CS 2114 Practice Problems 1/25/2016

Useful Junit Link:
http://moodle.cs.vt.edu/mod/page/view.php?id=36602

Part 1: Tracing

1. If I graduated in 2002, what does nextReunion return?

2. If I am graduating this year, what does nextReunion return?

Use the following arrays for values to trace questions 3-5.
a. []
b. [5]
c. [-2 -4]
d. [5 7 -3 19 42]
e. [2 4 6 8 10]
f. [-8 7 -6 5 -4 3]

3. The following loop should make all of the odd indeces double the entry before it. Trace the loop to check for bugs.

```
for (int i = 1; i < values.length; i+=2) {
     values[i] = 2 * values[i-1];
}
```

4. The following loop should make all of the even elements negative. Trace the loop to check for bugs.

```
for (int i = 0; i < values.length; i++) {
     if (values[i] % 2 == 0) {
          values[i] *= -1;
     }
}
```

5. The following loop should reverse the order of the elements in the array. Trace the loop to check for bugs.

```
for (int i = 0; i < values.length / 2; i++) {
     int temp = values[i];
     values[i] = values[values.length - 1];
     values[values.length - 1] = temp;
}
```

Part 2: Junit Testing Basics

1. If you want to test the Hokie class, what would the test class be called?

2. What import statement must always be included in your test class?

3. What must your test class always extend?

4. If you are testing the Hokie class, what is one instance variable you must have? (initialize it with your name as the variable name)

5. Which method is run before each test method?
a. public void SetUp(){}
b. public void setUp(){}
c. public void setup(){}
d. public Hokie(){}
e. a, b, and c
f. all of the above

6. What (optional) method is run after each test method?

7. If you want to test the getName method, what would the test method be called?

8. When testing a method that returns a boolean, what assert statements should you use?

Part 3: Code Coverage

1. On Web-CAT, in what color will lines be highlighted if they have not sufficiently been tested?

2. Write a test method that will cover every case of the following method. (Hint: Use assertEquals)

```
public String pizza(int time) {
      if (time < 60) {
            return “Not done yet!”
      } else if (time == 60) {
            return “Pizza is done!”
      } else {
            return “You burnt the pizza!”
      }
}
```

3. Write a test method that will cover every case of the following method. (Hint: use assertTrue and assertFalse)

```
public boolean jacket(int temp) {
      return temp <= 60;
}
```

4. Write a test method that will cover every case of the following method. (Hint: use assertNull and assertNotNull)

```
public Hokie createHokie(String name) {
      if (name.equals(“”)) {
            return null;
      }
```

```
    return new Hokie(name);
}
```

5. If there is an if statement with 2 conditions, how many tests are necessary?

6. How many test cases must you have for the following lists (including errors):
a. {}
b. {1, 2, 3, 4, 5}
c. {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

Part 4: Testing Exceptions

1. Assume that the line *file.read()* throws a FileNotFoundException. Write the body of a test method to test that the exception was thrown with the message "The file does not exist".