



ANJUMAN-I-ISLAM'S KALSEKAR TECHNICAL CAMPUS
School of Engineering & Technology

Affiliated to : University of Mumbai, Recognised by : DTE (Maharashtra) & Approved by : AICTE (New Delhi)

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Class: BE-CO	Batch: 01
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Aim : To Implement the Berkeley Algorithm.

Code:

Berkeley.java

```
import java.util.*;
public class Berkeley
{
    public static int getTime(String time)
    {
        String[] temp = time.split(":");
        int rtime = Integer.parseInt(temp[2]) + Integer.parseInt(temp[1])*60 +
        Integer.parseInt(temp[0])*60*60;
        return rtime;
    }
    public static String setTime(int time)
    {
        String rtime = new String();
        for(int i=0;i<2;i++)
        {
            int power = (int)(Math.pow(60,2- i));
            if((time/power)/10>0)
            rtime = rtime + time/power;
            else
            rtime = rtime + "0" + time/power;
            time = time%power;
            rtime = rtime + ":";
        }
        if(time/10>0)
            rtime = rtime + time;
        else
            rtime = rtime + "0" + time;
        return rtime;
    }
}
```

```

}
public static void main (String args[])
{
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of machines: ");
    int n = sc.nextInt();
    String times[] = new String[n];
    System.out.println("\nEnter current time of machines (HH:mm:ss) : ");
    for(int i=0;i<n;i++)
    {
        System.out.print("Machine " + i + ": ");
        times[i] = new String();
        times[i] = sc.next();
    }
    System.out.println("\nStarting Simulation!\nMachine 0 is assumed as server and starts
    synchronization process.");
    int st = getTime(times[0]);
    int tot=0;
    for(int i=0;i<n;i++)
    {
        System.out.println("Machine 0 sends TIME = " + times[0] + " to Machine " + i);
        int diff = getTime(times[i])-st;
        System.out.println("Machine " + i + " replies " + diff + " to Machine 0");
        tot+=diff;
    }
    int avg = tot/n;
    times[0] = setTime(st+avg);
    System.out.println("\nMachine 0 sets new TIME = " + times[0] + " and sends it to all other
    machines.");
    System.out.println("All machines set their time to "+ times[0]);
}
}

```

```

A:\Users\Sohail Sayyed\Desktop\Desktop 1\college files\Sem VIII\DC\DC Lab>javac Berkeley.java

```

```

A:\Users\Sohail Sayyed\Desktop\Desktop 1\college files\Sem VIII\DC\DC Lab>java Berkeley
Enter number of machines: 3

```

```
Enter current time of machines (HH:mm:ss) :  
Machine 0: 12:05:11  
Machine 1: 1:00:00  
Machine 2: 4:25:00  
  
Starting Simulation!  
Machine 0 is assumed as server and starts synchronization process.  
Machine 0 sends TIME = 12:05:11 to Machine 0  
Machine 0 replies 0 to Machine 0  
Machine 0 sends TIME = 12:05:11 to Machine 1  
Machine 1 replies -39511 to Machine 0  
Machine 0 sends TIME = 12:05:11 to Machine 2  
Machine 2 replies -27011 to Machine 0  
  
Machine 0 sets new TIME = 05:50:04 and sends it to all other machines.  
All machines set their time to 05:50:04
```

Conclusion:

Berkeley Algorithm has been executed successfully and gives the required output.