (value == num[midindex])
		{
			break;
		}
		else if (value > num[midindex])
		{
			lowindex = midindex + 1;
		}
		else
		{
			highindex = midindex - 1;
		}
	}
	if (lowindex > highindex)
	{
		printf("%d is not in the number\n", value);
	}
	else
	{
		printf("Value is found at position = %d\n", midindex);
	}

	return 0;
}
```

6(1). Array-1 এর উপাদান গুলো Array-2 এ কপি করা।

```c
#include <stdio.h>

int main()
{
	int num1[5] = { 10, 20, 30, 40, 50 };
	int num2[5], i;
	printf("num1 = ");
	for (i = 0; i < 5; i++)
	{
		printf("%d  ", num1[i]);
	}

	//copy started.
	for (i = 0; i < 5; i++)
	{
		num2[i] = num1[i];
	}

	printf("\n\nnum2 = ");
	for (i = 0; i < 5; i++)
	{
		printf("%d  ", num2[i]);
	}

	return 0;
}
```

6(2). Array-1 এর উপাদান গুলো Array-2 এ কপি করা।(ইউজার হতে ইনপুট নিয়ে)

```c
#include <stdio.h>

int main()
{
    int num1[10];
    int num2[10], i, n;
    printf("How many numbers = ");
    scanf("%d", &n);
    printf("\nPlease enter numbers = ");
    for (i = 0; i < n; i++)
    {
        scanf("%d", &num1[i]);
    }

    printf("\nnum1 = ");
    for (i = 0; i < n; i++)
    {
        printf("%d  ", num1[i]);
    }

    //copy started.
    for (i = 0; i < n; i++)
    {
        num2[i] = num1[i];
    }

    printf("\n\nnum2 = ");
    for (i = 0; i < n; i++)
    {
        printf("%d  ", num2[i]);
    }

    return 0;
}
```

7(1)- 2D অ্যারের মাধ্যমে রো এবং কলাম প্রিন্ট করা।

```c
#include <stdio.h>

int main()
{
	int A[3][4] = { {1, 2, 3, 4}, {2, 3, 4, 5}, {3, 4, 5, 6} };
	int i, j; //i means row and j means column.

	for (i = 0; i < 3; i++)
	{
		for (j = 0; j < 4; j++)
		{
			printf("%d  ", A[i][j]); //2 space.
		}
		printf("\n");
	}

	return 0;
}
```

7(2)- 2D অ্যারের মাধ্যমে রো এবং কলাম প্রিন্ট করা।(ইউজার হতে ইনপুট নিয়ে)

```c
#include <stdio.h>

int main()
{
    int A[10][10];
    int i, j, row, column;
    printf("Enter row and columns = ");
    scanf("%d %d", &row, &column);

    printf("\n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < column; j++)
        {
            printf("A[%d][%d] = ", i, j);
            scanf("%d", &A[i][j]);
        }
        printf("\n");
    }

    printf("The matrix is = \n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < column; j++)
        {
            printf("%d  ", A[i][j]); //2 space.
        }
        printf("\n");
    }

    return 0;
}
```

8. Array-র সাহায্যে simple matrix তৈরি করা।

```c
#include <stdio.h>

int main()
{
    int A[10][10], B[10][10];
    int i, j, row, column;

    printf("Enter row and columns for A matrix = ");
    scanf("%d %d", &row, &column);

    printf("\n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < column; j++)
        {
            printf("A[%d][%d] = ", i, j);
            scanf("%d", &A[i][j]);
        }
        printf("\n");
    }

    printf("The element of A matrix is = \n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < column; j++)
        {
            printf("%d  ", A[i][j]); //2 space.
        }
        printf("\n");
}
```

```
    printf("\nEnter row and columns for B matrix = ");
    scanf("%d %d", &row, &column);

    printf("\n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < column; j++)
        {
            printf("B[%d][%d] = ", i, j);
            scanf("%d", &B[i][j]);
        }
        printf("\n");
    }

    printf("The element of B matrix is = \n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < column; j++)
        {
            printf("%d  ", B[i][j]); //2 space.
        }
        printf("\n");
    }

    return 0;
}
```

9(1). দুটি ম্যাট্রিক্স এর যোগ।

```c
#include <stdio.h>

int main()
{
     int A[10][10], B[10][10], C[10][10];
     int i, j, row, column;
     printf("Enter row and columns for A matrix = ");
     scanf("%d %d", &row, &column);

     printf("\n");
     for (i = 0; i < row; i++)
     {
          for (j = 0; j < column; j++)
          {
               printf("A[%d][%d] = ", i, j);
               scanf("%d", &A[i][j]);
          }
          printf("\n");
     }

     printf("The element of A matrix is = \n");
     for (i = 0; i < row; i++)
     {
          for (j = 0; j < column; j++)
          {
               printf("%d  ", A[i][j]); //2 space.
          }
          printf("\n");
     }
```

```
    printf("\nEnter row and columns for B matrix = ");
    scanf("%d %d", &row, &column);

    printf("\n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < column; j++)
        {
            printf("B[%d][%d] = ", i, j);
            scanf("%d", &B[i][j]);
        }
        printf("\n");
    }

    printf("The element of B matrix is = \n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < column; j++)
        {
            printf("%d  ", B[i][j]); //2 space.
        }
        printf("\n");
    }

    printf("\nThe sum of A + B = \n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < column; j++)
        {
            printf("%d  ", C[i][j] = A[i][j] + B[i][j]);
        }
        printf("\n");
    }

    return 0;
}
```

9(2). দুটি ম্যাট্রিক্স এর বিয়োগ।(পুরোটাই সেম, শুধু লাষ্টে + এর পরিবর্তে – হবে)

10(1)- দুটি ম্যাট্রিক্স এর গুণন।

