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COURSE NAME: OBJECT ORIENTED PROGRAMMING(LAB)

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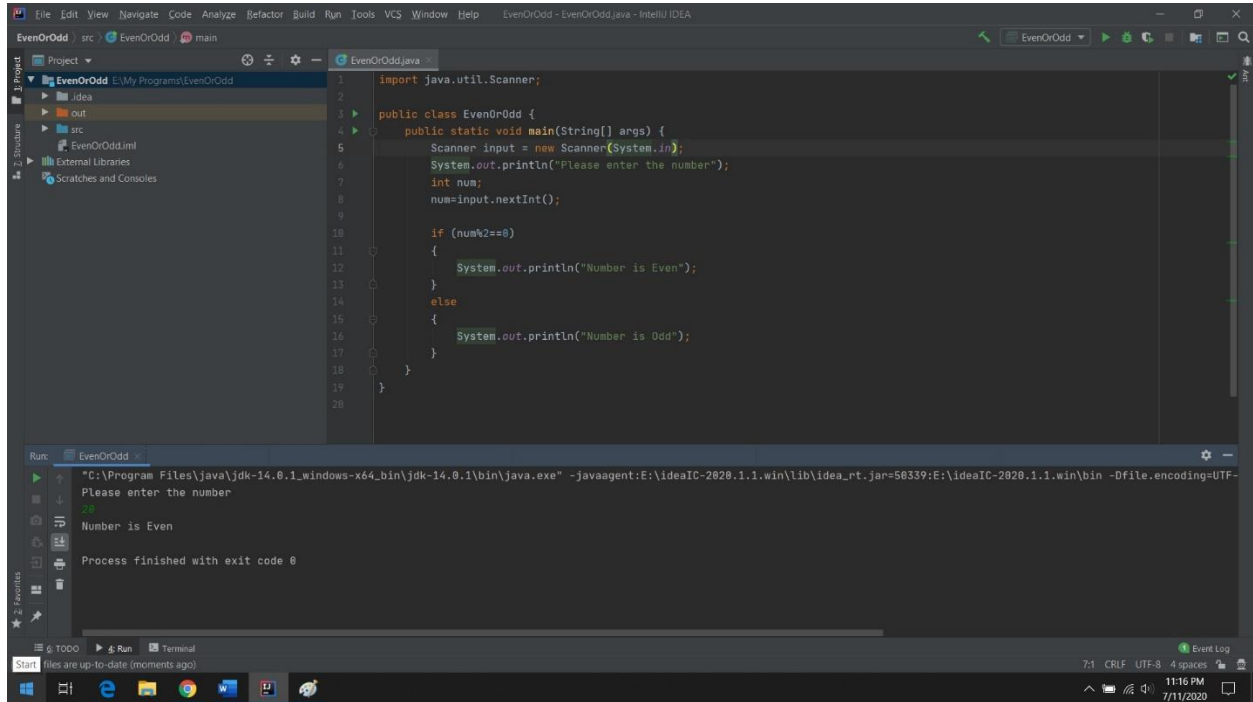
DEPARTMENT OF SOFTWARE ENGINEERING

SEMESTER 2ND

Q1. How to check Even and Odd numbers in java using object oriented approach?

Solution:

Even Number Output:



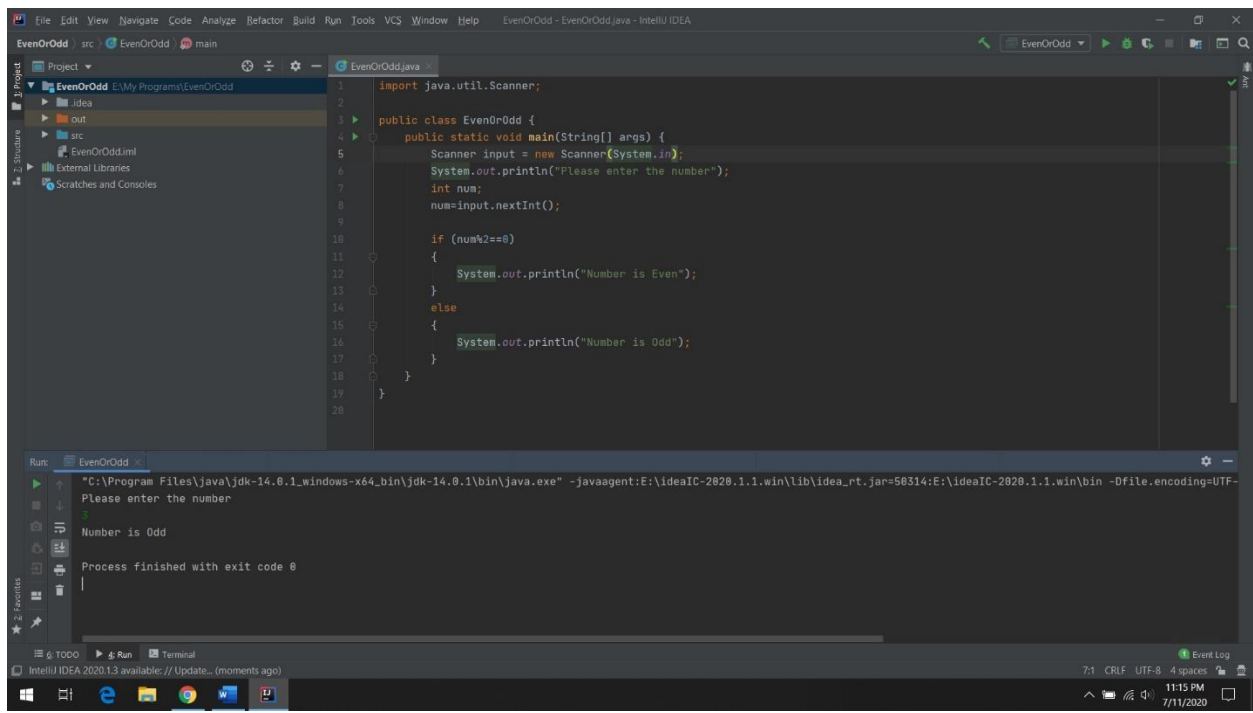
The screenshot shows the IntelliJ IDEA IDE with a Java file named `EvenOrOdd.java`. The code defines a class `EvenOrOdd` with a `main` method that uses a `Scanner` to take user input. It checks if the input number is even by using the modulus operator (`num%2==0`). If true, it prints "Number is Even"; otherwise, it prints "Number is Odd". The Run window shows the execution output: "Please enter the number", "2", and "Number is Even".

```
1 import java.util.Scanner;
2
3 public class EvenOrOdd {
4     public static void main(String[] args) {
5         Scanner input = new Scanner(System.in);
6         System.out.println("Please enter the number");
7         int num;
8         num=input.nextInt();
9
10        if (num%2==0)
11        {
12            System.out.println("Number is Even");
13        }
14        else
15        {
16            System.out.println("Number is Odd");
17        }
18    }
19 }
20 }
```

Run: EvenOrOdd

```
"C:\Program Files\java\jdk-14.0.1_windows-x64_bin\jdk-14.0.1\bin\java.exe" -javaagent:E:\ideaIC-2020.1.1.win\lib\idea_rt.jar=56339:E:\ideaIC-2020.1.1.win\bin -Dfile.encoding=UTF-8
Please enter the number
2
Number is Even
Process finished with exit code 0
```

Odd Number Output:



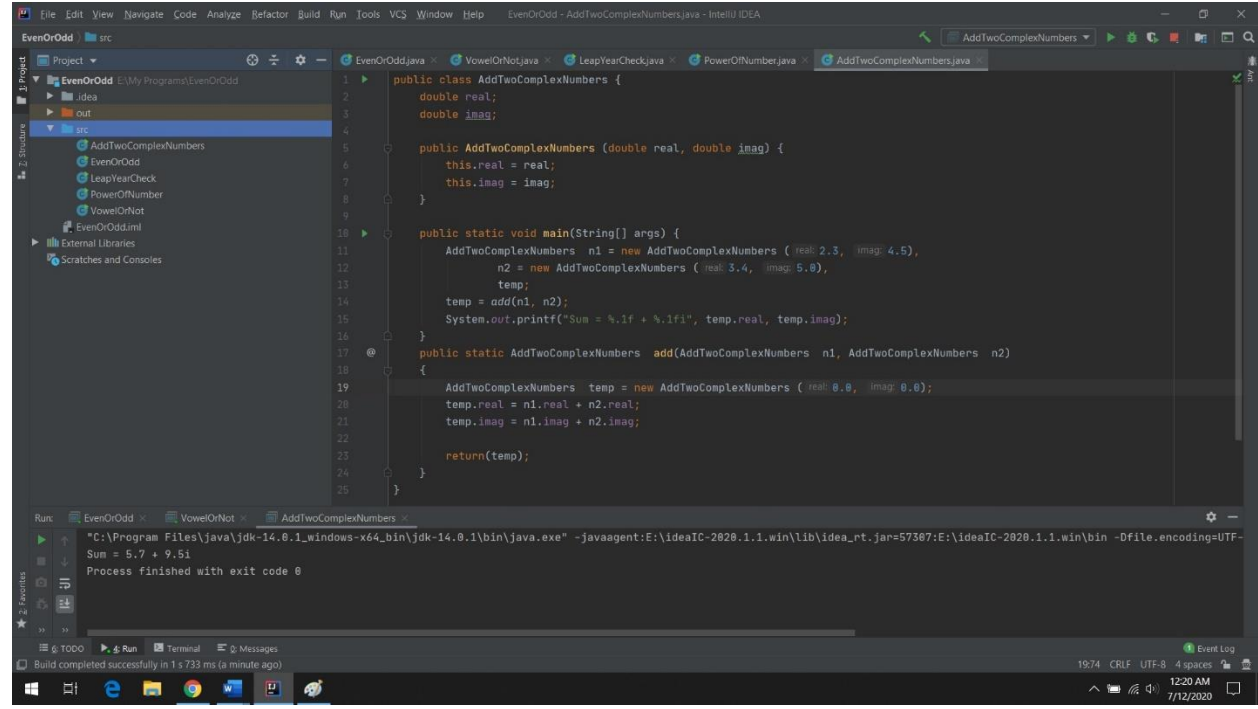
The screenshot shows the IntelliJ IDEA IDE with the same Java file `EvenOrOdd.java`. The code is identical to the previous screenshot. The Run window shows the execution output: "Please enter the number", "3", and "Number is Odd".

```
1 import java.util.Scanner;
2
3 public class EvenOrOdd {
4     public static void main(String[] args) {
5         Scanner input = new Scanner(System.in);
6         System.out.println("Please enter the number");
7         int num;
8         num=input.nextInt();
9
10        if (num%2==0)
11        {
12            System.out.println("Number is Even");
13        }
14        else
15        {
16            System.out.println("Number is Odd");
17        }
18    }
19 }
20 }
```

Run: EvenOrOdd

```
"C:\Program Files\java\jdk-14.0.1_windows-x64_bin\jdk-14.0.1\bin\java.exe" -javaagent:E:\ideaIC-2020.1.1.win\lib\idea_rt.jar=56314:E:\ideaIC-2020.1.1.win\bin -Dfile.encoding=UTF-8
Please enter the number
3
Number is Odd
Process finished with exit code 0
```

Q2. How to add 2 complex numbers in java using object oriented approach?
Solution:



```
1 public class AddTwoComplexNumbers {
2     double real;
3     double imag;
4
5     public AddTwoComplexNumbers (double real, double imag) {
6         this.real = real;
7         this.imag = imag;
8     }
9
10
11     public static void main(String[] args) {
12         AddTwoComplexNumbers n1 = new AddTwoComplexNumbers (real: 2.3, imag: 4.5),
13         n2 = new AddTwoComplexNumbers (real: 3.4, imag: 5.0),
14         temp;
15         temp = add(n1, n2);
16         System.out.printf("Sum = %.1f + %.1fi", temp.real, temp.imag);
17     }
18
19     public static AddTwoComplexNumbers add(AddTwoComplexNumbers n1, AddTwoComplexNumbers n2)
20     {
21         AddTwoComplexNumbers temp = new AddTwoComplexNumbers (real: 0.0, imag: 0.0);
22         temp.real = n1.real + n2.real;
23         temp.imag = n1.imag + n2.imag;
24         return(temp);
25     }
26 }
```

