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LAB09

1.

```
public abstract class Container {  
  
    private double height;  
    private double radius;  
  
    public Container() {  
    }  
  
    public Container(double height, double radius) {  
        this.height = height;  
        this.radius = radius;  
    }  
  
    public double getHeight() {  
        return height;  
    }  
  
    public void setHeight(double height) {  
        this.height = height;  
    }  
  
    public double getRadius() {
```

```
        return radius;
    }

    public void setRadius(double radius) {
        this.radius = radius;
    }

    public abstract double calculateVolume();
}

//CylindricalContainer

public class CylindricalContainer extends Container {

    private static final double PI = 3.14159;

    public CylindricalContainer() {
    }

    public CylindricalContainer(double height, double radius) {
        super(height, radius);
    }

    @Override
    public double calculateVolume() {
        return PI * radius * radius * height;
    }
}
```

```
public class Main {  
  
    public static void main(String[] args) {  
        CylindricalContainer container = new CylindricalContainer(10, 5);  
        System.out.println("The volume of the cylinder is: " + container.calculateVolume());  
    }  
}
```

2.

```
public interface PlayerController {  
  
    void moveUp();  
  
    void moveDown();  
  
    void moveLeft();  
  
    void moveRight();  
}  
  
// PlayerController interface  
public class KeyboardPlayerController implements PlayerController {  
  
    private static final int UP = 38;  
    private static final int DOWN = 40;  
    private static final int LEFT = 37;
```

```
private static final int RIGHT = 39;
```

```
@Override
```

```
public void moveUp() {
```

```
    System.out.println("The player moved up");
```

```
}
```

```
@Override
```

```
public void moveDown() {
```

```
    System.out.println("The player moved down");
```

```
}
```

```
@Override
```

```
public void moveLeft() {
```

```
    System.out.println("The player moved left");
```

```
}
```

```
@Override
```

```
public void moveRight() {
```

```
    System.out.println("The player moved right");
```

```
}
```

```
}
```

```
public class Main {
```

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

```
        PlayerController playerController = new KeyboardPlayerController();
```

```
        playerController.moveUp();
```

```
    playerController.moveDown();  
    playerController.moveLeft();  
    playerController.moveRight();  
}  
}
```