```c
#include <stdio.h>

int main()
{
	int first[10][10], second[10][10];
	int r1, c1, r2, c2, i, j;

	printf("Enter rows and columns for first matrix = ");
	scanf("%d %d", &r1, &c1);
	printf("Enter rows and columns for second matrix = ");
	scanf("%d %d", &r2, &c2);

	while (c1 != r2)
	{
		printf("\nError....Column of first matrix is not equal to
row of second matrix\n");
		printf("\nEnter rows and columns for first matrix = ");
		scanf("%d %d", &r1, &c1);
		printf("Enter rows and columns for second matrix = ");
		scanf("%d %d", &r2, &c2);
	}

	printf("\nEnter element for first matrix = \n");
	for (i = 0; i < r1; i++)
	{
		for (j = 0; j < c1; j++)
		{
			printf("First[%d][%d] = ", i, j);
			scanf("%d", &first[i][j]);
		}
	}
	printf("\nFirst matrix is = \n");
	for (i = 0; i < r1; i++)
	{
		for (j = 0; j < c1; j++)
		{
			printf("%d  ", first[i][j]);
		}
		printf("\n");
	}
```

```
    printf("\nEnter element for second matrix = \n");
    for (i = 0; i < r2; i++)
    {
        for (j = 0; j < c2; j++)
        {
            printf("Second[%d][%d] = ", i, j);
            scanf("%d", &second[i][j]);
        }
    }
    printf("\nSecond matrix is = \n");
    for (i = 0; i < r2; i++)
    {
        for (j = 0; j < c2; j++)
        {
            printf("%d  ", second[i][j]);
        }
        printf("\n");
    }

    return 0;
}
```

10(2)- দুটি ম্যাট্রিক্স এর গুণন এবং গুণফল নির্ণয়।

```
#include <stdio.h>

int main()
{
	int first[10][10], second[10][10], result[10][10];
	int r1, c1, r2, c2, i, j, k, sum = 0;

	printf("Enter rows and columns for first matrix = ");
	scanf("%d %d", &r1, &c1);
	printf("Enter rows and columns for second matrix = ");
	scanf("%d %d", &r2, &c2);

	while (c1 != r2)
	{
		printf("\nError....Column of first matrix is not equal to
row of second matrix\n");
		printf("\nEnter rows and columns for first matrix = ");
		scanf("%d %d", &r1, &c1);
		printf("Enter rows and columns for second matrix = ");
		scanf("%d %d", &r2, &c2);
	}

	printf("\nEnter element for first matrix = \n");
	for (i = 0; i < r1; i++)
	{
		for (j = 0; j < c1; j++)
		{
			printf("First[%d][%d] = ", i, j);
			scanf("%d", &first[i][j]);
		}
	}
	printf("\nFirst matrix is = \n");
	for (i = 0; i < r1; i++)
	{
		for (j = 0; j < c1; j++)
		{
			printf("%d  ", first[i][j]);
		}
		printf("\n");
	}
```

```
        printf("\nEnter element for second matrix = \n");
        for (i = 0; i < r2; i++)
        {
                for (j = 0; j < c2; j++)
                {
                        printf("Second[%d][%d] = ", i, j);
                        scanf("%d", &second[i][j]);
                }
        }
        printf("\nSecond matrix is = \n");
        for (i = 0; i < r2; i++)
        {
                for (j = 0; j < c2; j++)
                {
                        printf("%d  ", second[i][j]);
                }
                printf("\n");
        }

        for (i = 0; i < r1; i++)
        {
                for (j = 0; j < c2; j++)
                {
                        for (k = 0; k < c1; k++)
                        {
                                sum = sum + first[i][k] * second[k][j];
                        }
                        result[i][j] = sum;
                        sum = 0;
                }
        }
        printf("\nResult matrix = \n");
        for (i = 0; i < r1; i++)
        {
                for (j = 0; j < c2; j++)
                {
                        printf("%d  ", result[i][j]);
                }
                printf("\n");
        }

        return 0;
}
```

11. Transpose Matrix (ট্রান্সপোস ম্যাট্রিক্স)

```c
#include <stdio.h>

int main()
{
    int A[10][10], transpose[10][10];
    int i, j, row, col;
    printf("Enter row and columns = ");
    scanf("%d %d", &row, &col);

    printf("\nPlease enter numbers:\n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < col; j++)
        {
            printf("A[%d][%d] = ", i, j);
            scanf("%d", &A[i][j]);
        }
        printf("\n");
    }
    printf("\nEntered matrix = \n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < col; j++)
        {
            printf("%d  ", A[i][j]); //2 space.
        }
        printf("\n");
    }
```

