

Easy (10 programs)

1. Positive or Negative
 - Read an integer; print whether it is positive, negative or zero.
2. Largest of Two Numbers
 - Read two integers; print the largest one.
3. Sum of First N Natural Numbers
 - Read N ; print sum $1+2+\dots+N$ using loop.
4. Even or Odd using Modulus
 - Read integer; use `if` with `% 2` to decide even/odd.
5. Simple Calculator (Switch)
 - Read two numbers and an operator (+, -, *, /); print result.
6. Table of a Number
 - Read integer; print its multiplication table up to 10.
7. Factorial of a Number (Iterative)
 - Read non-negative integer; compute factorial using `for` loop.
8. Sum of Digits
 - Read integer; find sum of its digits using `%` and `/`.
9. Reverse of a Number
 - Read integer; print reverse (e.g., $123 \rightarrow 321$).
10. Count Digits in a Number
 - Read integer; print how many digits it contains.

Medium (15 programs)

11. Largest of Three Numbers
12. Check Leap Year
13. Check Prime or Not
14. Print All Primes in a Range
15. Fibonacci Series up to N Terms
16. Palindrome Number Check

17. Armstrong Number Check (3-digit)
18. Menu Driven: Odd/Even, Positive/Negative, Prime/Not
19. Array – Sum and Average of N Numbers
20. Array – Largest and Smallest Element
21. Array – Linear Search
22. Array – Sorting (Bubble Sort)
23. String – Length without `strlen`
24. String – Count Vowels and Consonants
25. String – Check Palindrome

Hard (10 programs)

26. Matrix Addition (2D Array)
27. Matrix Multiplication (2D Array)
28. Transpose of Matrix
29. Recursive Factorial
30. Recursive Fibonacci
31. Pointer – Swap Two Numbers using Function and Pointers
32. Structure – Student Details (name, roll, 3 marks; compute total & average)
33. Array of Structures – Find Topper
34. File Handling – Copy one text file to another
35. File Handling – Count number of characters, words, lines in a file

.....

1) Positive / Negative / Zero

```
``c
```

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

```
int main() {  
    int n;  
    printf("Enter a number: ");  
    scanf("%d", &n);  
  
    if (n > 0)  
        printf("Positive\n");  
    else if (n < 0)  
        printf("Negative\n");  
    else
```

```
printf("Zero\n");

return 0;
}
```

Sample Output

```
Enter a number: 5
Positive
```

2) Largest of Two Numbers

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

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

    if (a > b)
        printf("%d is larger\n", a);
    else if (b > a)
        printf("%d is larger\n", b);
    else
        printf("Both are equal\n");

    return 0;
}
```

Sample Output

```
Enter two numbers: 10 20
20 is larger
```

3) Sum of First N Natural Numbers

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

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

    for (i = 1; i <= n; i++) {
        sum = sum + i;
    }

    printf("Sum = %d\n", sum);
    return 0;
}
```

Sample Output

``

```
Enter N: 5
Sum = 15
```

``

4) Even or Odd

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

int main() {
    int n;
    printf("Enter a number: ");
    scanf("%d", &n);
```

```

    if (n % 2 == 0)
        printf("Even\n");
    else
        printf("Odd\n");

    return 0;
}
...

```

Sample Output

```
...
```

Enter a number: 7

Odd

```
...
```

5) Simple Calculator (switch)

```
``c
```

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

```
int main() {
```

```
    float a, b;
```

```
    char op;
```

```
    printf("Enter expression (a op b): ");
```

```
    scanf("%f %c %f", &a, &op, &b);
```

```
    switch (op) {
```

```
        case '+': printf("Result = %.2f\n", a + b); break;
```

```
        case '-': printf("Result = %.2f\n", a - b); break;
```

```
        case '*': printf("Result = %.2f\n", a * b); break;
```

```
        case '/':
```

```
            if (b != 0)
```

```
                printf("Result = %.2f\n", a / b);
```

```
            else
```

```
                printf("Division by zero not allowed\n");
```

```
            break;
```

```
        default: printf("Invalid operator\n");
```

```

    }
    return 0;
}
...

```

Sample Output

```

...
Enter expression (a op b): 5 + 3
Result = 8.00
...

```

6) Multiplication Table of a Number

