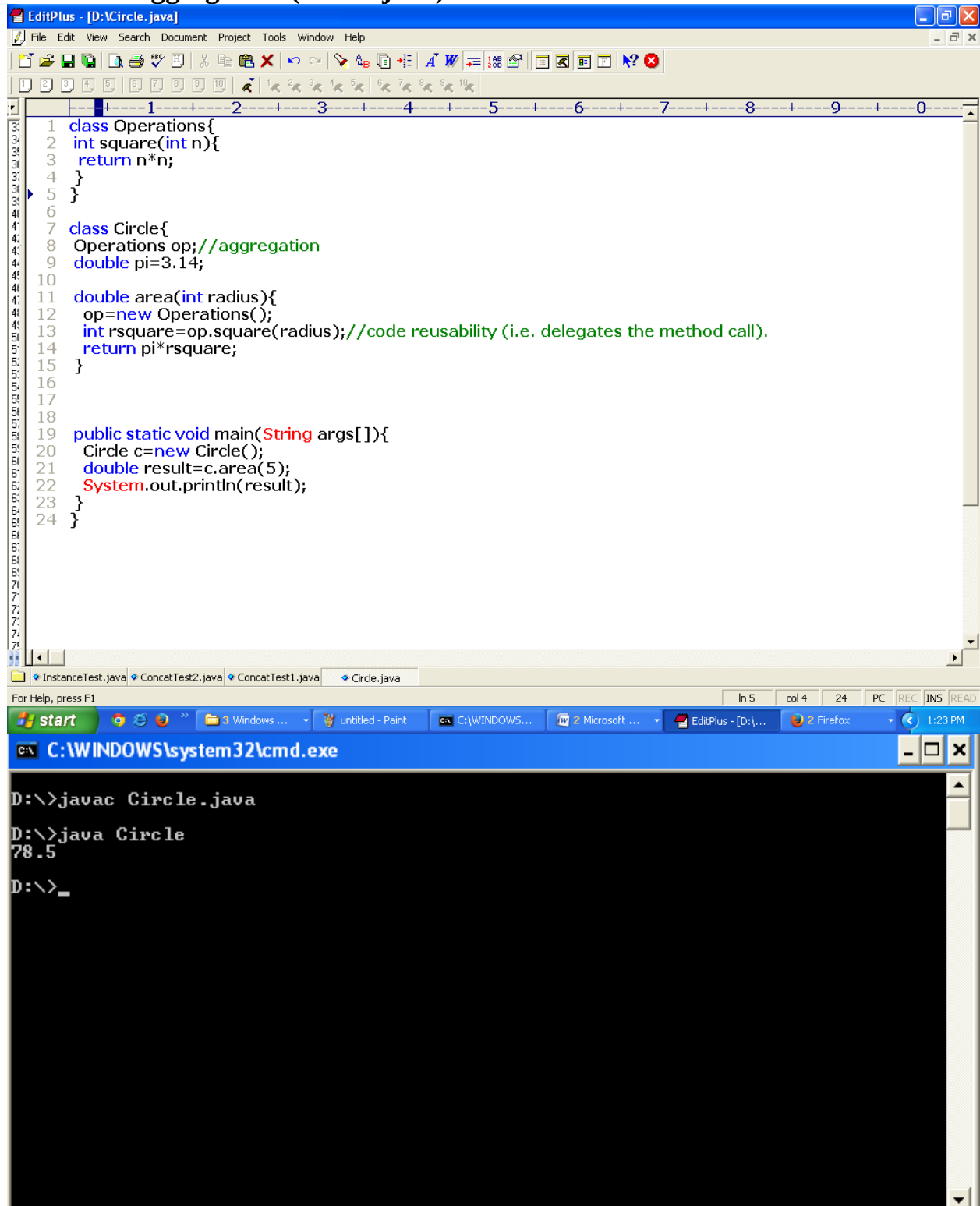


Lab-4 Assignments

Introducing array of objects, Aggregation, Containment, String ,
StringBuffer,StringBuilder , Math and Wrapper classes

Demo for Aggregation (Circle.java)



