

Name:

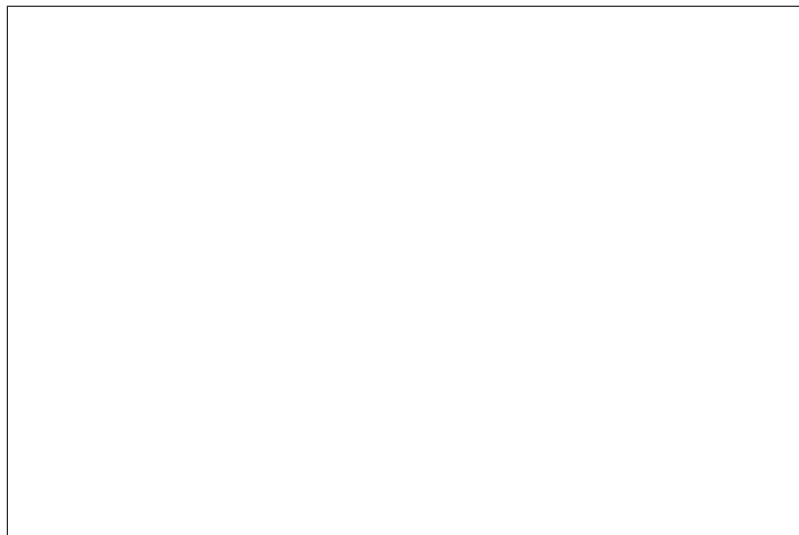
SID:

## CS 61B Discussion Quiz 1

Write your name and SID above. Detach this page from your discussion handout, and turn it in when your TA instructs you to do so. **These quizzes are used as attendance.**

### Questions

1. Tell us a little about yourself.
2. What do you expect to learn from the course?
3. Please draw how you feel today in the box below. :)



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## 1 Our First Java Program

Below is our first Java program of the semester. Next to each line, write out what you think the code will do when run. *This exercise is adapted from Head First Java.*

```
1  int size = 27;
2  String name = "Fido";
3  Dog myDog = new Dog(name, size);
4  int x = size - 5;
5  if (x < 15) {
6      myDog.bark(8);
7  }
8
9  while (x > 3) {
10     x -= 1;
11     myDog.play();
12 }
13
14 int[] numList = {2, 4, 6, 8};
15 System.out.print("Hello ");
16 System.out.println("Dog: " + name);
17
18 System.out.println(numList[1]);
19 if (numList[3] == 8) {
20     System.out.println("potato");
21 }
```

## 2 Mystery

This is a function (a.k.a. method). It takes an array of integers and an integer as arguments, and returns an integer.

```
1  public static int mystery(int[] inputArray, int k) {
2      int x = inputArray[k];
3      int answer = k;
4      int index = k + 1;
5      while (index < inputArray.length) {
6          if (inputArray[index] < x) {
7              x = inputArray[index];
8              answer = index;
9          }
10         index = index + 1;
11     }
12     return answer;
13 }
```

Describe in English what `mystery` returns if `inputArray = [3, 0, 4, 6, 3]` and `k = 2`.

*Extra:* This is another function. It takes an array of integers and returns nothing.

```
1 public static void mystery2(int[] inputArray) {
2     int index = 0;
3     while (index < inputArray.length) {
4         int targetIndex = mystery(inputArray, index);
5         int temp = inputArray[targetIndex];
6         inputArray[targetIndex] = inputArray[index];
7         inputArray[index] = temp;
8         index = index + 1;
9     }
10 }
```

Describe what `mystery2` does if `inputArray = [3, 0, 4, 6, 3]`.

### 3 Writing Your First Program

Implement `fib` which takes in an integer `n` and returns the  $n$ th Fibonacci number.

The Fibonacci sequence is 0, 1, 1, 2, 3, 5, 8, 13, 21, ....

```
public static int fib(int n) {
```

```
    public class disc01_3{
        public static int fib(int n) {
            int[] pair = {0, 1};
            if(n < 2)
                return pair[n];
            for(int i = 2; i < n; i++) {
                int tem = pair[0] + pair[1];
                pair[0] = pair[1];
                pair[1] = tem;
            }
            return pair[1];
        }
    }
    public static void main(String[] args) {
        System.out.println(fib(9));
    }
}
```

*Extra:* Implement `fib` in 5 lines or fewer. Your answer must be efficient.

```
public static int fib2(int n, int k, int f0, int f1) {
```

```
    public class disc01_32{
        public static int fib(int n, int k, int f0, int f1) {
            for(int i = 2; i < n; i++) {
                k = f0 + f1;
                f0 = f1;
                f1 = k;
            }
            return k;
        }
        public static void main(String[] args) {
            int k = 0;
            System.out.println(fib(9, k, 0, 1));
        }
    }
}
```