```

``c
#include <stdio.h>

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

    for (i = 1; i <= 10; i++) {
        printf("%d x %d = %d\n", n, i, n * i);
    }
    return 0;
}
...

```

Sample Output

```

...
Enter a number: 4
4 x 1 = 4
...
4 x 10 = 40
...

```

7) Factorial (Iterative)

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

int main() {
    int n, i;
    long long fact = 1;

    printf("Enter a non-negative integer: ");
    scanf("%d", &n);

    if (n < 0) {
        printf("Factorial not defined for negative numbers\n");
        return 0;
    }

    for (i = 1; i <= n; i++) {
        fact = fact * i;
    }

    printf("Factorial = %lld\n", fact);
    return 0;
}
```

Sample Output

```
...
Enter a non-negative integer: 5
Factorial = 120
...
```

8) Sum of Digits of a Number

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

int main() {
```

```
int n, rem, sum = 0;
printf("Enter an integer: ");
scanf("%d", &n);

while (n != 0) {
    rem = n % 10;
    sum = sum + rem;
    n = n / 10;
}

printf("Sum of digits = %d\n", sum);
return 0;
}
```

Sample Output

```
Enter an integer: 1234
Sum of digits = 10
```

9) Reverse of a Number

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

int main() {
    int n, rem, rev = 0;
    printf("Enter an integer: ");
    scanf("%d", &n);

    while (n != 0) {
        rem = n % 10;
        rev = rev * 10 + rem;
        n = n / 10;
    }

    printf("Reversed number = %d\n", rev);
}
```



```

    return 0;
}
'''

```

Sample Output

```

'''
Enter an integer: 123
Reversed number = 321
'''

```

10) Count Digits in a Number

```

```c
#include <stdio.h>

int main() {
 int n, count = 0;

 printf("Enter an integer: ");
 scanf("%d", &n);

 if (n == 0) {
 count = 1;
 } else {
 if (n < 0)
 n = -n; /* ignore sign */

 while (n != 0) {
 n = n / 10;
 count++;
 }
 }

 printf("Number of digits = %d\n", count);
 return 0;
}
'''

```

Sample Output

...

Enter an integer: 2025

Number of digits = 4

...

.....

## Medium Level Programs (11–25)

### 11) Largest of Three Numbers

```c

#include <stdio.h>

int main() {

int a, b, c;

printf("Enter three numbers: ");

scanf("%d %d %d", &a, &b, &c);

if (a >= b && a >= c)

printf("%d is largest\n", a);

else if (b >= a && b >= c)

printf("%d is largest\n", b);

else

printf("%d is largest\n", c);

return 0;

}

```

Sample:

...

Enter three numbers: 4 9 2

9 is largest

...

\*\*\*

### 12) Leap Year Check

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

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

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

 return 0;
}
```

Sample:

```
Enter year: 2024
Leap year
```

\*\*\*

### 13) Prime or Not

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

int main() {
 int n, i, flag = 0;
 printf("Enter a number: ");
 scanf("%d", &n);

 if (n <= 1) {
 printf("Not prime\n");
 return 0;
 }
}
```

```

for (i = 2; i * i <= n; i++) {
 if (n % i == 0) {
 flag = 1;
 break;
 }
}

if (flag == 0)
 printf("Prime\n");
else
 printf("Not prime\n");

return 0;
}
...

```

Sample:

...

Enter a number: 13

Prime

...

\*\*\*

### 14) All Primes in a Range

```c

#include <stdio.h>

```

int main() {
    int low, high, i, j, flag;
    printf("Enter low and high: ");
    scanf("%d %d", &low, &high);

    for (i = low; i <= high; i++) {
        if (i <= 1) continue;
        flag = 0;
        for (j = 2; j * j <= i; j++) {
            if (i % j == 0) {
                flag = 1;
            }
        }
    }
}

```

```

        break;
    }
}
if (flag == 0)
    printf("%d ", i);
}
printf("\n");
return 0;
}
'''

```

Sample:

```

'''
Enter low and high: 10 20
11 13 17 19
'''

```

15) Fibonacci Series up to N Terms

```

```c
#include <stdio.h>

int main() {
 int n, i;
 int a = 0, b = 1, c;
 printf("Enter number of terms: ");
 scanf("%d", &n);

 if (n >= 1) printf("%d ", a);
 if (n >= 2) printf("%d ", b);

 for (i = 3; i <= n; i++) {
 c = a + b;
 printf("%d ", c);
 a = b;
 b = c;
 }
 printf("\n");
}

```