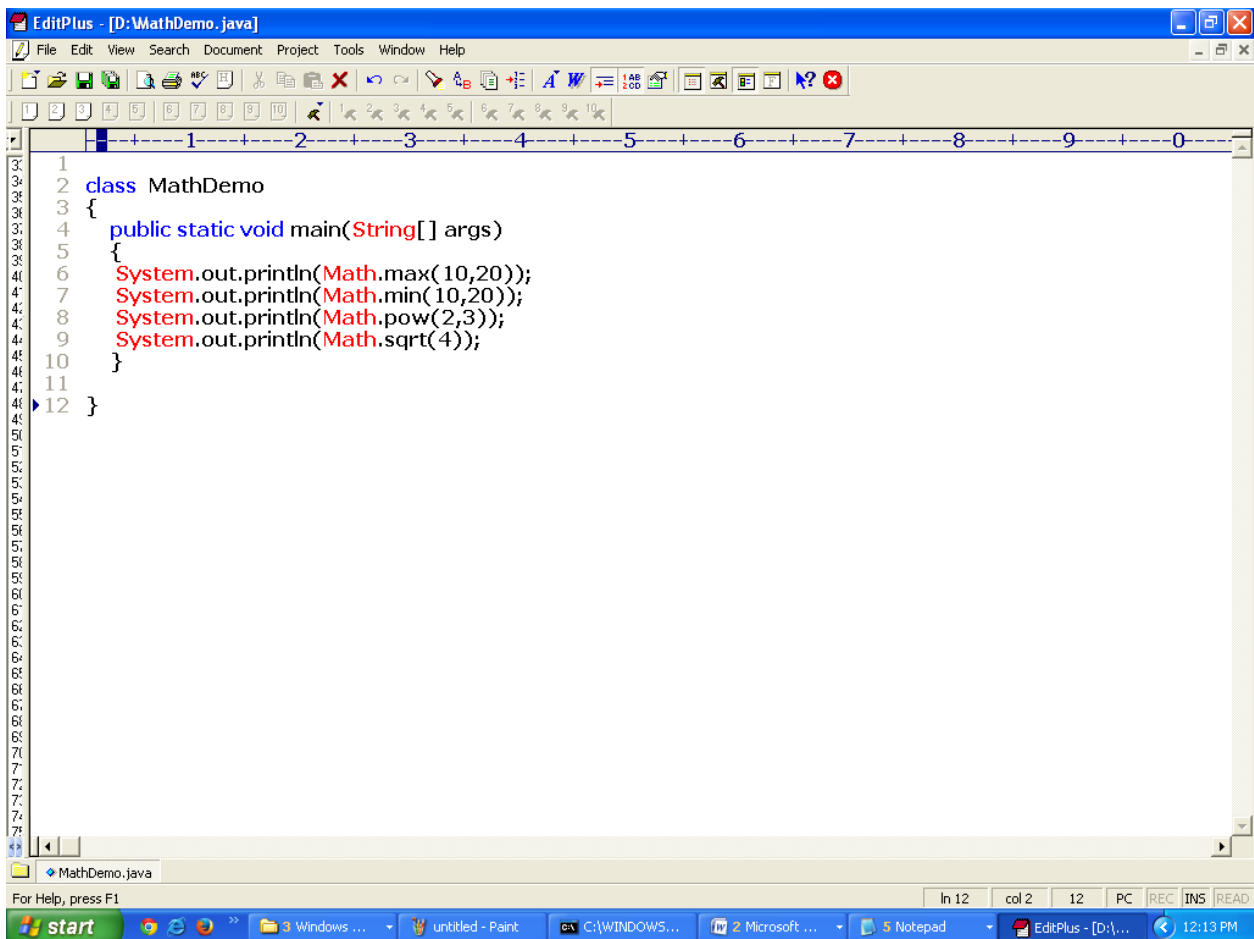
The screenshot displays a Java IDE window titled 'EditPlus - [D:\Circle.java]'. The code defines two classes: 'Operations' and 'Circle'. The 'Operations' class has a 'square' method that returns the square of an integer. The 'Circle' class uses 'Operations' (aggregation) to calculate the area of a circle. It has a 'pi' constant and an 'area' method that calls 'square' on an 'Operations' object. A 'main' method creates a 'Circle' object and prints its area for a radius of 5.

```
1 class Operations{
2     int square(int n){
3         return n*n;
4     }
5 }
6
7 class Circle{
8     Operations op;//aggregation
9     double pi=3.14;
10
11     double area(int radius){
12         op=new Operations();
13         int rsquare=op.square(radius);//code reusability (i.e. delegates the method call).
14         return pi*rsquare;
15     }
16
17
18
19     public static void main(String args[]){
20         Circle c=new Circle();
21         double result=c.area(5);
22         System.out.println(result);
23     }
24 }
```

Below the IDE, a Windows taskbar shows several open applications. A command prompt window titled 'C:\WINDOWS\system32\cmd.exe' is open, showing the execution of the Java code:

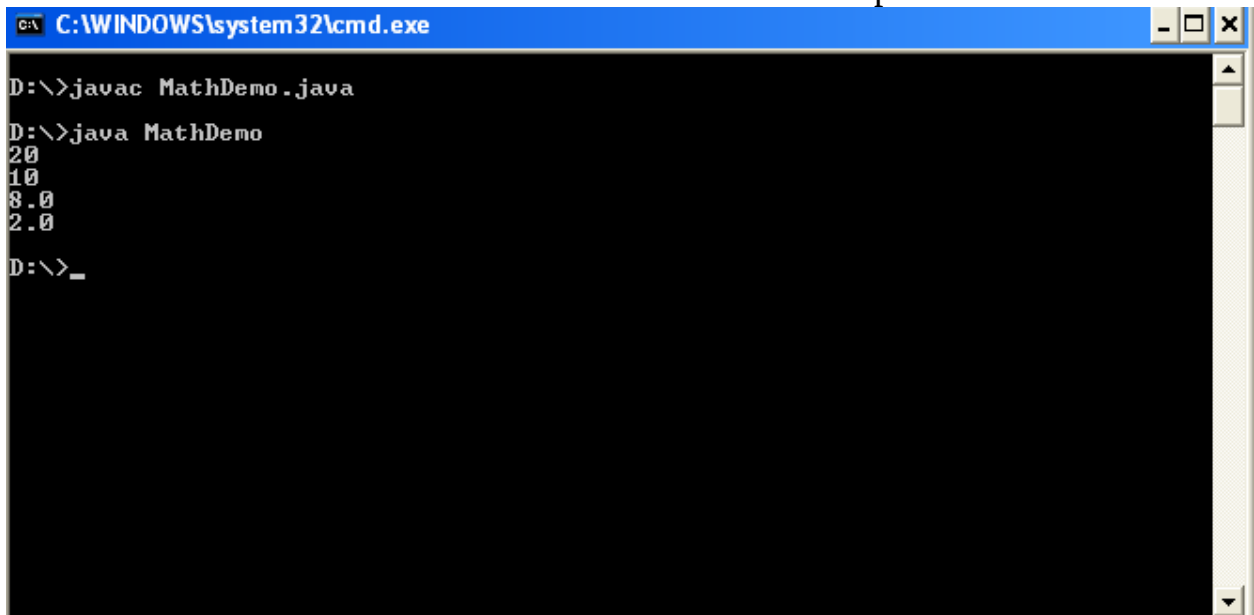
```
D:\>javac Circle.java
D:\>java Circle
78.5
D:\>_
```

Demo for using Readymade class methods(Math class)



```
1 class MathDemo
2 {
3     public static void main(String[] args)
4     {
5         System.out.println(Math.max(10,20));
6         System.out.println(Math.min(10,20));
7         System.out.println(Math.pow(2,3));
8         System.out.println(Math.sqrt(4));
9     }
10 }
11
12 }
```

Note: Use some more methods of Math class to do math operations



```
C:\WINDOWS\system32\cmd.exe

D:\>javac MathDemo.java

D:\>java MathDemo
20
10
8.0
2.0
D:\>_
```

Assignments To Solve

1. Write an Employee class with id, name and dob(Contained Object.. Containment)with Default and parameterised constructor & toString()..
2. Use the String Class Methods like length, hashCode,equals, replace, trim, subString, concatenate , compare , charAt, subString etc.. for a given String(s)
3. Use Wrapper class methods to print MaxValue, MinValue and Size for various primitive types

```
C:\WINDOWS\system32\cmd.exe
D:\>javac wrapper.java
D:\>java wrapper
TYPE      MAX_VAL      MIN_VAL      ALLOCATED MEM
-----
byte      127          -128         8
short     32767       -32768       16
int       2147483647 -2147483648  32
float     3.4028235E38 1.4E-45      32
double    1.7976931348623157E308 4.9E-324    64
long      9223372036854775807 -9223372036854775808 64
D:\>
```

4. Accept two integer values from user(use Scanner) and calculate the following (Math class methods)

$$c=(a^3+b^3)(a^2+2ab+b^2)$$
$$c=(ab+ba)(a^3+b^3)/(a^2+b^2)$$

5. Accept Integer values from user and display it's equivalent Binary, Hexadecimal, Octal values.