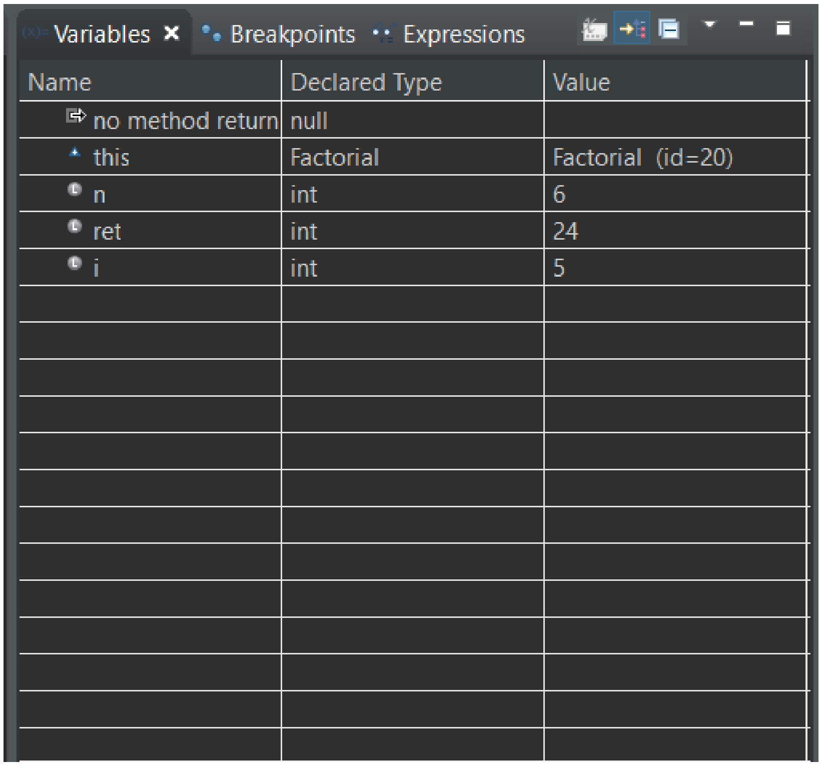
1.8



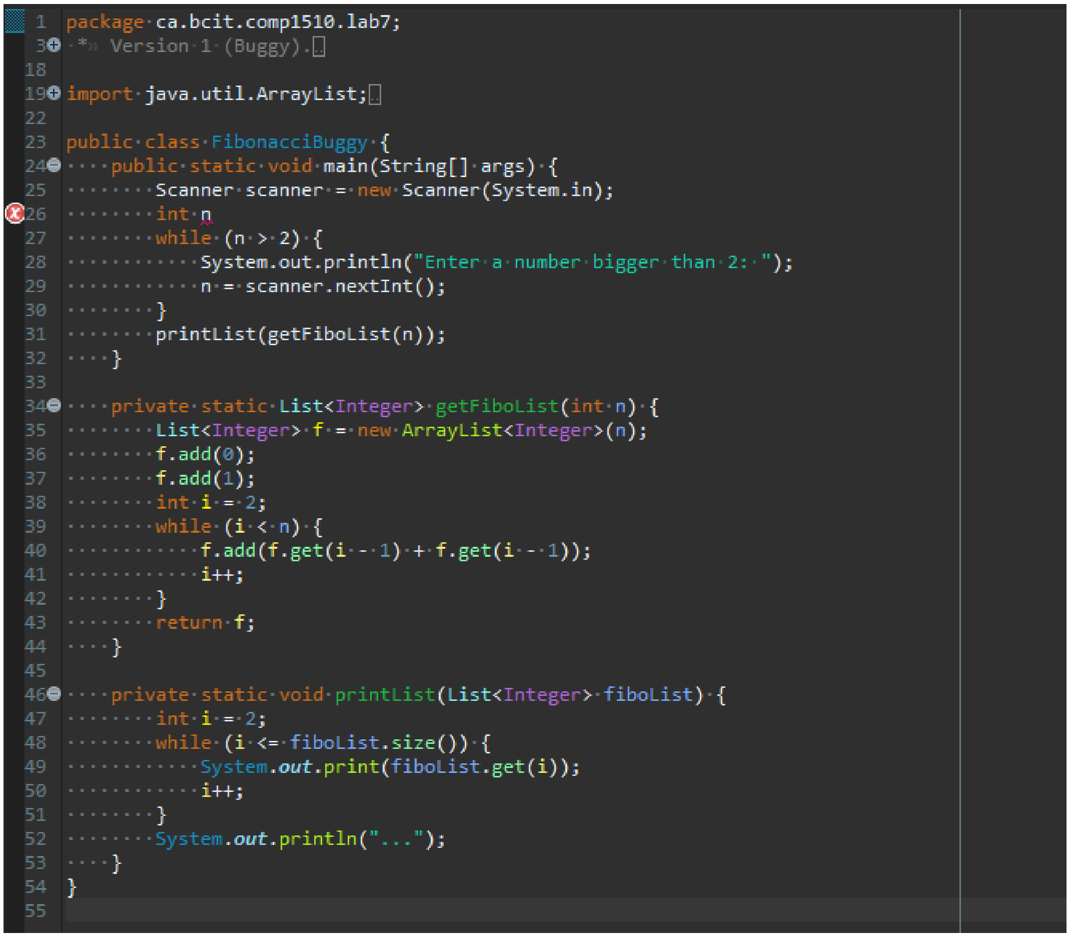
Name	Declared Type	Value
no method return	null	
this	Factorial	Factorial (id=20)
n	int	6
ret	int	24
i	int	5

