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Program: Software engineerin

Semester = 2nd

Section = "B"

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Question No(1)

Answer

```
impart java.util.Scannel;

class oddoreven // class "c" Small
{
Public Static void main(String args[])
{
int x;  // int use for plane number
System.out.Println("Enter an integer
to check if it's odd or even");

Scannel in = New Scannel(System.in);
x = in.nextInt();
if (x % 2 == 0).

System.out.Println("The number is even");
else
System.out.Println("The number a odd");
}
}
```

Next Page.

Output:

```
Javac oddoreven.java
Java oddoreven
Enter an integer to check
if it is odd or even "8"
You entered an even number

Enter an integer to check:
if it is odd or even.
3
You entered odd number
```

Explanation => First we draw class for odd or even number. we write class "C" Small then we ~~draw~~ write the main function of th Program. In the main function we take a basic data type integer. Integer use for plane number like 10, 20, 50, 200 etc.

Question No(2)

Answer

```
1) Public class ComplexNumber
2) {
3) double real, im;
4) ComplexNumber (double r, double i)
5) {
6) This.real = r;
7) this.img = i;
8) }
9) Public Static ComplexNumber Sum
   (ComplexNumber c1, ComplexNumber c2)
10) {
11) ComplexNumber tem = new ComplexNumber(0,0i);
12) tem.real = c1.real + c2.real;
13) tem.img = c1.img + c2.img;
14) return temp;
15) }
16) Public Static void main (String args[])
17) {
18) ComplexNumber c1 = new ComplexNumber(10.5, 4i);
19) ComplexNumber c2 = new ComplexNumber(2.3, 8.4);
```

```
20) ComplexNumber temp = Sum(c1, c2);
21) System.out.Println("Sum is :"+temp.real+"+"
    temp.img+"i");
22) }
23) }
```

Output Sum is 12.8 + 12.5i

Explanation:

In this Program we have a class ComplexNumber. In this class we have two instance variables real & img to hold the real & imginaly Palt of the complex number. real Palt is 12.8. & imaginaly Palt is 12.5i. We have declared a method Sum() to add the two number by adding their real & imaginaly Parts together.
In Maths we must have to add real Palt to real & imaginaly Palt to imaginaly.

Question No(3)

Answer

Enter any year as an input. we first whether the given year is divisble by 400 or not. If it is divisble then it is a leap year. else we check for further conditions. Now if it is divisble by 100. then it is not a leap year or else we further divide it by 4. if it is divisible then it is a leap year else its not. For example:

```
1  import jav.util.Scanner;
2  Public class check leap year
3  {
4  Public Static void main(String args[]);
5  {
6)  Scanner S = new Scanner(System.in);
7)  System.out.Println("Enter any year:");
8)  int year = S.nextInt();
```

```
9)  boolean flag = false;
10) if (year % 400 == 0);
11) {
12)     flag = true;
13) }
14) else if (year % 100 == 0);
15) {
16)     flag = false;
17) }
18) else if (year % 4 == 0)
19) {
20)     flag = true;
21) }
22) else
23) {
24)     flag = false;
25) }
26) if (flag)
27) {
28)     System.out.println("year "+year" is a leap
29) }                                   year");
30) else
31) {
32)     System.out.println("year "+year+" is
        not a leap year");
```

```
33) }
34) }
35) }
```

Output

```
java c check Leap year.ja
Java check Leap yeal.
Enter any yeal:
1600
yeal 1600 is not a leap yeal.
Enter any yeal:
2000
yeal 2000 is a leap yeal.
```

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ID = 16453 page(8)

Question No(4)

Answer

In English alphabet the chalacters "a", e, I, O, U are vowels & remaining letters are consonants.

```
import java.util.Scanner;
Public class vowelorConsonant
{
Public Static void main(String args[]);
{
System.out.Println("Enter a chalacter:");
Scanner sc = new Scanner(System.in);
char ch = sc.nextChar();
char ch = Sc.next().charAt(0);
if (ch=='a'||ch=='e'||ch=='i'||ch=='o'||ch=='u'||
ch=='A'||ch=='E'||ch=='I'||ch=='O'||ch=='U');

System.out.Println("Given chalacter is
vowel");
}
else
```

```
System.out.println(" Given Character
is a consonant");
}
}
}
```

Out put

```
Enter a character:
a
Given Character is an Vowel
Enter a Character
1
Given Character is a Consonant
```

Question No(5)

Answer

Read the base & exponent or Power values from the user. multiply the base number by itself & multiply the resultant with base (again) repeat this n times where n is the exponent or Power value.

For example. $3 \times 3 \times 3 = 3^3$ or $4 \times 4 = 4^2$

```
Import java.util.Scanner;
Public class ~~void~~ Power.ofNumber
{
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 = ~~new~~ Sc.nextInt();
```

```
for (int i=1; i< exp; i++)
{
 tem = tem* temp;
}
System.out.println("Result of "+base+" power
 "+exp+" is "+temp");
}
}
```

Output => Enter the base number ::

12

Enter the Power number ::

2

Result of Power 2 is 144.

Explantion => First we drow for basePower class. The class "c" must be small. Then we drow the main function of th Program like Public static void (String args[]) & also print this line like System.out.println.

In this program we take base & exponent. e.g $12^2 = 144$

12 is base & 2 is power.