```

 return 0;
}

```

Sample:

```


```

Enter number of terms: 6

0 1 1 2 3 5

```


```

```

```

### 16) Palindrome Number

```

```c

```

```

#include <stdio.h>

```

```

int main() {

```

```

    int n, temp, rem, rev = 0;
    printf("Enter an integer: ");
    scanf("%d", &n);

```

```

    temp = n;
    while (temp != 0) {
        rem = temp % 10;
        rev = rev * 10 + rem;
        temp = temp / 10;
    }

```

```

    if (rev == n)
        printf("Palindrome\n");
    else
        printf("Not palindrome\n");

```

```

    return 0;
}

```

Sample:

```


```

Enter an integer: 121

Palindrome

...

17) Armstrong Number (3-digit)

```c

#include <stdio.h>

int main() {

int n, temp, rem, sum = 0;

printf("Enter a 3-digit number: ");

scanf("%d", &n);

temp = n;

while (temp != 0) {

rem = temp % 10;

sum = sum + rem \* rem \* rem;

temp = temp / 10;

}

if (sum == n)

printf("Armstrong number\n");

else

printf("Not Armstrong number\n");

return 0;

}

...

Sample:

...

Enter a 3-digit number: 153

Armstrong number

...

\*\*\*

### 18) Menu Driven (Odd/Even, +/−, Prime)

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

int isPrime(int n) {
 int i;
 if (n <= 1) return 0;
 for (i = 2; i * i <= n; i++)
 if (n % i == 0) return 0;
 return 1;
}

int main() {
 int choice, n;
 printf("1. Odd or Even\n2. Positive or Negative\n3. Prime or Not\n");
 printf("Enter your choice: ");
 scanf("%d", &choice);

 printf("Enter a number: ");
 scanf("%d", &n);

 switch (choice) {
 case 1:
 if (n % 2 == 0) printf("Even\n");
 else printf("Odd\n");
 break;
 case 2:
 if (n > 0) printf("Positive\n");
 else if (n < 0) printf("Negative\n");
 else printf("Zero\n");
 break;
 case 3:
 if (isPrime(n)) printf("Prime\n");
 else printf("Not prime\n");
 break;
 default:
 printf("Invalid choice\n");
 }
 return 0;
}
```



```
}
...
```

Sample:

```
...
```

```
1. Odd or Even
2. Positive or Negative
3. Prime or Not
Enter your choice: 3
Enter a number: 11
Prime
...
```

```

```

### 19) Array – Sum and Average

```
``c
```

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

```
int main() {
```

```
 int n, i;
```

```
 int a[100];
```

```
 int sum = 0;
```

```
 float avg;
```

```
 printf("Enter number of elements: ");
```

```
 scanf("%d", &n);
```

```
 printf("Enter %d integers:\n", n);
```

```
 for (i = 0; i < n; i++) {
```

```
 scanf("%d", &a[i]);
```

```
 sum += a[i];
```

```
 }
```

```
 avg = (float)sum / n;
```

```
 printf("Sum = %d\nAverage = %.2f\n", sum, avg);
```

```
 return 0;
```

```
}
...
```

Sample:

```

Enter number of elements: 4

Enter 4 integers:

1 2 3 4

Sum = 10

Average = 2.50

```

\*\*\*

### 20) Array – Largest and Smallest

```c

#include <stdio.h>

int main() {

int n, i;

int a[100], max, min;

printf("Enter number of elements: ");

scanf("%d", &n);

printf("Enter %d integers:\n", n);

for (i = 0; i < n; i++)

scanf("%d", &a[i]);

max = min = a[0];

for (i = 1; i < n; i++) {

if (a[i] > max) max = a[i];

if (a[i] < min) min = a[i];

}

printf("Max = %d\nMin = %d\n", max, min);

return 0;

}

```

Sample:

...

Enter number of elements: 5

Enter 5 integers:

3 9 1 7 4

Max = 9

Min = 1

...

\*\*\*

### 21) Linear Search

```c

#include <stdio.h>

int main() {

int n, i, key, pos = -1;

int a[100];

printf("Enter number of elements: ");

scanf("%d", &n);

printf("Enter %d integers:\n", n);

for (i = 0; i < n; i++)

scanf("%d", &a[i]);

printf("Enter element to search: ");

scanf("%d", &key);

for (i = 0; i < n; i++) {

if (a[i] == key) {

pos = i;

break;

}

}

if (pos == -1)

printf("Element not found\n");

else

```
printf("Element found at index %d\n", pos);

return 0;
}
```

Sample:
...