```c
    //now transpose the matrix.
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < col; j++)
        {
            transpose[i][j] = A[j][i];
        }
    }

    printf("\nTranspose matrix = \n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < col; j++)
        {
            printf("%d  ", transpose[i][j]); //2 space.
        }
        printf("\n");
    }

    return 0;
}
```

12. Diagnal element এর যোগফল নির্ণয়।

```c
#include <stdio.h>

int main()
{
     int A[10][10];
     int i, j, row, col, sum = 0;
     printf("Enter row and columns = ");
     scanf("%d %d", &row, &col);

     printf("\nPlease enter numbers:\n");
     for (i = 0; i < row; i++)
     {
          for (j = 0; j < col; j++)
          {
               printf("A[%d][%d] = ", i, j);
               scanf("%d", &A[i][j]);
          }
          printf("\n");
     }
     printf("\nEntered matrix = \n");
     for (i = 0; i < row; i++)
     {
          for (j = 0; j < col; j++)
          {
               printf("%d  ", A[i][j]);
          }
          printf("\n");
     }
```

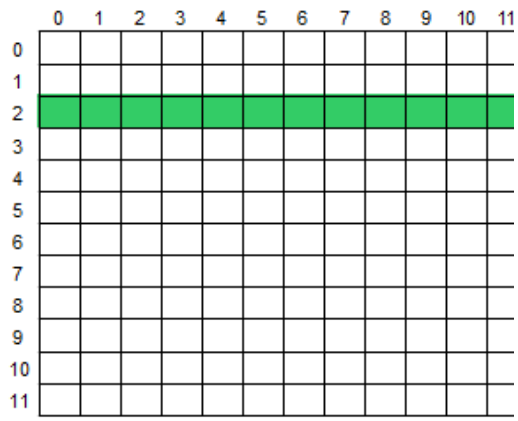
```
    printf("\nDiagonal Elements = \n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < col; j++)
        {
            if (i == j)
            {
                printf("%d  ", A[i][j]);
                sum = sum + A[i][j];
            }
        }
    }
    printf("\n\nSum of diagonal element is = %d\n", sum);

    return 0;
}
```

13. Sum of upper and lower triangle element.

```c
#include <stdio.h>

int main()
{
     int A[10][10];
     int i, j, row, col, uppersum = 0, lowersum = 0;
     printf("Enter row and columns = ");
     scanf("%d %d", &row, &col);

     printf("\nPlease enter numbers:\n");
     for (i = 0; i < row; i++)
     {
          for (j = 0; j < col; j++)
          {
               printf("A[%d][%d] = ", i, j);
               scanf("%d", &A[i][j]);
          }
          printf("\n");
     }
     printf("\nEntered matrix = \n");
     for (i = 0; i < row; i++)
     {
          for (j = 0; j < col; j++)
          {
               printf("%d  ", A[i][j]);
          }
          printf("\n");
     }
```

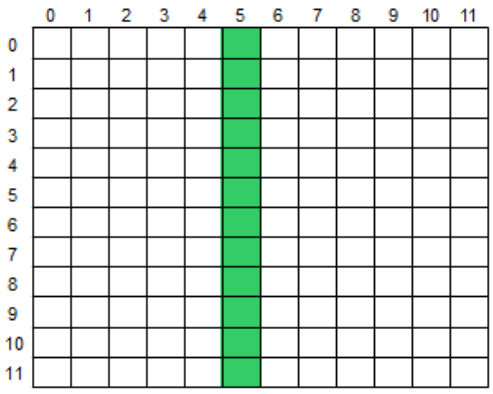
```
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < col; j++)
        {
            if (i > j)
            {
                lowersum = lowersum + A[i][j];
            }
            else if (j > i)
            {
                uppersum = uppersum + A[i][j];
            }
        }
    }
    printf("\n\nSum of lower triangle element = %d\n", lowersum);
    printf("\n\nSum of upper triangle element = %d\n", uppersum);

    return 0;
}
```

14 – Line in Array.



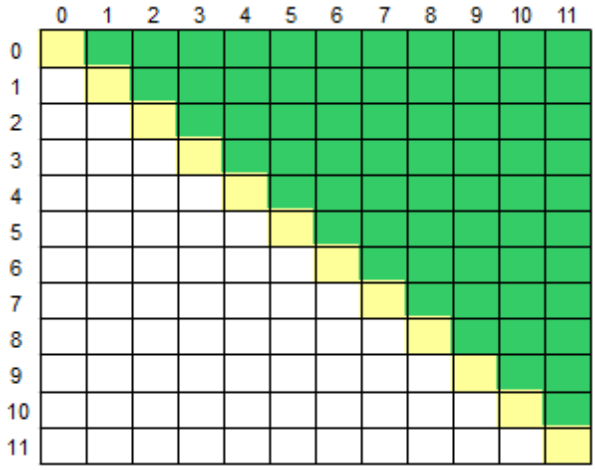

```c
#include <stdio.h>

int main()
{
    double N[12][12], sum = 0;
    int i, j, k = 2;
    char ch[2];
    scanf("%d %s", &k, &ch);

    for (i = 0; i < 12; i++)
    {
        for (j = 0; j < 12; j++)
        {
            scanf("%lf", &N[i][j]);
        }
    }
    for (j = 0; j < 12; j++)
    {
        sum = sum + N[k][j];
    }
    if (ch[0] == 'S')
        printf("%.1lf\n", sum);
    else if (ch[0] == 'M')
        printf("%.1lf\n", sum / 12);

    return 0;
}
```

15– Column in Array.



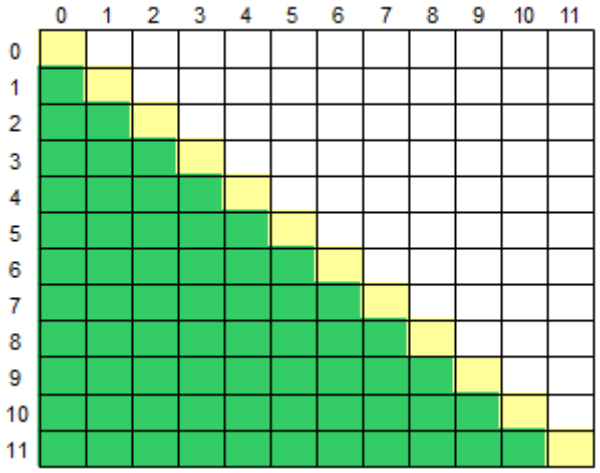

```c
#include <stdio.h>

int main()
{
    double N[12][12], sum = 0;
    int i, j, k = 5;
    char ch[2];
    scanf("%d %s", &k, &ch);

    for (i = 0; i < 12; i++)
    {
        for (j = 0; j < 12; j++)
        {
            scanf("%lf", &N[i][j]);
        }
    }
    for (i = 0; i < 12; i++)
    {
        sum = sum + N[i][k];
    }
    if (ch[0] == 'S')
        printf("%.1lf\n", sum);
    else if (ch[0] == 'M')
        printf("%.1lf\n", sum / 12);

    return 0;
}
```

16 – Above the Main Diagonal.



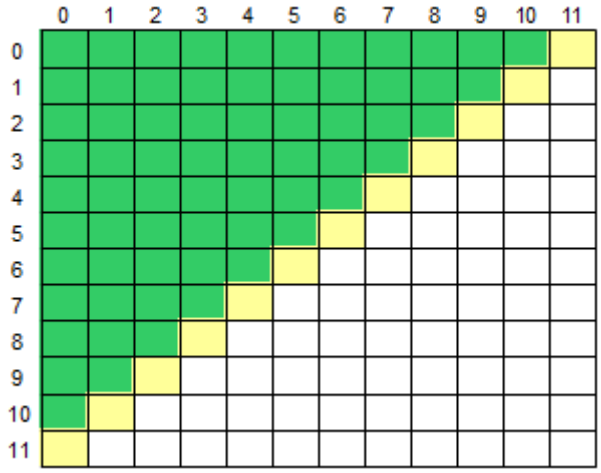

```c
#include <stdio.h>

int main()
{
    double N[12][12], sum =0;
    char c[2];
    scanf("%s", &c);
    int i, j;

    for (i = 0; i < 12; i++)
    {
        for (j = 0; j < 12; j++)
        {
            scanf("%lf", &N[i][j]);
        }
    }
    for (i = 0; i < 12; i++)
    {
        for (j = 0; j < 12; j++)
        {
            if (j > i)
            {
                sum = sum + N[i][j];
            }
        }
    }
    if (c[0] == 'S')
        printf("%.1lf\n", sum);
    else
        printf("%.1lf\n", sum / 66.0);

    return 0;
}
```

17 – Below the Main Diagonal.



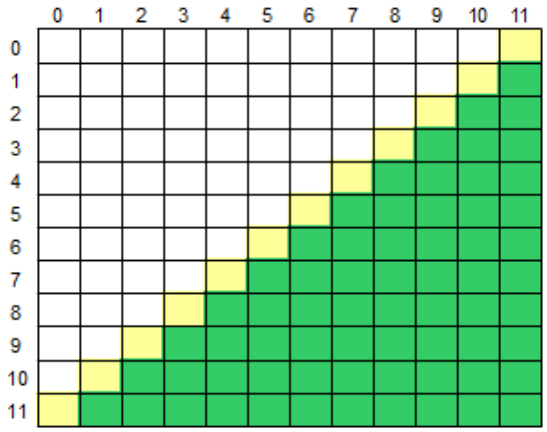

```c
#include <stdio.h>

int main()
{
    double N[12][12], sum =0;
    char c[2];
    scanf("%s", &c);
    int i, j;

    for (i = 0; i < 12; i++)
    {
        for (j = 0; j < 12; j++)
        {
            scanf("%lf", &N[i][j]);
        }
    }
    for (i = 0; i < 12; i++)
    {
        for (j = 0; j < 12; j++)
        {
            if (i > j)
            {
                sum = sum + N[i][j];
            }
        }
    }
    if (c[0] == 'S')
        printf("%.1lf\n", sum);
    else
        printf("%.1lf\n", sum / 66.0);

    return 0;
}
```

18 – Above the Secondary Diagonal.



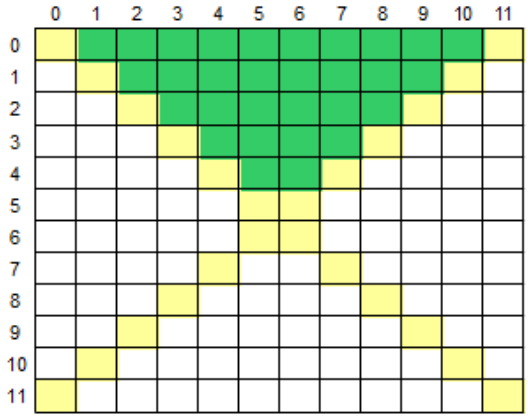

