JAVA ASSIGNMENT - 2

SESSION 2021-2022

LAB REPORT SUBMITTED

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1.You are required to maintain your own record that includes your name, father'sname, date of birth, age (computed with respect to the current date). The ageincludes years, months and days. You are required to show your record on thedisplay screen such as: for displaying your name, it should display like "Nameof the student:" followed by its value. Display of each entity should starts withnew line. Use scannerclass for getting the input from keyboard.

Code:-

```java
package com.company;
import java.util.Scanner;
public class q1 {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
    String name, fathername,dob;
    int age;
        System.out.println("Enter the student name");
    name = input.nextLine();
        System.out.println("Enter father's name");
        fathername= input.nextLine();
        System.out.println("Enter date of birth (years/month/day)");
        dob = input.nextLine();
        System.out.println("Enter your age");
        age = input.nextInt();
        System.out.println("Student name  = "+ name);
        System.out.println("Student fathername = "+fathername);
        System.out.println("Student age = "+ age);
        System.out.println("Student DOB  = "+ dob);
    }
}
```

Output:-

```
Enter the student name
VIVEK
Enter father's name
PREM NARAYAN
Enter date of birth (years/month/day)
2001/07/28
Enter your age
20
Student name   = VIVEK
Student fathername = PREM NARAYAN
Student age = 20
Student DOB   = 2001/07/28
```

2.You are required to repeat the problem 1 with constraint that, use buffer class(bufferedReader) in place of Scanner class for taking the input from keyboard.

CODE:-

```java
package com.company;
import java.io.*;
public class q2 {
    public static void main(String[] args)throws IOException {
    BufferedReader br  = new BufferedReader(new InputStreamReader(System.in));
    String name,dob,fathername;
    int age;
        System.out.println("Enter student name");
    name  = br.readLine();
        System.out.println("Enter fathers name");
        fathername = br.readLine();
        System.out.println("Enter date of birth in yyyy/mm/dd");
        dob = br.readLine();
        System.out.println("Enter you age");
        age = Integer.parseInt(br.readLine());
        System.out.println("Student name  = "+ name);
        System.out.println("Student fathername = "+fathername);
        System.out.println("Student age = "+ age);
        System.out.println("Student DOB  = "+ dob);
    }
}
```

OUTPUT:-

```
Enter the student name
VIVEK
Enter father's name
PREM NARAYAN
Enter date of birth (years/month/day)
2001/07/28
Enter your age
20
Student name   = VIVEK
Student fathername = PREM NARAYAN
Student age = 20
Student DOB   = 2001/07/28
```

3.You are required to compute perimeter of a rectangle where length and breadthare taken as float and double respectively from the keyboard. Consider lengthand breadth as integer while computing its perimeter and computed perimeteris displayed as double.

CODE:-

```java
package com.company;
import java.util.Scanner;
public class q3 {
    public static void main(String[] args) {
        Scanner input  = new Scanner(System.in);
        System.out.println("Enter the length of rectangle");
        float length = input.nextFloat();
        double breadth = input.nextDouble();
        System.out.println("Enter the breadth of rectangle");
        double perimeter  =  length + breadth;
        System.out.println("perimeter = "+ perimeter);
    }
}
```

OUTPUT:-

```
Enter the length of rectangle
34
Enter the breadth of rectangle
54
perimeter = 88.0
```

4.Get five integer numbers from the keyboard and check whether these numbersare prime.

CODE:-

```java
//Get five integer numbers from the keyboard and check whether these numbers are prime.
package com.company;
import java.util.Scanner;
public class q4 {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int [] num;
        num = new int [5];
        for (int i =0;i<5;i++){
            System.out.println("Enter the "+(i+1)+" number");
            num[i]= input.nextInt();int count =0;
            for (int j =2;j< num[i];j++){
                if (num[i]%j==0){
                    count ++;
                }
            }
            if (count<1){
                System.out.println(num[i] +" is a prime number");}
            else {
                System.out.println(num[i] +" is a nonprime number");
            }
        }
    }
}
```

OUTPUT:-

```
Enter the 1 number
4
4 is a nonprime number
Enter the 2 number
54
54 is a nonprime number
Enter the 3 number
7
7 is a prime number
Enter the 4 number
2
2 is a prime number
Enter the 5 number
3
3 is a prime number
```

5.Repeat problem 4 for computing greatest common divisor (GCD) and least common multiple (LCM) for five integers entered from keyboard. (You shouldnot use the concept of array).

