

Lab Sheet 9

Question 01

Container class

```
package com.mycompany.cylindermain; abstract

class Container

{
    double height;

double radius;


    public Container(double height, double radius)
    {
        this.height = height;
this.radius = radius;
    }


    public abstract double getVolume();
}

{
    double pi = 3.14159;

    return pi * getRadius() * getRadius() * getHeight();
}
```

CylindricalContainer class

```
package com.mycompany.cylindermain;

class CylindricalContainer extends Container

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


    @Override    public
double getVolume()
```

```
public double getHeight()
{
    return super.height;
}
```

```
public double getRadius()
{
    return super.radius;
}
}
```

CylinderMain

```
package com.mycompany.cylindermain; public
class CylinderMain
{
    public static void main(String[] args)
    {
        double height = 10.0; // Set the height of the cylindrical container
        double radius = 5.0; // Set the radius of the cylindrical container
        CylindricalContainer container = new CylindricalContainer(height, radius);
        double volume = container.getVolume();
        System.out.println("Volume of the cylindrical container: " + volume);
    }
}
```

Volume of the cylindrical container: 785.3975

Question 2

PlayerController Class

```
package com.mycompany.lifegame;

abstract class PlayerController
{
    public abstract void moveUp();
    public abstract void moveDown();
    public abstract void moveLeft();
    public abstract void moveRight();
}
```

TextPlayerController Class

```
package com.mycompany.lifegame;

class TextPlayerController extends PlayerController
{
    @Override    public
void moveUp()
    {
        System.out.println("Moving UP");
    }

    @Override    public
void moveDown()
    {
        System.out.println("Moving DOWN");
    }
}
```

```
@Override public
void moveLeft()
{
    System.out.println("Moving LEFT");
}
```

```
@Override public
void moveRight()
{
    System.out.println("Moving RIGHT");
}
}
```

LifeGame Main

```
package com.mycompany.lifegame; public
class LifeGame
{
    public static void main(String[] args)
    {
        // Create a TextPlayerController object
        PlayerController playerController = new TextPlayerController();
        // Simulate player movement using key presses
        playerController.moveUp();
        playerController.moveRight();
        playerController.moveDown();
        playerController.moveLeft();
    }
}
```