INSTITUTE OF SOFTWARE ENGINEERING

GRADUATE DIPLOMA IN SOFTWARE ENGINEERING

ASSIGNMENT NAME

Programming fundamentals

ASSIGNMENT NO

08

NUMBER OF QUESTIONS: 22

NUMBER OF COMPLETED QUESTIONS: 22

NUMBER OF REMAINING QUESTIONS: 00

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BATCH NO: 63

```
import java.util.*;
class Example{
	public static int[][] tenDays(){
		Scanner input=new Scanner(System.in);
		int[][] p_c = new int[2][10];
		for(int i = 0 ; i< p_c[0].length ; i++){
			System.out.print("Input Day "+(i+1)+" Pation Count : ");
			p_c[1][i] = input.nextInt();
			p_c[0][i]=i+1;
		}
		return p_c;
	}

	public static void printTenDays(int[][] p_c){
		System.out.println();
		for(int j = 0 ; j < p_c.length ; j++){
			if(j==0){System.out.print("Days");}
			if(j==1){System.out.print("Count");}
			for(int i = 0 ; i<p_c[j].length ; i++){
				if(j==0){
					String s= i+1 == 1 ? "st" : i+1 == 2 ? "nd" : i+1 == 3 ? "rd" : "th";
					System.out.print("\t"+p_c[j][i]+s);
				}
				if(j>0){
					System.out.print("\t"+p_c[j][i]);
				}
			}
			System.out.println(" \n");
		}
	}

	public static int[][] calcPationsPerMonths(int [] dpm){
```

```
        Random r = new Random();
        int[][] m_d=new int[12][];
        for(int i = 0 ; i<dpm.length ; i++){
                int[] temp=new int[dpm[i]];
                m_d[i]=temp;
        }
        for(int i = 0 ; i < m_d.length ; i++){
                for(int j =0 ; j< m_d[i].length ; j++){
                        m_d[i][j] = r.nextInt(200);
                }
        }
        return m_d;
}

public static void printAll(int[][] d_p_o_e_m ,String[] months){

        System.out.print("Gathering Data "+" \t");
                        for(int i = 0 ; i< 5 ; i++){
                                try{Thread.sleep(500);}catch(Exception ex){}
                                System.out.print(".");
                        }

        System.out.println();
        for(int i = 1 ; i <= 31 ; i++){
                String f= i==1 ? "st" : i==2 ? "nd" : i == 3 ? "rd" : "th";
                System.out.print("\t"+i+f);

        }
        System.out.println();
        for(int i = 0 ; i< d_p_o_e_m.length ; i++){
                System.out.print(months[i]);
                for(int j = 0 ; j< d_p_o_e_m[i].length ; j++){
```

```
                System.out.print("\t " +d_p_o_e_m[i][j]);
            }
            System.out.println();
        }
}

public static void update(int[][] ar){
        Scanner input = new Scanner(System.in);
        System.out.print("Input the Month No that You want to Update : ");
        int x= input.nextInt();
        if((x>=1)&&(x-1<ar.length)){
            System.out.print("Input the date that You want to update : ");
            int y=input.nextInt();
            if(y-1<ar[x-1].length){
                System.out.println("The Number Of Already Exists is "+ar[x-1][y-1]);
                System.out.print("Input the new Value : ");
                int t= input.nextInt();
                ar[x-1][y-1]=t;
                System.out.print("Updating Data"+" \t");
                for(int i = 0 ; i< 5 ; i++){
                    try{Thread.sleep(500);}catch(Exception ex){}
                    System.out.print(".");
                }
                System.out.println("\nData Update Successful");
            }else{
                System.out.println("Wrong Date input Please try again later");
            }
        }else{
            System.out.println("Wrog Month Input Please Try again");
        }
}
```

```
	public static void monthlyTotal(int[][] ar){
		Scanner input = new Scanner(System.in);
		System.out.print("Input Month No that You want to take the Total : ");
		int x=input.nextInt();
		int total=0;
		if((x-1 >=0)&&(x-1<ar.length)){

			System.out.print("Colecting Data From Resourses"+" \t");
				for(int i = 0 ; i< 5 ; i++){
					try{Thread.sleep(500);}catch(Exception ex){}
					System.out.print(".");
				}

			for(int i = 0 ; i<ar[x-1].length ; i++){
				total=total+ar[x-1][i];
			}
			String s= x==1 ? "January" : x==2 ? "February" : x==3 ? "March " : x== 4 ? "April" : x==5 ? "May" :
x== 6 ? "June" : x==7 ? "July" : x==8 ? "Auguest" : x==9 ? "September" : x==10 ? "Octomber" : x==11 ? "November"
:"December";
			System.out.println("\nTotal  patient count of the month "+s +" : "+total);
		}else{
			System.out.println("Wrong Input Please Try Again ");
		}
	}

	public static void printHelp(){
		System.out.println("\t\t\tInput print For All Details : ");
		System.out.println("\t\t\tInput update for update data : ");
		System.out.println("\t\t\tInput m.total For get total of patient count of selected month ");
		System.out.println("\t\t\tInput t.31 For Get Total Of months which hold 31 days ");
