**Movie and Rental Project**

Overall Plan (Algorithm - step-by-step plan to make it happen):

1. The movie class is used with the genre classes (Action, Comedy, & Drama) to calculate the late fees.
2. Create objects for the movie name, the movie rating, and the movie’s ID number.
3. Use accessors and mutators to allow the Rental class to get and set methods
4. Use the equals method to compare two ID numbers together to make sure they aren’t equivalent, and returns a true or false statement depending on their values
5. The Rental class calls the Movie class and creates a reference to it under the customerRental object
6. Rental then passes through methods from the Movie class and uses the “this” keyword to get specific references to the objects in the Rental class. The if else statement modifies the movie title, movie rating, and movie ID number
7. writeOutput inside Rental holds the display information for the TestMovie class to hold
8. TestMovie uses an array with values to display the customers information
9. The customer’s information is inputted in the array, then the array correlates to each customer and the corresponding information is displayed on the output screen.

/\* Course CS112 Days & Time: September 3, 2015

\* Chapter Number: 8 Project Number: 2

\* Programmer: Broderick Higby

\* Program Title: Movie

\* Program Description: Displays movie information for a local rental shop to demonstrate the \* use of polymorphism and late binding

\*/

public class Movie

{

int IDNumber; //This is the ID number for the movie

String movieType; //This is for the rating

String movieName;

//Construction of the movie class

public Movie(String type, String name, int number)

{

movieType = type;

movieName = name;

IDNumber = number;

}

//The objects are given 0 or null for now to be passed in later

public Movie()

{

IDNumber = 0;

movieType = null;

movieName = null;

}

//Accessor and modifier methods for the movie name, Movie ID, and the movie MPAA rating

public void setMovieName(String name)

{

movieName = name;

}

public void setMovieType(String type)

{

movieType = type;

}

public void setIDNumber(int number)

{

IDNumber = number;

}

public String getMovieName()

{

return movieName;

}

public String getMovieType()

{

return movieType;

}

public int getIDNumber()

{

return IDNumber;

}

//This uses the equals method to compare two movie ID numbers together

public boolean equals(Movie otherMovie)

{

if(this.IDNumber==otherMovie.getIDNumber())

{

return true;

}

else

{

return false;

}

}

//This calculates the fees based on the genre and the days late

public double calcLateFees(int daysLate)

{

int lateFee = daysLate \* 2;

return lateFee;

}

//I used toString to hold all the movie classes information to be

//passed into the rental class

public String toString()

{

return "Movie Title: " + movieName +

"\nMovie MPAA Rating: " + movieType +

"\nMovieID Number: " + IDNumber;

}

}

public class Comedy extends Movie

{

//Calculates late fees

public double calcLateFees(int daysLate)

{

double lateFee= daysLate \* 2.5; //This is the days late \* genre's specific price

return lateFee;

}

}

public class Drama extends Movie

{

//Calculates late fees

public double calcLateFees(int daysLate)

{

double lateFee= daysLate \* 2; //This is the days late \* genre's specific price

return lateFee;

}

}

public class Action extends Movie

{

//Calculates late fees

public double calcLateFees(int daysLate)

{

double lateFee= daysLate \* 3; //This is the days late \* genre's specific price

return lateFee;

}

}

public class Rental

{

//This takes the movie class and changes the name to customerRental

Movie customerRental;

int customerID = 0;

int daysLate;

//Passed through the objects from the Movie class

public Rental(int daysLate, int customerID, int IDNumber, String movieType, String movieName, char genre)

{

//Used the 'this' keyword to pass objects from Movie->Rental class->Rental method

this.daysLate = daysLate;

this.customerID = customerID;

if((genre== 'a')||(genre== 'A'))

{ //pulls the action class and then accesses Movie input

customerRental = new Action();

customerRental.setMovieType(movieType);

customerRental.setMovieName(movieName);

customerRental.setIDNumber(IDNumber);

}

else if ((genre== 'd')||(genre== 'D')) //

{

customerRental = new Drama();

customerRental.setMovieType(movieType);

customerRental.setMovieName(movieName);

customerRental.setIDNumber(IDNumber);

}

else if ((genre== 'c')||(genre== 'C'))

{

customerRental = new Comedy();

customerRental.setMovieType(movieType);

customerRental.setMovieName(movieName);

customerRental.setIDNumber(IDNumber);

}

}

public void writeOutput() //Write output holds all of the information to pass to the test class

{

System.out.println("The customer's ID number is: " + customerID);

System.out.println("\n"+ customerRental);

System.out.println("\nThe movie is " + daysLate + " days late");

System.out.println("The late fee for the customer is $" + customerRental.calcLateFees(daysLate));

System.out.println("\n\nThank you for renting the movie from Brody's Movies, Support local businesses!");

}

}

public class TestMovie

{

public static void main(String[] args)

{

//Rental array with three values

Rental[] customers = new Rental[3];

//These are the specifics for the movies with the values passed from the Rental class

Rental customer1 = new Rental(30,3303231, 100,"PG-13","Transformers",'A');

Rental customer2 = new Rental(31,8675309, 101, "R", "500 Days of Summer", 'D');

Rental customer3 = new Rental(32, 1190239, 102, "R", "Superbad", 'C');

customers[0] = customer1;

customers[1] = customer2;

customers[2] = customer3;

customers[0].writeOutput();

customers[1].writeOutput();

customers[2].writeOutput();

}

}

