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SECTION - B
Semester - 2nd
ID - 16378
DEPART - (SE)
SUBJECT - Oops Lab
SUBMITTED TO - M Ayub sir

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

(ANSWER)

```
import java.util.Scanner;


class CheckEvenOdd
{
  public static void main(String args[])
  {
    int num;
    System.out.println("Enter an Integer number:");


    //The input provided by user is stored in num
    Scanner input = new Scanner(System.in);
    num = input.nextInt();


    /* If number is divisible by 2 then it's an even number
     * else odd number*/
```

```
    if ( num % 2 == 0 )
        System.out.println("Entered number is even");
     else
        System.out.println("Entered number is odd");
  }
}
```

Output 1:

```
Enter an Integer number:
78
Entered number is even
```

Output 2:

```
Enter an Integer number:
77
Entered number is odd
```

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

(ANSWER)

```
public class ComplexNumber{
//for real and imaginary parts of complex numbers
   double real, img;
```

```
   //constructor to initialize the complex number
   ComplexNumber(double r, double i){
         this.real = r;
         this.img = i;
   }

   public static ComplexNumber sum(ComplexNumber c1, ComplexNumber c2)
   {
         //creating a temporary complex number to hold the sum of two numbers
         ComplexNumber temp = new ComplexNumber(0, 0);

         temp.real = c1.real + c2.real;
         temp.img = c1.img + c2.img;

         //returning the output complex number
         return temp;
    }
    public static void main(String args[]) {
         ComplexNumber c1 = new ComplexNumber(5.5, 4);
         ComplexNumber c2 = new ComplexNumber(1.2, 3.5);
         ComplexNumber temp = sum(c1, c2);
         System.out.printf("Sum is: "+ temp.real+" + "+ temp.img +"i");
    }
}
```

Output:

```
Sum is: 6.7 + 7.5i
```

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

(ANSWER)

```
import java.util.Scanner;
public class Demo {

    public static void main(String[] args) {

        int year;
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter any Year:");
        year = scan.nextInt();
        scan.close();
       boolean isLeap = false;

       if(year % 4 == 0)
       {
           if( year % 100 == 0)
           {
               if ( year % 400 == 0)
                   isLeap = true;
               else
                   isLeap = false;
           }
           else
               isLeap = true;
       }
       else {
           isLeap = false;
       }

       if(isLeap==true)
           System.out.println(year + " is a Leap Year.");
       else
           System.out.println(year + " is not a Leap Year.");
    }
}
```

Output:

```
Enter any Year:
2001
2001 is not a Leap Year.
```

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

(ANSWER)

```
import java.util.Scanner;
class JavaExample
{
   public static void main(String[ ] arg)
   {
         boolean isVowel=false;;
         Scanner scanner=new Scanner(System.in);
         System.out.println("Enter a character : ");
         char ch=scanner.next().charAt(0);
         scanner.close();
         switch(ch)
         {
            case 'a' :
            case 'e' :
            case 'i' :
            case 'o' :
            case 'u' :
            case 'A' :
            case 'E' :
            case 'I' :
            case 'O' :
            case 'U' : isVowel = true;
         }
```

```
        if(isVowel == true) {
           System.out.println(ch+" is  a Vowel");
        }
        else {
           if((ch>='a'&&ch<='z')||(ch>='A'&&ch<='Z'))
                System.out.println(ch+" is a Consonant");
           else
                System.out.println("Input is not an alphabet");
        }
   }
}
```

Output 1:

```
Enter a character :
A
A is  a Vowel
```

Output 2:

```
Enter a character :
P
P is a Consonant
```

Output 3:

```
Enter a character :
9
Input is not an alphabet
```

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

(ANSWER)

```
import java.util.Scanner;

public class PowerOfNumber {

   public static void main(String args[]){

      Scanner sc = new Scanner(System.in);

      System.out.println("Enter the base number ::");

      int base = sc.nextInt();

      int temp = base;

      System.out.println("Enter the exponent number ::");

      int exp = sc.nextInt();


      for (int i=1; i<exp; i++){

         temp = temp*temp;

      }

      System.out.println("Result of "+base+" power "+exp+" is
"+temp);

   }

}
```

Output

```
Enter the base number ::
12
Enter the exponent number ::
2
Result of 12 power 2 is 144
```

(THE END)