```
Enter number of elements: 5
Enter 5 integers:
2 5 7 1 9
Enter element to search: 7
Element found at index 2
...
```

22) Bubble Sort

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

int main() {
    int n, i, j, temp;
    int a[100];

    printf("Enter number of elements: ");
    scanf("%d", &n);

    printf("Enter %d integers:\n", n);
    for (i = 0; i < n; i++)
        scanf("%d", &a[i]);

    for (i = 0; i < n - 1; i++) {
        for (j = 0; j < n - 1 - i; j++) {
            if (a[j] > a[j + 1]) {
                temp = a[j];
                a[j] = a[j + 1];
                a[j + 1] = temp;
            }
        }
    }
}
```

```

    }
}

printf("Sorted array:\n");
for (i = 0; i < n; i++)
    printf("%d ", a[i]);
printf("\n");
return 0;
}
...

```

Sample:

```

...
Enter number of elements: 5
Enter 5 integers:
5 1 4 2 3
Sorted array:
1 2 3 4 5
...

```

23) String Length without `strlen`

```

``c
#include <stdio.h>

int main() {
    char str[100];
    int i = 0, len = 0;

    printf("Enter a string: ");
    gets(str); /* for lab use only */

    while (str[i] != '\0') {
        len++;
        i++;
    }

    printf("Length = %d\n", len);
}

```

```
    return 0;
}
```

Sample:

```
Enter a string: hello
Length = 5
```

24) Count Vowels and Consonants

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

int main() {
    char str[100];
    int i, vowels = 0, consonants = 0;

    printf("Enter a string: ");
    gets(str);

    for (i = 0; str[i] != '\0'; i++) {
        char ch = str[i];
        if (ch >= 'A' && ch <= 'Z')
            ch = ch + 32;

        if (ch >= 'a' && ch <= 'z') {
            if (ch == 'a' || ch == 'e' || ch == 'i' ||
                ch == 'o' || ch == 'u')
                vowels++;
            else
                consonants++;
        }
    }

    printf("Vowels = %d\nConsonants = %d\n", vowels, consonants);
    return 0;
}
```

```
}
...
```

Sample:

```
...
```

Enter a string: hello world

Vowels = 3

Consonants = 7

```
...
```

25) String Palindrome Check

```
```c
```

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

```
int main() {
```

```
 char str[100];
```

```
 int i, j, flag = 0;
```

```
 printf("Enter a string: ");
```

```
 gets(str);
```

```
 for (i = 0; str[i] != '\0'; i++);
```

```
 j = i - 1;
```

```
 for (i = 0; i < j; i++, j--) {
```

```
 if (str[i] != str[j]) {
```

```
 flag = 1;
```

```
 break;
```

```
 }
```

```
 }
```

```
 if (flag == 0)
```

```
 printf("Palindrome string\n");
```

```
 else
```

```
 printf("Not palindrome string\n");
```

```
 return 0;
```

```
}
...
```

Sample:

```
...
```

Enter a string: level

Palindrome string

```
...
```

\*\*\*

## Hard Level Programs (26–35)

### 26) Matrix Addition

```
``c
```

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

```
int main() {
```

```
 int a[10][10], b[10][10], c[10][10];
```

```
 int r, col, i, j;
```

```
 printf("Enter rows and columns: ");
```

```
 scanf("%d %d", &r, &col);
```

```
 printf("Enter elements of first matrix:\n");
```

```
 for (i = 0; i < r; i++)
```

```
 for (j = 0; j < col; j++)
```

```
 scanf("%d", &a[i][j]);
```

```
 printf("Enter elements of second matrix:\n");
```

```
 for (i = 0; i < r; i++)
```

```
 for (j = 0; j < col; j++)
```

```
 scanf("%d", &b[i][j]);
```

```
 for (i = 0; i < r; i++)
```

```
 for (j = 0; j < col; j++)
```

```
 c[i][j] = a[i][j] + b[i][j];
```

```
 printf("Resultant matrix:\n");
```



```

 for (i = 0; i < r; i++) {
 for (j = 0; j < col; j++)
 printf("%d ", c[i][j]);
 printf("\n");
 }
 return 0;
}
```

```

27) Matrix Multiplication

