Class Point

```
java.lang.Object
  └Point
```

```
public class Point
```

extends java.lang.Object

Represents a 2-dimensional point.

Constructor Summary
Point(double x, double y) Construct a Point with the given coordinates.

Method Summary	
double	**distance**(Point p) Retuirns the distance between this point and another point.
double	**getX**() Returns the y-coordinate.
double	**getY**() Returns the y-coordinate.
java.lang.String	**toString**() Returns a String Representation of this Point.
void	**translate**(double dx, double dy) Changes the location of this point by the specified amount in each direction.

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, wait, wait, wait

Constructor Detail

Point

```
public Point(double x,
             double y)
```

Construct a Point with the given coordinates.

Method Detail

getX

```
public double getX()
```

Returns the y-coordinate.

Returns:

the x-coordinate of this point

---

getY

```
public double getY()
```

Returns the y-coordinate.

Returns:

the x-coordinate of this point

---

translate

```
public void translate(double dx,
                      double dy)
```

Changes the location of this point by the specified amount in each direction.

Parameters:

`dx` - amount to move this point by in the x direction

`dy` - amount to move this point by in the y direction

---

toString

```
public java.lang.String toString()
```

Returns a String Representation of this Point.

Overrides:

`toString` in class `java.lang.Object`

Returns:

a String representing this point:
Form: Point[x,y]

---

distance

```
public double distance(Point p)
```

Retuirns the distance between this point and another point.

Parameters:

`p` - the other point

Returns:

the Pythagorean distance between this Point and p.

Class Rectangle

```
java.lang.Object
  └ Rectangle
```

All Implemented Interfaces:
java.lang.Cloneable

```
public class Rectangle
```

extends java.lang.Object
implements java.lang.Cloneable

A rectangle in 2 dimensions

Author:
anderson

Constructor Summary

Rectangle(Point p1, Point p2) Construct a rectangle from two opposite corner points.	

Method Summary

double	**area**() Returns the area of this Rectangle
Rectangle	**boundingBox**()
java.lang.Object	**clone**() Returns a clone of this Rectangle.

boolean	**equals**(java.lang.Object obj) Is that other Rectangle equivalent to this one?
Point	**getCenter**() Returns the center Point of this Rectangle
double	**getHeight**() Returns the height of this Rectangle
double	**getWidth**() Returns the width of this Rectangle
Rectangle	**intersection**(Rectangle r) Returns the intersection of two rectangles
boolean	**intersects**(Rectangle r) Does this Rectangle intersect another rectangle?
boolean	**isInside**(Point p) Is the given Point inside this Rectangle?
java.lang.String	**toString**() Returns a String representation of this Rectangle.
void	**translate**(double dx, double dy) Changes the location of this Rectangle by the specified amount in each direction.

Methods inherited from class java.lang.Object
getClass, hashCode, notify, notifyAll, wait, wait, wait

Constructor Detail

Rectangle

```
public Rectangle(Point p1,
                 Point p2)
```

Construct a rectangle from two opposite corner points.

Method Detail

toString

```
public java.lang.String toString()
```

Returns a String representation of this Rectangle.

Overrides:
`toString` in class `java.lang.Object`

Returns:
a String representation of this Rectangle.

---

equals

```
public boolean equals(java.lang.Object obj)
```

Is that other Rectangle equivalent to this one?

Overrides:
`equals` in class `java.lang.Object`

---

getWidth

```
public double getWidth()
```

Returns the width of this Rectangle

Returns:
the width of this Rectangle

---

getHeight

```
public double getHeight()
```

Returns the height of this Rectangle

Returns:
the height of this Rectangle

---

area

```
public double area()
```

Returns the area of this Rectangle

Returns:
the area of this Rectangle

---

getCenter

```
public Point getCenter()
```

Returns the center Point of this Rectangle

Returns:
the center Point of this Rectangle

---

intersects

```
public boolean intersects(Rectangle r)
```

Does this Rectangle intersect another rectangle?

