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Assignment: 1

Q1) 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.)

Ans:-

```
#include <stdio.h>
struct Time
{
    int hours;
    int minutes;
    int seconds;
};
void inputTime (struct Time *t)
{
    printf("Enter hours: ");
    scanf("%d", &t->hours);
    printf("Enter minutes:");
    scanf("%d", &t->minutes);
    printf("Enter seconds:");
    scanf("%d", &t->seconds);
}
void addTimes (struct Time t1, struct Time t2; struct Time *result)
{
    result->seconds = t1.seconds + t2.seconds;
    result->minutes = t1.minutes + t2.minutes + (result->seconds/60);
    result->seconds %= 60;
    result->hours = t1.hours + t2.hours + (result->minutes/60);
    result->minutes %= 60;
}
```

```
void displayTime(struct Time t)
{
  printf("Time: %02d: %02d: %02d\n", t.hours, t.minutes, t.seconds);
}
int main()
{
  struct Time t1, t2, sum;
  printf("Enter first time: \n");
  inputTime(&t1);
  printf("Enter second time: \n");
  inputTime(&t2);
  addTimes(t1, t2, &sum);
  printf("Sum of times: \n");
  displayTime(sum);
  return 0;
}
```

Output:-

```
Enter first time:
Enter hours: 5
Enter minutes: 30
Enter seconds: 24
Enter second time:
Enter hours: 3
Enter minutes: 22
Enter seconds: 14
Sum of times:
Time: 08:52:38
```

Q2) Implementation of Structures using Pointers.
Create a structure named Book to store book details like title, author, & price. Write a C program to input details for three books, find the most expensive & the lowest priced

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books, & display their information.)

Ans:-
```
#include <stdio.h>
#include <string.h>
struct Book
{
  char title[50];
  char author[50];
  float price;
};
int main()
{
  struct Book books[3];
  int i, min_index=0, max_index=0;
  printf("Enter details of 3 books:\n");
  for(i=0; i<3; i++)
  {
    printf("Book %d:\n", i+1);
    printf("Title:");
    scanf("%s", books[i].title);
    printf("Author:");
    scanf("%s", books[i].author);
    printf("Price:");
    scanf("%f", &books[i].price);
  }
  for(i=1; i<3; i++)
  {
    if(books[i].price < books[min_index].price)
    {
      min_index=i;
    }
    if(books[i].price > books[max_index].price)
    {
      max_index=i;
    }
  }
```

```
printf("\n Most expensive book:\n");
printf("Title: %s\n", books[max_index].title);
printf("Author: %s\n", books[max_index].author);
printf("Price: %.2f\n", books[max_index].price);
printf("\n Lowest priced book:\n");
printf("Title: %s\n", books[min_index].title);
printf("Author: %s\n", books[min_index].author);
printf("Price: %.2f\n", books[min_index].price);
return 0;
}
```

Output :-

```
Enter details of 3 books:
Book 1:
Title: The Alchemist
Author: Paulo Coelho
Price: 500
Book 2:
Title: Wings of Fire
Author: APJ. Abdul Kalam
Price: 200
Book 3:
Title: Harry Potter
Author: J.K Rowling
Price: 350

Most expensive book:
Title: The Alchemist
Author: Paulo Coelho
Price: 500.00

Lowest priced book:
Title: Wings of Fire
Author: APJ. Abdul Kalam
Price: 200.00
```