1)      Giving reasons for your answer based on the type of system being developed, suggest the most appropriate generic software process model that might be used as a basis for managing the development of the following systems:
• A system to control anti-lock braking in a car
• A virtual reality system to support software maintenance
• A university accounting system that replaces an existing system
• An interactive travel planning system that helps users plan journeys with the lowest environmental impact

2)      Discuss whether professional engineers should be certified in the same way as doctors or lawyers. Give advantages and disadvantages of certification in software Engineering.
3)      Explain how the principles underlying agile methods lead to the accelerated development and deployment of software.
4)      Suggest four reasons why the productivity rate of programmers working as a pair might be more than half that of two programmers working individually.
5)      Discover ambiguities or omissions in the following statement of requirements for part of a ticket-issuing system:
An automated ticket-issuing system sells rail tickets. Users select their destination and input a credit card and a personal identification number. The rail ticket is issued and their credit card account charged. When the user presses the start button, a menu display of potential destinations is activated, along with a message to the user to select a destination. Once a destination has been selected, users are requested to input their credit card. Its validity is checked and the user is then requested to input a personal identifier. When the credit transaction has been validated, the ticket is issued.
6)      Using your knowledge of how an ATM is used, develop a set of use cases that could serve as a basis for understanding the requirements for an ATM system.

7)      Implement a class Cloud that contains an array list of Point2D.Double objects. Support methods
          public void add(Point2D.Double aPoint)
          public void draw (Graphics2D g2)
Draw each point as a tiny circle. Write a graphical application that draws a cloud of 100 random points. Here is a sample program output: Hand in to the instructor: Hardcopy of the assignment, application and its output.
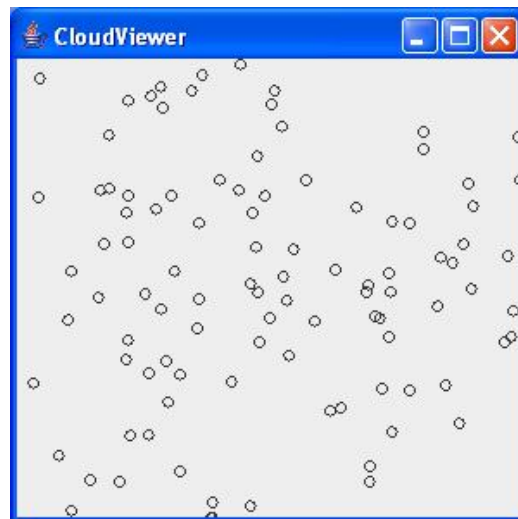


Use the following class in your solution: (Given to you guys)

**CloudViewer.java**

```
import javax.swing.JFrame;
//   Displays a cloud of circles.
public class CloudViewer
```

```java
{
  public static void main(String[] args)
  {
    JFrame frame = new JFrame();
    final int FRAME_WIDTH = 300;
    final int FRAME_HEIGHT = 300;

    frame.setSize(FRAME_WIDTH, FRAME_HEIGHT);
    frame.setTitle("CloudViewer");
    frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

    CloudComponent component = new CloudComponent();
    frame.add(component);
    frame.setVisible(true);
  }
}
```

**CloudComponent.java**

```java
import javax.swing.JComponent;
import java.awt.Graphics;
import java.awt.Graphics2D;
import java.awt.geom.Point2D;
import java.util.Random;

public class CloudComponent extends JComponent
{
  public void paintComponent(Graphics g)
  {
    Graphics2D g2 = (Graphics2D) g;

    Cloud c = new Cloud();
    Random generator = new Random();
    double x = 0;
    double y = 0;

    for (int i = 0; i < 100; i++)
    {
      x = getWidth() * generator.nextDouble();
      y = getHeight() * generator.nextDouble();
      c.add(new Point2D.Double(x, y));
    }

    c.draw(g2);
  }
}
```

**Hint...!!!! (Cloud.java)**

```java
import java.awt.geom.Point2D;
import java.awt.geom.Ellipse2D;
import java.awt.Graphics2D;
import java.util.ArrayList;

public class Cloud
{
  public Cloud()                    // Construct a Cloud object.
{
  points = new ArrayList<Point2D.Double>();
}
................
}
```