```c
#include <stdio.h>

int main()
{
    double N[12][12], sum = 0;
    char c[2];
    scanf("%s", &c);
    int n = 1, i, j;

    for (i = 0; i < 12; i++)
    {
        for (j = 0; j < 12; j++)
        {
            scanf("%lf", &N[i][j]);
        }
    }
    for (i = 10; i >= 0; i--)
    {
        for (j = 0; j < n; j++)
        {
            sum = sum + N[i][j];
        }
        n++;
    }
    if (c[0] == 'S')
        printf("%.1lf\n", sum);
    else
        printf("%.1lf\n", sum / 66.0);

    return 0;
}
```

19 – Below the Secondary Diagonal.



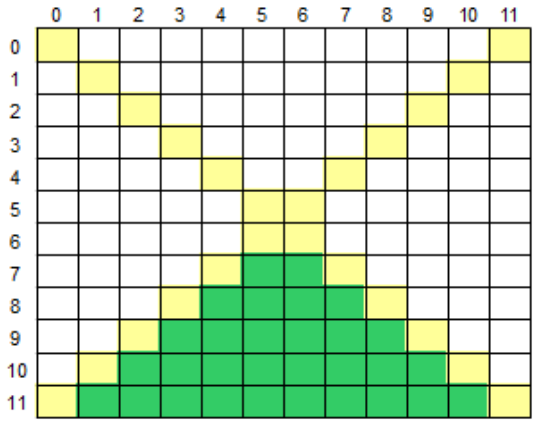

```c
#include <stdio.h>
int main()
{
    double N[12][12], sum = 0;
    char c[2];
    scanf("%s", &c);
    int n = 11, i, j;

    for (i = 0; i < 12; i++)
    {
        for (j = 0; j < 12; j++)
        {
            scanf("%lf", &N[i][j]);
        }
    }
    for (i = 1; i < 12; i++)
    {
        for (j = n; j < 12; j++)
        {
            sum = sum + N[i][j];
        }
        n--;
    }
    if (c[0] == 'S')
        printf("%.1lf\n", sum);
    else
        printf("%.1lf\n", sum / 66.0);
    return 0;
}
```

20 – Top Area.



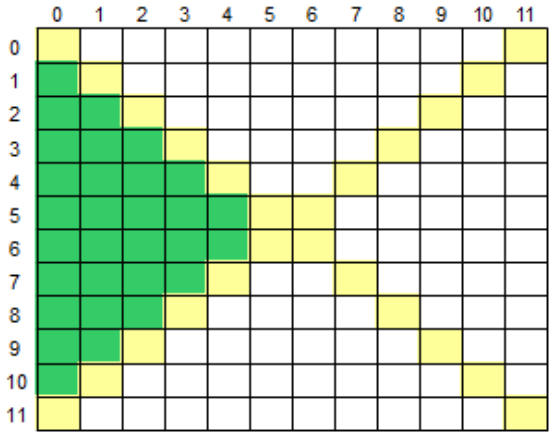

```c
#include <stdio.h>

int main()
{
    double M[12][12], sum = 0.0;
    char ch[2];
    scanf("%s", &ch);
    int n = 11, a = 1, i, j;

    for (i = 0; i < 12; i++)
    {
        for (j = 0; j < 12; j++)
        {
            scanf("%lf", &M[i][j]);
        }
    }
    for (i = 0; i < 5; i++)
    {
        for (j = a; j < n; j++)
        {
            sum = sum + M[i][j];
        }
        n--;
        a++;
    }
    if (ch[0] == 'S')
        printf("%.1lf\n", sum);
    else
        printf("%.1lf\n", sum / 30.0);

    return 0;
}
```

21 – Inferior Area.



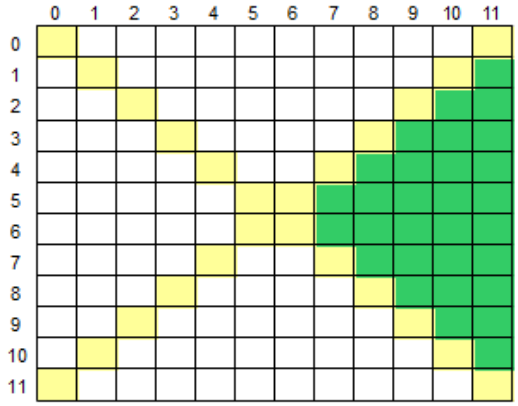

```c
#include <stdio.h>

int main()
{
    double M[12][12], sum = 0.0;
    char ch[2];
    scanf("%s", &ch);
    int n = 11, a = 1, i, j;

    for (i = 0; i < 12; i++)
    {
        for (j = 0; j < 12; j++)
        {
            scanf("%lf", &M[i][j]);
        }
    }
    for (i = 11; i > 6; i--)
    {
        for (j = a; j < n; j++)
        {
            sum += M[i][j];
        }
        n--;
        a++;
    }
    if (ch[0] == 'S')
        printf("%.1lf\n", sum);
    else
        printf("%.1lf\n", sum / 30.0);

    return 0;
}
```

22 – Left Area.




