QUIZ 2 - QUESTIONS **NAME:** _____

CS 207, Programming II

Computer Science - Spring, 2017

Problem 1 (40 points)

What is the **exact** output of the `main` method in the `BallApp2` class found on the Answers sheet?

```
public class Ball
{
  private int velocity = 2;
  public static int c = 19;

  public Ball()
  {
    System.out.println("Ball constructor " +
                       this.velocity + " " +
                       c);
    this.velocity++;
    c++;
  }

  public Ball(int x)
  {
    System.out.println("Ball constructor " +
                       this.velocity + " " +
                       c);
    this.velocity = 0;
    c++;
  }

  public void hit()
  {
    System.out.println("Hit a mile!");
  }

  public static int getVelocity()
  {
    return(c);
  }

  @Override
  public String toString()
  {
    return("class Ball velocity = " +
           this.velocity);
  }
}
```

```
public class Baseball extends Ball
{
  public static int fans = 9;
  private String name;

  public Baseball()
  {
    super();
    fans++;
    System.out.println("Bball constructor " +
                       fans + " " +
                       this.name);
  }

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

  public void hit()
  {
    System.out.println("Tore cover off!");
    super.hit();
  }

  @Override
  public String toString()
  {
    return("fans = " + fans + " name = " +
           this.name);
  }
}
```

```
public class Softball extends Baseball
{
  public static int items = 3;

  public Softball()
  {
    super();
    System.out.println("Softball " +
                       "constructor.");
    items++;
  }

  public Softball(int items)
  {
    Softball.items = items;
  }

  @Override
  public String toString()
  {
    return("Items = " + items);
  }
}
```

Problem 2 (20 points)

Write the following method:

```
public static String eliminate(String str, char c1, char c2, char c3)
```

The method receives a string and three single characters. The method is to return a new string that is made up of all characters of the original string except those characters stored in the variables c1, c2 and c3.

Sample data:

str	c1	c2	c3	method returns
"abcdefgh"	a	d	g	bcefh
"mary mary quite"	y	' ' (a space)	q	marmaruite

Problem 3 (20 points) **Your Name:** _____

Write the class Drama, which is a subclass of class Movie.

Class Movie (code is given below) is to be used for a video rental business.

The Movie class tracks three things: 1) the Motion Picture Association of America (MPAA) rating (e.g. Rated G, PG-13, R), 2) a movie ID Number and 3) a movie title. Appropriate accessor and mutator methods are available for each item to be tracked. Additionally, the Movie class contains a method named calcLateFees that takes as input the number of days a movie is late and returns the late fee for that movie. The default late fee is $2/day.

Write a class named Drama that is derived from the given class Movie.

To complete the class Drama you are to do the following:

1) Add an additional private data member named daysLate of type int that is to represent the number of days a movie is kept past the due date;
2) A constructor that receives arguments representing the name of the movie, the movie id and the movie rating.
3) Write appropriate get and set methods for the data member daysLate;
4) Override the method calcLateFees( ) that receives no arguments and returns the late fee charge using the following criteria:
   a. A fee of $4 per day is charged for each day the film is kept past its due date;
   b. The number of days late is stored in the data member daysLate
5) Write an equals( ) method that receives an argument of type object representing the object to which the calling object will be compared, and overrides class Object's equals( ) method, where two movies are equal if their name, rating and ID number are identical (to receive full credit this method is to compare the objects to see if they are of the same data type);
6) Write a toString( ) method that overrides class Object's toString( ) method and displays the following information:
   Movie: name
   ID: id
   Rating: rating
   Days Late: number of days late
   Late Fee: late fee

```
public class Movie
{
   //data members
   private String name;
   private String rating;
   private int id;

   public Movie()
   {
      name = "";
      rating = "";
      id = 0;
   }

   public Movie(String n, String r, int identification)
   {
      name = n;
      rating = r;
      id = identification;
   }

   //accessor-mutator methods
   public void setName(String n){name = n;}
   public void setRating(String r){rating = r;}
   public void setID(int identification){id = identification;}
   public String getName(){return name;}
   public String getRating(){return rating;}
   public int getID(){return id;}

   public double calcLateFees(int numDaysLate)
   {
      return(2.00 * numDaysLate);
   }
}
```

```
public class DramaApp
{
   public static void main(String [] args)
   {
      Drama movie1 = new Drama("In the Line Of Fire", "PG-13",
                                                23157);
      Drama movie2 = new Drama("Witness", "PG-13", 22989);
      movie1.setDaysLate(3);

      if(movie1.equals(movie2))
           System.out.println("You chose the same film");
      else
           System.out.println("You chose a different film");

      System.out.println("Movie 1 details are the following: \n"
                              + movie1);
   }
}
```

Sample Output from Above Probram

```
You chose a different film
Movie 1 details are the following:
Movie: In the Line Of Fire
ID: 23157
Rating: PG-13
Late Fee: 12.0
```

Problem 4 (20 points).
Write the following program: CourseExamProcessing2.

You are given a data file named "student_exam_scores.txt", consisting of a list of exam scores for each student in a class. The scores are stored as decimal values, with either 4 or 5 scores per student. You do not know the number of scores in the list.

Your program is to do the following:

1. Read the scores into your program;
2. Using the String class split( ) method, display the number of students with 4 test scores and the number of students with 5 test scores;
3. Using the BigDecimal class, calculate, as a decimal value, the average of the scores;
4. Display the average for each student, each average displayed on a separate line;
5. Handle the File I/O exception and the InputMismatch exception.

Below is a sample data set for the data file and the output generated from that data.

Sample course_exam_scores.txt file

```
87 88 85 83
96 94 95 92 91
73 77 76 74
```

Output generated for the above data file

```
Four test scores: 2
Five test scores: 1

85.0
93.0
75.0
```