

### Programs related to simple arithmetic operations

- Program to add two integer numbers.
- Program to calculate the volume and surface area of a sphere.
- Program to calculate the area of a square while the perimeter is given.
- Program to calculate the area of a circle while the circumference is given.
- Program to calculate the area of a circle. (Use Symbolic Constant)
- Program to calculate the percentage of a student while marks of 5 subjects are given.
- Program to calculate the roots of a quadratic equation.
- Program to calculate the perimeter and area of a triangle when sides are given.
- Program to calculate the time given in Seconds into hours, minutes and seconds.
- Program to convert given number of days into Months & Days.
- Program to calculate the Simple Interest and Compound Interest.
- Program to calculate the Gross Salary when Basic Salary is given. The allowances HRA(%) ,DA (%) , PF and Medical are also given. Add the HRA and DA in the Basic Salary but deduct PF and Medical from the Salary.
- Program to convert the temperature in Celsius while temperature in Fahrenheit is given as -  
$$C = \frac{5(F-32)}{9}$$
- Program to input three 1 -digit numbers and form a new 3-digit number.
- Program to input a 4-digit number and print its entire digits individual.
- Program to reverse a 4-digit number.
- Program to print the sum of all digits of a 4-digit number.

### Programs related to conditional statements (IF / IF-ELSE / IF-ELSE IF/ Nested IF)

- Program to check whether a number is Even or Odd.
- Program to find largest / smallest number among three numbers.
- Program to find second largest among 3 / 4 numbers.
- Program to check whether a 4-digit number is Palindrome or not.
- Program to check whether a 3-digit number is Armstrong or not.
- Program to check whether a number is a 4-digit number or not.
- Program to calculate Billing amount for a telephone customer according to given slabs-

Bill Units	Rate
< 50	Rs. 100 /-
51-100	Rs. 1.00 per additional unit
101-200	Rs. 1.50 per additional unit
201-300	Rs. 2.00 per additional unit
> 300	Rs. 2.50 per additional unit

- Program to check whether a scanned character is a digit, an alphabet or a special character.
- Program to check whether scanned character is a vowel or a consonant.
- Program to print a character from keyboard and then print it in reverse case.
- Program to check whether a number is Even or Odd. (Using ? : operator)
- Program to calculate Maximum / Minimum/ Second Maximum out of 4 numbers (Using ? : Operator)
- Program to print Grade of a student obtained in his exams according to given criteria-

Percentage	Grade
>=85	'S'
>=65	'A'
>=55	'B'

>=45	'C'
< 45	'F'

Consider the Percentage marks are given as input.

- Program to print the name of colors starting with the scanned character as- **Input character Message Print**

'g'	Green Color
'G'	Green Color
'w'	White Color
'W'	White Color
Else	Not a valid color

### Programs related to conditional statements (SWITCH - CASE)

- Program to print name of month when the number is given.
- Program to print the name of colors starting with the scanned character as-  

<b>Input character Message Print</b>	'g'	Green Color
	'G'	Green Color
	'w'	White Color
	'W'	White Color
	Else	Not a valid color
- Program to show 5 arithmetic operations on two integer numbers using Switch-case.
- Program to check whether scanned character is a vowel or a consonant.
- Program to input number of the month of a year and print how many days are there in the month.
- Program to print the day of the week when the number of day is input.

### Programs related to looping statements (WHILE / FOR / DO-WHILE)

- Program to print the counting 1,2,3,4, .....n
- Program to print the table for any number (x).
- Program to print the series 1, 3, 5, 7, .....n.
- Program to print the series 2, 4, 6, 8, .. ..n.
- Program to print the series 1, 4, 7, 10, 13, .....n.
- Program to print the series 1, 0, 1, 0, 1, 0, ..... n.
- Program to print the factorial of x.
- Program to find largest / smallest among  $n$  numbers.
- Program to find second largest among  $n$  numbers.
- Program to check whether a number is Prime number or not.
- Program to reverse and sum of the digits of any number.
- Program to check whether a number is Palindrome or not.
- Program to check whether a number is Armstrong or not.
- Program to print Fibonacci series.
- Program to compute Square root using Iteration (without using sqrt( ) library function).
- Program to input a number into decimal number system and then print its equivalent binary.
- Program to input a number in Base 'x' and print it in Base 'y'.
- Program to print the sum of all the even and odd between two given numbers.
- Program to compute the grades of  $n$  students according to the following rules:

<b>Average Marks</b>	<b>Grade</b>
80 to 100	Honours

60 to 79	First Division
50 to 59	Second Division
40 to 49	Third Division
0 to 39	Fail

Input- Roll No and marks for each student.

Output- Roll No and marks for each student.

- Input the designation codes of  $n$  employees; calculate the conveyance allowance of each employee. The allowances for various codes are given below :

Code	Allowance
1	Rs. 200
2	Rs. 500
3	Rs. 900

Find and print the total conveyance allowances paid by the company to its employees.

