Experiment No.4
Write a program in Java with class Rectangle with the data fields width, length, area and color. The length, width and area are of double type and color is of string type. The methods are set_length() , set_width() , set_color(), and find_area(). Create two object of Rectangle and compare their area and color. If area and color same for the objects then display "Matching Rectangles" otherwise display "Non Matching Rectangle".

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Semester: 3RD **Date of Performance:18/9/2021**
Subject Name: JAVA LAB **Subject Code:20CSP-235**

1. Aim/Overview of the practical: To learn about classes and objects in java.

2. Task to be done: Write a program in Java with class Rectangle with the data fields width, length, area and color. The length, width and area are of double type and color is of string type. The methods are set_length() , set_width() , set_color(), and find_area(). Create two object of Rectangle and compare their area and color. If area and color same for the objects then display "Matching Rectangles" otherwise display "Non Matching Rectangle".

3. Apparatus(For applied/experimental sciences/materials based labs)**:** PC with installed IDE such as Netbeans, Intelli J

4. Algorithm/Flowchart (For programming based labs)**:-**

Step.1 – Create a class Rectangle with data fields width, length, area and color.
Step.2 – Declare a string named as color.
Step.3 – The length, width, and area declared here are attributes of type double.
Step.4 – Create a method inside the class named as set_length() , set_width() , set_color(), and find_area(), which will help in recognizing the attributes of the rectangle.
Step.5 – After that, I created two objects of Rectangle for comparing their area and colour
Step.6 – If area and color same for the Rectangle objects then the program will display "Matching Rectangles" on the output screen, otherwise the output will be "Non Matching Rectangle".
Step.7 – End

6. Steps for experiment/practical:

PROGRAM CODE :

```
class Rectangle

{

double length, width , area;

String color;

void set_length(double l)

{

length=l;

}
```

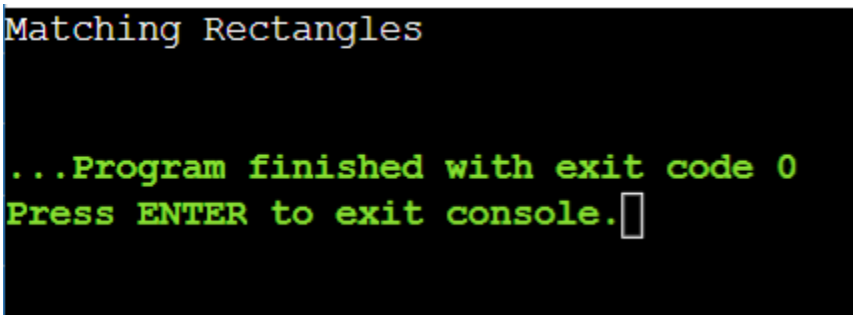
```
void set_width(double w)
{
width =w;
}
void set_color(String a){
color=a;
}
String getColor(){
return color;
}
void find_area(){
area = length* width;
}
double getArea(){
return area;
}
}
public class Main {
```

```
public static void main(String[] args) {

Rectangle r1= new Rectangle();

r1.set_length(10);

r1.set_width(20);

r1.set_color("RED");

r1.find_area();

Rectangle r2=new Rectangle();

r2.set_length(10);

r2.set_width(20);

r2.find_area();

r2.set_color("RED");

if(r1.getColor().equals(r2.getColor()) && r1.area == r2.area )

{

System.out.println("Matching Rectangles");

}

else

{

System.out.println("Non Matching Rectangles");

}
```

}

}

Program Output:



7. Observations/Discussions(For applied/experimental sciences/materials based labs**): NA**

8. Result/Output/Writing Summary: On compilation of program, the program started comparing the attributes such as area and colour, and in my case they were matched then the program ended with displaying a message “Matching Rectangles” on output screen.

Learning outcomes (What I have learnt):

1. Learned about classes and objects in java.
2. Write a java program for the above problem statement.
3. Learned about creating classes and objects, to compare the attributes of the rectangle (in my case).

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			