

C Programming Lab Assignments

C introduction(Day 1 & 2)

- 1) What is programming language? Describe various categories?
- 2) Differentiate between compiler and interpreter.
- 3) Describe features of C language?
- 4) What is platform dependency?
- 5) Explain C program Compilation & Execution Process for Window and Ubuntu platform?

Data type Variable, Literals, Input, Output, #define Operators(Day 3 & 4)

6. Explain C Tokens?
7. Write a program to calculate square of a given no?
8. Write a program to swap using third variable?
9. Write a program to swap without using third variable.
10. Write a program to calculate area of Triangle.
11. Write a program to calculate area of Circle.
12. Write a program to calculate Simple Interest.
13. Write a program to convert distance from KM to MM.
14. Write a program to calculate average of three numbers.
15. Write a program to calculate temperature conversion from Celsius to Fahrenheit ($F = (9/5) C + 32$)
16. Write a program to calculate temperature conversion from Fahrenheit to Celsius. ($C = (F - 32) 5/9$)
17. A cashier has some amount of money(e.g. rs4526).Write a program to calculate out how many currency of Rs1000, Rs500, Rs100, Rs50, Rs20, Rs10, Rs5, Rs2, Rs1 required.
18. Write a program that accepts four digit number from user and calculate the sum of first and last digit.
19. Write a program that accepts marks of five subjects from user and calculate the total marks and then calculate the percentage out of 500?
20. Write a program that accepts a character from user and print its ASCII value?
21. Write a program that accepts a three digit number from user and obtain reverse of the number and then calculate sum of all the digits.(without using if/ loop)
22. Write a program that accepts a numeric value from user and print its corresponding character?
23. Write a program to calculate gross salary and net salary. Accept basic salary from user, TA(Travel Allowance) i.e 10% of basic salary, PF(Provident Fund) i.e 7.8% of basic , DA(Dearness Allowance) is 500.
 $gs = basic + da + ta$; $ns = gs - pf$;

If, If-else(5-6-7 days)

24. Write a program that accepts a number from user and calculate whether it is positive or negative or zero
25. Write a program to calculate first number is divisible by second or not?
26. Write a program that accepts a three digit number from user and check whether it is palindrome or not.
27. Write a program that accepts a three digit number from user and check whether it is Armstrong or not.(eg. $153 = 1^3 + 5^3 + 3^3$)
28. Write a program that accepts a three digit number from user and find the greatest digit in it.
29. Write a program to calculate whether year is leap year or not?
30. Write a program to calculate whether a character is vowel or consonant.
31. Write a program to calculate whether character is in lowercase or uppercase.
32. Write a program to calculate smallest number out of given three numbers.
33. Write a program to calculate largest number out of given four numbers.



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34. Write a program to accept basic salary from user, if basic salary is between 0 and 10000 then TA is 10% of basic salary, DA is 5% of basic salary. If salary is above 10000 then TA is 12% of basic salary, DA is 6% of basic. Now calculate gross salary as $gs = \text{basic salary} + TA + DA$?

35. Write a program to calculate Area and perimeter of Rectangle then calculate which one (out of area and perimeter) is greater.

36. Write a program that accepts marks (out of 100) of five subjects from user and calculate the sum then calculate percentage? Display message according to following condition

percentage ≥ 60 Grade A

percentage ≥ 50 Grade B

percentage ≥ 40 Grade C

percentage < 40 Grade D

37. Write a program for generating electricity Bill. Accept last month unit and current month unit from user, then calculate and print bill amount according to following condition

For units

0-100 charges 2 rs/unit

101-200 charges 3rs/unit

201-300 4rs/unit

> 300 charges 5rs/unit

38. Write a program to enter three subject marks (out of 100). Check if student is pass or Fail, only if he/she scores greater than 75 in each subject and the average of all three subject marks should also be greater than 80.

Switch case (Day 8)

39. Write a program to calculate area of different Shapes based on users choice S, C or R (like s for square, c for circle, and r for rectangle).

40. Write a program to show day of week according to user input.

41. Write a program to check if entered character is vowel or not.

42. Write a program to check whether a number is even or odd using switch-case.

While, do-while and for Loop (Day 9 & 10, & 11)

43. Write a program to calculate Factorial of any number.

44. Write a program to print table of any number.

45. Write a program to print Fibonacci Series.

46. Write a program that accepts n number from user and calculate Maximum and Minimum value.

47. Write a program to calculate sum of squares of n natural number.

48. Write a program to calculate sum of series $(1/1 + 1/2 + 1/3 + 1/4 + \dots)$.

49. Write a program to calculate sum of series $(1/1! + 1/2! + 1/3! + 1/4! + \dots)$

50. Write a program to calculate sum of digits of a number.

51. Write a program to check whether a number is Armstrong or not.

52. Write a program to find factors of any number.

53. Write a program to calculate number entered is a perfect Number or not (sum of factors of a number is the number like 6).