Run: C:\Program Files\java\jdk-14.0.1_windows-x64_bin\jdk-14.0.1\bin\java.exe -javaagent:E:\ideaIC-2020.1.1.win\lib\idea_rt.jar=57367:E:\ideaIC-2020.1.1.win\bin -Dfile.encoding=UTF-8
Sum = 5.7 + 9.5i
Process finished with exit code 0

Q3. How to check Leap year in java using object oriented approach?
Solution:

Entered Year by user is Leap Year:

```
int year;
year=input.nextInt();
if (year%4==0)
{
    if (year%100==0)
    {
        if (year%400==0)

            System.out.println(year+"is a Leap year");
        else
            System.out.println(year+"not a leap year");
    }
    else
        System.out.println(year+"not a Leap year");
}
else
{
    System.out.println(year+"not a Leap Year");
}
```

Run: Please Enter The Year: 1600
1600 is a Leap year
Process finished with exit code 0

Entered Year by user is Not a Leap Year:

```
int year;
year=input.nextInt();
if (year%4==0)
{
    if (year%100==0)
    {
        if (year%400==0)

            System.out.println(year+"is a leap year");
        else
            System.out.println(year+"not a leap year");
    }
    else
        System.out.println(year+"not a leap year");
}
else
{
    System.out.println(year+"not a Leap Year");
}
```

Run: Please Enter The Year: 2820
2820 not a leap year
Process finished with exit code 0

Q4. How to check that the input from the user is the vowel or not in java using object oriented approach?

Solution:

Character is Vowel:

```
1 import java.util.Scanner;
2
3
4 public class VowelOrNot {
5     public static void main(String[] args) {
6         Scanner input = new Scanner(System.in);
7         System.out.println("Please enter the character");
8         char character;
9         character=input.next().charAt(0);
10        if (character=='a' || character=='e' || character=='i' || character=='o' || character=='u')
11        {
12            System.out.println("Entered Character is vowel");
13        }
14        else
15            System.out.println("Character is not Vowel");
16    }
17 }
```

Run: EvenOrOdd x VowelOrNot x
"C:\Program Files\java\jdk-14.0.1\windows-x64_bin\jdk-14.0.1\bin\java.exe" -javaagent:E:\ideaIC-2020.1.1.win\lib\idea_rt.jar=50468:E:\ideaIC-2020.1.1.win\bin -Dfile.encoding=UTF-8
Please enter the character
Entered Character is vowel
Process finished with exit code 0

Character is not Vowel:

```
1 import java.util.Scanner;
2
3
4 public class VowelOrNot {
5     public static void main(String[] args) {
6         Scanner input = new Scanner(System.in);
7         System.out.println("Please enter the character");
8         char character;
9         character=input.next().charAt(0);
10        if (character=='a' || character=='e' || character=='i' || character=='o' || character=='u')
11        {
12            System.out.println("Entered Character is vowel");
13        }
14        else
15            System.out.println("Character is not Vowel");
16    }
17 }
```

Run: EvenOrOdd x VowelOrNot x
"C:\Program Files\java\jdk-14.0.1\windows-x64_bin\jdk-14.0.1\bin\java.exe" -javaagent:E:\ideaIC-2020.1.1.win\lib\idea_rt.jar=50414:E:\ideaIC-2020.1.1.win\bin -Dfile.encoding=UTF-8
Please enter the character
Character is not Vowel
Process finished with exit code 0

Q5. How to use power of a number in java using object oriented approach?

Solution:

Power Of Number:

