

CSE143X Section #14 Problems

1. Assuming that the following classes have been defined:

```
public class Foo {
    public void method1() {
        System.out.println("foo 1");
    }
}

public class Bar extends Foo {
    public void method1() {
        System.out.println("bar 1");
        super.method1();
        method2();
    }

    public void method2() {
        System.out.println("bar 2");
    }
}

public class Baz extends Bar {
    public void method2() {
        System.out.println("baz 2");
    }
}
```

And assuming the following variables have been defined:

```
Bar var1 = new Baz();
Object var2 = new Bar();
```

Indicate the output produced (or error caused) by each statement below.

Statement	Output
var1.method1();	_____
((Baz)var2).method2();	_____
((Bar)var2).method2();	_____

2. Assuming that the following classes have been defined:

```
public class First {
    public void method2() {
        System.out.println("First2");
    }

    public void method3() {
        method2();
    }
}

public class Second extends First {
    public void method2() {
        System.out.println("Second2");
    }
}

public class Third extends Second {
    public void method1() {
        System.out.println("Third1");
        super.method2();
    }

    public void method2() {
        System.out.println("Third2");
    }
}

public class Fourth extends First {
    public void method1() {
        System.out.println("Fourth1");
    }

    public void method2() {
        System.out.println("Fourth2");
    }
}
```

And assuming the following variables have been defined:

```
First var1 = new Second();
First var2 = new Third();
First var3 = new Fourth();
Second var4 = new Third();
Object var5 = new Fourth();
Object var6 = new Second();
```

In the table below, indicate in the right-hand column the output produced by the statement in the left-hand column. If the statement produces more than one line of output, indicate the line breaks with slashes as in "a/b/c" to indicate three lines of output with "a" followed by "b" followed by "c". If the statement causes an error, fill in the right-hand column with either the phrase "compiler error" or "runtime error" to indicate when the error would be detected.

Statement	Output
var1.method2();	_____
var2.method2();	_____
var3.method2();	_____
var4.method2();	_____
var5.method2();	_____
var6.method2();	_____
var1.method3();	_____
var2.method3();	_____
var3.method3();	_____
var4.method3();	_____
var5.method3();	_____
var6.method3();	_____
((Second)var4).method1();	_____
((Third)var4).method1();	_____
((Second)var5).method2();	_____
((First)var5).method3();	_____
((Third)var5).method1();	_____
((First)var6).method3();	_____
((Second)var6).method1();	_____
((Second)var6).method3();	_____

3. Assuming that the following classes have been defined:

```
public class Harry {
    public void method1() {
        System.out.println("harry 1");
    }

    public void method2() {
        method1();
        System.out.println("harry 2");
    }
}

public class Larry extends Harry {
    public void method1() {
        System.out.println("larry 1");
        super.method1();
    }
}

public class Mary extends Larry {
    public void method2() {
        System.out.println("mary 2");
    }

    public void method3() {
        super.method1();
        System.out.println("mary 3");
    }
}

public class Jerry extends Mary {
    public void method2() {
        super.method2();
        System.out.println("jerry 2");
    }
}
```

And assuming the following variables have been defined:

```
Harry var1 = new Harry();
Harry var2 = new Larry();
Larry var3 = new Jerry();
Mary var4 = new Mary();
Mary var5 = new Jerry();
Object var6 = new Larry();
```

In the table below, indicate in the right-hand column the output produced by the statement in the left-hand column. If the statement produces more than one line of output, indicate the line breaks with slashes as in "a/b/c" to indicate three lines of output with "a" followed by "b" followed by "c". If the statement causes an error, fill in the right-hand column with either the phrase "compiler error" or "runtime error" to indicate when the error would be detected.

Statement	Output
var1.method1();	
var2.method1();	
var3.method1();	
var4.method1();	
var5.method1();	
var6.method1();	
var1.method2();	
var2.method2();	
var3.method2();	
var4.method2();	
var5.method2();	
var6.method2();	
var3.method3();	
var5.method3();	
((Larry) var1).method1();	
((Mary) var2).method2();	
((Jerry) var5).method1();	
((Mary) var3).method3();	
((Jerry) var4).method3();	
((Mary) var6).method3();	

4. Assuming that the following classes have been defined:

```
public class Foo {
    public void method1() {
        System.out.println("foo 1");
        method2();
    }

    public void method2() {
        System.out.println("foo 2");
    }
}

public class Bar extends Foo {
    public void method2() {
        System.out.println("bar 2");
    }

    public void method3() {
        System.out.println("bar 3");
    }
}

public class Baz extends Foo {
    public void method1() {
        System.out.println("baz 1");
    }

    public void method2() {
        System.out.println("baz 2");
        method1();
    }
}

public class Mumble extends Baz {
    public void method1() {
        super.method1();
        System.out.println("mumble 1");
    }

    public void method3() {
        System.out.println("mumble 3");
    }
}
```

And assuming the following variables have been defined:

```
Foo var1 = new Bar();
Foo var2 = new Mumble();
Bar var3 = new Bar();
Baz var4 = new Baz();
Baz var5 = new Mumble();
Object var6 = new Baz();
```

In the table below, indicate in the right-hand column the output produced by the statement in the left-hand column. If the statement produces more than one line of output, indicate the line breaks with slashes as in "a/b/c" to indicate three lines of output with "a" followed by "b" followed by "c". If the statement causes an error, fill in the right-hand column with either the phrase "compiler error" or "runtime error" to indicate when the error would be detected.

Statement	Output
var1.method1();	
var2.method1();	
var3.method1();	
var4.method1();	
var5.method1();	
var6.method1();	
var1.method2();	
var2.method2();	
var3.method2();	
var4.method2();	
var5.method2();	
var6.method2();	
var3.method3();	
var5.method3();	
((Bar) var1).method3();	
((Mumble) var4).method3();	
((Mumble) var5).method3();	
((Bar) var2).method3();	
((Baz) var2).method2();	
((Mumble) var6).method2();	

5. Assuming that the following classes have been defined:

```
public class Fee extends Fo {
    public void method1() {
        System.out.println("Fee 1");
        super.method3();
    }

    public void method3() {
        System.out.println("Fee 3");
    }
}

public class Fie extends Fum {
    public void method1() {
        System.out.println("Fie 1");
    }

    public void method3() {
        System.out.println("Fie 3");
        super.method3();
    }
}

public class Fo {
    public void method2() {
        System.out.println("Fo 2");
        method3();
    }

    public void method3() {
        System.out.println("Fo 3");
    }
}

public class Fum extends Fo {
    public void method3() {
        System.out.println("Fum 3");
    }
}
```

And assuming the following variables have been defined:

```
Fum var1 = new Fie();
Object var2 = new Fum();
Fo var3 = new Fee();
Object var4 = new Fie();
Object var5 = new Fo();
Fum var6 = new Fum();
```

In the table below, indicate in the right-hand column the output produced by the statement in the left-hand column. If the statement produces more than one line of output, indicate the line breaks with slashes as in "a/b/c" to indicate three lines of output with "a" followed by "b" followed by "c". If the statement causes an error, fill in the right-hand column with either the phrase "compiler error" or "runtime error" to indicate when the error would be detected.

Statement	Output
var1.method2();	
var2.method2();	
var3.method2();	
var4.method2();	
var5.method2();	
var6.method2();	
var1.method3();	
var2.method3();	
var3.method3();	
var4.method3();	
var5.method3();	
var6.method3();	
((Fee)var3).method1();	
((Fee)var4).method1();	
((Fie)var1).method2();	
((Fo)var3).method3();	
((Fie)var6).method2();	
((Fo)var2).method3();	
((Fie)var3).method1();	
((Fo)var5).method2();	