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CSCI165 – Debugging lab

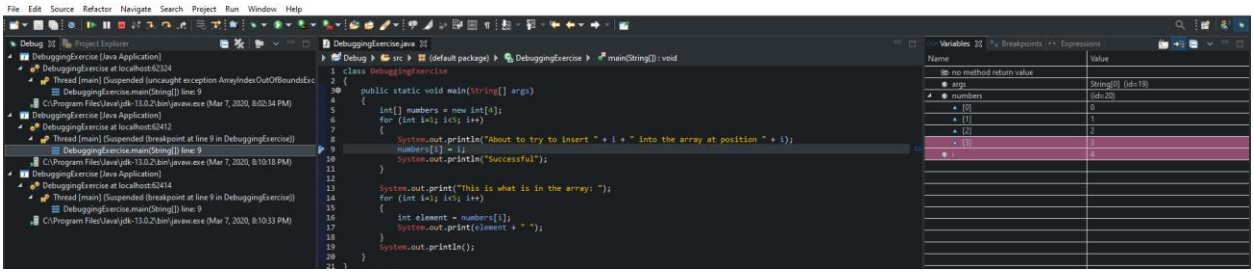
3/7/2020

DebuggingExercise.java:

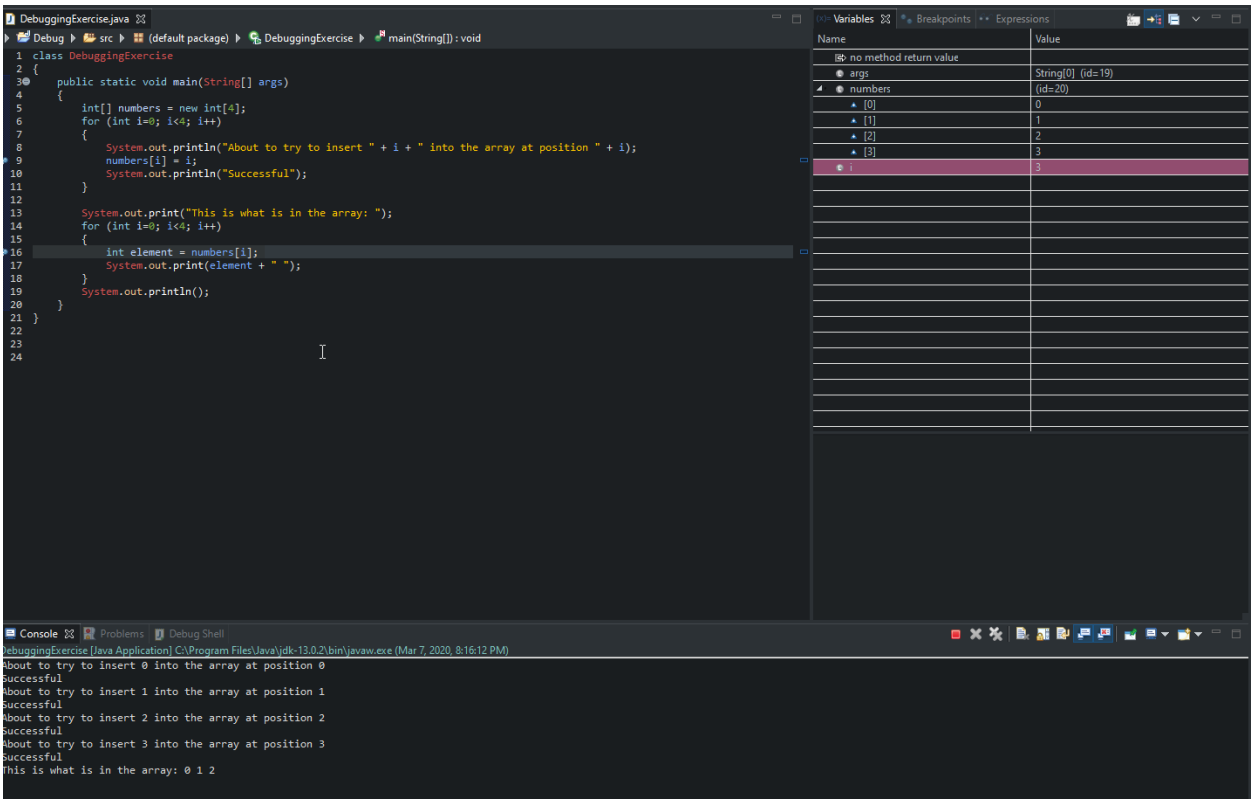
Output and Error messages on compile and run:

```
<terminated> DebuggingExercise [Java Application] C:\Program Files\Java\jdk-13.0.2\bin\javaw.exe (Mar 7, 2020, 7:51:29 PM)
Exception in thread "main" About to try to insert 1 into the array at position 1
Successful
About to try to insert 2 into the array at position 2
Successful
About to try to insert 3 into the array at position 3
Successful
About to try to insert 4 into the array at position 4
java.lang.ArrayIndexOutOfBoundsException: Index 4 out of bounds for length 4
        at DebuggingExercise.main(DebuggingExercise.java:9)
```

Ran program in debugger with breakpoint at line 9 and instructions to watch the numbers array. The resulting output shows the discrepancy of the array starting at 0 and running through 3 for the indexes of the 4 members and that i can get assigned values higher than that range.

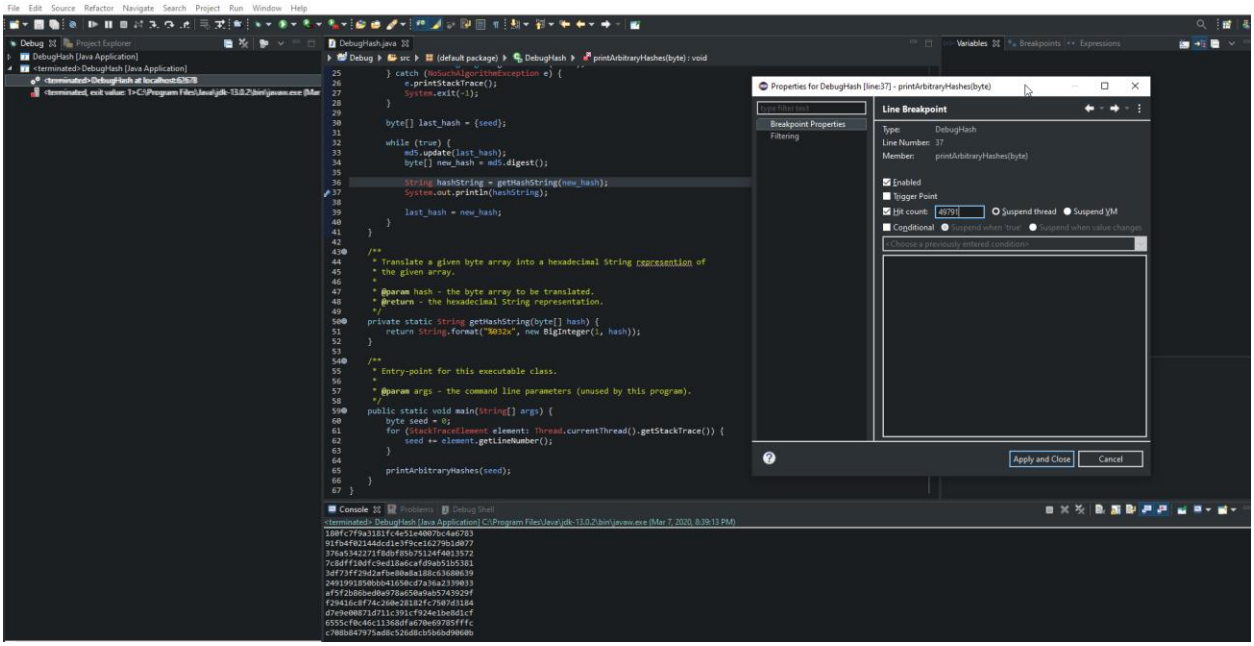


Results when lines 6 and 14 were adjusted so the values of i stayed within the range of indexes for the array.

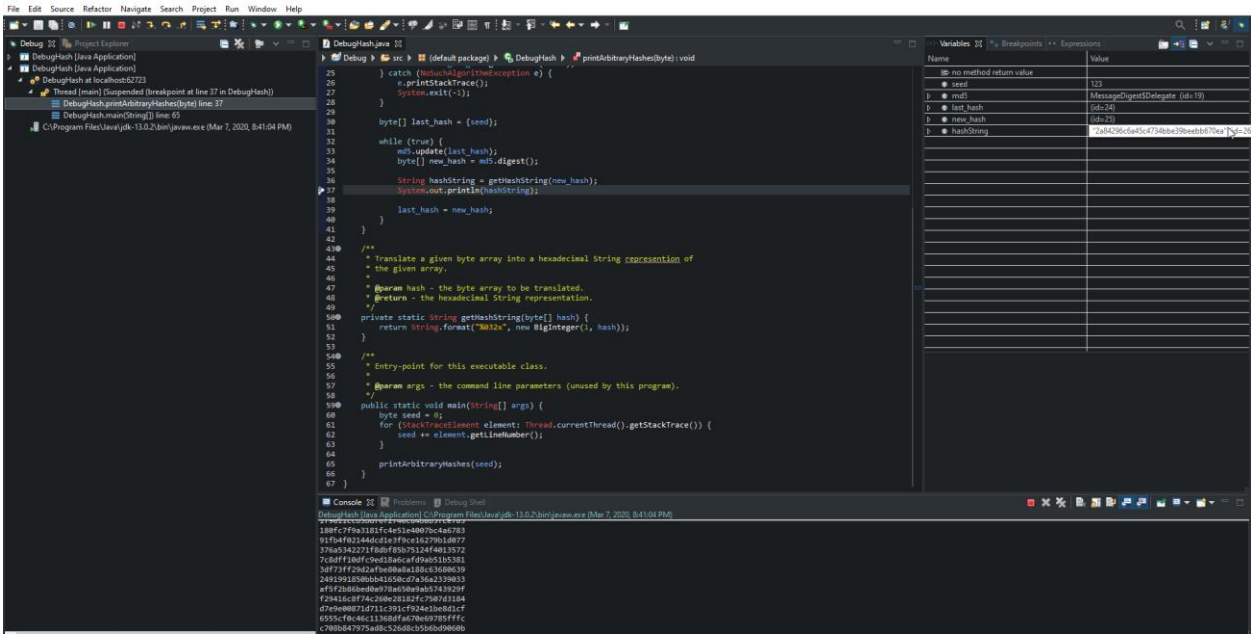


DebugHash.java

Setting a breakpoint at line 37 and setting it up to break at the 49,791st time that line is encountered.;



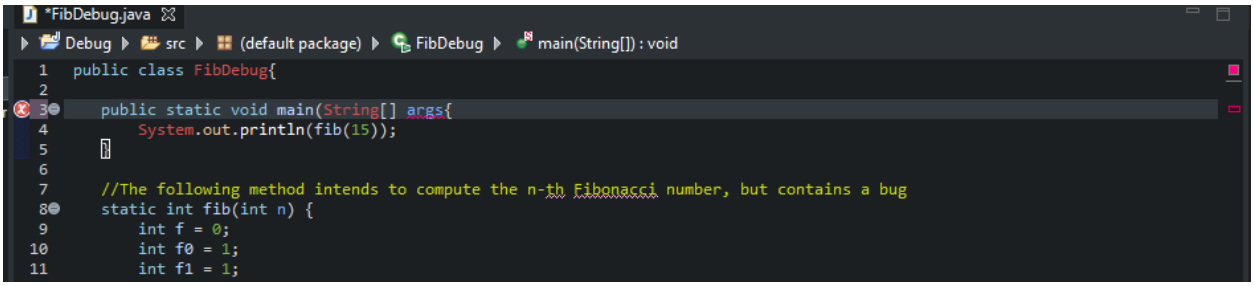
Results of running with the breakpoint containing a hit count:



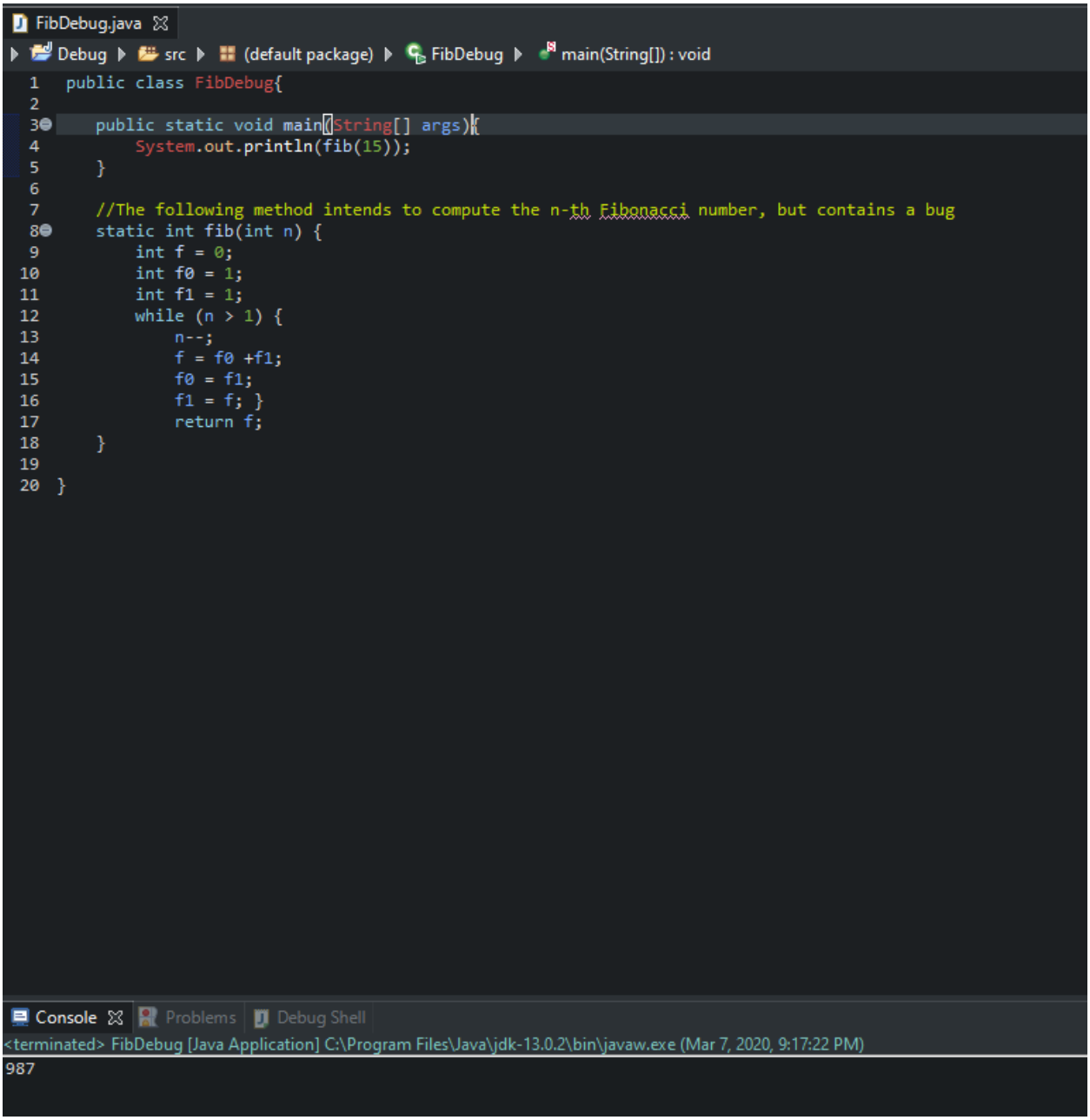
The hash value retrieved was 2a84296c6a45c4734bbe39beebb670ea.

FibDebug.java

Initial screenshot after opening file in eclipse showing a syntax error in line 3 the error message suggests missing “)”.



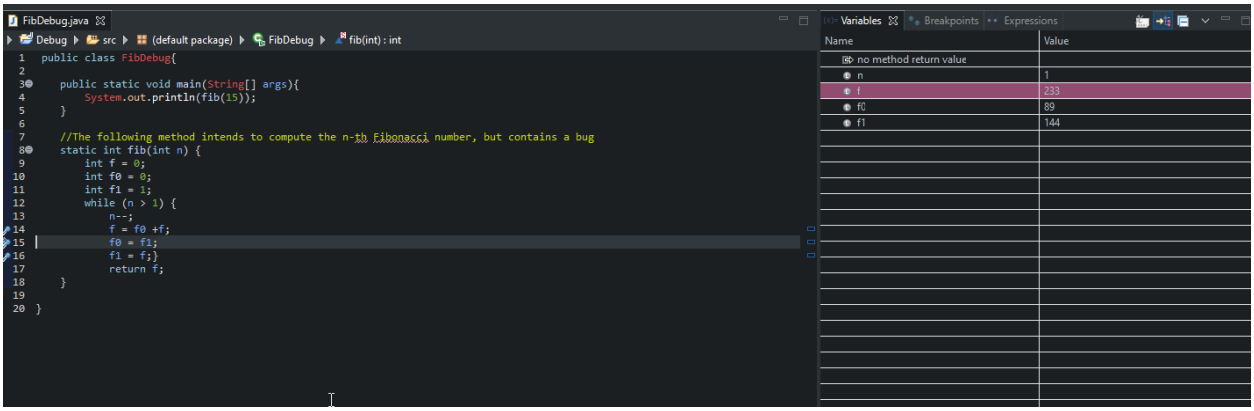
Added closing parenthesis in line 3 and ran file returned an answer of 987 which is incorrect



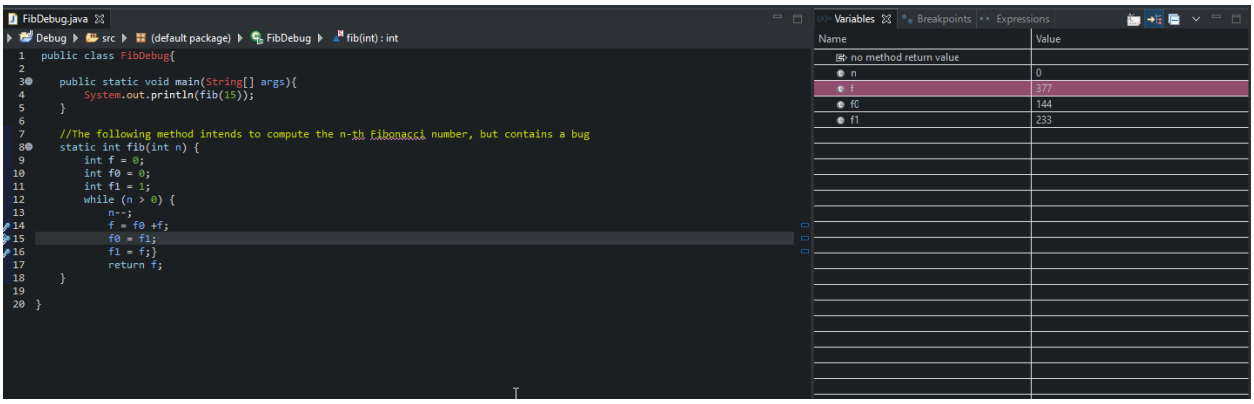
Set breakpoints at lines 14, 15 , and 16 and checked the variable data and can see that the second f value is incorrect due to an incorrect starting value at line 10 for f0.

Adjusted code to get correct numbers to start the sequence. Breakpoint showing the sequence showing the correct value at the 4th position.

Breakpoint at n = 1 showing the 14th value. Now that sequence starts correctly the loop needs to run one more time and end when n = 0 not 1.

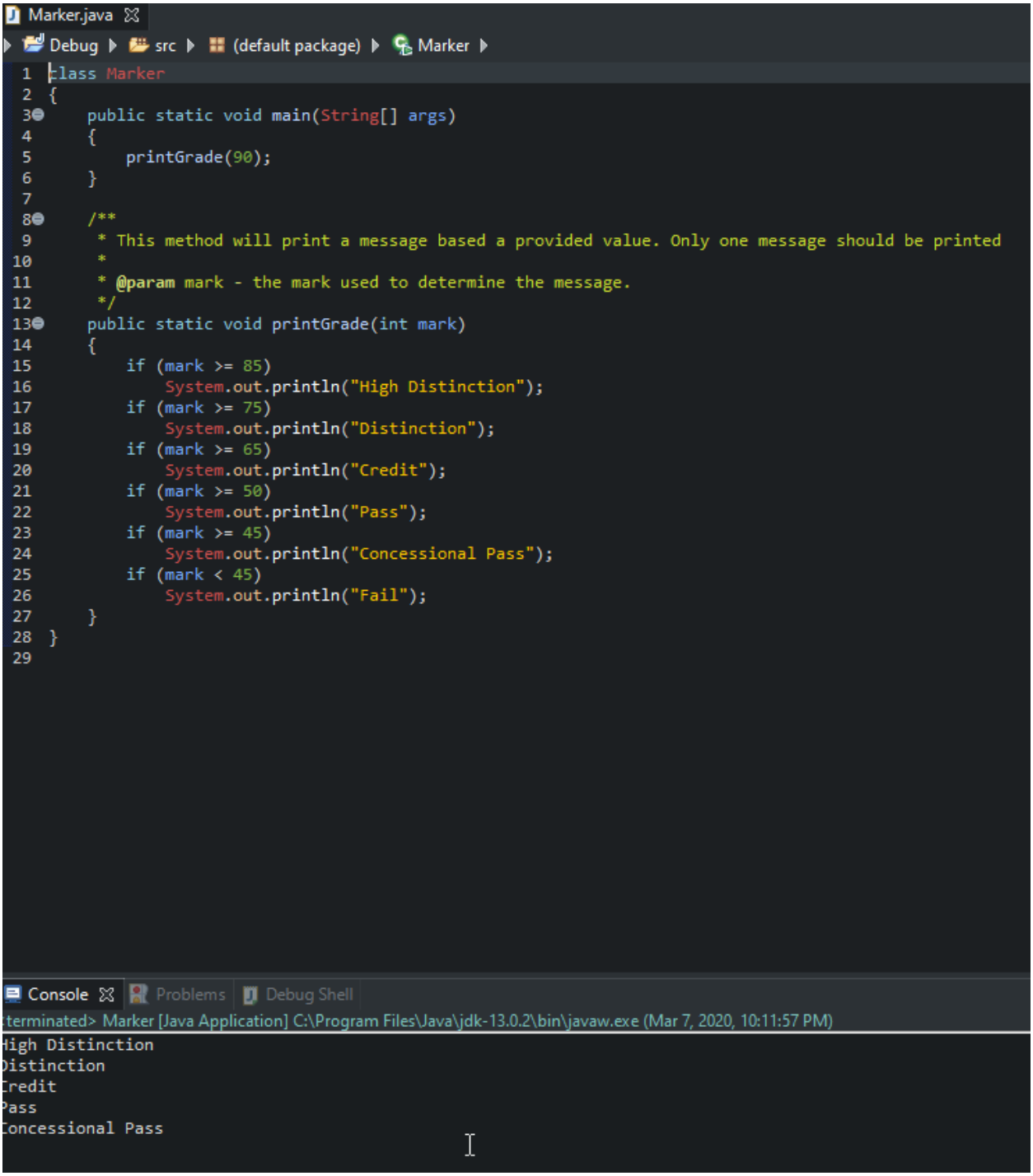


Breakpoint showing f at the proper value and with n = 0 the loop about to be broken and the 377 returned.