		System.out.println("\t\t\tInput y.total For Get Total Patient Count in the Year");
		System.out.println("\t\t\tInput max To get the day that the maximum number of patients were detected
in a given month.");
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```
		System.out.println("\t\t\tInput min To get the day that the minimum number of patients were detected in a given month.");
		System.out.println("\t\t\tInput m.max To determine the month with the most patients were detected.");
		System.out.println("\t\t\tInput m.min To determine the month with the least patients were detected.");
		System.out.println("\t\t\tInput g.150 To print days that patients count is over 150 in a given month.");
		System.out.println("\t\t\tInput search To Get patient count for given month and day by the user.");
		System.out.println("\t\t\tInput avg To get the average patient count for a given month.");
		System.out.println("\t\t\tInput s.day To print patient count in every month for the given day by the user.");
		System.out.println("\t\t\tInput y.max To return the day and the month where the maximum patient count was detected in the year 2019.");
		System.out.println("\t\t\tInput v.price To calculate Vaccin Price For Selected Month");
		System.out.println("\t\t\tInput swap To Swap Data Of Two Months");
	}

	public static void totalOf31st(int[][] ar){
		int total=0;
		for(int i = 0 ; i < ar.length ; i++){
			if(ar[i].length != 31){
				continue;
			}
			for(int j = 0 ; j<31 ; j++){
				total=total+ar[i][j];
			}

		}
		System.out.println("Total of every months which hold 31 days : "+total);

	}

	public static void yearTotal(int [][]ar){
```

```
        System.out.print("Collecting Data From Resourses"+" \t");
                        for(int i = 0 ; i< 5 ; i++){
                                try{Thread.sleep(500);}catch(Exception ex){}
                                System.out.print(".");
                        }

        int total=0;
        for(int i=0 ; i<ar.length ; i++){
                for(int j = 0 ; j < ar[i].length ; j++){
                        total=total+ar[i][j];
                }
        }
        System.out.println("\nTotal of pationts in the Year : "+total);
}

public static void searchMax(int[][]ar , String[] month){
        Scanner input = new Scanner(System.in);
        System.out.print("Input the month no that You want to find the date Maximum patient founded : ");
        int x = input.nextInt();
        if((x-1>=0)&&(x-1<ar[x-1].length)){
                System.out.print("Searching Maximum Patient Count of "+month[x-1]+" From Resourses \t");
                        for(int i = 0 ; i< 5 ; i++){
                                try{Thread.sleep(500);}catch(Exception ex){}
                                System.out.print(".");
                        }

                int max=ar[x-1][0];
                int index = 0;
                for(int i = 1 ; i<ar[x-1].length ; i++){
                        if(max<ar[x-1][i]){
                                max=ar[x-1][i];
                                index=i;
```

```
                }
            }
            System.out.println("\n"+month[x-1]+"  Maximum Patient count "+max+"  Founded on day of :
"+(index+1));
        }else{
            System.out.println("Wrong Month Input Please Try again");
            }
    }

    public static void searchMin(int[][]ar , String[] month){
        Scanner input = new Scanner(System.in);
        System.out.print("Input the month no that You want to find the date Minimum patient founded : ");
        int x = input.nextInt();
        if((x-1>=0)&&(x-1<ar[x-1].length)){

            System.out.print("Searching Minimum Patient Count of "+month[x-1]+" From Resourses \t");
                for(int i = 0 ; i< 5 ; i++){
                    try{Thread.sleep(500);}catch(Exception ex){}
                    System.out.print(".");
                }

            int min=ar[x-1][0];
            int index = 0;
            for(int i = 1 ; i<ar[x-1].length ; i++){
                if(min>ar[x-1][i]){
                    min=ar[x-1][i];
                    index=i;
                }
            }
            System.out.println(month[x-1]+"  Miniimum Patient count "+min+"  Founded on day of :
"+(index+1));
        }else{
            System.out.println("Wrong Month Input Please Try again");
```

```
                }
}

public static void findSame(int[][]ar , String[] month){
        Scanner input=new Scanner(System.in);
        System.out.print("Input The Month Number That You Want to find Same Patient Count : ");
        int x= input.nextInt();

        if(((x-1) >= 0)&&( (x-1)< ar.length )){

                System.out.print("Finding Same Patient Count of "+month[x-1]+" From Resourses \t");
