Report: Programming Project 1

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# Code

## HelloWorld.java

**package** edu.ohio.ise.ise6900.helloworld;

/\*

\* ISE6900 Object Oriented Application in Industrial Engineering

\* Programming Project 01

\*

\* @author Nur Shomik Arafat

\* Date: 2017-01-14

\* @version 1.0

\*

\*/

/\*\*

\* Demonstration of a simple Hello-World class.

\* The class consists of only the main() method that prints

\* "Hello, Java World!"

\*/

**public** **class** HelloWorld {

/\*\*

\* **@param** args

\*/

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

System.***out***.println("Hello, Java World!");

}

}

## Rectangle.java

**package** edu.ohio.ise.ise6900.geometry.rectangle;

/\*

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\*/

**import** java.util.Scanner;

/\*\*

\* Class Rectangle represents a geometric Rectangle.

\* It has two attributes: width and height.

\* The class has methods that calculate other measurements

\* for the rectangle using the width and the height.

\*

\* **@author** Nur Shomik Arafat

\*

\*/

**public** **class** Rectangle {

/\*\*

\* Class attributes:

\* Class Rectangle has two attributes:

\* Width and Height

\*/

**private** **double** width, height;

/\*\*

\* **@return** the area of the rectangle

\*/

**protected** **double** getArea(){

**return** **this**.width \* **this**.height;

}

/\*\*

\* **@return** the perimeter of the rectangle

\*/

**protected** **double** getPerimiter(){

**return** 2 \* (**this**.width + **this**.height);

}

/\*\*

\* **@return** the diagonal of the rectangle

\*/

**protected** **double** getDiagonal(){

**return** Math.*sqrt*(Math.*pow*(width, 2) + Math.*pow*(height, 2));

}

/\*\*

\* **@return** the area of the circumscribed circle

\*/

**protected** **double** getAreaOfCircumscribedCircle(){

**return** Math.***PI*** \* Math.*pow*((**this**.getDiagonal()/2), 2);

}

/\*\*

\* **@param** args

\*/

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

Rectangle rec = **new** Rectangle();

Scanner sin = **new** Scanner(System.***in***);

System.***out***.print("Please enter height and width.\n Height: ");

rec.setHeight(Double.*parseDouble*(sin.nextLine()));

System.***out***.print(" Width: ");

rec.setWidth(Integer.*parseInt*(sin.nextLine()));

sin.close();

System.***out***.println(rec.toString());

System.***out***.println("Area of the rectangle: " + rec.getArea());

System.***out***.println("Perimeter of the rectangle: " + rec.getPerimiter());

System.***out***.println("Length of diagonal of the rectangle: " + rec.getDiagonal());

System.***out***.println("Area of the circumscribed circle of the rectangle: " + rec.getAreaOfCircumscribedCircle());

}

/\* (non-Javadoc)

\* @see java.lang.Object#toString()

\*/

@Override

**public** String toString() {

**return** "Rectangle [width=" + width + ", height=" + height + "]";

}

/\* (non-Javadoc)

\* @see java.lang.Object#hashCode()

\*/

@Override

**public** **int** hashCode() {

**final** **int** prime = 31;

**int** result = 1;

result = (**int**) (prime \* result + height);

result = (**int**) (prime \* result + width);

**return** result;

}

/\* (non-Javadoc)

\* @see java.lang.Object#equals(java.lang.Object)

\*/

@Override

**public** **boolean** equals(Object obj) {

**if** (**this** == obj)

**return** **true**;

**if** (obj == **null**)

**return** **false**;

**if** (getClass() != obj.getClass())

**return** **false**;

Rectangle other = (Rectangle) obj;

**if** (height != other.height)

**return** **false**;

**if** (width != other.width)

**return** **false**;

**return** **true**;

}

/\*\*

\* **@return** the width of the rectangle

\*/

**public** **double** getWidth() {

**return** width;

}

/\*\*

\* **@param** width the width to set of the rectangle

\*/

**public** **void** setWidth(**double** width) {

**this**.width = width;

}

/\*\*

\* **@return** the height of the rectangle

\*/

**public** **double** getHeight() {

**return** height;

}

/\*\*

\* **@param** height the height to set of the rectangle

\*/

**public** **void** setHeight(**double** height) {

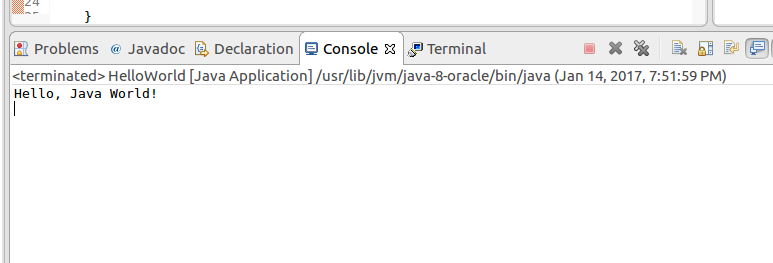
**this**.height = height;

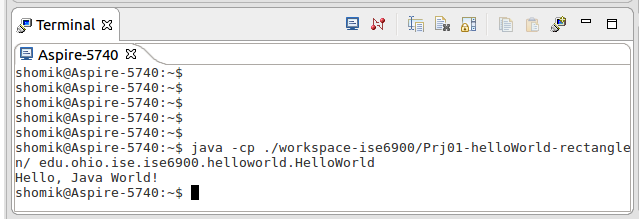
}

}

# Screen-shots

## HelloWorld.java





## Rectangle.java