```c
#include <stdio.h>

int main()
{
    double M[12][12], sum = 0.0;
    char ch[2];
    scanf("%s", &ch);
    int n = 11, a = 1, i, j;

    for (i = 0; i < 12; i++)
    {
        for (j = 0; j < 12; j++)
        {
            scanf("%lf", &M[i][j]);
        }
    }
    for (j = 0; j < 5; j++)
    {
        for (i = a; i < n; i++)
        {
            sum = sum + M[i][j];
        }
        n--;
        a++;
    }
    if (ch[0] == 'S')
        printf("%.1lf\n", sum);
    else
        printf("%.1lf\n", sum / 30.0);

    return 0;
}
```

23 – Right Area.




```c
#include <stdio.h>

int main()
{
    double N[12][12], sum = 0;
    char ch[2];
    int i, j, n = 1, m = 10;
    scanf("%s", ch);

    for (i = 0; i < 12; i++)
    {
        for (j = 0; j < 12; j++)
        {
            scanf("%lf", &N[i][j]);
        }
    }
    for (j = 11; j > 6; j--)
    {
        for (i = n; i <= m; i++)
        {
            sum = sum + N[i][j];
        }
        n++;
        m--;
    }
    if (ch[0] == 'S')
        printf("%.1lf\n", sum);
    else
        printf("%.1lf\n", sum / 30.0);

    return 0;
}
```

String(স্ট্রিং)

1(1) - Print using string.(স্ট্রিং এর মাধ্যমে প্রিন্ট করা)

```c
#include <stdio.h>

int main()
{
     char ch[] = "Golam Kibria";
     /*char ch[] = "Golam \
                    kibria"; */
     printf("%s\n", ch);

     return 0;
}
```

1(2) – Print string from the user.

```c
#include <stdio.h>

int main()
{
     char ch[20];
     printf("Enter your full name ");

     gets(ch);

     printf("Full name is = %s\n", ch);

     return 0;
}
```

2 - Display string character wise

```c
#include <stdio.h>

int main()
{
	char ch[] = "kibria";
	int i = 0;

	while (ch[i] != '\0')
	{
		printf("%c\n", ch[i]);
		i++;
	}

	return 0;
}
```

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```c
#include <stdio.h>

int main()
{
	char ch[] = "kibria";
	int length, i;
	length = strlen(ch);
	for (i = 0; i < length; i++)
	{
		printf("%c\n", ch[i]);
	}

	return 0;
}
```

3(1)- Find a string length using strlen() function.

```c
#include <stdio.h>

int main()
{
	char ch[10] = "kibria";
	//scanf("%s", &ch);
	//printf("The string is = %s\n", ch);
	int length = strlen(ch);

	printf("Length is = %d\n", length);

	return 0;
}
```

3(2)- Find a string length without using strlen() function.

```c
#include <stdio.h>

int main()
{
	char ch[] = "kibria";
	int i = 0, length = 0;

	while (ch[i] != '\0')
	{
		i++;
		length++;
	}
	printf("Length is = %d\n", length);
	(০ ততম ইনডেক্স মানে হলো ১ তম লেন্থ)

	return 0;
}
```

4(1)- Copy a string using strcpy() function.

```c
#include <stdio.h>

int main()
{
	char ch1[20] = "kibria";
	char ch2[20];

	strcpy(ch2, ch1);

	printf("Main string is = %s\n", ch1);
	printf("Copy string is = %s\n", ch2);

	return 0;
}
```

4(2)- Copy a string using strcpy() function from the user.

```c
#include <stdio.h>

int main()
{
	char ch1[20];
	char ch2[20];
	scanf("%s", &ch1);
	printf("Main string is = %s\n", ch1);

	strcpy(ch2, ch1);

	printf("Main string is = %s\n", ch1);
	printf("Copy string is = %s\n", ch2);

	return 0;
}
```

5(1) - Concat string using strcat() function.

```c
#include <stdio.h>


int main()
{
     char ch1[20] = "My name is ";
     char ch2[20] = "Golam kibria";

     strcat(ch1, ch2);

     printf("Character is = %s\n", ch1);

     return 0;
}
```

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```c
#include <stdio.h>


int main()
{
     char ch1[20] = "My name is ";

     strcat(ch1, "Golam kibria");

     printf("Character is = %s\n", ch1);

     return 0;
}
```

5(2)- Concat string without strcat() function.

```c
#include <stdio.h>

int main()
{
	char ch1[50] = "Golam ";
	char ch2[] = "kibria";
	int i = 0, length = 0, j = 0;

	while (ch1[i] != '\0')
	{
		i++;
		length++;
	}
	while (ch2[j] != '\0')
	{
		ch1[length + j] = ch2[j];
		j++;
	}

	/*ch1 এর ৫তম ইনডেক্সে বসবে ch2 এর ০তম ইনডেক্স এর মান*/

	printf("Character is = %s\n", ch1);

	return 0;
}
```

6. Comparing a string using strcmp() function.

```c
#include <stdio.h>

int main()
{
	char ch1[10]; // = "kibria";
	char ch2[10]; // = "kibria";
	scanf("%s %s", &ch1, &ch2);
	printf("ch1 = %s\nch2 = %s\n", ch1, ch2);

	int d = strcmp(ch1, ch2);

	if (d == 0)
	{
		printf("String are equal\n");
	}
	else
	{
		printf("Strings are not equal\n");
	}

	return 0;
}
```

7(1). Reverse a string using strrev() function.

```c
#include <stdio.h>

int main()
{
	char ch[] = "kibria";
	printf("Character is = %s\n", ch);

	strrev(ch);
	printf("Reverse is = %s\n", ch);

	return 0;
}
```

7(2). Reverse a string using strrev() function form the user.