1.9

Question: What is the Eclipse keyboard shortcut or toggling a breakpoint?
CTRL + SHIFT + B
Question: What is the difference between "Step-Over", "Step-Into", and "Step-Return"?
Step-Over: An action that steps over a given line. If the line contains a method call, it will be executed and the result will be executed and the result is returned without debugging each line of that method. **Step-Into:** An action which behaves the same as "step over" if the line does not contain a method call. However, if it does, the debugger will enter the called method and continue the debugging process inside of that method, going through it line-by-line. **Step-Return:** An action that allows the user to return to the line where the current method was called. Also named "Step-Out" due to this.
Task: Practice tracing through the program. *Based on your understanding of the program, <u>provide a list of methods</u> that are called when the program executes (from start to end, in order of being called). You can skip library methods like println, for example).*
DebugStar.main(String[]) line: 14 DebugStar.run(String, int, int) line: 32 DebugStar.getOperation(String) line: 22

Add.perform(int, int) line: 54
DebugStar.main(String[]) line: 15
DebugStar.run(String, int, int)line: 32
DebugStar.getOperatin(String) line: 22
Subtract.perform(int, int) line: 6
DebugStar.main(String[]) line: 16
DebugStar.run(final int) line: 37
Factorial.perform(final int) line: 65

2.1



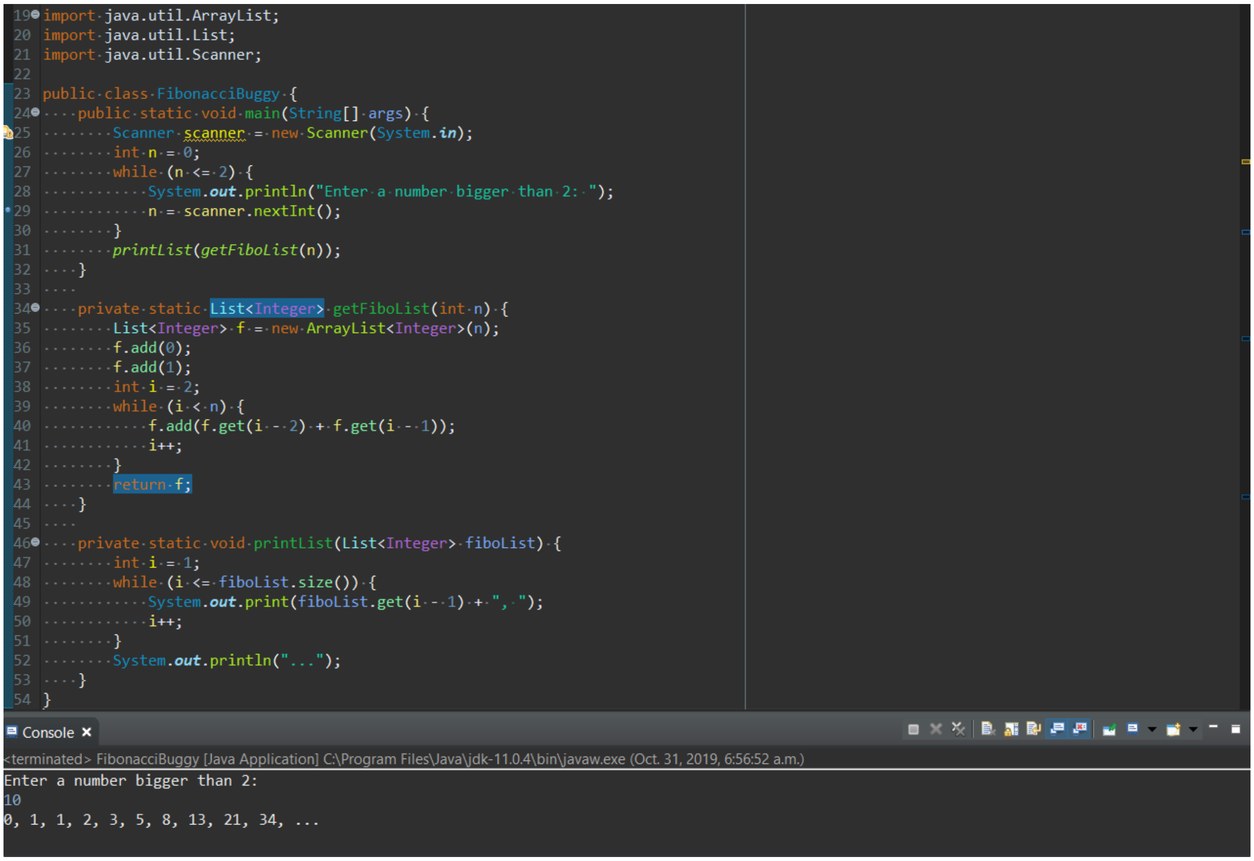
```
1  package ca.bcit.comp1510.lab7;
3⊕  *» Version 1 (Buggy).
18
19⊕ import java.util.ArrayList;
22
23 public class FibonacciBuggy {
24⊖     public static void main(String[] args) {
25         Scanner scanner = new Scanner(System.in);
26         int n
27         while (n > 2) {
28             System.out.println("Enter a number bigger than 2: ");
29             n = scanner.nextInt();
30         }
31         printList(getFiboList(n));
32     }
33
34⊖     private static List<Integer> getFiboList(int n) {
35         List<Integer> f = new ArrayList<Integer>(n);
36         f.add(0);
37         f.add(1);
38         int i = 2;
39         while (i < n) {
40             f.add(f.get(i - 1) + f.get(i - 1));
41             i++;
42         }
43         return f;
44     }
45
46⊖     private static void printList(List<Integer> fiboList) {
