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ROLL NO.: 47
CLASS: D1AD

CP LAB ASSIGNMENT 5

SECTION:

THEORY:
Arrays allow to define types of variables that can hold several data items of the same kind. Similarly structure is another user defined data type available in C that allows combining data items of different kinds. Structures are used to represent a record. To define a structure, you must use the struct statement. The struct statement defines a new data type, with more than one member. The format of the struct statement is as follows −

```
struct [structure tag] {

   member definition;
   member definition;
   ...
   member definition;
} [one or more structure variables];
```

The structure tag is optional and each member definition is a normal variable definition, such as int i; or float f; or any other valid variable definition. At the end of the structure's definition, before the final semicolon, you can specify one or more structure variables but it is optional.

(**b**)
AIM: To calculate the difference between two time periods.

PROGRAM C CODE:

```
#include <stdio.h>
struct TIME {
   int seconds;
   int minutes;
   int hours;
};
void differenceBetweenTimePeriod(struct TIME t1, struct TIME t2, struct TIME *diff);
int main() {
   struct TIME startTime, stopTime, diff;
   printf("Enter the start time. \n");
   printf("Enter hours, minutes and seconds: ");
   scanf("%d %d %d", &startTime.hours, &startTime.minutes, &startTime.seconds);
   printf("Enter the stop time. \n");
   printf("Enter hours, minutes and seconds: ");
   scanf("%d %d %d", &stopTime.hours, &stopTime.minutes, &stopTime.seconds);
   differenceBetweenTimePeriod(startTime, stopTime, &diff);
   printf("\nTime Difference: %d:%d:%d - ", startTime.hours, startTime.minutes,
startTime.seconds);
   printf("%d:%d:%d ", stopTime.hours, stopTime.minutes, stopTime.seconds);
   printf("= %d:%d:%d\n", diff.hours, diff.minutes, diff.seconds);
   return 0;
}
void differenceBetweenTimePeriod(struct TIME start, struct TIME stop, struct TIME *diff)
{
   while (stop.seconds > start.seconds)
   {
      --start.minutes;
      start.seconds += 60;
   }
   diff->seconds = start.seconds - stop.seconds;
   while (stop.minutes > start.minutes)
   {
      --start.hours;
      start.minutes += 60;
   }
   diff->minutes = start.minutes - stop.minutes;
```

```
    diff->hours = start.hours - stop.hours;
}
```

OUTPUT:

```
Enter the start time.
Enter hours, minutes and seconds: 13 55 6
Enter the stop time.
Enter hours, minutes and seconds: 2 60 8
Time Difference: 13:55:6 - 2:60:8 = 10:54:58
```