Note: 1 to 5 programs can be implemented without pointer and with pointer.

1. Write a program using pointers to read array of integers and print its elements in reverse order.

2. Write a program using pointers to find minimum and maximum element of an array and display it along with the address at which it is located.

3. Write a program to perform summation of all elements of array using pointers.

4. Write a function using pointers to exchange the value stored in two locations in the memory.

5. Write a C functions using pointer and character array to implement the following:
   (a) Find the first occurrence of a character in the given string. The function should return the position in the string.
   (b) Delete all occurrences of a character from a string.
   (c) Delete all occurrences of a character from a string. Ignore Case.
   (d) Copy one string to another string.
   (e) Find length of the string.
   (f) Convert string to all upper case.
   (g) Convert string to all lower case.
   (h) Sort an array of character in ascending order.
   (i) Append one string to another string.
   (j) Reverse all the characters in the string.
   (k) Compare two strings S1 and S2. The function should return -1, 0 or 1 if S1 < S2, S1 = S2 and S1 > S2 respectively.

Structures and Unions

1. Write a program to create structure Student with student's roll no, name and marks of three subjects (Maths, Science and English) and display the details of student with total marks of all subjects along with the percentage and passing class in proper format.

2. Write a program to create structure Num (data members : int n1, int n2, int n3). Display total and average of n1, n2 and n3.

3. Write a program to create structure Time (data members : int h, int m, int sec). Read a value as seconds from user to display new time after adding seconds to Time structure.

4. Write a program to create structure employee with employee's id, name and salary (Basic Salary, HRA(20% of Basic Salary, DA(33% of Basic Salary), OA(10% of Basic Salary)). Calculate gross salary for each employee.

5. Write a program to use student structure from program 1 and display student information in ascending order of percentage in proper format.

6. Write a program to define a structure called book. Write a program to read information about 5 books and display books details in ascending order of price in proper format.

7. In a program declare following structure member: name, code, age, weight and height. Read all members of the structure for 10 persons and find list of persons with all related data whose weight > 50 and height > 40 and print the same with suitable format and title. (You may take range of weight from user)

8. Define a structure called cricket that will classify the information like Player name, Team name and Batting average. Using cricket declare array of player of 15 cricket players and write a program to read information about the players and print team wise listing containing names of players with their batting average.

File Handling

1. Write a program to read a line from input file and print alternate characters in the output file. Display appropriate message for file i/o errors.

2. Write a program to copy the contents of one file to another and also print the no. of lines in the first file.

3. Write a program to search a particular character in an existing file and display the no. of occurrences and the position of first occurrence of that character. If the character is not found display the appropriate message.

4. The files DATA1 and DATA2 contain sorted list of integers. Write a program to produce a third file DATA which holds a single sorted merged list of these two lists.

5. Write a program to read line by line from a file and print all the repeated characters on the screen along with their frequency.

6. Write a function to read a file and count the no. of characters, spaces, newlines and no. of words in a given text file.

7. Write a program to remove all the blank lines from a given file.

8. Write a program that will generate a data file containing the list of customers and their corresponding telephone numbers. Use a structure variable to store the name and telephone number of each customer.

9. Write an interactive menu driven program that will access the data file created in the above problem to do one of the following tasks:
    a. Determine the telephone number of a specific customers.
    b. Determine the customer whose telephone no. is specified.
    c. Add a new record.
    d. Delete a record
    e. Generate the listing of all the customers and their telephone numbers

10. Use a structure of Employee to write records of employee to a file. Include a menu that will allow the user to select any of the following features
    a. Add a new record.
    b. Delete a record.
    c. Modify an existing record.

d. Retrieve and display an entire record for a given ID/Name.

e. Generate a complete list of all employee names, addresses and telephone numbers.

f. End of the computation/Exit.