

## C - Lab Exercise

### Printf () Statement

1. Print "C Programming"
2. Print Your Name On screen.
3. Print Address on screen.

### Scanf() statement

4. Enter the value of an integer variable and print it on screen.
5. Print value of i and check i is less, equal or greater than zero.
6. Input two numbers and prints its square and cube.
7. Input two numbers and prints its Addition, Subtraction, Multiplication, and Division.
8. Verify the formula  $l=(c+d)*(g+h)$ .
9. Verify the formula  $x=((k-4)*(a*4))/100$
10. Verify the formula  $s=((4*a+c)-2*a*b)/100$
11. Verify the formula  $a=p*(1+(r/100)/n)-p$
12. Verify the formula  $t=((v+s)+(l-m)*l)$
13. Calculate the area of circle.
14. Calculate the area of Triangle.
15. Verify the formula  $c=(a+b)*(a+b)$
16. Write a program to count the simple interest.
17. Input a Rupees and prints its value converted into Dollar.
18. Input a Number of Chairs and its Total Cost and Prints the Cost of Each chair.

### If...Else statement

19. Enter value and check it is less, equal or greater than zero.
20. Input 2 number and print the maximum among them.
21. Input 2 number and print the maximum among them. (with conditional operator)
22. Input 2 number and print the minimum among them.
23. Input 2 number and print the minimum among them. (with conditional operator)
24. Input 3 number and print the maximum among them.
25. Input 3 number and print the maximum among them. (with conditional operator)
26. Write a program that find minimum and maximum out of 3 values.
27. Write a program that interchange or swap the values of 2 variables.
28. Write a program to interchange the value of 2 variable without using 3rd variable
29. Write a program to check whether the entered no is odd or even.
30. Get a character in lower case form user and display it in upper case.
31. Get a character from user and print tell that is it vowel or consonant.
32. Print & calculate area of circle, area of triangle &  $(f+g)*(f+g)$  & simple interest & exit in one program.
33. Print & calculate addition, subtraction, multiplication & division of two value in one program using if() statement.
34. Write a program that take input of 5 subjects marks. Count the percentage. Print the result for following condition  
If student has 70% or more then 70% then DISTINCTION.  
If student has percentage between 60 and 69 then FIRST CLASS.  
If student has percentage between 50 and 59 then SECOND CLASS.  
If student has percentage between 40 and 49 then PASS CLASS.  
If student has percentage less then 40 then FAIL.
35. Write a program that take input of 5 subjects marks. If student get 40 or more then 40 then he is PASS in that subject otherwise FAIL print the result for following condition.  
If student is pass in all subjects then declare PASS.  
If student is fail in 1 or 2 subject then declare ATKT.  
If student is fail in more then 2 subject then declare FAIL.
36. Write a program that count the area for circle, square, rectangle and triangle using Switch-Case control structure
37. Write a program that take input of year in 4 digit. Determine whether the year is leap year or not.(try to solve this problem with && and or operator)



38. Write a program that determine the grade of steel according to following condition.
  - 1 Hardness must be greater then 50
  - 2 Carbon must be less then 0.7
  - 3 Tensile must be greater then 5500
 Take the input for above qualities through keyboard from user Grades are decided as follows.  
 Grade A if all 3 conditions are met.  
 Grade B if condition (1) and (2) are met.  
 Grade C if condition (2) and (3) are met.  
 Grade D if condition (1) and (3) are met.  
 Grade E if only one condition met.  
 Grade F if none of conditions are met.
39. Write a program to find maximum from 3 values using conditional operator.
40. Write a program that generate same output as of program no (10) using break statement.
41. Write a program that performs the sum of given numbers until user says no using Go-To statement.
42. Write a sample program that demonstrate the use of Continue statement.