                        for(int i = 0 ; i< 5 ; i++){
                                try{Thread.sleep(500);}catch(Exception ex){}
                                System.out.print(".");
                        }

                int[] temp = new int[ar[x-1].length];
                for(int i = 0 ; i< temp.length ; i++){
                        temp[i]=ar[x-1][i];
                }
                int[] c_0 = new int[0];
                int c0=0;
                for(int i=0 ; i < temp.length ; i++){
                        if(temp[i]==0){
                                c0++;
                                int[] tc=new int[c_0.length+1];
                                for(int j = 0 ; j < c_0.length ; j++){
                                        tc[j]=c_0[j];
                                }
                                tc[tc.length-1]= i ;
                                c_0 = tc;
                        }
```

```
                }
                if(c0>1){
                        System.out.print(0+" Pations Found On  ");
                        for(int k= 0 ; k<c_0.length ; k++){
                                System.out.print( (c_0[k]+1)+"          \t");
                        }
                }
                System.out.println();

                for(int i=0 ; i < temp.length ; i++ ){
                        //System.out.print(temp[i]);
                        int count=0;
                        for(int j=i+1  ; j < temp.length ; j++){
                                if((temp[i] == temp[j])&&(temp[i]!=0)&&(temp[j]!=0)){
                                        if(count <= 0 ){
                                                System.out.print(temp[i]+" Pations Found On  \t"+(i+1)+" \t");
                                        }
                                        count++;
                                        System.out.print((j+1)+"       \t");
                                        temp[j]=0;
                                }
                        }
                        if(count == 0){
                                continue;
                        }
                        System.out.println();
                }
        }
}

public static void findMMax(int[][]ar , String[] month){
```

```
        System.out.print("Finding month with the most patients were detected  From Resourses \t");
                        for(int i = 0 ; i< 5 ; i++){
                                try{Thread.sleep(500);}catch(Exception ex){}
                                System.out.print(".");
                        }

        int[] Total = new int[ar.length];
        for(int i = 0 ; i < ar.length ; i++){
                for(int j=0 ; j<ar[i].length ; j++){
                        Total[i] = Total[i] + ar[i][j];
                }
        }
        int max=Total[0];
        int index=0;
        for(int i = 0 ; i < Total.length ; i++){
                if(max<Total[i]){
                        max=Total[i];
                        index=i;
                }
        }
        System.out.println("Maximum of "+max + " Patients Founded On Month Of "+month[index]);
}

public static void findMMin(int[][]ar , String[] month){
        int[] Total = new int[ar.length];
        for(int i = 0 ; i < ar.length ; i++){
                for(int j=0 ; j<ar[i].length ; j++){
                        Total[i] = Total[i] + ar[i][j];
                }
        }
        int min=Total[0];
        int index=0;
```

```
		for(int i = 0 ; i < Total.length ; i++){
			if(min>Total[i]){
				min=Total[i];
				index=i;
			}
		}
		System.out.println("Minimum of "+min + " Patients Founded On Month Of "+month[index]);
	}

	public static void graterThan150(int[][] ar, String[] month){
		Scanner input = new Scanner(System.in);
		System.out.print("\nInput the month Number That you want to get dates which patient count is grater than 150 :");
		int x = input.nextInt();
		if((x>=0)&&(x<ar.length)){
			System.out.print("\n\t\t\tMonth of "+month[x-1]);
			System.out.println(" Dates Which Holdes Pations Count Grater Than 150  ");
			for(int i = 0 ; i < ar[x-1].length ; i++){
				if(ar[x-1][i] >= 150){
					System.out.println("\t\t\t\t"+i+"   :   "+ar[x-1][i]);
				}
			}
		}
	}

	public static void Search(int[][] ar,String[] month){
		Scanner input=new Scanner(System.in);
		System.out.print("Input The Month For Search Data : ");
		int x=input.nextInt();
		if(((x-1)>=0)&&((x-1)<ar.length)){
			System.out.println(month[x-1]+" Has "+ar[x-1].length+" Days ");
			System.out.print("Input Date For Searching Patient Count : ");
```

```
                int y = input.nextInt();
                if(((y-1)>=0)&&((y-1)<ar[x-1].length)){
                        System.out.println(month[x-1]+"/"+y+" patient count is :"+ar[x-1][y-1]);