54. Write a program to accept n number from user and show how many numbers are even or odd.

55. Write a program to find LCM of two numbers.



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56. Write a program to find HCF of two numbers.
57. Write a program to calculate number is prime or not.

Nested loops (Day 12 & 13)

58. Write a program to print prime numbers from 1 to 1000.
59. Write a program to print Armstrong numbers from 100 to 999.
60. Write a program to calculate sum of first 10 even numbers.
61. Write a program to convert decimal number to binary number.
62. Write a program to print table for numbers between 2 to 10.

- 63) Write a program to print following patterns on screen

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

64)

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

65)

```
123  
456  
789
```

66)

```
5  
54  
543  
5432  
54321
```

67)

```
1  
12  
123  
1234
```

68)

```
A  
AB  
ABC  
ABCD  
ABCDE
```

69)

```
ABCDDCBA  
ABCCBA
```



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ABBA
AA

70)

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

71) // Pascal triangle

```
1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
```

Function and Pointers(Day 14, 15, 16)

- 72. What is a function and define its types?
- 73. Write a program to calculate factorial using function with return type and argument?
- 74. Write a program to check the prime number using function with argument and return type?
- 75. Write a program to display below pattern using function with number of rows in pattern as argument?

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

- 76. Calculate a^b using function with a and b as arguments and return result;
- 77. What is pointer and explain its working?
- 78. Write difference between call by value and call by reference?
- 79. Pass address of an integer variable to a void function and double the value of variable.
- 80. Pass three integer variables to function using call by reference mechanism and store sum of two into third variable.

Arrays (Day 17, 18, 19)

- 81. What are array and its type?
- 82. Write a program to store 10 numbers in array and calculate its sum and average?
- 83. Write a program to find maximum element in array.
- 84. Write a program to reverse elements in array? (last element go to first position and vice-versa)
- 85. Write a program to sort array in descending order?
- 86. Write a program to calculate the number of occurrence of given no. in array using function with array and number as argument?
- 87. Write a program to merge two arrays in third array.
- 88. Write a program to find Second highest no. in array?
- 89. Write a program to Input two 3 X 3 Array and perform below operation:-



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C Programming Lab Assignments

- 1 - Addition
- 2 - Multiplication

90. Write a program to display Transpose of a Matrix?

Transpose of	1 6 8 2	is	1 2
	2 5 1 9		6 5
			8 1
			2 9

91. Write a program to print sum of diagonal elements of a 3 X 3 matrix?

Character and String (Day 20, 21)

- 92. Write a program to calculate Length of the string?
- 93. Create a function to copy the string without using library function?
- 94. Create a function to concatenate two string without using library function?
- 95. Create a function to reverse the string passing a string pointer to a function without using library functions?
- 96. Accept a string and convert string into uppercase?
- 97. Accept String and
 - 1- Count Vowel
 - 2- Count Consonants
 - 3- Count Number
 - 4- Count Spaces
- 98. Input a string and check if it is palindrome or not?

Storage classes, structure, union, enum, typedef(22,23,24,25)

- 98. What is Structure? Explain structure with example?
- 99. Create a Structure Emp to store Employee Record (empid, name, salary)?
- 100. Create a structure student with following members (rollno, name, course, percent). Store five students information and generate a report containing student data in below tabular format?

rollno	name	course	percentage	grade
--------	------	--------	------------	-------

- 101. Create a structure to store six product details(pid, name, quantity, price). Print in Alphabetical order by product name?
- 102. Create a structure to store six Employee record (eid,name,salary) and print about those employee Whose salary is greater than 20,000?
- 103. Create a structure Person with field Name, Age, Contact No., Address where Address is a structure type with fields (House number, city, state) in it? Store a person information input through user.

File Handling (Day 26,27)

- 105. Write a program to find number of words in a File?
- 106. Write a program to copy content from one file to another file?
- 107. Create a file to store and display the student information(rollNo, name, course, percent). using fscanf() and fprintf()?
- 108. Create a file to store and display the Employee information (eid, name salary) using fread() & fwrite()?



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**PEARSON
VUE
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109. Write a program to count occurrence of character 's' in file?

Mini project assignment

Create a Result Processing Software:

Create a structure student with following members rno, name, marks obtained from five subjects (physics , chemistry, maths, english, hindi), maximum marks of each subject. A data file will be prepared to maintain record of all the students.(At least 5 students)

The menu driven program to print the mark sheet.

The menu :

1. Create a New file
2. Add a record in a file
3. Update student record
4. Delete student record
5. Search student with name or by rollno and display the details of a student
6. Print the Marksheet of a particular student. (this will read a record of student, calculate percentage and grade on the marks a particular student)
7. Exit

For each menu option write functions and each menu work with switch case in a loop till user press 7.



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