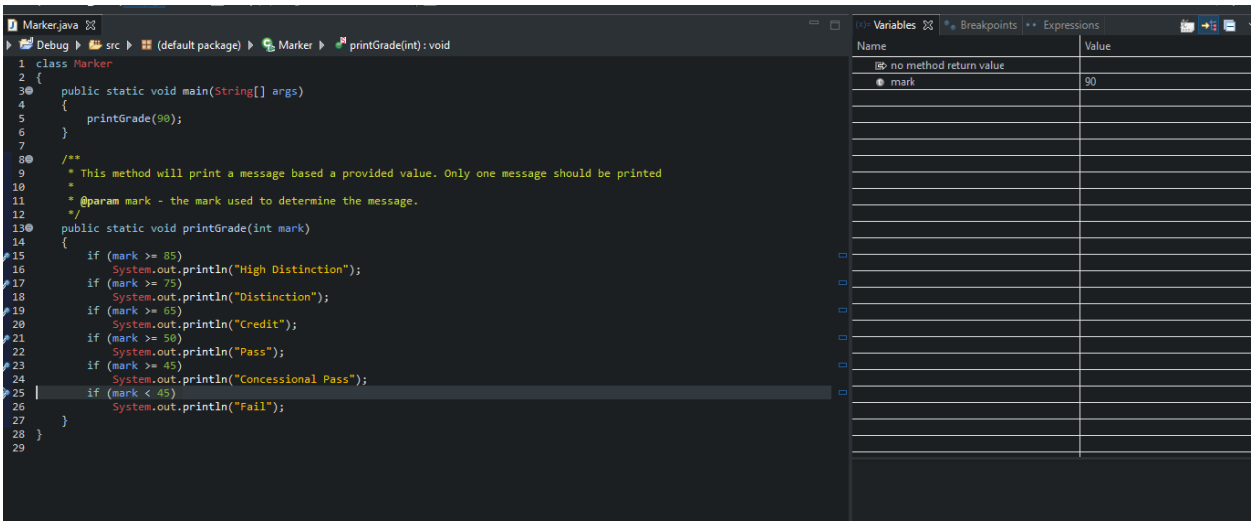


Marker.java

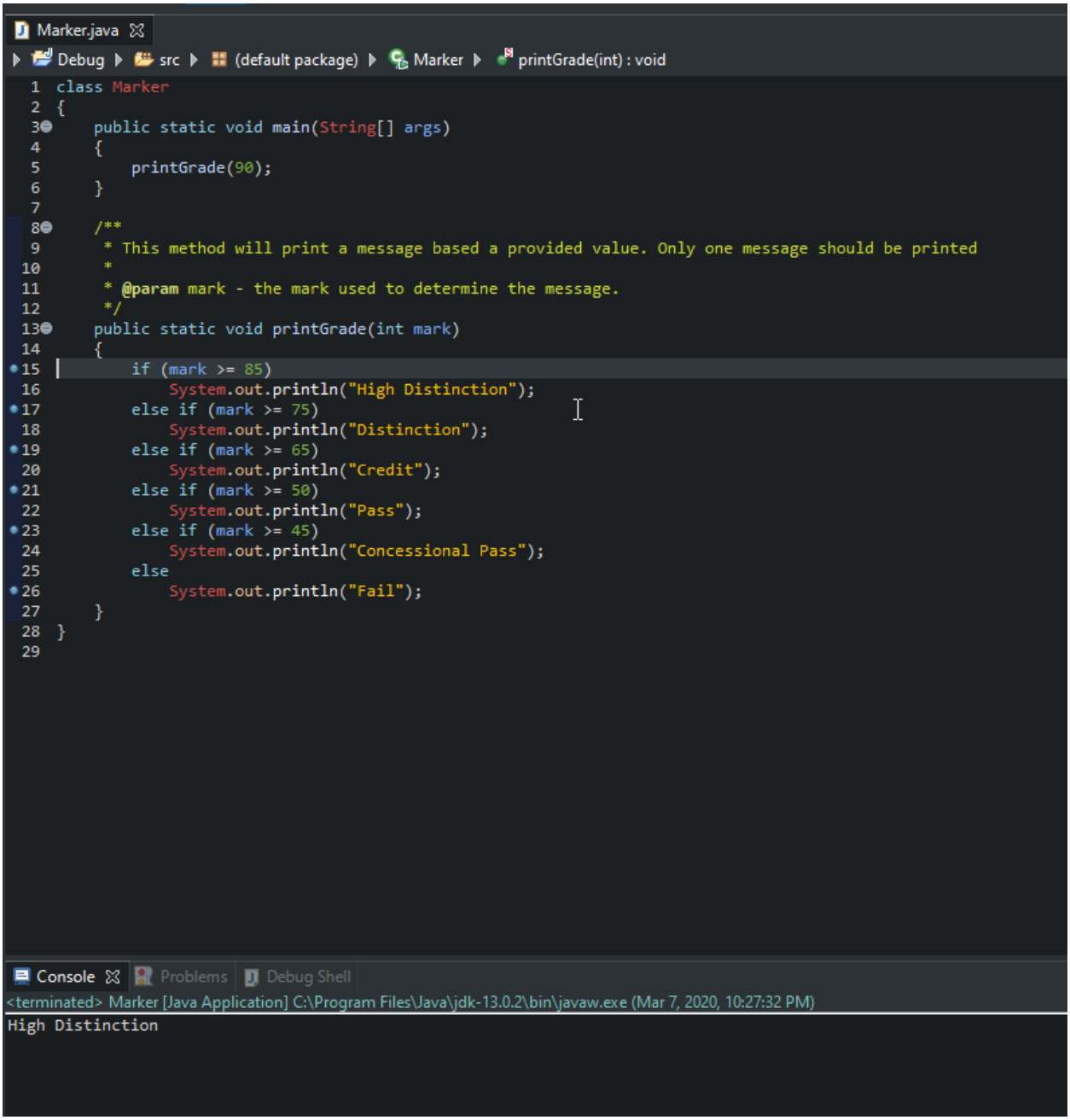
Screenshot of initial run of file showing every option being displayed when only one is desired.



Added breakpoints at each of the if lines and it was obvious that the program currently steps through every decision point. It does not skip the others once a true value has been found.

