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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();
```

```
    }
```

```
}
```