# CS 249: Assignment 2

Selections, Mathematical Functions, Characters, and Strings

## **Theory Questions (18%)**

- 1. (2%) Is "status" a good boolean variable name? Why or why not?
- 2. (2%) Given the following Java code, what will print to the screen?

```
int foodLeft = 0;
int waterLeft = 4;
int daysWithoutFood = 12;
int daysWithoutWater = 0;
int numPeopleAlive = 3;
if( (foodLeft == 0 && daysWithoutFood > 14) ||
  (waterLeft == 0 && daysWithoutWater > 3) ||
  (numPeopleAlive == 0)) {
    System.out.println("We all died on the trail.");
  }
else {
    System.out.println("ON TO OREGON!!!");
}
```

3. (2%) Are there any logical mistakes in this code? If so, list them.

```
if(foodLeft = 0);
System.out.println("We are all starving!");
```

- 4. (2%) Math.random() can return 1.0.
  - (a) True
  - (b) False
- 5. (2%) The first 128 characters of Unicode are the same as ASCII.
  - (a) True
  - (b) False
- 6. (2%) What will the following code print out?

System.out.println(``One plus one is `` + 1+1);

7. (2%) Why is using "==" not correct for comparing two Strings?

- 8. (2%) A String's data can be changed after the fact without creating a new String.
  - (a) True
  - (b) False
- 9. (2%) What substring will be returned from the following code?

``Sometimes you have to roll a hard six.".substring(4,11)

### Programming Assignments (82%)

Where appropriate, use the Pseudocode Programming Process to implement!

For this assignment, use a SEPARATE Java file for each requirement (not subrequirements)! Name each Java file "Assign2\_N.java", where N is the requirement number.

You can use the checkboxes to track whether you've met each requirement.

#	Questions	
1	Implement 3.3 (mild modification of Assignment 1, Programming Requirement 2, in that you must check for the "no solution" condition)	
	Do NOT use "==" to check for equality of doubles!!! Create a constant named EPSILON equal to "1e-14" (see slide 45 of the "03 Selections").	
	Input: 9.0 4.0 3.0 -5.0 -6.0 -21.0 x = -2.0, y = 3.0	
	Input: 1.0 2.0 2.0 4.0 4.0 5.0 The equation has no solution	
2	Implement 4.5	
3	Given a line entered by the user:	
	Check whether the line contains the target word "squirrel".	
	If it doesn't, just print out the line.	
	If it does, for each instance of the target word:	
	Replace the target word with the phrase "SQUIRREL!");	
	Print the the entire modified line to the screen.	
	INPUT: The squirrel is on the lawn; I'm not fond of that squirrel. OUTPUT: TheSQUIRREL! is on the lawn; I'm not fond of that SQUIRREL!	

#### Submission

You will submit the following items as a \*.tar or \*.zip file:

- A plaintext, Word doc, or PDF with your answers to any theory questions
- Your .java file(s)

Submit this tar/zip file on Blackboard under the appropriate assignment. Do NOT submit:

- Your .class file(s)
- Your project files

### Grading

Below is a list of SOME of the grading penalties:

- Sloppy or poor coding style
- Bad coding design principles
- Code that does not compile
- Code that crashes, does not run, or takes a VERY long time to complete
- Using code from ANY source other than the course materials
- · Collaboration on code of ANY kind; this is an INDIVIDUAL PROJECT
- Sharing code with other people in this class or using code from this or any other related class
- Output that is incorrect
- Algorithms/implementations that are incorrect
- Submitting improper files
- Failing to submit ALL required files