Data Structures and Algorithms
Assignment - 1

RA2311003080028
Narmadha Devi
B.Tech CSE-C

1. Implementation of Structures Lab (Define a structure named Time with members hours, minutes and seconds. Write a C program to input two times, add them, and display the result in proper time format.

```
# include <stdio.h>
Struct Time {
        int hours;
        int minutes;
        int Seconds;
};

int main() {
        Struct Time t1, t2, result;
        printf ("Input first set of (hours minutes
                seconds)");
        Scanf ("%d %d %d", &t1.hours,
                &t1.minutes, &t1.seconds);
        printf ("Input second set of (hours
                minutes seconds): ");
        Scanf ("%d %d %d", &t2.hours,
```

```
                &t2.minutes, &t2.seconds );

    result.seconds = t1.seconds + t2.seconds;
    result.minutes = t1.minutes + t2.minutes
                   + result.seconds / 60;
    result.hours = t1.hours + t2.hours +
                   result.hours / 60;

    result.minutes %= 60;
    result.seconds %= 60;

    printf ("\n Resultant Time : %.02d :
            %.02d : %.02d", result.hours,
            result.minutes, result.seconds);

    return 0;
```

O/p :

```
>>> Input first set of (hours minutes seconds)
    7 12 20
>>> Input Second set of (hours minutes seconds):
    8 10 58
>>> Resultant Time : 15:23:18
```

2. Implementation of Structures using Pointers (Create a Structure named Book to store book details like title, author and price. Write a C program to input details for three books, find the most expensive and the lowest priced books, and display their information.)

```
# include <stdio.h>

Struct Book {

        char title [100];
        char Author [50];
        float price;
};
Struct arr [3], *ptr;

int main () {

    ptr = arr;
    for (int i=0; i < 3; i++) {
      printf (" Enter details of %d book : \n",
                i+1);
      printf (" Title : ");
      scanf (" %c", ptr [i]. title);
      printf (" Author : ");
      scanf (" %99[^\n]", ptr [i]. author);
```

```
printf ("price : ");
Scanf ("%.f", &ptr[i].price);

Struct Book * mostExpensive = &arr[0];
Struct Book * LeastExpensive = &arr[0];

for (int i=1; i<3; i++) {
   if (ptr[i].price >
        mostExpensive -> price) {
    mostExpensive = &ptr[i]; }

   If (ptr[i].price < lowestPrice -> price) {
      lowestPrice = &ptr[i]; }
}

printf ("\n Most Expensive : \n Title : %.s \n,
        Author : %.s \n Price : %..2f \n",
 mostExpensive -> title, mostExpensive -> author,
 mostExpensive -> price);

printf ("\n Lowest Priced : \n Title : %.s \n,
        Author: %.s \n Price : %..2f \n",
Lowest Priced -> title, LowestPriced -> author, LowestPriced -> price);

return 0; }
```