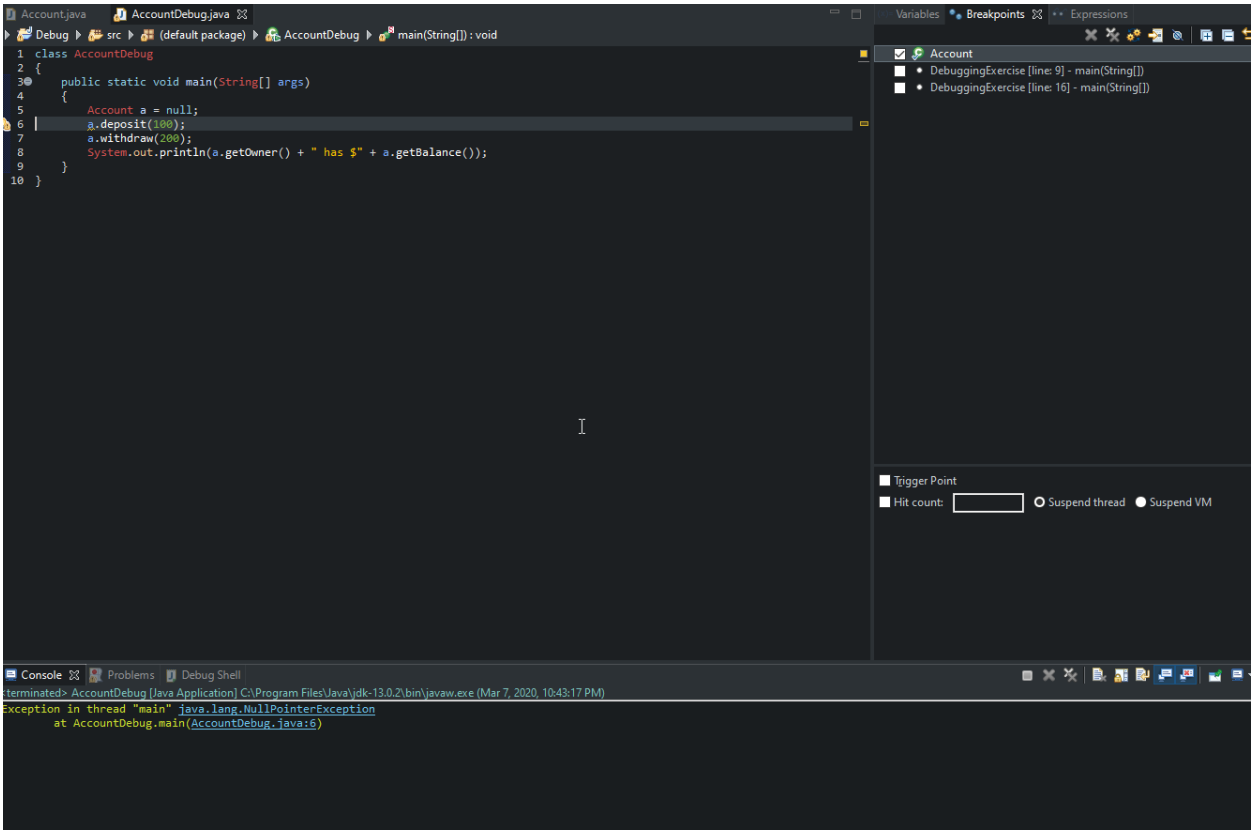


Changed if statements to else if and the final one to an else statement. Screenshot shows program having run and only breakpoint encountered was the desired one.

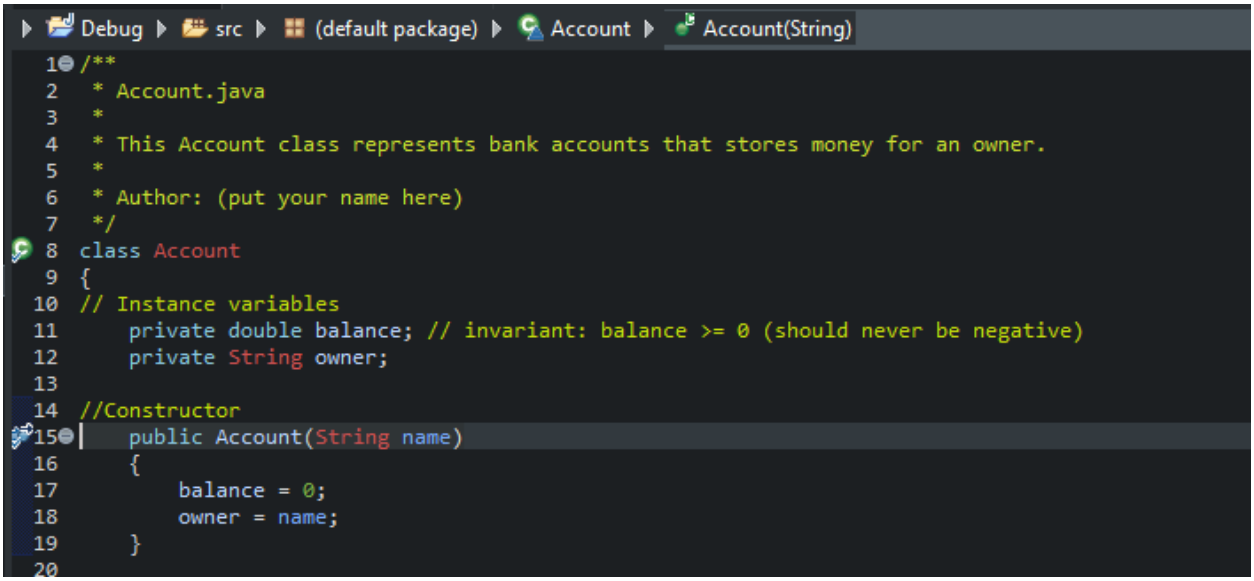


Account.java/AccountDebug.java

Screen shot of initial run. Showing a null pointer exception at line 6.



