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Activity #1: Programming with Java
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Sequential Program Structure:

Code (in Java):

```
public class Sequential
{
    static int a = 0;
    static int b = 1;
    public static void fibo() {
        System.out.print(a + " ");
        int sum = a + b;
        b = a;
        a = sum;
    }

    public static void main(String[] args) {
        fibo();
        fibo();
        fibo();
        fibo();
        fibo();
        fibo();
        fibo();
        fibo();
        fibo();
        fibo();
        fibo();
        fibo();
    }
}
```

Output:
0 1 1 2 3 5 8 13 21 34

Using Loops with Arrays:

Code (in Java):

```
public class LoopWithArrays {
    public static void main(String[] args) {
        printFibo(10);
    }

    public static int[] fiboSeq(int n) {
        int[] numbers = new int[n];
        if (n <= 1) {
            numbers[0] = n;
        }
        else {
            numbers[0] = 0;
            numbers[1] = 1;

                for (int i = 2; i < n; i++) {
                        numbers[i] = numbers[i - 1] + numbers[i - 2];
                }
        }
        return numbers;
    }

    public static void printFibo(int num) {
        int[] fibonacci = fiboSeq(num);
                    for (int nums: fibonacci) {
                            System.out.print(nums + " ");
                    }
        }
}
```

Output:

```
0 1 1 2 3 5 8 13 21 34
```

Questions:

1. Which of the 2 programs is easier to code?
    - The program that is easier to code is the Sequential program structure. It is because the logic is easier to understand for the average people although it looks repetitive and less scalable than the second code.

2. Which of the 2 programs is more efficient? Why?
    - The program that is more efficient (and especially scalable) is the program that uses loops with arrays. It is because if we decide to make a lot of numbers in the sequence,

we can simply change the number in the “printFibo(int n);” method in order to output the sequence instead of using the program that uses the sequential structure where you repeatedly copy and paste the “ fibo();” method which can get tedious and eventually you will lose track of how many numbers in the sequence you output.