```c
#include <stdio.h>

int main()
{
	char ch[10];
	scanf("%s", &ch);
	printf("Character is = %s\n", ch);

	strrev(ch);
	printf("Reverse is = %s\n", ch);

	return 0;
}
```

7(3). Reverse a string without strrev() function.

```c
#include <stdio.h>

int main()
{
	char ch1[20] = "kibria";
	char ch2[20];
	int i = 0, length = 0, j;
	/*i and length for ch1 , j for ch2*/

	while (ch1[i] != '\0')
	{
		i++;
		length++;
	}

	for (j = 0, i = length - 1; i >= 0; i--, j++)
	{
		ch2[j] = ch1[i];
	}
	ch2[j] = '\0';

	printf("Character is = %s\n", ch1);
	printf("\nReverse is = %s\n", ch2);

	return 0;
}
```

8. Checking a string palindrome or not.

```c
#include <stdio.h>

int main()
{
	char ch1[20] = "kibria";
	char ch2[20];
	int i = 0, length = 0, j;
	/*i and length for ch1 , j for ch2*/

	/*printf("Enter a string = ");
	scanf("%s", &ch1);*/

	while (ch1[i] != '\0')
	{
		i++;
		length++;
	}

	for (j = 0, i = length - 1; i >= 0; i--, j++)
	{
		ch2[j] = ch1[i];
	}
	ch2[j] = '\0';

	printf("\nEntered string is = %s\n", ch1);
	printf("\nReverse string is = %s\n", ch2);

	int d = strcmp(ch1, ch2);
	/*সমান হলে d=0 হবে। কারন মাইনাস করলে 0 ই হবে*/

	if (d == 0)
	{
		printf("String is palindrome\n");
	}
	else
	{
		printf("\nString is not palindrome\n");
	}

	return 0;
}
```

9. String swapping(এক স্ট্রিং এর উপাদান অন্য স্ট্রিং এ কপি করা)

```c
#include <stdio.h>

int main()
{
	char ch1[20] = "Bangladesh";
	char ch2[20] = "Canada";
	char temp[20];

	printf("\n\nBefore swapping : \n");
	printf("ch1 = %s\n", ch1);
	printf("ch2 = %s\n", ch2);

	strcpy(temp, ch1);
	strcpy(ch1, ch2);
	strcpy(ch2, temp);

	printf("\n\nAfter swapping : \n");
	printf("ch1 = %s\n", ch1);
	printf("ch2 = %s\n", ch2);

	return 0;
}
```

10(1) – strupr()

```c
#include <stdio.h>

int main()
{
	char ch[] = "kibria";
	strupr(ch);
	printf("Character is = %s\n", ch);

	return 0;
}
```

10(2) – strlwr()

```c
#include <stdio.h>

int main()
{
	char ch[] = "KIBRIA";
	strlwr(ch);
	printf("Character is = %s\n", ch);

	return 0;
}
```

11. Number of vowel, consonant, word, digit, capital, small, others.

```c
#include <stdio.h>

int main()
{
	char s[100];
	int i, vowel, consonant, word, digit, others, capital, small, number;
	i = vowel = consonant = word = digit = capital= small = number = others = 0;

	printf("Please enter a string = ");
	gets(s);

	while (s[i] != '\0')
	{
		if (s[i] == 'a' || s[i] == 'e' || s[i] == 'i' || s[i] == 'o' || s[i] == 'u' ||
			s[i] == 'A' || s[i] == 'E' || s[i] == 'I' || s[i] == 'O' || s[i] == 'U')
		{
			vowel++;
		}
		else if ((s[i] >= 'a' && s[i] <= 'z') || (s[i] >= 'A' && s[i] <= 'Z'))
		{
			consonant++;
		}
		else if (s[i] == ' ')
		{
			word++;
		}
		else if (s[i] >= 65 && s[i] <= 90)
		{
			capital++;
		}
		else if (s[i] >= 97 && s[i] <= 122)
		{
			small++;
		}
		else if (s[i] >= 48 && s[i] <= 57)
		{
			number++;
		}
		else
		{
			others++;
		}
		i++;
	}
	word++;
```

/*space এর আগে 1 টা word অবশ্যই থাকবে,
তাই সেই word টাকে এখানে increment করে দিলাম।*/

```
    printf("Number of vowel       = %d\n", vowel);
    printf("Number of consonant   = %d\n", consonant);
    printf("Number of word        = %d\n", word);
    printf("Number of digit       = %d\n", digit);
    printf("Number of capital     = %d\n", capital);
    printf("Number of small       = %d\n", small);
    printf("Number of number      = %d\n", number);
    printf("Number of others      = %d\n", others);


    return 0;
}
```

12.আউটপুট হিসাবে স্ট্রিং এর প্রতিটি শব্দ আলাদা লাইন এ প্রিন্ট হবে। বিরামচিহ্ন গুলো প্রিন্ট হবে না এবং শব্দের প্রথম অক্ষর হবে বড় হাতের।

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

int main()
{
	char s[100], ch;
	int i, length, wordstarted = 0;

	gets(s);
	length = strlen(s);

	for (i = 0; i < length; i++)
	{
		if (s[i] >= 'a' && s[i] <= 'z')
		{
			if (wordstarted == 0)
			{
				wordstarted = 1;
				ch = 'A' + s[i] - 'a';
			}
			else
			{
				printf("%c", s[i]);
			}
		}
		else if ((s[i] >= 'A' && s[i] <= 'Z') || (s[i] >= '0' && s[i] <= '9'))
		{
			if (wordstarted == 0)
			{
				wordstarted = 1;
			}
			printf("%c", s[i]);
		}
		else
		{
			if (wordstarted == 1)
			{
				wordstarted = 0;
				printf("\n");
			}
		}
	}

	return 0;
}
```

