LAB TASK 2 – Pointers & Structure

Time 2 Hours **Marks: 20**

Rules regarding the lab task

i. *Direct coping from each other will result zero, otherwise even though trying will result in a very handsome mark.*
ii. *Completion of each task results in 5 marks. A student completing all the task properly will be allowed full 20 marks.*
iii. *Students failing to submit within the given time will be penalized with some marks.*

1. **Initialize a 2D Array and access each element from that array using pointers.**

   Initialize a 2D array A[x][y] where the user will be able to specify the values of x and y. After initialization, the user will be able to store the values as per the input of the user. The array will then be printed using the help of pointer *p which will be first initialized earlier. Each elements of the array will then be printed using pointers.

2. **Write a program to swap two arrays using pointers.**

   Two arrays A[x] and B[x] of length x will first be taken as inputs from the user using an input function.

```
inputArray(int *arr, int size)
  {
  }
```

The arrays will then be swapped using the help of pointers from a separate function :

```
SwapArray(int *sourceArray, int destinationArray){
)
```

Another Function will later be used to print the arrays separately using a single print function

```
PrintArray(int *a, int size)
{
}
```

3. **Write a program to return multiple value from function using pointers**.

   First the user will take an array as input. The values of the array are passed to an **exciting** function that returns only the even numbers as an array output.

   int * exciting(int size, int * numbers)
   {
   }

   Another Function will later be used to print the arrays separately using a single print function
   PrintArray(int *a, int size)
   {
   }

4. Mr. John wants to keep a record of all the customers of his shop. For this he wants to hire you as his Track Recorder. Use a Data Structure in order to keep track of the purchase list of each customer. The customer must have the following properties:
   Customer (customer_name, customer_age, phone_num, purchase_list[], date_purchase)
   Here each variable of customer will represent a specific transaction.
   Write a program to represent each customer and then print out all the values inside each transaction using a print function.

5. **Write a program to find the difference Between two Time periods using Structure.** Here the function is used to find the resulting time difference.

   void differenceBetweenTimePeriod (struct TIME t1, struct TIME t2, struct TIME *diff);

   Here each Time will contain the following features:
   Time (int sec, int min, int hour)