                }else{
                        System.out.println("Wrong Date Input Please Try again");
                }
        }else{
                System.out.println("Wrong Month input Please Try again ");
        }
}

public static void avgPatientOfGivenMonth(int[][] ar , String[] month ){
        Scanner input=new Scanner(System.in);
        System.out.print("Input The Month To Take The Avarage Of The Patients : ");
        int x=input.nextInt();
        if(((x-1)>=0)&&((x-1)<ar.length)){
                System.out.print("Calculating The Avg Of The Month "+month[x-1]+"\t");
                for(int i = 0 ; i< 5 ; i++){
                        try{Thread.sleep(500);}catch(Exception ex){}
                        System.out.print(".");
                }
                int total=0;
                for(int i = 0 ; i<ar[x-1].length ; i++){
                        total=total+ar[x-1][i];
                }
                double avg=(double)total/ar[x-1].length;
                System.out.println("\nTask Compleated\n"+"Avarage Of "+month[x-1]+" Patients : "+avg);
        }else{
                System.out.println("Wrong Month Input Try Again");
        }
}
```

```
public static void printDataOfEveryMonthByUserInput(int[][] ar , String[] month){
        Scanner input = new Scanner(System.in);
        System.out.print("Input The Date For View Data : ");
        int x=input.nextInt();
        if(((x-1)>=0 )&&((x-1)<=31)){
            for(int i = 0 ; i < ar.length ; i++){
                if((x-1) > ar[i].length-1){
                    continue;
                }
                System.out.println(month[i]+"/"+(x)+" Patient Count : "+ar[i][x-1]);
            }
        }else{
            System.out.println("Wrong Month Input Please Try Again");
        }
}

public static void findMaxOfTheYear(int [][] ar, String[] month){

        int max = ar[0][0];
        int index_m=0;
        int index_d=0;
        for(int i = 0 ; i < ar.length ; i++){
            for(int j = 0 ; j <ar[i].length ; j++){
                if(max<ar[i][j]){
                    max=ar[i][j];
                    index_m=i;
                    index_d=j;
                }
            }
        }
        System.out.println("Maximum Patient Count Of "+max+" Founded on "+month[index_m]+" /
"+(index_d+1));
```

```
	}

	public static void priceForVaccination(int[][] ar , String[] month){
		Scanner input = new Scanner(System.in);
		System.out.print("Input Month For Calculate the Total Vaccination Cost : ");
		int x=input.nextInt();
		if(((x-1)>=0)&&((x-1)<ar.length)){
			System.out.print("Calculatin The Vaccination  Cost of "+month[x-1]+"  \t");
			for(int i = 0 ; i< 5 ; i++){
				try{Thread.sleep(500);}catch(Exception ex){}
				System.out.print(".");
			}

			int total=0;
			for(int i = 0 ; i < ar[x-1].length ; i++){
				total=total+ar[x-1][i];
			}
			double cost=total*150;
			System.out.println("\nVaccination Cost For "+total+" Patients  in Month Of "+month[x-1]+" :
"+cost);
		}else{
			System.out.println("Wrong Month Input ");
		}

	}

	public static void swapData(int[][] ar, String[] month){
		Scanner input = new Scanner(System.in);
		System.out.print("Input A  Month No : ");
		int x=input.nextInt();
		x=x-1;
```

```
if(x>= 0 && x<ar.length){
        int y = input.nextInt();
        y=y-1;
        if(y>= 0 && y<ar.length){
            System.out.print("Swapping Data From "+month[x]+" to "+month[y]+" \t");
            for(int i = 0 ; i< 5 ; i++){
                try{Thread.sleep(500);}catch(Exception ex){}
                System.out.print(".");
            }

            int min=y;
            int max=x;
            if(min<x){
                min=x;
                max=y;
            }
            if(max!=min){
                System.out.println("\n\t\t\t"+month[max]);
                for(int i = ar[min].length ; i < ar[max].length ; i++){
                    System.out.println((i+1)+" Patient Data Will Be Lost  "+ar[max][i]);
                }
            }
            int[] tem=new int[ar[max].length];
            for(int i = 0 ; i < ar[min].length ; i++){
                tem[i] = ar[min][i];
            }
            for(int i=0 ; i<ar[min].length ; i++){
                ar[min][i] = ar[max][i];
            }
            ar[max]=tem;
            System.out.println("You can add those data Using update Keyword");
```

```
                }else{
                        System.out.println("Wrong Month Input : ");
                }
        }else{
                System.out.println("Wrong Month Input : ");
        }
}

public static void ascSpecificMonth(int[][] ar , String[] month){
        Scanner input = new Scanner(System.in);
