

**PSG COLLEGE OF TECHNOLOGY, COIMBATORE -641004**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**I SEMESTER MCA**  
**23MX16 C PROGRAMMING LABORATORY**  
**PROBLEM SHEET 9 – STRUCTURES**

**NOTE: Use pointers to access structure variable wherever possible**

1. Declare a variable of the following struct and read appropriate values to each of the data members.

```
struct Phone
{
    char firstName[10];
    char lastName[10];
    char phoneNumber[10];
};
```

Write a function that accepts two arguments of struct *Phone* and determines if the two structs contain the same phone number. The function should return true if the phone numbers match, but should return false if they do not match.

2. Write a C program to keep records and perform statistical analysis for a class of 20 students. The information of each student contains ID, Name, Sex, quizzes Scores (2 quizzes per semester), mid-term score, final score, and total score.

Use functions, pointers appropriately. Do all validations

The program will prompt the user to choose the operation of records from a menu as shown below:

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Menu

=====

1. Add student records
2. Delete student records
3. Update student records
4. View all student records
5. Calculate an average of a selected student's scores
6. Show student who gets the max total score
7. Show student who gets the min total score
8. Find student by ID
9. Sort records by total scores

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10. Exit

3. Declare a structure for employees with employee ID, Name, Salary and performance rating. Get user input entries for N employees. Write a menu driven program that allow user i) to search using employee ID. Display all details about the employee, if found. ii) Display details of all employees along with the computed bonus. Bonus is calculated based on the performance rating as given below.

Performance Rating	Bonus Percentage on salary
1	5
2	10
3	15
4	20
5	25

4. Write a structure to store the names, Date of Join, salary and hours of work per day of 10 employees in a company. Write a program to increase the salary depending on the Years of experience and number of hours of work per day as follows and then print the name of all the employees along with their final salaries.

Years of Experience	<5	5-10	>10
Hours of work per day	8	10	>=12
Increase in salary	Rs.50	Rs.100	Rs.150

Note: Date of Join should be a nested structure.

Years of experience should be calculated with current date

5. Declare a structure for a web page consisting of fields: URL, num\_downloads, type\_of\_webpage. The URL field should be a character array, num\_downloads an integer, type\_of\_webpage.
- Create one structure variable for each type and initialize the members URL and type\_of\_webpage. num\_downloads should be initialized to 0.
  - Write a function Hit() which increments the num\_downloads for the corresponding webpage structure.

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- c. Write a function Display() which lists the details of the webpage in a tabular format.

The output should resemble

URL	Num_downloads	Type of_webpage
<a href="http://www.facebook.com">http://www.facebook.com</a>	25	SOCIAL_NETWORKING
<a href="http://www.cplusplus.com">http://www.cplusplus.com</a>	30	EDUCATIONAL
<a href="http://youtube.com">http://youtube.com</a>	50	ENTERTAINMENT