

OOP Lab

Week 3 Assignment Submission

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200905044

B1 10

Q1)

CODE:

```
import java.util.*;
import java.text.*;

//creating the student class
class Student
{

    // instance variables
    int regNo;
    String fullName;
    GregorianCalendar dateJoined;
    short semester;
    float gpa;
    float cgpa;

    // default constructor
    Student ()
    {
        regNo = 0;
        fullName = "";
        dateJoined = new GregorianCalendar ();
        semester = 0;
        gpa = 0.f;
        cgpa = 0.f;
    }

    // parametrized constructor
    Student (Student s)
    {
        this.regNo = s.regNo;
        this.fullName = s.fullName;
        this.dateJoined = s.dateJoined;
```

```

    this.semester = s.semester;
    this.gpa = s.gpa;
    this.cgpa = s.cgpa;
}

// to string method
public String toString ()
{
    SimpleDateFormat dateFormat = new SimpleDateFormat ("MMM dd, yyyy");
    System.out.println ("\n\t Name: " + fullName + "\n\t Reg No: " + regNo +
        "\n\t Date Joined: " +
        dateFormat.format (dateJoined.getTime ()) +
        "\n\t Semester: " + semester + "\n\t GPA: " + gpa +
        "\n\t CGPA: " + cgpa + "\n");
    return "";
}

```

// taking input of the students

```

public void input ()
{
    Scanner sc = new Scanner (System.in);

    System.out.print ("\n\tEnter Student Name: ");
    fullName = sc.nextLine ();

    System.out.print ("\tEnter Date Joined (yyyy/mm/dd): ");
    dateJoined =
        new GregorianCalendar (sc.nextInt (), sc.nextInt () - 1, sc.nextInt ());

    System.out.print ("\tEnter Semester: ");
    semester = sc.nextShort ();

    System.out.print ("\tEnter GPA: ");
    gpa = sc.nextFloat ();

    System.out.print ("\tEnter CGPA: ");
    cgpa = sc.nextFloat ();

    System.out.println ();
}
}

```

// student array class

```

class Students
{

    Student students[];
    int size;

    // default constructor
    public Students (int size)
    {
        this.size = size;
        this.students = new Student[size];
    }

    // to input all students
    public void inputAll ()
    {

        for (int i = 0; i < size; ++i)
        {
            System.out.println ("\t\tStudent " + (i + 1) + " :");
            students[i] = new Student ();
            students[i].input ();

            SimpleDateFormat dateFormat = new SimpleDateFormat ("yy");
            String regNo = dateFormat.format (students[i].dateJoined.getTime ());
            regNo += String.format ("%02d", i + 1);
            students[i].regNo = Integer.parseInt (regNo);
        }
    }

    // to display all students in record
    public void displayAll ()
    {
        for (Student stud:students)
        {
            stud.toString ();
        }
    }

    public void list (String str)
    {
        for (Student stud:students)
        {
            if (stud.fullName.indexOf (str) != -1)
            {

```

```

        stud.toString ();
    }
}

// to sort students based on their full name
public void sort ()
{
    for (int i = 0; i < size; i++)
    {
        for (int j = 0; j < size - i - 1; j++)
        {
            if ((students[j].fullName).compareTo (students[j + 1].fullName) >
                0)
            {
                Student temp = students[j];
                students[j] = students[j + 1];
                students[j + 1] = temp;
            }
        }
    }
}

```

```

// main class of StudentRecord
public class StudentRecord
{

    public static void main (String args[])
    {
        System.out.
            println
            ("My name is Swamiraju Satya Praveen Varma\n 200905044\n Batch B1\n 10");
        // scanner object
        Scanner sc = new Scanner (System.in);

        System.out.print ("\n\tEnter the number of records: ");
        int size = sc.nextInt ();
        if (size < 5)
        {
            System.out.println ("Sorry! There needs to be atleast 5 inputs");
            return;
        }
    }
}

```

```

// creating the student array
Students students = new Students (size);
students.inputAll ();
sc.nextLine ();

//
char choice;
do
{
    System.out.print ("\n\t1. Display Records." +
        "\n\t2. Sort wrt Name." +
        "\n\t3. List all Students whose name contains a string."
        + "\n\t Anything else for exit." +
        "\n\n\t Enter choice: ");
    choice = sc.next ().charAt (0);
    sc.nextLine ();
    switch (choice)
    {
        case '1':
            students.displayAll ();
            break;
        case '2':
            students.sort ();
            System.out.println ("\nSorted Name.\n");
            students.displayAll ();
            break;
        case '3':
            System.out.print ("\n\tEnter the required Sub string: ");
            String subs = sc.nextLine ();
            System.out.println ("\n\tAll the student names containing \' " +
                subs + "\' : \n");
            students.list (subs);
            break;
        default:
            break;
    }
}
while ("123".indexOf (choice) != -1);

}
}

```

OUTPUT:

// INPUTTING ALL RECORDS

```
student@dslab: ~/200905044/oop-lab
File Edit View Search Terminal Help
student@dslab:~/200905044/oop-lab$ clear
student@dslab:~/200905044/oop-lab$ javac StudentRecord.java
student@dslab:~/200905044/oop-lab$ java StudentRecord
My name is Swamiraju Satya Praveen Varma
200905044
Batch B1
10
Enter the number of records: 5
Student 1 :
Enter Student Name: Akshay
Enter Date Joined (yyyy/mm/dd): 2020
10
20
Enter Semester: 4
Enter GPA: 9
Enter CGPA: 8.5
Student 2 :
Enter Student Name: Anurag
Enter Date Joined (yyyy/mm/dd): 2021
9
14
Enter Semester: 5
Enter GPA: 8
Enter CGPA: 7
Student 3 :
Enter Student Name: Aditya
Enter Date Joined (yyyy/mm/dd): 2019
6
21
Enter Semester: 6
Enter GPA: 9
```

```
student@dslab: ~/200905044/oop-lab
File Edit View Search Terminal Help
Enter Semester: 6
Enter GPA: 9
Enter CGPA: 8
Student 4 :
Enter Student Name: Praveen
Enter Date Joined (yyyy/mm/dd): 2017
5
14
Enter Semester: 7
Enter GPA: 10
Enter CGPA: 10
Student 5 :
Enter Student Name: Rahul
Enter Date Joined (yyyy/mm/dd): 2019
11
25
Enter Semester: 8
Enter GPA: 9
Enter CGPA: 8
1. Display Records.
2. Sort wrt Name.
3. List all Students whose name contains a string.
Anything else for exit.
Enter choice: 1
Name: Akshay
Reg No: 2001
Date Joined: Oct 20, 2020
Semester: 4
GPA: 9.0
CGPA: 8.5
```

// DISPLAYING OPTIONS TO USERS

// DISPLAY ALL RECORDS

```
student@dslab: ~/200905044/oop-lab
File Edit View Search Terminal Help
Name: Anurag
Reg No: 2102
Date Joined: Sep 14, 2021
Semester: 5
GPA: 8.0
CGPA: 7.0

Name: Aditya
Reg No: 1903
Date Joined: Jun 21, 2019
Semester: 6
GPA: 9.0
CGPA: 8.0

Name: Praveen
Reg No: 1704
Date Joined: May 14, 2017
Semester: 7
GPA: 10.0
CGPA: 10.0

Name: Rahul
Reg No: 1905
Date Joined: Nov 25, 2019
Semester: 8
GPA: 9.0
CGPA: 8.0

1. Display Records.
2. Sort wrt Name.
3. List all Students whose name contains a string.
Anything else for exit.

Enter choice: 2
```

// DISPLAY SORTED RECORD

```
student@dslab: ~/200905044/oop-lab
File Edit View Search Terminal Help
1. Display Records.
2. Sort wrt Name.
3. List all Students whose name contains a string.
Anything else for exit.

Enter choice: 2
Sorted Name.

Name: Aditya
Reg No: 1903
Date Joined: Jun 21, 2019
Semester: 6
GPA: 9.0
CGPA: 8.0

Name: Akshay
Reg No: 2001
Date Joined: Oct 20, 2020
Semester: 4
GPA: 9.0
CGPA: 8.5

Name: Anurag
Reg No: 2102
Date Joined: Sep 14, 2021
Semester: 5
GPA: 8.0
CGPA: 7.0

Name: Praveen
Reg No: 1704
Date Joined: May 14, 2017
Semester: 7
```

```
student@dslab: ~/200905044/oop-lab
File Edit View Search Terminal Help

Name: Praveen
Reg No: 1704
Date Joined: May 14, 2017
Semester: 7
GPA: 10.0
CGPA: 10.0

Name: Rahul
Reg No: 1905
Date Joined: Nov 25, 2019
Semester: 8
GPA: 9.0
CGPA: 8.0

1. Display Records.
2. Sort wrt Name.
3. List all Students whose name contains a string.
Anything else for exit.

Enter choice: 3

Enter the required Sub string: nu

All the student names containing ' nu' :

Name: Anurag
Reg No: 2102
Date Joined: Sep 14, 2021
Semester: 5
GPA: 8.0
CGPA: 7.0
```

// DISPLAY RECORD HAVING SUBSTRING IN NAME

```
student@dslab: ~/200905044/oop-lab
File Edit View Search Terminal Help

CGPA: 10.0

Name: Rahul
Reg No: 1905
Date Joined: Nov 25, 2019
Semester: 8
GPA: 9.0
CGPA: 8.0

1. Display Records.
2. Sort wrt Name.
3. List all Students whose name contains a string.
Anything else for exit.

Enter choice: 3

Enter the required Sub string: nu

All the student names containing ' nu' :

Name: Anurag
Reg No: 2102
Date Joined: Sep 14, 2021
Semester: 5
GPA: 8.0
CGPA: 7.0

1. Display Records.
2. Sort wrt Name.
3. List all Students whose name contains a string.
Anything else for exit.

Enter choice: 5
student@dslab:~/200905044/oop-lab$
```

