

CSE142 Inheritance/Polymorphism Problems

1. Assume that the following classes have been defined:

```
public class Foo {
    public String toString() {
        return "foo";
    }

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

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

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

public class Baz extends Foo {
    public String toString() {
        return "baz";
    }

    public void method1() {
        System.out.println("baz 1");
    }
}

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

Consider the following code fragment:

```
Foo[] elements = {new Foo(), new Bar(), new Baz(), new Mumble()};
for (int i = 0; i < elements.length; i++) {
    System.out.println(elements[i]);
    elements[i].method1();
    elements[i].method2();
    System.out.println();
}
```

What output is produced by this code?

2. Assume the following classes have been defined:

```
public class Foo extends Blue {
    public String toString() {
        return "foo";
    }

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

public class Blue extends Moo {
    public void method1() {
        System.out.println("blue 1");
    }
}

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

public class Moo {
    public String toString() {
        return "moo";
    }

    public void method1() {
        System.out.println("moo 1");
    }

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

Consider the following code fragment:

```
Moo[] elements = {new Shoe(), new Foo(), new Moo(), new Blue()};
for (int i = 0; i < elements.length; i++) {
    System.out.println(elements[i]);
    elements[i].method1();
    elements[i].method2();
    System.out.println();
}
```

What output is produced by this code?

Solution to CSE142 Inheritance/Polymorphism Problems

1. The program produces the following output:

```
foo
foo 1
foo 2
```

```
foo
foo 1
bar 2
```

```
baz
baz 1
foo 2
```

```
baz
baz 1
mumble 2
```

2. The program produces the following output:

```
foo
shoe 1
foo 2
```

```
foo
blue 1
foo 2
```

```
moo
moo 1
moo 2
```

```
moo
blue 1
moo 2
```