```

```c
#include <stdio.h>

int main() {
 int a[10][10], b[10][10], c[10][10];
 int r1, c1, r2, c2, i, j, k;

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

 if (c1 != r2) {
 printf("Multiplication not possible\n");
 return 0;
 }

 printf("Enter elements of first matrix:\n");
 for (i = 0; i < r1; i++)
 for (j = 0; j < c1; j++)
 scanf("%d", &a[i][j]);

 printf("Enter elements of second matrix:\n");
 for (i = 0; i < r2; i++)
 for (j = 0; j < c2; j++)
 scanf("%d", &b[i][j]);
}
```

```

```

for (i = 0; i < r1; i++)
    for (j = 0; j < c2; j++) {
        c[i][j] = 0;
        for (k = 0; k < c1; k++)
            c[i][j] += a[i][k] * b[k][j];
    }

printf("Product matrix:\n");
for (i = 0; i < r1; i++) {
    for (j = 0; j < c2; j++)
        printf("%d ", c[i][j]);
    printf("\n");
}
return 0;
}
```

```

\*\*\*

### 28) Transpose of Matrix

```

```c
#include <stdio.h>

int main() {
    int a[10][10], t[10][10];
    int r, c, i, j;

    printf("Enter rows and columns: ");
    scanf("%d %d", &r, &c);

    printf("Enter elements:\n");
    for (i = 0; i < r; i++)
        for (j = 0; j < c; j++)
            scanf("%d", &a[i][j]);

    for (i = 0; i < r; i++)
        for (j = 0; j < c; j++)
            t[j][i] = a[i][j];
}
```

```

```

printf("Transpose:\n");
for (i = 0; i < c; i++) {
 for (j = 0; j < r; j++)
 printf("%d ", t[i][j]);
 printf("\n");
}
return 0;
}
```

```

29) Recursive Factorial

```

```c
#include <stdio.h>

long long fact(int n) {
 if (n == 0 || n == 1) return 1;
 return n * fact(n - 1);
}

int main() {
 int n;
 printf("Enter a non-negative integer: ");
 scanf("%d", &n);

 if (n < 0)
 printf("Not defined\n");
 else
 printf("Factorial = %lld\n", fact(n));

 return 0;
}
```

```

30) Recursive Fibonacci

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

int fib(int n) {
    if (n == 0) return 0;
    if (n == 1) return 1;
    return fib(n - 1) + fib(n - 2);
}

int main() {
    int n, i;
    printf("Enter number of terms: ");
    scanf("%d", &n);

    for (i = 0; i < n; i++)
        printf("%d ", fib(i));
    printf("\n");
    return 0;
}
```
```

\*\*\*

### ### 31) Swap Using Pointers

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

void swap(int *x, int *y) {
 int temp = *x;
 *x = *y;
 *y = temp;
}

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

 swap(&a, &b);
}
```

```
 printf("After swap: a = %d, b = %d\n", a, b);
 return 0;
}
...
```

\*\*\*

### ### 32) Structure – Single Student

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

struct Student {
 char name[30];
 int roll;
 int m1, m2, m3;
 int total;
 float avg;
};

int main() {
 struct Student s;

 printf("Enter name: ");
 gets(s.name);
 printf("Enter roll: ");
 scanf("%d", &s.roll);
 printf("Enter 3 subject marks: ");
 scanf("%d %d %d", &s.m1, &s.m2, &s.m3);

 s.total = s.m1 + s.m2 + s.m3;
 s.avg = s.total / 3.0;

 printf("Total = %d\nAverage = %.2f\n", s.total, s.avg);
 return 0;
}
...
```

\*\*\*

### 33) Array of Structures – Topper

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

struct Student {
 char name[30];
 int roll;
 int total;
};

int main() {
 struct Student s[50];
 int n, i, topIndex = 0;

 printf("Enter number of students: ");
 scanf("%d", &n);

 for (i = 0; i < n; i++) {
 printf("Enter name: ");
 scanf("%s", s[i].name);
 printf("Enter roll: ");
 scanf("%d", &s[i].roll);
 printf("Enter total marks: ");
 scanf("%d", &s[i].total);
 }

 for (i = 1; i < n; i++) {
 if (s[i].total > s[topIndex].total)
 topIndex = i;
 }

 printf("Topper: %s (Roll %d) with %d marks\n",
 s[topIndex].name, s[topIndex].roll, s[topIndex].total);
 return 0;
}
```

