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.

```java
int size = 27;
String name = "Fido";
Dog myDog = new Dog(name, size);
int x = size - 5;
if (x < 15) {
    myDog.bark(8);
}
while (x > 3) {
    x -= 1;
    myDog.play();
}
int[] numList = {2, 4, 6, 8};
System.out.print("Hello ");
System.out.println("Dog: " + name);
System.out.println(numList[1]);
if (numList[3] == 8) {
    System.out.println("potato");
}
```
Extra: This is another function. It takes an array of integers and returns nothing.

```java
public static void mystery2(int[] inputArray) {
    int index = 0;
    while (index < inputArray.length) {
        int targetIndex = mystery(inputArray, index);
        int temp = inputArray[targetIndex];
        inputArray[targetIndex] = inputArray[index];
        inputArray[index] = temp;
        index = index + 1;
    }
}
```

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, ....

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

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

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