Faculty of Engineering I-CHEP
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Q1:

Check even and odd numbers

Finding minimum and maximum number in array

Source Code:

```
public class solution {
   public boolean odd = false;
   boolean even_odd(int n){
      boolean ans = false;
      if(n%2 == 0){
         ans = true;
      } else {
         ans = false;
      }
      if(odd) ans = !ans; //return true if odd attribute is true and n odd
      return ans;
   }
   int [] max_min(int [] arr, int size){ //return min, max in array
      int [] arr2 = new int[2];
      arr2[0] = Integer.MIN_VALUE;
      arr2[1] = Integer.MAX_VALUE;
      for(int i = 0; i < size; i++){
         if(arr[i] > arr2[0]){
            arr2[0] = arr[i];
         }
         if(arr[i] < arr2[1]) {
            arr2[1] = arr[i];
         }
      }
      return arr2;
   }
}
```

Q3:

Q2:

Edge Coverage

Tc1(“aabad”, <display, 1-1-2000, 0:0>)

Tc2(“cdcbabababababaa”, <display, 2-2,-2001, 1:1>)

ADUP Testing

Result <state, day-month-year, h:m>

Tc1(“cbbabbabbabbabba”, <display, 3-3-2002, 2:2>)

Tc2(“cbabababababaa”,<display, 2-2-2001, 1:1>)

Source Code:

```
public class watch {
   private String state= "NORMAL";
   private String state1 = "TIME";
   int m=0,h=0, D=1,M=1, Y=2000;

   public void change_state(String input) {
      for (int i = 0; i < input.length(); i++) {
         System.out.print(state + " ");
         System.out.print(state1+" ");
         System.out.println(input.charAt(i));
         switch (state) {
            case "NORMAL":
               if (input.charAt(i) == 'c') {
                  state = "UPDATE";
                  state1 = "MIN";
               } else if (input.charAt(i) == 'b') {
                  state = "ALARM";
```

```
        state1 = "ALARM";
    } else if (input.charAt(i) == 'a') {
        if (state1 == "TIME") {
            state1 = "DATE";
        } else {
            state1 = "TIME";
        }
    }
    break;
case "UPDATE":
    if(input.charAt(i) == 'd'){
        state = "NORMAL";
        state1 = "TIME";
    } else if(input.charAt(i) == 'a' && state1 == "MIN") {
        state1 = "HOUR";
    } else if(input.charAt(i) == 'b' && state1 == "MIN") {
        m+=1;
        if(m%60 == 0) {
            h++;
            m = 0;
        }
    }else if(input.charAt(i) == 'a' && state1 == "HOUR") {
        state1 = "DAY";
    } else if(input.charAt(i) == 'b' && state1 == "HOUR") {
        h+=1;
        if(h%24 == 0) {
            D++;
            h = 0;
        }
```

```
    } else if(input.charAt(i) == 'a' && state1 == "DAY") {
        state1 = "MONTH";
    }else if(input.charAt(i) == 'b' && state1 == "DAY") {
        D+=1;
        if(D%31 == 0) {
            M++;
            D++;
        }
        D = D%31;
    } else if(input.charAt(i) == 'a' && state1 == "MONTH") {
        state1 = "YEAR";
    }else if(input.charAt(i) == 'b' && state1 == "MONTH") {
        M+=1;
        if(M%13 == 0){
            Y++;
            M++;
        }
        M = M%13;
    } else if(input.charAt(i) == 'a' && state1 == "YEAR"){
        state1 = "TIME";
        state = "NORMAL";
    }else if(input.charAt(i) == 'b' && state1 == "YEAR") Y+=1;
    break;

case "ALARM":
    if(input.charAt(i) == 'a'){
        state1 = "CHIME";
    } else if(input.charAt(i) == 'd'){
        state1 = "TIME";
```

```
                state = "NORMAL";
            }
            break;
        }
    }
}
public String displayDate(){
    return Y + "-" + M + "-" + D;
}
public String displayTime(){
    return h + ":" + m;
}
public String getState() {
    return state;
}
public String getState1() {
    return state1;
}
}
```

Screenshot: