COMP251 – Lab3
Summer, 2017

Goal: This lab will give you practice with queue and stack.

Getting Started
You can have a partner for this lab, but submit individually. You can read the lectures to answer the question.

Part I (10 points)

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1. What does the following code fragment print when n is 50? Give a high-level description of what the code fragment does when presented with a positive integer *n*.

```
Stack stack = new Stack();
while (n > 0) {
     stack.push(n % 2);
     n /= 2;
}
while (!stack.isEmpty())
     System.out.print(stack.pop());
System.out.println();
```

2. What does the following code fragment do? Give a high-level description of what the code fragment does.

```
Queue q = new Queue();
q.enqueue(0);
q.enqueue(1);
for (int i = 0; i < 10; i++) {
     int a = q.dequeue();
     int b = q.dequeue();
     q.enqueue(b);
     q.enqueue(a + b);
     System.out.println(a);
}
```

Part II (10 points)

We want to write a stack client `Parentheses.java` that reads a string of parentheses, square brackets, and curly braces from standard input and uses a stack to determine whether they are properly balanced. For example, your program should print true for [()]{}{[()()]()} and false for [(]). The class is written (you can find it in the lab directory), but you need to fill in the method

`isBalanced()` .