TrafficLightProject

//Test.java

```
import java.util.Scanner;

public class TransposeTest {

	public static void main(String[] args) {

		Scanner scanner = new Scanner(System.in);

		int[][] arr = Transpose.getMatrix(scanner);

		System.out.println("Original Array: ");

		Transpose.printMatrix(arr);

		int[][] transpose = Transpose.findTranspose(arr);

		System.out.println("Transpose Array: ");

		Transpose.printMatrix(transpose);

	}

}
```

//TrafficLightProject.java

```
import javax.swing.*;
import java.awt.*;
```

```
import java.util.Objects;

public class TrafficLightProject {

    public TrafficLightProject() {

        JFrame frame = new JFrame("TrafficLightProject");

        JPanel panel = new JPanel();
        panel.setBounds(125, 50, 50, 50);
        frame.add(panel);

        ButtonGroup buttonGroup = new ButtonGroup();

        for (int i = 0; i < 3; i++) {

            JRadioButton radioButton = new JRadioButton(getColorString(i), false);

            radioButton.setBounds(20, 20 * (i + 1), 100, 20);

            frame.add(radioButton);

            buttonGroup.add(radioButton);

            radioButton.addActionListener(
                    actionEvent ->
                            panel.setBackground(
                                    getColor(actionEvent.getActionCommand())
                            )
            );
```

```
        }

        buttonGroup.clearSelection();

        frame.setSize(200, 200);

        frame.setLayout(null);
        frame.setVisible(true);

    }

    private String getColorString(int i) {
        if (i == 0)
            return "Green";
        if (i == 1)
            return "Yellow";

        return "Red";
    }

    private Color getColor(String s) {
        if (Objects.equals(s, "Yellow"))
            return Color.YELLOW;
        if (Objects.equals(s, "Green"))
            return Color.GREEN;

        return Color.RED;
    }

}
```

```
//TransposeTest

//Transpose.java
import java.util.Scanner;

public class Transpose {

	static int[][] getMatrix(Scanner scanner) {

		System.out.print("Number of rows of matrix: ");
		int r = scanner.nextInt();

		System.out.print("Number of columns of matrix: ");
		int c = scanner.nextInt();

		int A[][] = new int[c][r], B[][] = new int[c][r];

		System.out.println("Enter the Matrix elements: ");

		for(int i = 0; i < c; i++) {
			for(int j = 0; j < r; j++) {
				System.out.print("Enter A" + (i + 1) + (j + 1) + ": ");
				A[i][j] = scanner.nextInt();
			}
		}

		return A;

		}
```

```
	static int[][] findTranspose(int[][] A) {

	int c = A.length, r = A[0].length;

	int B[][] =  new int[c][r];

	for(int i = 0; i < c; i++) {
		for(int j = 0; j < r; j++) {
			B[i][j] = A[j][i];
		}
	}

	return B;

	}

	static void printMatrix(int[][] A) {

	int c = A.length, r = A[0].length;

	for(int i = 0; i < c; i++) {
		for(int j = 0; j < r; j++) {
			System.out.print("\tA" + (i + 1) + (j + 1) + ": " + A[i][j]);
		}
		System.out.println();
	}

	}

}
```

```
//TransposeTest.java
import java.util.Scanner;

public class TransposeTest {

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		System.out.println("Original Array: ");

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		System.out.println("Transpose Array: ");

		Transpose.printMatrix(transpose);

	}

}
```

```
//VideoRentalInventorySystem

//Video.java
public class Video {

   private String name;
   private boolean checkout;
   private int rating;

   public Video(String name) {
      this.name = name;
   }

   public void doCheckout(String name) {
      checkout = true; //TODO: Why the name parameter?!
   }

   public void doReturn(String name) {
      checkout = false; //TODO: Why the name parameter?!
   }

   public void receiveRating(int rating) {
      this.rating = rating; //TODO: Why receive not get? Why not use the getter!!
   }

   public boolean getCheckout() {
      return checkout;
   }

   public String getName() {
```

```
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public boolean isCheckout() {
        return checkout;
    }

    public void setCheckout(boolean checkout) {
        this.checkout = checkout;
    }

    public int getRating() {
        return rating;
    }

    public void setRating(int rating) {
        this.rating = rating;
    }
}

//VideoLauncher.java
import java.util.InputMismatchException;
import java.util.Scanner;

public class VideoLauncher {
```

```
public static void main(String[] args) {

    Scanner scanner = new Scanner(System.in);

    while (true) {

        System.out.println(
                "MAIN MENU\n" +
                        "=========\n" +
                        "1. Add Videos:\n" +
                        "2. Check Out Video :\n" +
                        "3. Return Video :\n" +
                        "4. Receive Rating :\n" +
                        "5. List Inventory :\n" +
                        "6. Exit :\n"
        );

        int choice;

        try {
            System.out.println("Enter your option (1..6): ");
            choice = scanner.nextInt();
        } catch (InputMismatchException e) {
            System.out.println("Please enter a valid input\n");
            scanner.nextLine();
            continue;
        }

        if (choice == 1) {
```

```
    System.out.print("Enter the name of the video you want to add: ");
    String name = scanner.next();
    VideoStore.addVideo(name);

} else if (choice == 2) {

    System.out.print("Enter the name of the video you want to check out: ");
    String name = scanner.next();
    VideoStore.doCheckout(name);

} else if (choice == 3) {

    System.out.print("Enter the name of the video you want to Return: ");
    String name = scanner.next();
    VideoStore.doReturn(name);

} else if (choice == 4) {

    System.out.print("Enter the name of the video you want to Rate: ");
    String name = scanner.next();
    System.out.print("Enter the rating for this video: ");
    int rating = scanner.nextInt();
    VideoStore.receiveRating(name, rating);

} else if (choice == 5) {

    VideoStore.listInventory();

} else if (choice == 6) {

    System.out.println("Exiting...!! Thanks for using the application.");
```

```
            System.exit(0);

        } else {

            System.out.println("Please enter a valid choice!");

        }

    }
}

}

//VideoStore.java
public class VideoStore {

    private static final Video[] store = new Video[100]; // TODO: What should be the size of this array? Better using an <code>ArrayList</code>?
    private static int length = 0; // TODO: Can't find any other ways to do this other than of course to loop through the array to find the end!!

    public static void addVideo(String name) {
        store[length++] = new Video(name);
        System.out.println("Video ‘" + name + "’ added successfully.");
    }

    public static void doCheckout(String name) {
        for (Video video : store) {
            if (name.equals(video.getName())) { //TODO: Not doing .toLower() because it is the primary key
                video.doCheckout(name); //TODO: This name is redundant, as far as I can decipher.
                System.out.println("Video ‘" + name + "’ checked out successfully.");
```

```
            return;
        }
    }
  }

  public static void doReturn(String name) {
    for (Video video : store) {
      if (name.equals(video.getName())) { //TODO: Not doing .toLower() because it is the primary
key
        video.doReturn(name); //TODO: This name is redundant, as far as I can decipher.
        System.out.println("Video “" + name + "” returned successfully.");
        return;
      }
    }
  }

  public static void receiveRating(String name, int rating) {
    for (Video video : store) {
      if (name.equals(video.getName())) { //TODO: Not doing .toLower() because it is the primary
key
        video.receiveRating(rating);
        System.out.println("Rating “9” has been mapped to the Video “" + name + "”.");
        return;
      }
    }
  }

  public static void listInventory() {

    System.out.println(
        "------------------------------------------------------\n" +
            "Video Name | Checkout Status | Rating\n"
```

```
        );

        if (store != null && length > 0)
            for (int i = 0; i < length; i++)
                printDetails(store[i]);

        System.out.println(
                "-------------------------------------------------------"
        );
    }

    private static void printDetails(Video video) {
        System.out.println(
                video.getName() + " | " + video.getCheckout() + " | " + video.getRating() + " | "
        );
    }

}
```