**0ctober 2016 Technical Programming 1 Memo**

**Question One True and False [15 Marks]**

1.1 T

1.2 T

1.3 F

1.4 F

1.5 T

1.6 T

1.7 T

1.8 F

1.9 F

1.10 T

1.11 F

1.12 F

1.13 F

1.14 T

1.15 T

**Question Two (Multiple Choice) [15Marks]**

2.1 B

2.2 C

2.3 A

2.4 B

2.5 D

2.6 D

2.7 B

2.8 C

2.9 D

2.10 B

2.11 B

2.12 D

2.13 C

2.14 A

2.15 A

**QUESTION THREE [15 MARKS]**

3.1 1

3.2.1 f

3.2.2 36

3.2.3 5

3.2.4 Axxette

3.3 14

3.4 86

3.5 10

3.6

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 5 | 1 | 8 | 6 | 15 | 15 |

3.7

|  |  |  |
| --- | --- | --- |
| 0 | 0 | 0 |
| 0 | 1 | 2 |
| 0 | 2 | 4 |

**QUESTION FOUR [30 MARKS]**

import java.util.\*;  
public class Election  
{  
 public static void main(String []args)  
 { String []names = {"Thabo","Khan","Muzi","Julius","Jacob"};  
 int [][] votes = new int[5][3];  
 int [] total = new int[5];  
 input(votes, names);  
 findHighest(votes, names);  
 calculateTotal(votes, total);  
 output(votes, names, total);  
 searchName(names, total);  
 }  
   
 public static void input(int [][] votes, String []names)  
 { Scanner kb = new Scanner(System.in);   
 int can, dis;  
 for(can=0; can<5; can++)  
 { System.out.println("Candidate:" + names[can]);   
 for(dis=0; dis<3; dis++)  
 { System.out.println("Enter votes cast for district " + (dis+1));  
 votes[can][dis] = kb.nextInt();  
 }  
 }   
 }  
   
 public static void findHighest(int [][] votes, String [] names)  
 { int can, dis, highest=0, bestDistrict = 0;  
 String bestCandidate = "";  
 for(can=0; can<5; can++)  
 { for(dis=0; dis<3; dis++)  
 { if (votes[can][dis] > highest)  
 { highest = votes[can][dis];  
 bestDistrict = dis+1;  
 bestCandidate = names[can];  
 }  
 }  
 }  
 System.out.println("Highest number of votes was " + highest + " \nfrom district " + bestDistrict + "\nfor the candidate " + bestCandidate);  
 }  
   
 public static void calculateTotal(int [][] votes, int [] total)  
 { int can, dis;  
 for(can=0; can<5; can++)  
 {   
 for(dis=0; dis<3; dis++)  
 total[can] = total[can] + votes[can][dis];  
   
 }  
 }  
   
 public static void output(int [][] votes, String [] names, int [] total)  
 { int can, dis;  
 System.out.println("Candidate \t District 1\tDistrict 2\tDistrict 3\t Total Votes");  
 for(can=0; can<5; can++)  
 { System.out.print(names[can] + "\t\t");   
 for(dis=0; dis<3; dis++)  
 System.out.print(votes[can][dis] + "\t\t");  
 System.out.print(total[can]);   
 System.out.println();  
   
 }  
 }  
  
 public static void searchName(String [] names, int [] total)  
 { int can = 0;   
 boolean found = false;   
 Scanner kb = new Scanner(System.in);   
 System.out.println("Enter name of candidate:");  
 String candidate = kb.nextLine();  
 while (!found && can < names.length)  
 { if (candidate.equalsIgnoreCase(names[can]))  
 found = true;  
 else  
 can++;  
 }  
 if (found==true)  
 System.out.println("Total number of votes is: " + total[can]);  
 else  
 System.out.println("Candidate was not found!");   
 }  
   
   
 }

**QUESTION FIVE [25 MARKS]**

public class FitnessTracker  
{ private String activity;  
 private int minutes;  
 private String date;  
 private int points;  
   
 public FitnessTracker()  
 { activity = "running";  
 minutes = 0;  
 date = "1 January 2016";  
 points = 0;  
 }  
   
 public FitnessTracker(String a, int m, String d, int p)  
 { activity = a;  
 minutes = m;  
 date = d;  
 points = p;  
 }  
   
 public void setActivity(String a)  
 { activity = a;   
 }  
   
 public void setMinutes(int m)  
 { minutes = m;   
 }  
  
 public void setDate(String d)  
 { date = d;   
 }  
  
 public String getActivity()  
 { return activity;  
 }  
  
 public int getMinutes()  
 { return minutes;  
 }  
  
 public String getDate()  
 { return date;  
 }

public int getPoints()  
 { return points;  
 }  
  
   
 public void calculatePoints()  
 { if (minutes == 0)  
 points = 0;  
 else if (minutes <= 30)  
 points = 50;  
 else   
 points = 100;  
 }  
   
 public String toString()  
 { String outString = "";  
 outString = "Activity: " + activity + "\nMinutes exercised: " + minutes +   
 "\nDate of activity: " + date + "\nPoints earned: " + points;  
 return outString;  
  
   
 }   
}

TEST DRIVER

import java.util.\*;  
  
public class testFitnessTracker  
{ public static void main(String [] args)  
 { FitnessTracker member1 = new FitnessTracker();  
 FitnessTracker member2 = new FitnessTracker("cycling",60,"4 October 2016",0);  
 member2.calculatePoints();  
 System.out.println(member1.toString());   
 System.out.println(member2.toString());  
 }  
  
}