Parameters:
`r` - the other rectangle
Returns:

true if they intersect (even in a line or point), false otherwise.

---

translate

```
public void translate(double dx,
                      double dy)
```

Changes the location of this Rectangle by the specified amount in each direction.

Parameters:

`dx` - amount to move this Rectangle by in the x direction

`dy` - amount to move this Rectangle by in the y direction

---

intersection

```
public Rectangle intersection(Rectangle r)
```

Returns the intersection of two rectangles

Parameters:

`r` - the other rectangle

Returns:

the intersection of this with r (null if they do not intersect)

---

isInside

```
public boolean isInside(Point p)
```

Is the given Point inside this Rectangle?

Parameters:

`p` - the Point

Returns:

true if the Point is inside this Rectangle, false otherwise.

---

clone

```
public java.lang.Object clone()
```

Returns a clone of this Rectangle.

Overrides:

`clone` in class `java.lang.Object`

---

boundingBox

```
public Rectangle boundingBox()
```

Returns:

the Rectangle that bounds this object

Class Circle

```
java.lang.Object
  └Circle
```

```
public class Circle
```

extends java.lang.Object

A circle in 2 dimensions

Author:
anderson

Constructor Summary

Circle(Point p, double r) Construct a Circle from a point and a radius.	

Method Summary

double	**area**() Returns the area of this Circle
Rectangle	**boundingBox**() Returns the Rectangle that bounds this object
boolean	**equals**(java.lang.Object obj) Is that other Circle equivalent to this one?
Point	**getCenter**() Returns the center of this Circle

double	**getRadius**() Returns the radius of this Circle
boolean	**intersects**(Circle c) Does this Circle intersect nother Circle?
boolean	**intersects**(Rectangle r) Does this Circle intersect a Rectangle?
boolean	**isInside**(Point p) Is the given Point inside this Circle?
java.lang.String	**toString**() Returns a String representation of this Circle.
void	**translate**(double dx, double dy) Changes the location of this Rectangle by the specified amount in each direction.

Methods inherited from class java.lang.Object
getClass, hashCode, notify, notifyAll, wait, wait, wait

Constructor Detail

Circle

```
public Circle(Point p,
              double r)
```

Construct a Circle from a point and a radius.

Method Detail

toString

```
public java.lang.String toString()
```

Returns a String representation of this Circle.

Overrides:
`toString` in class `java.lang.Object`

Returns:
a String representation of this Circle.

---

equals

```
public boolean equals(java.lang.Object obj)
```

Is that other Circle equivalent to this one?

Overrides:
`equals` in class `java.lang.Object`

---

getRadius

```
public double getRadius()
```

Returns the radius of this Circle

Returns:
the radius of this Circle

---

getCenter

```
public Point getCenter()
```

Returns the center of this Circle

Returns:
the center of this Circle

---

area

```
public double area()
```

Returns the area of this Circle

Returns:
the area of this Circle

---

intersects

```
public boolean intersects(Rectangle r)
```

Does this Circle intersect a Rectangle?

Parameters:
`r` - the rectangle

Returns:
true if they intersect.

---

intersects

```
public boolean intersects(Circle c)
```

Does this Circle intersect nother Circle?

Parameters:
`c` - the other circle

Returns:
true if they intersect.

---

translate

```
public void translate(double dx,
```

```
                    double dy)
```

Changes the location of this Rectangle by the specified amount in each direction.

Parameters:

`dx` - amount to move this Rectangle by in the x direction

`dy` - amount to move this Rectangle by in the y direction

---

isInside

```
public boolean isInside(Point p)
```

Is the given Point inside this Circle?

Parameters:

`p` - the Point

Returns:

true if the Point is inside this Circle, false otherwise.

---

boundingBox

```
public Rectangle boundingBox()
```

Returns the Rectangle that bounds this object

Returns:

the Rectangle that bounds this object