        System.out.print("Input Month Number For Take The data As Ascending Order : ");
        int x=input.nextInt();
        x=x-1;
        if((x>=0) &&(x<ar[x].length)){
                int[] k = new int[ar[x].length];
                for(int i=0 ; i<ar[x].length ; i++){
                        k[i]=ar[x][i];
                }

                System.out.print("Setting The Month of "+month[x-1]+"  Ascending order\t");
                for(int i = 0 ; i< 5 ; i++){
                        try{Thread.sleep(500);}catch(Exception ex){}
                        System.out.print(".");
                }


                for(int i = k.length-1  ; i >= 0; i-- ){
                        int max=k[0];
                        int index=0;
                        for(int j=1 ; j<=i ; j++
                         ){
                                if(k[j] > max){
```

```
                                        max=k[j];
                                        index=j;
                                    }
                                }
                                k[index]=k[i];
                                k[i]=max;
                            }
                            System.out.println("\n"+Arrays.toString(k));
                        }
                    }

                    public static void main(String args[]){
                        Scanner input = new Scanner(System.in);
                        Random r=new Random();
                        int[][] p_c = tenDays();
                        printTenDays(p_c);
                        int days_per_month [] = {31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31};
                        String [] months = {"Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul", "Aug", "Sep","Oct", "Nov", "Dec"};
                        int[][] d_p_o_e_m=calcPationsPerMonths(days_per_month);//Qution no 4.
                        String x;
                        System.out.println("\t\t\t\tInput help For Get help");
                        do{
                            System.out.print("Input Keyword : ");
                            x=input.nextLine();
                            switch(x){
                                case "print"                    : printAll(d_p_o_e_m,months)  ;break; //
Question No 5.
                                case "update"           : update(d_p_o_e_m) ;break;//Question No 6.
                                case "m.total"          : monthlyTotal(d_p_o_e_m) ;break;//Question 7.
                                case "help"                     : printHelp();break;
                                case "t.31"                     :totalOf31st(d_p_o_e_m);break; //Question No
8
                                case "y.total"          :yearTotal(d_p_o_e_m);break;//Question No 9
```

```
                                    case "max"
        :searchMax(d_p_o_e_m,months);break;//Question No 10
                                    case "min"                              :searchMin(d_p_o_e_m,months);break;
//Question No 11
                                    case"findsame"          :findSame(d_p_o_e_m , months);break; //Question No 12
                                    case "m.max"                    :findMMax(d_p_o_e_m , months);break; //Question No
13
                                    case "m.min"                    :findMMin(d_p_o_e_m , months);break; //Question No
14
                                    case "g.150"                    :graterThan150(d_p_o_e_m , months);break;
//Question No 15
                                    case "search"           :Search(d_p_o_e_m,months);break; //Question 16
                                    case "avg"                              :
avgPatientOfGivenMonth(d_p_o_e_m,months);break;  //Question 17
                                    case "s.day"                    :
printDataOfEveryMonthByUserInput(d_p_o_e_m,months);break;  //Question 18
                                    case "y.max"                    : findMaxOfTheYear(d_p_o_e_m,months);break; //
//Question 19
                                    case "v.price"                  :priceForVaccination(d_p_o_e_m,months);break;
//Question 20
                                    case "swap"                             :swapData(d_p_o_e_m,months);break;
//Question 21
                                    case "asc"                              :ascSpecificMonth(d_p_o_e_m,months);break;
// //Question 22
                                    default                 : System.out.println("Try again");break;
                                    case "exit"                             : System.out.println("Good Bye ");break;
                            }
                    }while(!(x.equals("exit")));
        }
}
```