Function(ফাংশন)

1. Function এর মাধ্যমে যোগ।

```c
#include <stdio.h>

int sum(int num1, int num2)
{
	return num1 + num2;
}
int main()
{
	int num1, num2;
	printf("Enter two numbers = ");
	scanf("%d %d", &num1, &num2);
	//int result = sum(num1, num2);
	printf("The sum is = %d\n", sum(num1, num2));  //result

	return 0;
}
```

বিকল্পঃ

```c
#include <stdio.h>

int sum(int a, int b, int c)
{
	return a + b + c;
}
int sub(int a, int b)
{
	return a - b;
}
int main()
{
	printf("The sum is = %d\n", sum(5, 6, 7));
	printf("The sum is = %d\n", sum(10, 20, 30));
	printf("The sum is = %d\n", sub(20, 10));

	return 0;
}
```

2. Function এর মাধ্যমে একটি পূর্নসংখ্যার বর্গ।

```c
#include <stdio.h>

int square(int num)
{
	return num * num;
}
int main()
{
	int num;
	printf("Enter a number = ");
	scanf("%d", &num);

	printf("The square is = %d\n", square(num));

	return 0;
}
```

3. Function এর মাধ্যমে একটি ত্রিভুজ এর ক্ষেত্রফল নির্নয়।

```c
#include <stdio.h>

float trianglearea(float base, float height)
{
	return 0.5 * base * height;
}
int main()
{
	float base, height;
	printf("Enter base and height = ");
	scanf("%f %f", &base, &height);

	printf("The area is = %.2f\n", trianglearea(base, height));

	return 0;
}
```

4(1)- x to the power y using define function.

```c
#include <stdio.h>

double calculatepower(double base, double exponent)
{
	double i, result = 1;
	for (i = 1; i <= exponent; i++)
	{
		result = result * base;
	}
	return result;
}
int main()
{
	double base, exponent;
	printf("Enter base and exponent = ");
	scanf("%lf %lf", &base, &exponent);

	printf("The result is = %.2lf\n", calculatepower(base,exponent));

	return 0;
}
```

বিকল্পঃ

```c
#include <stdio.h>

double calculatepower(double base, double exponent)
{
	double i, result = 1;
	for (i = 1; i <= exponent; i++)
	{
		result = result * base;
	}
	printf("The result is = %.2lf\n", result);
}
int main()
{
	calculatepower(2, 3);
	calculatepower(4, 2);
	calculatepower(5, 2);

	return 0;
}
```

5. x to the power y using library function.

```c
#include <stdio.h>

int main()
{
     double base, exponent, result = 1;
     int i;

     printf("Enter base and exponent = ");
     scanf("%lf %lf", &base, &exponent);

     for (i = 1; i <= exponent; i++)
     {
          result = result * base;
     }
     printf("The result is = %.2lf\n", result);

     return 0;
}
```

6. x to the power y without library function.

```c
#include <stdio.h>

int main()
{
     double base, exponent;

     printf("Enter base and exponent = ");
     scanf("%lf %lf", &base, &exponent);

     double result = pow(base, exponent);
     printf("The result is = %.2lf\n", result);

     return 0;
}
```

7(1)- Passing array without using function.

```c
#include <stdio.h>

int main()
{
     int num[] = { 10, 20, 30, 40, 50 }, i;

     for (i = 0; i < 5; i++)
     {
          printf("%d  ", num[i]);
     }

     return 0;
}
```

7(2)- Passing array using function.

```c
#include <stdio.h>

void display(int num[])
{
     int i;
     for (i = 0; i < 5; i++)
     {
          printf("%d ", num[i]);
     }
}
int main()
{
     int num[] = { 10, 20, 30, 40, 50 };
     display(num);

     return 0;
}
```

8. Finding maximum value from an array using function.

```c
#include <stdio.h>
int maximum(int num[])
{
    int i;
    int max = num[0];
    for (i = 1; i < 5; i++)
    {
        if (num[i] > max)
        {
            max = num[i];
        }
    }
}
int main()
{
    int num[] = { 10, 20, 30, 40, 50 };

    printf("Maximum = %d\n", maximum(num));

    return 0;
}
```

9. Passing string to function.

```c
#include <stdio.h>

void show(char ch[])
{
	int i = 0;
	while (ch[i] != '\0')
	{
		printf("%c\n", ch[i]);
		i++;
	}
}
int main()
{
	char ch[] = "kibria";
	show(ch);

	return 0;
}
```

10. Factorial using recursion.

```c
#include <stdio.h>

int fact(int n)
{
	if (n == 1)
	{
		return 1;
	}
	else
	{
		return n * fact(n - 1);
	}
}
int main()
{
	int n;
	printf("Enter the number = ");
	scanf("%d", &n);
	printf("Factorial is = %d\n", fact(n));

	return 0;
}
```