\*\*\*

### 34) File Copy

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

int main() {
 FILE *fs, *ft;
 char ch;

 fs = fopen("source.txt", "r");
 ft = fopen("target.txt", "w");

 if (fs == NULL || ft == NULL) {
 printf("File error\n");
 return 0;
 }

 while ((ch = fgetc(fs)) != EOF) {
 fputc(ch, ft);
 }

 printf("File copied successfully\n");

 fclose(fs);
 fclose(ft);
 return 0;
}
```

\*\*\*

### 35) Count Characters, Words, Lines in File

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

int main() {
 FILE *fp;
 char ch;
```

```
int chars = 0, words = 0, lines = 0;
int inWord = 0;

fp = fopen("input.txt", "r");
if (fp == NULL) {
 printf("Cannot open file\n");
 return 0;
}

while ((ch = fgetc(fp)) != EOF) {
 chars++;

 if (ch == '\n')
 lines++;

 if (ch == ' ' || ch == '\n' || ch == '\t') {
 if (inWord) {
 words++;
 inWord = 0;
 }
 } else {
 inWord = 1;
 }
}

if (inWord)
 words++;

printf("Characters = %d\nWords = %d\nLines = %d\n",
 chars, words, lines);

fclose(fp);
return 0;
}
```



\*\*\*\*\*

## 1) Decimal to Binary

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

int main() {
 int decimal, rem, i = 0;
 int bin[32];

 printf("Enter a decimal number: ");
 scanf("%d", &decimal);

 if (decimal == 0) {
 printf("Binary = 0\n");
 return 0;
 }

 while (decimal > 0) {
 rem = decimal % 2;
 bin[i] = rem;
 i++;
 decimal = decimal / 2;
 }

 printf("Binary = ");
 while (i > 0) {
 i--;
 printf("%d", bin[i]);
 }
 printf("\n");

 return 0;
}
```

Sample:

`Input: 10 → Output: Binary = 1010`

\*\*\*

## ## 2) Binary to Decimal

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

int main() {
 long long bin;
 int dec = 0, base = 1, rem;

 printf("Enter a binary number: ");
 scanf("%lld", &bin);

 while (bin > 0) {
 rem = bin % 10;
 dec = dec + rem * base;
 base = base * 2;
 bin = bin / 10;
 }

 printf("Decimal = %d\n", dec);
 return 0;
}
```

Sample:

`Input: 1011 → Output: Decimal = 11` [1]

\*\*\*

## ## 3) Star Pattern – Right Half Pyramid

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

int main() {
 int rows, i, j;
 printf("Enter number of rows: ");
 scanf("%d", &rows);
```

```

 for (i = 1; i <= rows; i++) {
 for (j = 1; j <= i; j++) {
 printf("* ");
 }
 printf("\n");
 }
 return 0;
}
```

```

Sample (rows=4):

```

```
*
* *
* * *
* * * *
```

```

```

***

```

4) Number Pattern – Floyd’s Triangle

```

```c
#include <stdio.h>

int main() {
 int rows, i, j, num = 1;
 printf("Enter number of rows: ");
 scanf("%d", &rows);

 for (i = 1; i <= rows; i++) {
 for (j = 1; j <= i; j++) {
 printf("%d ", num);
 num++;
 }
 printf("\n");
 }
 return 0;
}

```

```
...
```

Sample (rows=4):

```
...
```

```
1
```

```
2 3
```

```
4 5 6
```

```
7 8 9 10
```

```
...
```

```

```

## 5) Simple Interest

```
```c
```

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

```
int main() {
```

```
    float P, R, T, SI;
```

```
    printf("Enter principal: ");
```

```
    scanf("%f", &P);
```

```
    printf("Enter rate: ");
```

```
    scanf("%f", &R);
```

```
    printf("Enter time: ");
```

```
    scanf("%f", &T);
```

```
    SI = (P * R * T) / 100.0;
```

```
    printf("Simple Interest = %.2f\n", SI);
```

```
    return 0;
```

```
}
```

```
...
```

Sample:

`P=1000, R=5, T=2 → Simple Interest = 100.00`

```
*****
```