### **Looping structure (while, do...while, for)**

43. Print 1 to 10.
44. Print 2,4,6,8,10,
45. Print 1,3,5,7,9,
46. Print 1,2,4,8,16,32,64,
47. Print 10 to 1
48. Print 1,10,2,9,3,8,4,7,5,6,
49. Print 2,11,20,28,25,41,46,50,53,55,56,
50. Print first 100 even numbers.
51. Print first 100 odd numbers.
52. Print first 50 natural numbers.
53. Print the total of 1 to 50.
54. Print the total of  $1/2+2/3+\dots+9/10$ .
55. Print the total of  $1-2+3-4+5-6+7-8+9-10$ .
56. Print the total of first 100 even numbers.
57. Print the total of first 100 odd numbers.
58.  $0.1+0.02+0.003+0.0004+0.000005$ .
59. Except one no from user and display Reverse of it.
60. Except one no from user and display sum of its digits.
61. Except one no from user and display its factorial.
62. Except one no from user and find if it is prime or not.
63. Except one no from user and find if it is Armstrong or not.
64. Print 0 1 1 2 3 5 8 13 21 34 55 ... (Fibonacci series)
65. Generate the value of n! factorial for n number
66.  $1+2+3+4+5+6$  up to n terms
67.  $1+3+5+7+9$  up to n terms
68.  $1+2+4+5+7+8$  up to n terms
69. Write a program that perform the following output for n by n matrix without using array
 

```

1  2  3  4  5
10 9  8  7  6
11 12 13 14 15
20 19 18 17 16
21 22 23 24 25
      
```
70.  $X+X^2+X^3+X^4+X^5$  up to n terms
71.  $X/Y+X^2/Y^2+X^3/Y^3$  up to n terms
72.  $X/Y+X^2/Y+X^2/Y^2+X^3/Y^2+X^3/Y^3$  up to n terms
73.  $A+AR+AR^2+AR^3+AR^4$  up to n terms
74.  $1!+2!+3!+4!+5!$  Up to n terms
75.  $1!+3!+5!+7!$  Up to n terms
76.  $X+X^3+X^5+X^7$  up to n terms
77.  $X/1+X^2/2^2+X^3/3^3+X^4/4^4$  up to n terms
78.  $AB+CD+A^2B^2+C^2D^2$  up to n terms
79. Write a program to generate fibona series 0,1,1,2,3,5,8,13 up to n terms.
80.  $1*3+(1+2)*3^2+(1+2+3)*3^3+(1+2+3+4)*3^4$  up to n terms



81.  $1!/2! + 3!/4! + 5!/6!$  Up to n terms  
 82.  $X/1! - X^3/3! + X^5/5! - X^7/7!$  Up to n terms  
 83. Write a program to calculate the sum of odd and even number between given no of series.

(Perform all the exercises from 62 to 73 in following 3 patterns)

Pattern-I	Pattern-II	Pattern-III
*	*	*
**	**	**
***	***	***
****	****	****
*****	*****	*****

### Nested looping structure.

84. Print pattern like follow.

```
12345
12345
12345
12345
12345
```

85. Print pattern like follow.

```
11111
22222
33333
44444
55555
```

86. Print pattern like follow.

```
1 2 3 4 5
2 4 6 8 10
3 6 9 12 15
4 8 12 16 20
5 10 15 20 25
```

87. Print pattern like follow.

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

88. Print pattern like follow.

```
1
22
333
44444
555555
```

89. Print pattern like follow.

```
1
12
123
1234
12345
```

90. Print pattern like follow.

```
5
54
543
5432
54321
```

91. Print pattern like follow.

1  
21  
321  
4321  
54321

92. Print pattern like follow.

1  
2 3  
4 5 6  
7 8 9 10  
1112131415

93. Print pattern like follow.

1  
10  
100  
1000  
10000

94. Print pattern like follow.

1  
01  
010  
1010  
10101

95. Print pattern like follow.

1  
10  
101  
1010  
10101

96. Print pattern like follow.

a  
bb  
ccc  
dddd  
eeee

97. Print pattern like follow.

a  
b c  
d e f  
g h i j  
k l m n o

98. Print pattern like follow.

z  
y x  
w v u  
t s r q  
p o n m l

99. Print pattern like follow.

5  
45  
345  
2345  
12345

100. Print pattern like follow.

12345  
1234  
123

- 12  
1
101. Print pattern like follow.  
12345  
2468  
369  
48  
5
102. Print pattern like follow.  
54321  
5432  
543  
54  
5
103. Print pattern like follow.  
54321  
4321  
321  
21  
1
104. Print pattern like follow.  
12345  
2345  
345  
45  
5
105. Print pattern like follow.  
55555  
4444  
333  
22  
1
106. Print pattern like follow.  
2 4 6 8 10  
4 6 8 10  
6 8 10  
8 10  
10
107. Print pattern like follow.  
a b c d e  
b c d e  
c d e  
d e  
e
108. Write a program that perform the following output for n rows  
1  
3  
5 6  
8 9 10
109. Write a program that perform the following output for n rows  
\*  
\*  
\* \*  
\* \* \*
110. Write a program that perform the following output for n rows  
1  
1 2  
1 2 3  
1 2 3 4
111. Write a program to perform the following output for n rows



- ```

      1
     1 0 1
    1 0 1 0 1
112. Write a program to perform the following output for n rows
    1 *
    2 * * *
    3 * * * *
    4 * * * * *
113. Write a program that perform the following output for n rows
    1 2 3 4 5 4 3 2 1
    1 2 3 4 4 3 2 1
    1 2 3 3 2 1
    1 2 2 1
    1 1
114. Write a program for following output for n no of rows( Pascal triangle)
      1
     1 1
    1 2 1
   1 3 3 1
  1 4 6 4 1
 
```

### Array & Pointer

115. Accept 5 numbers in an array and display it.
116. Accept 10 numbers in an array, sort it and display it.
117. Accept 4 numbers in 2-d array.
118. Accept 9 numbers in form of matrix. (3 X 3 matrix)
119. Accept 10 numbers in an array and store it in another array.
120. Accept 10 numbers in an array and find total of positive and negative no.
121. Accept 5 numbers in an array and find maximum and minimum value.
122. Accept 5 numbers in an array and calculate average of it.
123. Accept values in 3 X 4 array and find out row total, column total, maximum, minimum and total.
124. Create a program that shows concept of pointer.
125. Create a program to swap two values (Pass by reference)
126. Create a program to accept 10 numbers in an array and sort it with the help of pointer.
127. Write a program that find maximum and its position from 10 number using array.
128. Write a program that sort the value in ascending order in array.
129. Write a program that generate the array of distinct or unique values from the array given by user.
130. Write a program that calculates the total marks and percentage for 5 subject marks using array.
131. Write a program that arrange the array values in reverse order.
132. Write a program that perform the summation and subtraction of two matrices.
133. Write a Program that perform the sum of rows and sum of column for n by n matrix
134. Write a Program that perform the sum of rows and sum of column for m by n matrix
135. Write a program that take the input of sales of 5 salesman for 4 different quarter of year. Count the total sales perform by each salesman and sales performed during each quarter also perform the grand total sales.
136. Write a program that perform the sum of diagonal elements of n by n matrix
137. Write a program of spiral matrix using 2-D matrix.

### Built in functions

138. Accept one no and display its absolute value.
139. Accept one no and display its log.
140. Accept one no and display its square root.
141. Get 2 no from user and display base<sup>exp</sup>. (2<sup>3</sup>=8)
142. Get a string from user and display length of that string.
143. Get a string from user and copy it in another variable.
144. Get two strings from user and compare whether both are same or not.



145. Get a string from user and display reverse of it.
146. Get two strings from user and merge it into first string.
147. Get a string from user and display it in lower case.
148. Get a string from user and display it in upper case.

### User Define Function

149. Create a user define function named **sum** which accept 2 arguments (of integer type) and return the sum of them.
150. Create a user define function named **avg** which pass array as argument (of integer type) and return its average value.
151. Create a user define function named **evenodd** which accept one argument (of integer type) and return if the number is even or odd.
152. Create a user define function named **fact** which accept one argument (of integer type) and return the factorial of given number.
153. Create a user define function named **prime** which accept one argument (of integer type) and display that the no is prime or not. (no need to return value)
154. Create a user define function named **triangle** which accept one argument (of integer type) and display a triangle like. (If you have given 4 as argument)
 

```

1
1 2
1 2 3
1 2 3 4
      
```
155. Create a user define function named **power** which accept two arguments (of integer type) (i) base (ii) expon and display the base<sup>expon</sup> value.
156. Create a user define function named **Sroot** which accept one argument (of integer type) and display the square root of that no.
157. Create a user define function named **ASCII** which accept one argument (of character type) and display ASCII value of that character.
158. Create a user define function named **CHR** which accept one argument (of integer type) and display character of that ASCII value.
159. Write a function to count the simple interest..
160. Write a function that count compound interest.
161. Write a function to generate the square of any given number
162. Write a function which should work as a power function
163. Write a functions to count the area of circle, triangle, rectangle and square.
164. Write a function to print any character for n no of time.
165. Write a function which should work as absolute function.
166. Write a program witch demonstrate the use of pre and post increment and decrement operator also define the use of assignment operator like +=, -=, \*=, /=.
167. Write a functions which should work like a isnum(), isalpha(), ischar() functions .
168. Write a functions which should work like (1) asc() function which returns an integer value of given character(2) char() function which returns character value for given integer value.
169. Write a function to interchange the two value a and b (Call By Reference) witch passes the 2 arguments in form of address of a and b variable with declaration like Void swap(int \*, int \*).
170. Write a void function which count the area and perimeter of circle(Call By Reference) witch passes radius , address of area variable and address of perimeter variable with declaration like Void count(float , float \*, float \*)
171. Write a function to count mean for discrete data. User has to pass only n no of values and address of first element of an array with declaration like float mean(int \*,float \*)
172. Write a function to find out maximum from of n no of values. User has to pass n no of elements and Address of first variable in an array. With declaration like int findmax(int,int \*).
173. Write a function to arrange integer values in ascending order in an array witch passes n of elements and address of first element of an array with declaration like void arrange(int,int \*)
174. Write a program that demonstrate the use of gets() and puts() .
175. Write a program that demonstrate the use of strcmp(), strlen(), strcpy(), strrev(),strupr(),strlwr() and strcat() built-in function.



