Object Oriented PROGRAMMING (CS217)

ASSIGNMENT-1

Instruction:

(Do it yourself)

Copying or sharing the code with each other will not only result into the cancellation of the current assignment, it may impact your grade in all the assignments and exams as well.

Functions & Pointers

Q1) Write a program that calculates sum of array elements where array elements can be accessed using a pointer to an array?

Q2) Define an integer pointer array of 10 numbers. Initialize them to any integer values from the key board. Find the sum and average of these 10 integers.

Q3) In statistics, the *mode* of a set of values is the value that occurs most often or with the greatest frequency. Write a function that accepts as arguments the following:

A) A pointer to an array of integers
B) An integer that indicates the number of elements in the array

The function should determine the mode of the array. That is, it should determine which value in the array occurs most often. The mode is the value the function should return. If the array has no mode (none of the values occur more than once), the function should return -1. (Assume the array will always contain nonnegative values.)

Q4) The seven most commonly used functions in the string library are:

1. strcat - concatenate two strings
   char *strcat(char * s1, const char * s2);
2. strcmp - compare two strings
   int strcmp(const char *s1, const char *s2);
3. strcpy - copy a string
   char *strcpy(char * s1, const char *s2);
4. strlen - get string length
   int strlen (const char *s);
5. strncat - concatenate one string with part of another
   char *strcat(char * s1, const char * s2,int n);

6. strncmp - compare parts of two strings
   int strcmp(const char *s1, const char *s2,int n);
7. strncpy - copy part of a string
   char * strcpy(char * s1, const char *s2, int n);

Provide definition of the above functions to use it without including any library. The input of the above functions will be char array.

Q5) Imagine you are developing a software package that requires users to enter their own passwords. Your software requires that users' passwords meet the following criteria:

- The password should be at least six characters long.
- The password should contain at least one uppercase and at least one lowercase letter.
- The password should have at least one digit.

Write a function that accepts a pointer to a C-string as its argument for a password and then verifies that it meets the stated criteria.
If it doesn't, the program should display a message telling the user reason, why.

Q6) Write a program that has an array of at least 10 string objects that hold people names and phone numbers. You may make up your own strings, or use the following:

"Becky Warren, 555-1223"
"Joe Looney, 555-0097"
"Geri Palmer, 555-8787"
"Lynn Presnell, 555-1212"
"Holly Gaddis, 555-8878"
"Sam Wiggins, 555-0998"
"Bob Kain, 555-8712"
"Tim Haynes, 555-7676"
"Warren Gaddis, 555-9037"
"Jean James, 555-4939"
"Ron Palmer, 555-2783"

The program should ask the user to enter a name or partial name to search for in the array. Any entries in the array that match the string entered should be displayed. For example, if the user enters Palmer the program should display the following names from the list:
Geri Palmer, 555-8787
Ron Palmer, 555-2783
Write a function **searchDirectory (char **& directory, string name)** that identifies the name in the directory.

Dynamic Memory Allocation (DMA)

Q7) Create two matrices of user defined size dynamically. Perform the following operations on matrices.
• Addition
• Subtraction
• Multiplication
For each operation write a separate function.

Q8) Create an integer 3-diemensional array of size 4*5*10 dynamically. Take input from the user using pointer notation. After displaying all elements of the array deallocate the memory.