Name _____ **CSE 8B** **PID** _____

VERSION A **Quiz 3**

Winter 2016 **Signature** _____

This quiz is to be taken **by yourself** with closed books, closed notes, no electronic devices. *Write your name on the answer sheet too!*

Problem 1 (6pts): Given the following class definitions for class Happy, class Crazy, and class CrazyTest, what is the output when we run CrazyTest by calling: **java CrazyTest?**

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

    Happy ref = new Crazy(2,4);

    System.out.println(ref.toString());
  }
}
```

```
public class Happy {

  public Happy() {
    this(2,4);
    System.out.println("Happy once");
  }

  public Happy(int x, int y) {
    System.out.println("Happy twice "+(x+y));
  }

  public String toString() {
    System.out.println("Happy.toString");
    return "Happy";
  }
}
```

```
public class Crazy extends Happy {

  public Crazy() {
    System.out.println("Crazy once");
  }

  public Crazy(int x, int y) {
    this();
    System.out.println("Crazy twice "+ x + y);
  }

  public String toString() {
    String s = super.toString() + " + " +
               "Crazy.toString";

    System.out.println(s);
    return "Crazy";
  }
}
```

Problem 2 (6 pts):

The pushDown() method (below) should "push" all the elements in a 2D array down. As a result, the items in the original bottom most row will be lost and you will need to zero fill the topmost row. You may assume a non-null grid with at least one row. Please fill in the blanks in the code to make it work. Write your answers on the answer sheet.

```
public static void pushDown( int[][] grid )
  {
    // Push down values
    for(int row=___a.___; row > ___b.___; row--)
    {
      for(int col=___c.___; col < ___d.___; ++col)
      {
        grid[row][col] = grid[___e.___][___f.___];
      } // end inner for
    } // end outer for

    // Fill the top most row with zeros
    for(int col=0; col<grid[0].length; col++)
    {
      grid[___g.___][___h.___] = 0;
    }
  } //end pushDown
```

grid.getSize()

0

Example:

If the grid passed in is the 3 x 3 matrix below

3 1 2
1 4 3
2 3 8

The grid at the end of the method would be:

0 0 0
3 1 2
1 4 3

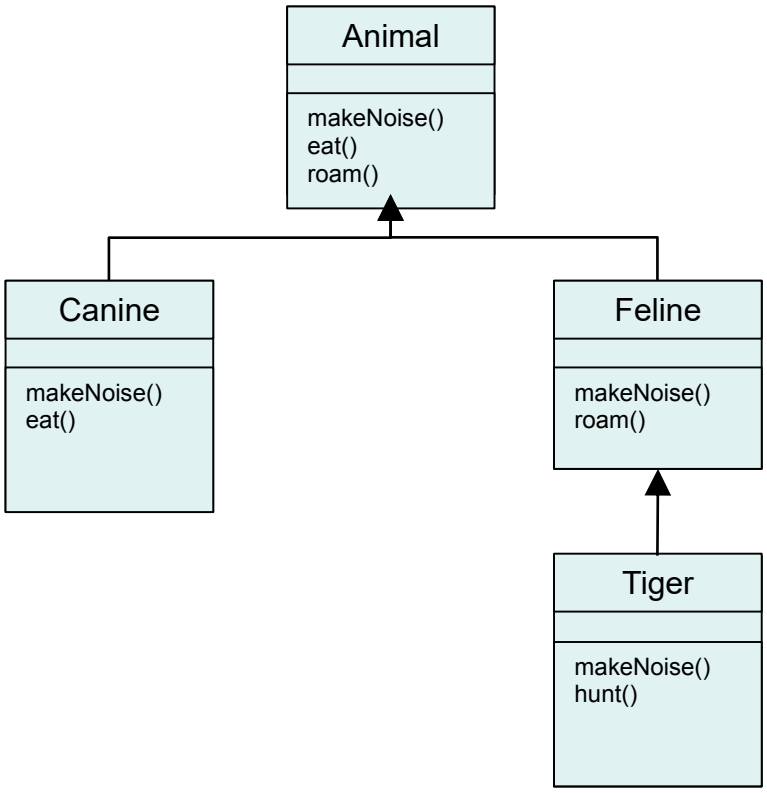
Problem 3 (8 pts):
Given the following class definitions:

```
public class Animal {
  public void makeNoise() {
    System.out.println("..");
  }
  public void eat() {
    System.out.println("Nom nom nom!");
  }
  public void roam() {
    System.out.println("Travel in packs");
  }
}

public class Canine extends Animal {
  public void makeNoise() {
    System.out.println("Growl!");
  }
  public void eat() {
    makeNoise();
    System.out.println("We eat bones!");
    super.eat();
  }
}

public class Feline extends Animal {
  public void makeNoise() {
    super.makeNoise();
    System.out.println("Purr");
  }
  public void roam() {
    System.out.println("Travel alone");
  }
}

public class Tiger extends Feline {
  public void makeNoise() {
    System.out.println("Roar!");
  }
  public void hunt() {
    this.roam();
    System.out.println("Attack!");
  }
}
```



Problem 3.1 (4 pts): What is displayed by the following codes? a. and b. are not sequential to each other.

```
a. Animal animal = new Canine();
   animal.makeNoise();
   animal=new Tiger();
   animal.makeNoise();
b. Tiger tiger = new Tiger();
   tiger.hunt();
```

growl
roar
travel alone
attack

Problem 3.2 (4 pts): Write down in your answer sheet whether each of the following statements will cause a compiler error, or a runtime error, or no error at all.

a.
```
Animal var1 = new Tiger();
((Tiger)var1).hunt();
```

b.
```
Canine var1 = new Canine();
var1.hunt();
```
compile

c.
```
Feline var1 = new Feline();
((Tiger)var1).hunt();
```
runtime

d.
```
Feline var1 = new Tiger();
Tiger var2=(Tiger)var1;
var2.roam();
```

Scratch paper

Scratch Paper

CSE 8B Quiz -2 Answer Sheet Name_____ PID_____

Problem 1: VERSION A

What is the output when we run `CrazyTest` as in: **java CrazyTest**

Problem 2: VERSION A

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

h. _____

CSE 8B Quiz -2 Answer Sheet Name_____ PID_____

Problem 3.1: VERSION A

a.

VERSION A

b.

Problem 3.2 :

VERSION A

a. _____

b. _____

c. _____

d. _____