Satellite Command System Programming Exercise

import java.util.Arrays;

class Satellite {

private String orientation;

private String solarPanels;

private int dataCollected;

// Constants

private static final String ACTIVE = "Active";

private static final String INACTIVE = "Inactive";

private static final String NORTH = "North";

private static final String SOUTH = "South";

private static final String EAST = "East";

private static final String WEST = "West";

public Satellite() {

initializeSatellite();

}

private void initializeSatellite() {

this.orientation = NORTH;

this.solarPanels = INACTIVE;

this.dataCollected = 0;

}

public void rotate(String direction) {

if (Arrays.asList(NORTH, SOUTH, EAST, WEST).contains(direction)) {

this.orientation = direction;

} else {

System.out.println("Invalid direction. Valid directions are North, South, East, West.");

}

}

public void activatePanels() {

this.solarPanels = ACTIVE;

}

public void deactivatePanels() {

this.solarPanels = INACTIVE;

}

public void collectData() {

if (this.solarPanels.equals(ACTIVE)) {

this.dataCollected += 10;

} else {

System.out.println("Data collection failed. Solar panels are inactive.");

}

}

public void printSatelliteStatus() {

System.out.println("Orientation: " + this.orientation);

System.out.println("Solar Panels: " + this.solarPanels);

System.out.println("Data Collected: " + this.dataCollected);

}

public static void main(String[] args) {

Satellite satellite = new Satellite();

// Command simulation

satellite.rotate(SOUTH);

satellite.activatePanels();

satellite.collectData();

// Print final status

satellite.printSatelliteStatus();

}

}