CODE:-

```java
package com.company;
import java.util.Scanner;
class abcd {
public static int gcd(int a,int b){
if (b == 0)
return a;
return gcd(b,  b: a % b);


}
public static int lcm(int a,int b){
return (a*b)/gcd(a,b);

    }
public static void main(String[] args){
Scanner sc=new Scanner(System.in);
System.out.println("Enter the five numbers :");
int n1=sc.nextInt();
int n2=sc.nextInt();
int n3=sc.nextInt();
int n4=sc.nextInt();
int n5=sc.nextInt();
int a=gcd(n1,n2);
int a1=lcm(n1,n2);
int b=gcd(a,n3);
int b1=lcm(a1,n3);
int c=gcd(b,n4);
int c1=lcm(b1,n4);
int d=gcd(c,n5);
int d1=lcm(c1,n5);
System.out.println("GCD of five numbers is : "+d);
System.out.println("LCM of the numbers is : "+d1);
}
}
```

OUTPUT:-

```
Enter the five numbers :

4

8

6

9

2

GCD of five numbers is : 1

LCM of the numbers is : 72
```

6.You are required to convert your marks evaluated out of 100 to the corresponding grades, as used in MNNIT Allahabad, with the use of if-elsecontrol statement only.

CODE:-

```java
/.../
package com.company;
import java.util.Scanner;
public class q6 {
    public static void main(String[] args) {
        int sub;
        Scanner input = new Scanner(System.in);
        System.out.println("Enter the number of subjects");
        sub = input.nextInt();
        int[] names = new int[sub];
        for (int i = 0; i < sub; i++) {
            System.out.println("enter the marks of subject " + (i + 1));
            names[i] = input.nextInt();
        }
        for (int i = 0; i < sub; i++) {
            if (names[i] >= 85) {
                System.out.println("subject " + (i + 1) + ": A+");
            }
            if (names[i]>=75 && names[i]<85) {
                System.out.println("subject " + (i + 1) + ": A");
            }
            if (names[i]>=65 && names[i]<75) {
                System.out.println("subject " + (i + 1) + ": B+");
            }
            if (names[i]>=55 && names[i]<65) {
                System.out.println("subject " + (i + 1) + ": B");
            }
            if (names[i]>=45 && names[i]<55) {
                System.out.println("subject " + (i + 1) + ": C+");
            }
            if (names[i]<45) {
                System.out.println("subject " + (i + 1) + ": C");
            }
        }
    }
}
```

OUTPUT:-

```
Enter the number of subjects
4
enter the marks of subject 1
67
enter the marks of subject 2
87
enter the marks of subject 3
45
enter the marks of subject 4
67
subject 1: B+
subject 2: A+
subject 3: C+
subject 4: B+
```

7. Repeat the problem 6 with the use of switch control statement.

CODE:-

```java
////Repeat the problem 6 with the use of switch control statement.
package com.company;
import java.util.Scanner;
public class q7 {
    public static void main(String[] args) {
        int sub;
        Scanner input = new Scanner(System.in);
        System.out.println("Enter the number of subjects");
        sub = input.nextInt();
        int[] names = new int[sub];
        for (int i = 0; i < sub; i++) {
            System.out.println("enter the marks of subject " + (i + 1));
            names[i] = input.nextInt();
        }
        for (int i = 0 ; i<sub;i++){
            int b = names[i]/10;
            switch (b){
                case 10:
                    System.out.println("subject " + (i + 1) + ": A+");
                    break;
                case 9:
                    System.out.println("subject " + (i + 1) + ": A+");
                    break;
                case 8:
                    System.out.println("subject " + (i + 1) + ": A");
                    break;
                case 7:
                    System.out.println("subject " + (i + 1) + ": B+");
                    break;
```

```java
                            break;
                    case 8:
                        System.out.println("subject " + (i + 1) + ": A");
                        break;
                    case 7:
                        System.out.println("subject " + (i + 1) + ": B+");
                        break;
                    case 6:
                        System.out.println("subject " + (i + 1) + ": B");
                        break;
                    case 5:
                        System.out.println("subject " + (i + 1) + ": C+");
                        break;
                    case 4:
                        System.out.println("subject " + (i + 1) + ": C");
                        break;
                    default:
                        System.out.println("fail");
                }
            }
        }
    }
}
```

OUTPUT:-

```
Enter the number of subjects
3
enter the marks of subject 1
56
enter the marks of subject 2
87
enter the marks of subject 3
45
subject 1: C+
subject 2: A
subject 3: C
```

8. There are two monkeys whose states are one of two available (smiling and notsmiling). The monkeys will be dangerous in either both are smiling or not.Compute the dangerous status of monkeys.

CODE:-

```java
/.../
package com.company;
import java.util.Scanner;
import java.util.StringJoiner;
public class q8 {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
//        String input1 ,input2;
        System.out.println("Enter the state of first monkey (smiling and not smiling)");
        String input1 = input.nextLine();
//        System.out.println(input1);
        System.out.println("Enter the state of second monkey (smiling and not smiling)");
        String input2= input.nextLine();
//
        if (input1.equals(input2)){
            System.out.println("not dangerous");
        }
        else{
            System.out.println("dangerous");
        }
    }
}
```

OUTPUT:-

```
Enter the state of first monkey (smiling and not smiling)
smiling
Enter the state of second monkey (smiling and not smiling)
smiling
not dangerous
```