Q2)
CODE:


```

import java.util.Scanner;
class CommaString
{
    public static void main (String[]args)
    {

        System.out.
            println
            ("My name is Swamiraju Satya Praveen Varma\n 200905044\n Batch B1\n
10");
        // inputting the number to be converted to comma format
        Scanner sc = new Scanner (System.in);
        System.out.println ("Enter a Number : ");
        String n = sc.next ();

        int myInt = Integer.parseInt (n);

        String num = "";
        int c = 0;

        while (myInt != 0)
        {

            int r = myInt % 10;

            char ch = Character.forDigit (r, 10);

            num = ch + "" + num;
            c++;
            if (c % 3 == 0)
            {
                num = "," + num;
            }

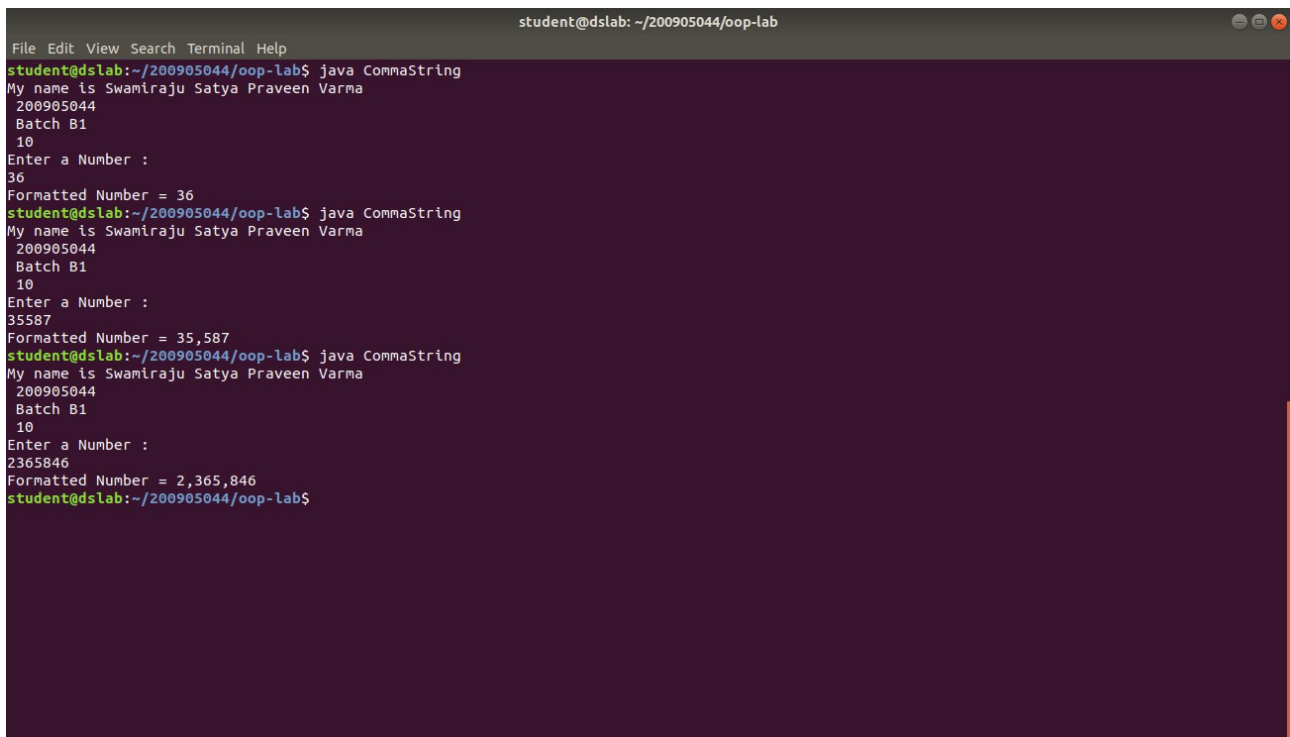
            myInt /= 10;

        }
    }
}

```

```
    System.out.println ("Formatted Number = " + num);  
  }  
}
```

OUTPUT:



```
student@dslab: ~/200905044/oop-lab  
File Edit View Search Terminal Help  
student@dslab:~/200905044/oop-lab$ java CommaString  
My name is Swamiraju Satya Praveen Varma  
200905044  
Batch B1  
10  
Enter a Number :  
36  
Formatted Number = 36  
student@dslab:~/200905044/oop-lab$ java CommaString  
My name is Swamiraju Satya Praveen Varma  
200905044  
Batch B1  
10  
Enter a Number :  
35587  
Formatted Number = 35,587  
student@dslab:~/200905044/oop-lab$ java CommaString  
My name is Swamiraju Satya Praveen Varma  
200905044  
Batch B1  
10  
Enter a Number :  
2365846  
Formatted Number = 2,365,846  
student@dslab:~/200905044/oop-lab$
```

THANK YOU!