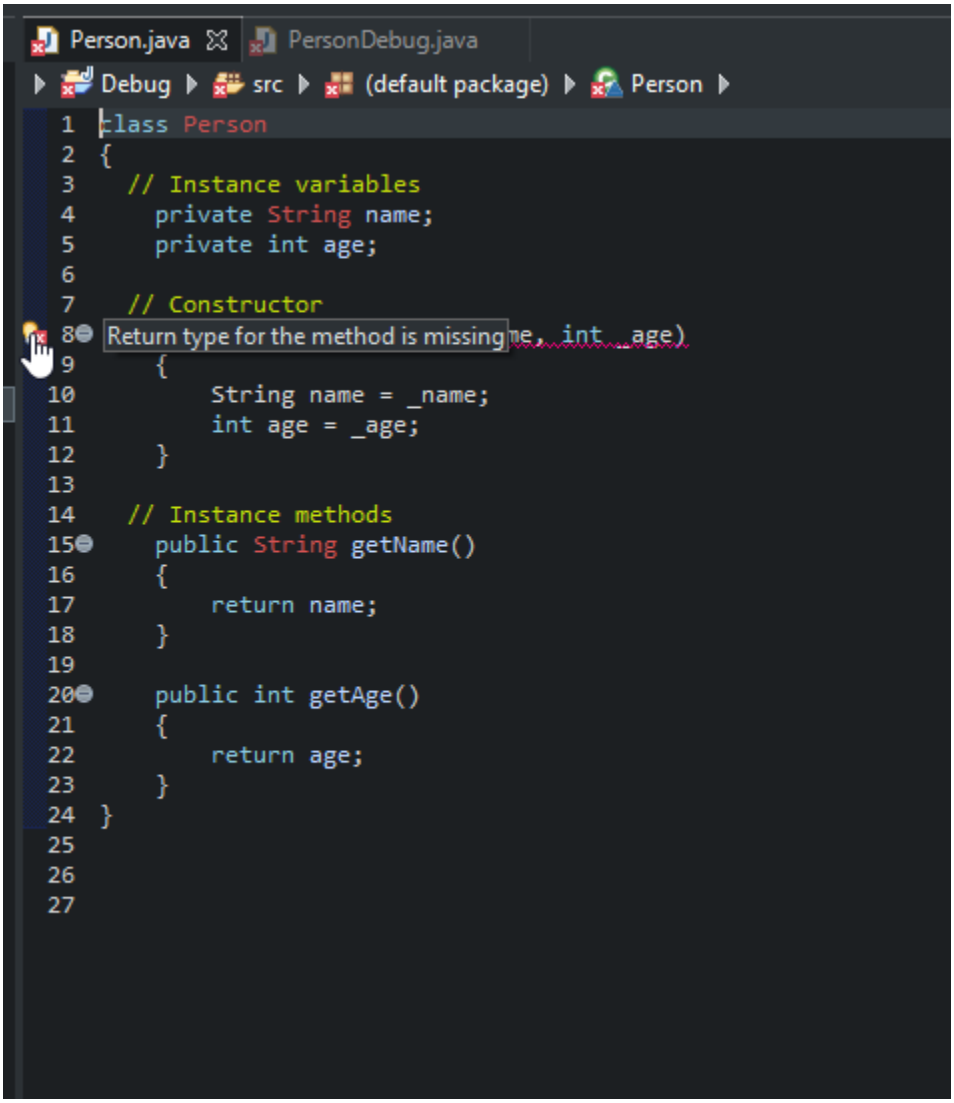
Changed the code in line 5 to invoke the Account object constructor properly. The following screenshot shows the debugger stopping at the breakpoint for the constructor method showing that this time it made it to that method.



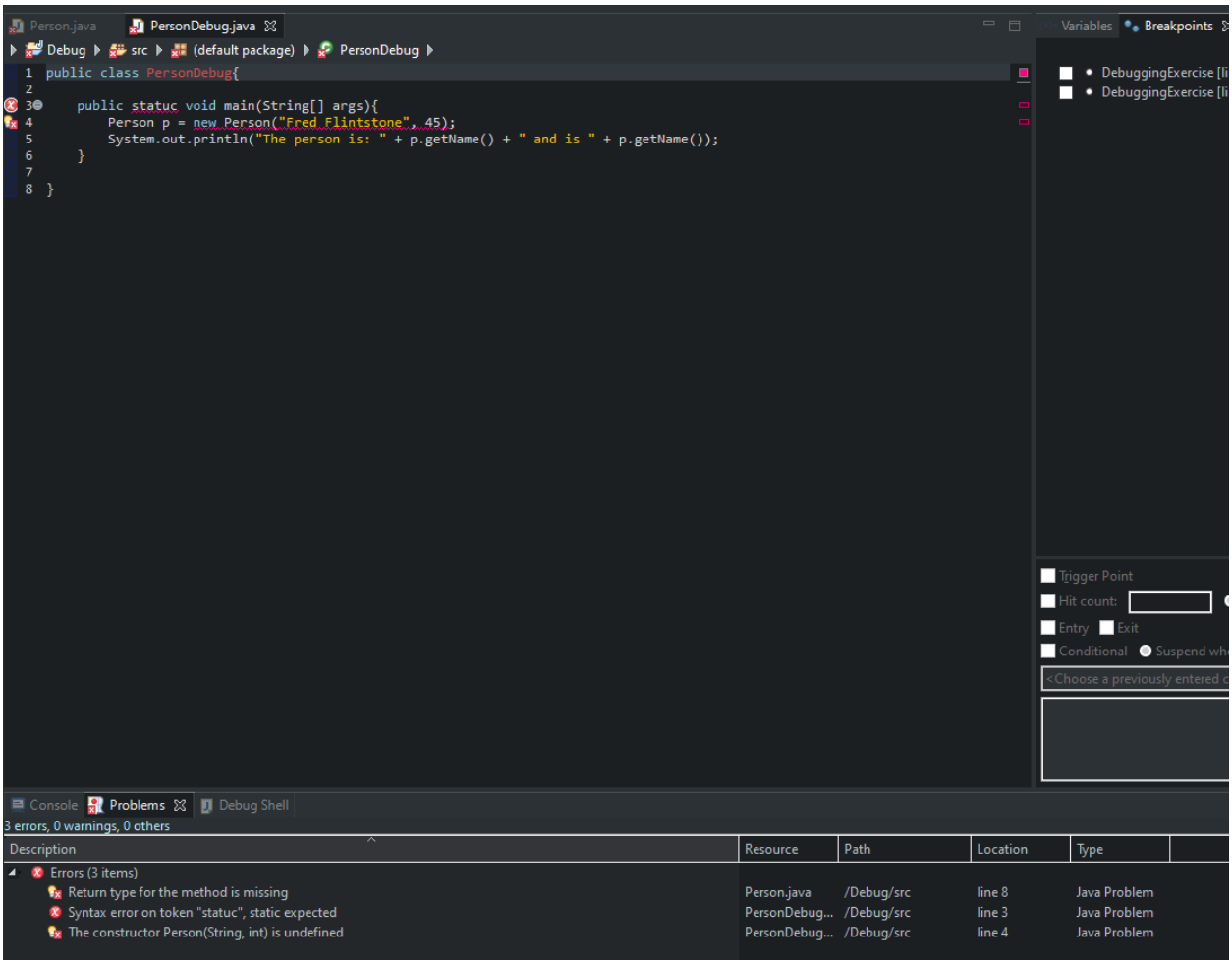
Screenshot of new code and successful out put in the bottom console screen:

Person.java/PersonDebug.java

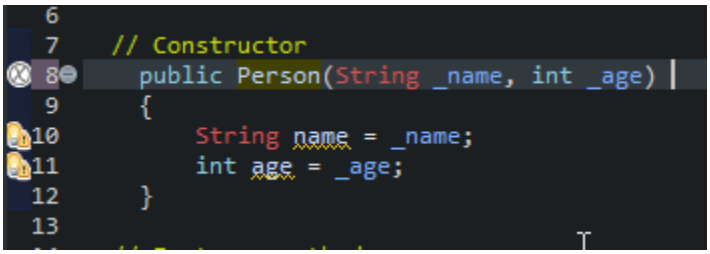
Initial screenshot of the imported files in Eclipse showing the error flag and the description generated by the mouse over:



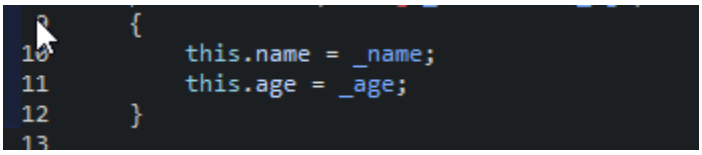
Screen shot of the PersonDebug code with the error flags and the bottom window showing the list of flagged errors:



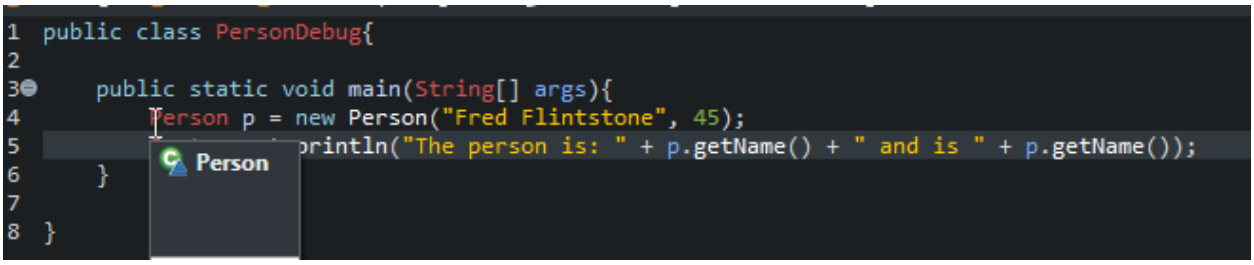
Screenshot of the Person class. Changed the constructor method title from Student to Person to make it a constructor.



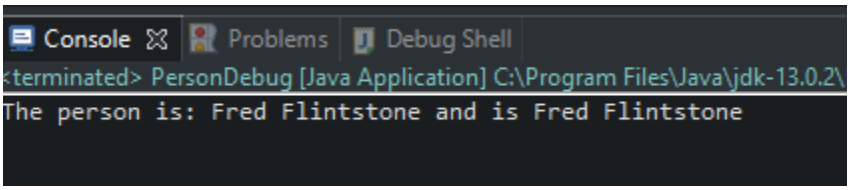
Also had to change constructor code to properly transfer data to the private variables of the object using the this parameter. As shown by the flags next to lines 10 and 11.



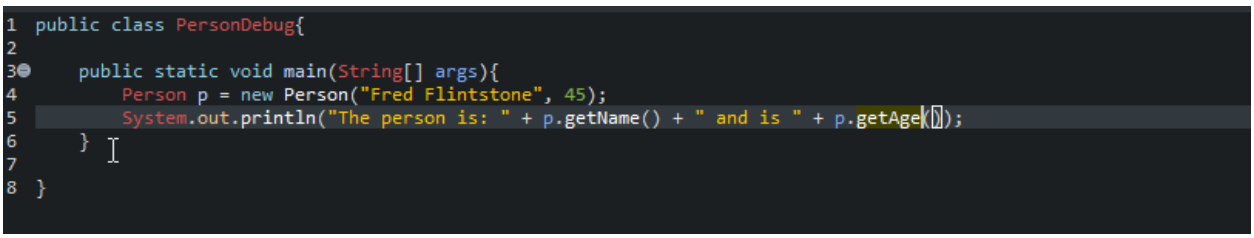
Screenshot of statuc replaced with static



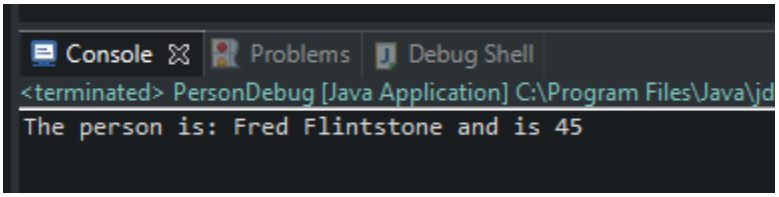
Screenshot of resulting output showing not quite what I expected:



A quick look at line 5 and a breakpoint at the getAge method showing it is never invoked and the second call to p.getName() is changed to p.getAge():



Desired output:



Temperature Exercise:

Screenshot of the passed unit tests for the Temperature lab: