

## CS 149 Operator and Data Type Exercises

1. For each of the following code snippets, indicate the final value of the variable or explain why the snippet will not compile.

(a)

```
double result;  
result = 1.0 + 2 / 4;
```

(b)

```
double result;  
result = (1.0 + 2) / 4;
```

(c)

```
double result;  
result = 5 * .5 + .5 * 1 / 2;
```

(d)

```
double result;  
result = 1 / 2 * .5 + 5 * .5;
```

(e)

```
int result;  
result = 1 / 2 * .5 + 5 * .5;
```

(f)

```
String result;  
result = "Answer: " + 1 / 2 * .5 + 5 * .5;
```

(g)

```
String result;  
result = 1 / 2 * .5 + 5 * .5 + "(Answer)";
```

(h)

```
double result;  
result = 52.3 % 4.1;
```

2. Draw a memory diagram showing the state of memory after the following code is executed.

```
int first;
double second;
double third;
String name1;
String name2;

first = 1;
second = 2.0;
third = 3.0;
third = first;
name1 = "Alice";
name2 = "Bob";
name1 = name2;
```

Once your drawing is complete, check it using JavaTutor (<http://www.pythontutor.com/java.html>).

3. Provide an example of each of the following:

(a) Syntax Error

(b) Runtime Error

(c) Logic Error

4. The following Java code contains one or more of each of the following:

*declaration*    *assignment*    *statement*    *expression*    *variable*    *literal*

Label each.

```
int first;

first = (3 + 5) / 8;
```