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6-9-22

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SSN College of Engineering

Department of Computer Science and Engineering

UCS2313 – Object Oriented Programming Lab

II Year CSE - B Section (III Semester)

Academic Year 2022-23

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Exercise 1 a: Basic Java Programs

Aim:

To implement basic java programs by giving input in the terminal.

1. **Write a java program to check whether the given number is odd or even.**

Program code:

```
class Oddeven
{
    public static void main(String[] args)
    {
        int num=Integer.parseInt(args[0]);
        if(num%2==0)
        {
            System.out.println("The no. is even");
        }
        else
        {
            System.out.println("The no. is odd");
        }
    }
}
```

Output:

```
PS C:\Rohith\Backup\Desktop\SEM 3\OOP-Java\Java programs\Lab programs\Exercise 1\1a> javac oddeven.java
PS C:\Rohith\Backup\Desktop\SEM 3\OOP-Java\Java programs\Lab programs\Exercise 1\1a> java Oddeven 7
The no. is odd
```

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2. **Write a java program to find the factorial of the given number.**

Program code:

```
class factorial
{
    public static void main(String[] args)
    {
        int n=Integer.parseInt(args[0]);
        int fact=1;
        if((n==1)||(n==0))
        {
            System.out.println(fact);
        }
        else
        {
            for(int i=1;i<=n;i++)
            {
                fact*=i;
            }
            System.out.println(fact);
        }
    }
}
```

Output:

```
PS C:\Rohith\Backup\Desktop\SEM 3\OOP-Java\Java programs\Lab programs\Exercise 1\1a> javac factorial.java
PS C:\Rohith\Backup\Desktop\SEM 3\OOP-Java\Java programs\Lab programs\Exercise 1\1a> java factorial 5
120
```

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3. Write a java program to find the sum of first ‘n’ natural numbers.

Program code:

```
class Sumofnaturalnum
{
    public static void main(String[] args)
    {
        int sum=0;
        int num=Integer.parseInt(args[0]);
        for(int i=1;i<=num;i++)
        {
            sum+=i;
        }
        System.out.println("The Sum of first "+num+" natural numbers is:
"+sum);
    }
}
```

Output:

```
PS C:\Rohith\Backup\Desktop\SEM 3\OOP-Java\Java programs\Lab programs\Exercise 1\1a> javac Sumofnaturalnum.java
PS C:\Rohith\Backup\Desktop\SEM 3\OOP-Java\Java programs\Lab programs\Exercise 1\1a> java Sumofnaturalnum 7
The Sum of first 7 natural numbers is: 28
```

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4. Write a java program to find whether the given number is Armstrong number or not.

Program code:

```
class Armstrongnum
{
    public static void main(String[] args)
    {
        int n=Integer.parseInt(args[0]);
        int num=n,digit=0,sum=0;
        while(num!=0)
        {
            digit=num%10;
            sum+=digit*digit*digit;
            num/=10;
        }
        if(sum==n)
        {
            System.out.println(n+" is an Armstrong number");
        }
        else
        {
            System.out.println(n+" is not an Armstrong number");
        }
    }
}
```

Output:

```
PS C:\Rohith\Backup\Desktop\SEM 3\OOP-Java\Java programs\Lab programs\Exercise 1\1a> javac Armstrongnum.java
PS C:\Rohith\Backup\Desktop\SEM 3\OOP-Java\Java programs\Lab programs\Exercise 1\1a> java Armstrongnum 255
255 is not an Armstrong number
```

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5. **Write a java program to create a class named 'Student' with name, id, dept, 3 marks as data members. Write function to assign the inputs, calculate grade, display and search.**

Program code:

```
import java.util.Scanner;

class Student
{
    String name,dept;
    int id,mark1,mark2,mark3;

    public void Student(){
    }

    public void assignInputs()
    {
        System.out.println("Assigning inputs..");
        Scanner scanner=new Scanner(System.in);
        System.out.println("Enter name: ");
        this.name=scanner.nextLine();
        System.out.println("Enter the department: ");
        this.dept=scanner.nextLine();
        System.out.println("Enter the id:");
        this.id=scanner.nextInt();
        System.out.println("Enter the mark 1:");
        this.mark1=scanner.nextInt();
        System.out.println("Enter the mark 2:");
        this.mark2=scanner.nextInt();
        System.out.println("Enter the mark 3:");
        this.mark3=scanner.nextInt();
        System.out.println("Details entered successfully...");
    }

    public void calculateGrade()
    {
        float avg=(float)((this.mark1+this.mark2+this.mark3)/3);
        System.out.println("Average="+avg);
        if(avg>90 && avg<=100) System.out.println("Grade A");
        else if(avg>80 && avg<=90) System.out.println("Grade B");
        else if(avg>70 && avg<=80) System.out.println("Grade C");
        else if(avg>60 && avg<=70) System.out.println("Grade D");
        else System.out.println("Grade E");
    }
```

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```
    public void display()
    {
        System.out.println("Displaying the output...");
        System.out.println("Name: "+this.name);
        System.out.println("Department: "+this.dept);
        System.out.println("Marks :");
        System.out.println("Mark 1 = "+this.mark1);
        System.out.println("Mark 2 = "+this.mark2);
        System.out.println("Mark 3 = "+this.mark3);
    }

    public void search(int id1)
    {
        if(id1==id)
        {
            System.out.println("Student found...");
            display();
        }
        else
        {
            System.out.println("Student not found...");
        }
    }

}

class Main
{
    public static void main(String[] args)
    {
        Student student=new Student();
        student.assignInputs();
        System.out.println();
        System.out.println();
        student.calculateGrade();
        System.out.println();
        student.display();
        System.out.println();
        System.out.println("Enter the id of the student to search: ");
        Scanner scanner=new Scanner(System.in);
        int id1=scanner.nextInt();
        student.search(id1);
    }
}
```

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Output:

```
PS C:\Rohith\Backup\Desktop\SEM 3\OOP-Java\Java programs\Lab programs\Exercise 1\1a> java Main
Assigning inputs..
Enter name:
Rohith
Enter the department:
Computer Science & Engineering
Enter the id:
2110565
Enter the mark 1:
100
Enter the mark 2:
100
Enter the mark 3:
100
Details entered successfully...


Average=100.0
Grade A

Displaying the output...
Name: Rohith
Department: Computer Science & Engineering
Marks :
Mark 1 = 100
Mark 2 = 100
Mark 3 = 100

Enter the id of the student to search:
2110565
Student found...
Displaying the output...
Name: Rohith
Department: Computer Science & Engineering
Marks :
Mark 1 = 100
Mark 2 = 100
Mark 3 = 100
```

Learning Outcome:

Thus basic programs using java programming language has been written and executed successfully using command line arguments as well as input from the user in the terminal.