47         int i = 2;
48         while (i <= fiboList.size()) {
49             System.out.print(fiboList.get(i));
50             i++;
51         }
52         System.out.println("...");
53     }
54 }
55
```

2.2

Line Number	Type of error (compile-time, run-time, or logical)	Description	Correction

26	compile-time	Syntax error and n is not initialized	n = 0;
27	logical	Input validation of a while loop should have the false statement (not the true statement) as its condition	(n <= 2)
40	logical	Needs to get the previous 2 numbers of i, not just the most previous one.	Replace the first *f.get(i - 1)* with *f.get(i - 2)*
47	logical	Needs to include 0 in printList. Thus, will need to start from index 0, not 1.	int i = 1;
49	run-time	ArrayIndexOutOfBoundsException. The array has been accessed with an illegal index (in this case, the index is greater than the size of the array)	System.out.print(fiboList.get(i - 1));
49	logical	Need to print out “, ” after each integer in the array	System.out.print(fiboList.get(i - 1) + ", ");

2.3



```
19 import java.util.ArrayList;
20 import java.util.List;
21 import java.util.Scanner;
22 
23 public class FibonacciBuggy {
24     public static void main(String[] args) {
25         Scanner scanner = new Scanner(System.in);
26         int n = 0;
27         while (n <= 2) {
28             System.out.println("Enter a number bigger than 2: ");
29             n = scanner.nextInt();
30         }
31         printList(getFiboList(n));
32     }
33     
34     private static List<Integer> getFiboList(int n) {
35         List<Integer> f = new ArrayList<Integer>(n);
36         f.add(0);
37         f.add(1);
38         int i = 2;
39         while (i < n) {
40             f.add(f.get(i - 2) + f.get(i - 1));
41             i++;
42         }
43         return f;
44     }
45     
46     private static void printList(List<Integer> fiboList) {
47         int i = 1;
48         while (i <= fiboList.size()) {
49             System.out.print(fiboList.get(i - 1) + ", ");
50             i++;
51         }
52         System.out.println("...");
53     }
54 }
```

```
<terminated> FibonacciBuggy [Java Application] C:\Program Files\Java\jdk-11.0.4\bin\javaw.exe (Oct. 31, 2019, 6:56:52 a.m.)
Enter a number bigger than 2:
10
0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ...
```