176. Write a program that take input of name of 10 students with gets() and just print them with puts() function.
177. Write a program or function which should work like a strlen() function.
178. Write a program or function which should work like a strcmp() function.
179. Write a program or function which should work like a strcpy() function.
180. Write a program or function which should work like a strcat() function.
181. Write a program or function which should work like a strrev() function.
182. Write a program or function which should work like astrupr() function.
183. Write a program or function which should work like a strlwr() function.
184. Write a program that take input names of 10 students. Arrange them in ascending order in string array.
185. Write a program that take input paragraph of 10 lines. Count total no of word and total no of characters (Excluding blank spaces).
186. Write a pre-processor directives which returns (1) area of circle (2) perimeter of circle
187. Write a pre-processor directives which checks works like a (1) isdigit() (2) isalpha() functions
188. Write a preprocessor directives which demonstrate the use of #ifdef and #ifndef.
189. Write a preprocessor directives which use some symbolic directives for (&,&||,==) to operators.

### Structure

190. Create a structure named **student** that have member variable roll no, name, m1, m2, m3, sum, average, and grade. Program ask for roll no, name, m1, m2, m3 and calculate sum, average and grade.
191. Create a structure named **EMP** that have member variables employee no, employee name, basic salary, DA, HRA, TA, PF and Gross Salary.
192. In above structure create an array of structure.
193. In above structure create an array of structure and use pointer.
194. Write a program to find size of structure.
195. Write a simple program using structure that demonstrate different type of declaration of structure variable
196. Write a program using structure that accept rollno,name and percentage of students.
197. Write a program that demonstrate the use of array of structure variable
198. Write a program that demonstrate how one structure variable can be copied into another
199. Write a program that demonstrate the use of structure and function.
200. Write a program that access the structure variable using pointer.
201. Write a program that demonstrate the use of nested structure. For example
202.
 

|                                                                                |                                                                                         |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <pre>struct marks {     int s1;     int s2;     int s3;     int tota; };</pre> | <pre>struct student {     int rollno;     char name[20];     struct mark m1; }s1;</pre> |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
203. Write a program that demonstrate the use of getch(),getche(),getchar() and putchar() functions.
204. Write a program that demonstrate the use of formatted input with (%[ ]) operator.
205. Write a program that demonstrate the use of formatted output like printf("%10d",rollno); ,printf("%10.2f",salary) and printf("%\*.\*s",10,5,name)
206. Write a simple program that explain the precedence (priority) and associatively.

### File Handling

207. Write a programme to create a file.
208. Write a programme to read a file.
209. Write a programme to copy one file to another file.
210. Write a programme to add data into an existing file.
211. Create a database for a person, which includes information like person id, person name, age, phone no, height. Give the facility to add the data, read the data & person id should not be duplicate.
212. Write a program to accept file name form command line argument and write data into it.



213. Write a program which accept two file name form command line argument arg1 and arg2, copy the content of arg1 to arg2.
214. Write a program to understand the use of `getc()`, `putc()`.
215. Write a program to understand the use of `getch()`, `putch()`.
216. Write a program to understand the use `feof()`, `fgetc()`, `fgets()`, `fputc()`, `fputs()`, `fread()`, `fwrite()`, `ftell()` and `fseek()`.