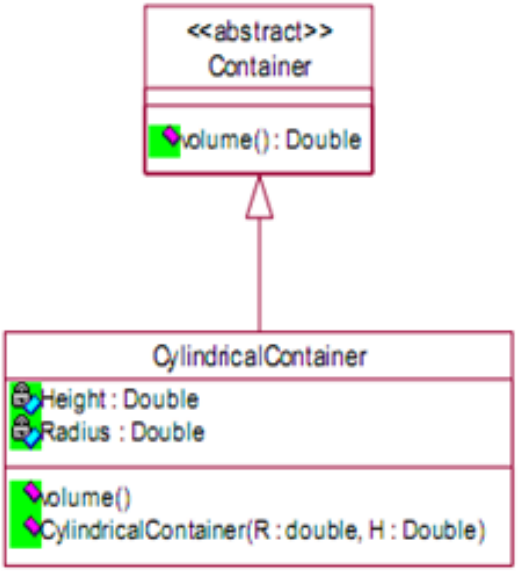
Question 01



The Volume of a Cylinder can be found with the following formula:

Volume = PI * Radius*Radius*Height where PI=3.14159

It is required to map the above class diagram to Java code.

Note: Container is an abstract class.
Height & Radius are private variables
All the methods are public

(i) Write down the Java definition of class container

// if a class in an abstract at least there should be one abstract method

```
Public abstract Class Container
 {
   Public abstract double volume();
 }
```

(ii) Write the Java Definition of class CylindricalContainer. (Implement the Methods)

```
Public Class CylindricalContainer extend Container

 {

     Private double height, radius ;
     Public CylindricalContainer (double height, double radius)
```

```
        {

            this.height =height ;
            this.radius =radius ;
         }

           Public double volume()
                {
                    Return 3.1459f*radius*radius*height ;
                }

}
```

(iii) Create an object from CylindricalContainer and display the volume.

```
Public class MavenProject14
 {
   Public Static Void main (String[] args)
          {
            CylindricalContainer c =new CylindricalContainer(8.75,12.50) ;
            System.out.println("Volume of the Cylinder is" +c.volume());
          }
 }
```

Question 02

A Student wants to create a game called "Life", 'life' is a RPG game in which a player can move up, down, left & Right. In order to implement this game assume that you need to create an abstraction of the player controllers. Make sure to print the directions of the player when keys are pressed.

```
import java.util.Scanner;

public class LifeGame {
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      String input;
      while (true) {
         System.out.println("Enter direction (w, a, s, d) or q to quit: ");
         input = scanner.nextLine();
         if (input.equals("q")) {
            break;
         }
         switch (input) {
```

```
            case "w":
                System.out.println("Player moved up");
                break;
            case "a":
                System.out.println("Player moved left");
                break;
            case "s":
                System.out.println("Player moved down");
                break;
            case "d":
                System.out.println("Player moved right");
                break;
            default:
                System.out.println("Invalid input");
        }
    }
    scanner.close();
  }
}
```