- Program to find the number of and sum of all integers greater than 100 and less than 200 that are divisible by 7.
- Program to print all ASCII codes with their corresponding ASCII characters page wise.
- Write a program to compute  
 $y = 2x^4 + 5^3 + 6x^2 - 8x + 9$  for  $y = -10, -9, -8$   
..... 9,10
- Program to input ages of 10 persons and count the number of persons between age group of 50 and 60
- Program to input  $n$  numbers and print -  
(a) the Sum of all  $n$  numbers.  
(b) the Sum of square of all even numbers.  
(c) the Sum of cubes of all odd numbers.
- Program to print the GCD of two values.

### Programs related to nested looping statements (Loops within loops)

- There are 'm' groups, each group having 'n' numbers. Write a program to find average of each group separately. Input numbers one by one.
- Program to print all the prime numbers among 1 to n.
- Program to print all the palindrome numbers among 1 to 100.
- Program to print all the Armstrong numbers between the range of integer.
- Program to find the sum of digits of an integer number.

- Program to print the pattern

1 * 1 1 2	* *	2 3	
1 2 3	* * *	4 5 6	
1 2 3 4	* * * *	7 8 9 10	1
		11 12 13 14 15	2 2
			3 3 3
			4 4 4 4

5 5 5 5 5

### Programs related to Arrays with Looping(1-D Arrays)

- Program to scan and print an array (an integer and a character).
- Program to Sort an array through Insertion Sorting.
- Program to find an element in the Array (Linear Searching).
- Program to find an element in the Array (Binary Searching).

- Program to input two arrays and then put them into another (3<sup>rd</sup> array) after sorting.
- Program to reverse an array without using another array.

### **Programs related to Arrays with Looping(2-D Arrays)**

- Program to compute the addition/subtraction of 2 Matrices.
- Program to compute the multiplication of 2 Matrices.
- Program to print a matrix in its transpose form.
- Program to print the lower and upper half triangles of a matrix.
- Program to sort a list of names in alphabetical order.
- Program to compute the sum of row and column elements.

### **Programs related to Strings(1-D Arrays) with Looping**

- Program to show Library functions - getch( ), getche( ), getchar( ).
- Program to read a line of text and print it by using -
  - (a) scanf( ) and printf( ) functions.
  - (b) gets( ) and puts( ) functions.
  - (c) getchar( ) and putchar( ) functions.
- Program to show the use of strcpy( ), strcat( ), strcmp( ), strcmpi( ) and strcmp( ) string functions.
- Program to sort a 2-D array of characters.
- Program to read a line of text and count the number of words and characters.
- Program to read your name from keyboard and print the ASCII of all the characters.
- Program to find the existence of a substring in a big String.
- Program to read a line of text and convert it in reverse case i.e. upper case into lower case and vice versa.
- Program to enter line of text and count vowels / consonants/ digits / special characters/ number of words / number of lines, etc.

### **Programs related to Structure / Array of Structures / Unions**

- Program to read and print structure of a student.
- Program to read and print structure of a book.
- Program to compare two structure variables.
- Program to read and print array of structure of books, also calculate cost of all the books.
- Program to show how a union works.

### **Programs related to Pointers**

- Program to show use of various types of Pointers.
- Program to input, add and print two integers. Perform all the operations through Pointers.
- Program to input and print 10 numbers through Pointers.
- Program to change the case of a given string (Using Pointers).
- Program to count the length of a string.

### **Programs related to Functions**

- Program to show how a function works.
- Program to add two integer numbers using a User Defined Function.

- Program to round a floating point number up to  $n$  decimal places.
- Program to show the Function Calling by Value (swapping).
- Program to show the Function Calling by Reference (swapping).
- Program to print the factorial of a number through Function.
- Program to print the factorial of a number through Recursion.
- Program to show the calling of a function passing different parameters
- Program to show the calling of a function passing array.
- Program to show the calling of a function passing two arrays.
- Program to show the calling of a function passing Structure.
- Program to use recursion to reverse a number.
- Program to use recursion to search a number in an array.
- Program to use recursion to calculate the factorial of a number.
- Program to generate  $n$  terms of Fibonacci series through Functions/ Recursion.

### **Programs related to File Handling**

- Program to open and read a text file.
- Program to create and read a text file.
- Program to store some numbers in the Binary file DATA. Now calculate the total number of even and odd numbers in the file.
- Read data from 2 existing files and put them into the 3<sup>rd</sup> file in ascending order.

### **Miscellaneous Exercises**

- Program to print the pattern

```
1
2 3
4 5 6
7 8 9 0
1 2 3 4 5
```

```
A
A B
A B C
A B C D
A B C D E
```

```
A
B C
D E F
G H I J
K L M N O
```

- Program to print the pattern

```
1
1 0
1 0 1
1 0 1 0
```

```
1
0 1
0 1 0
1 0 1 0
```

```
1 2 3 4 5
2 3 4 5
3 4 5
4 5
5
```

```
Prog
ram
to
print
the
patte
rn 1
1 2
1 2
3 1
```

2 3  
4 1  
2 3  
1 2  
1

- Program to print the pattern

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

- Program to print the pattern 1

```
2 2  
3 3  
3 4  
4 4
```

