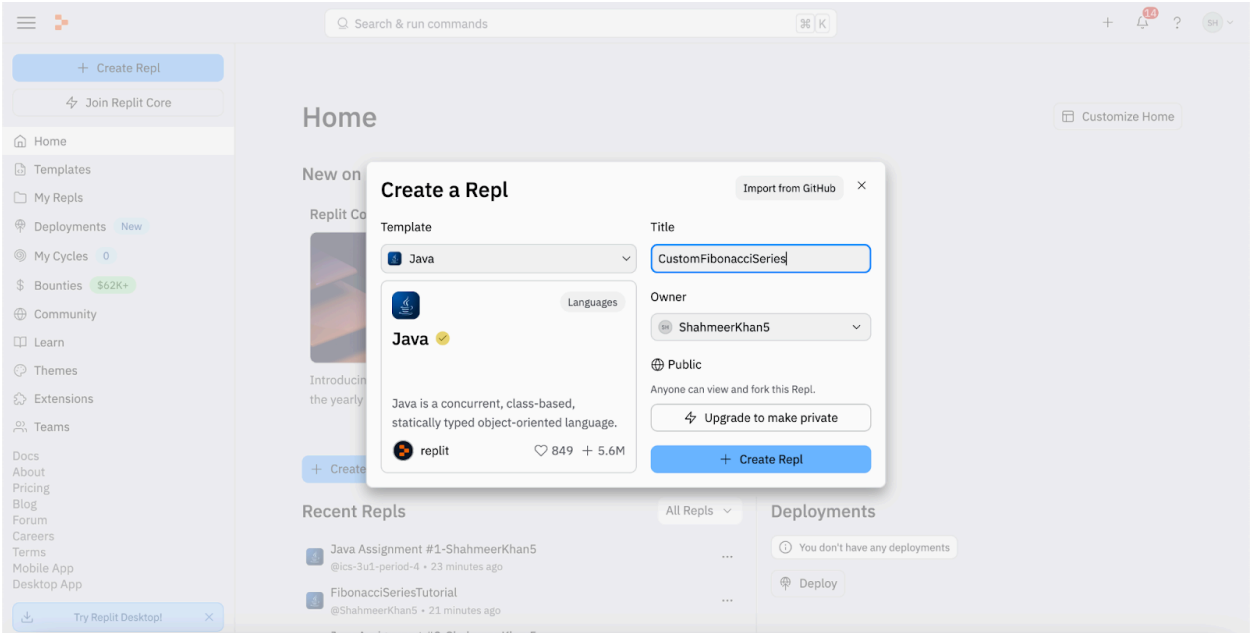
**Coding a Custom Fibonacci Series in Java**

Fibonacci series are one of the greatest wonders in the world of mathematics. What is a Fibonacci series, you may ask? It's actually a lot simpler than it sounds. A Fibonacci series is simply a series of numbers in which the next number is the sum of the two previous numbers. The first two numbers are always 0 and 1, respectively. We're going to be adding a twist to this by asking the user to input any two numbers for the first two numbers of this series. We're going to be coding this program in ***Java***. Well, that's about it! Let's get into this:

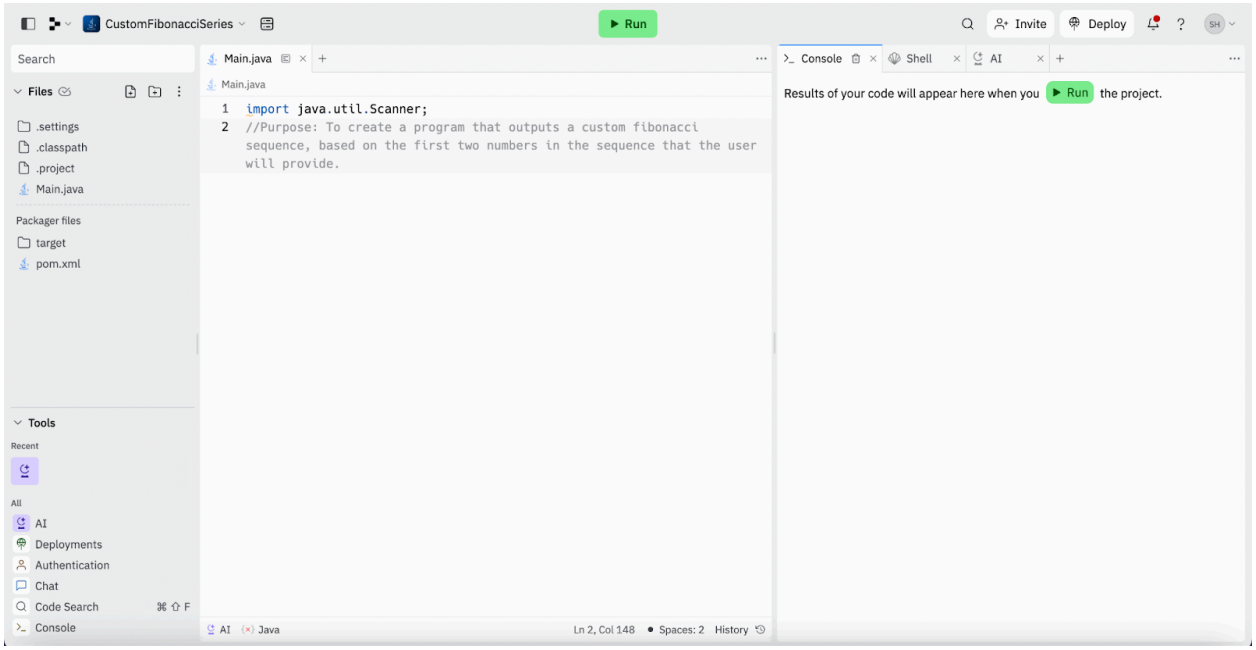
**1.** To begin, I recommend using the website Replit as it's the most user-friendly IDE (Integrated Development Environment). An IDE is software that consists of the basic tools required to write and test code.

- Start off by searching replit.com and creating an account using your email address.
- Once you create your account, click "Create Repl" on the top-left corner of your screen.
- Under the label, "Template", click "Java", name it anything you want and click "Create Repl", once again!

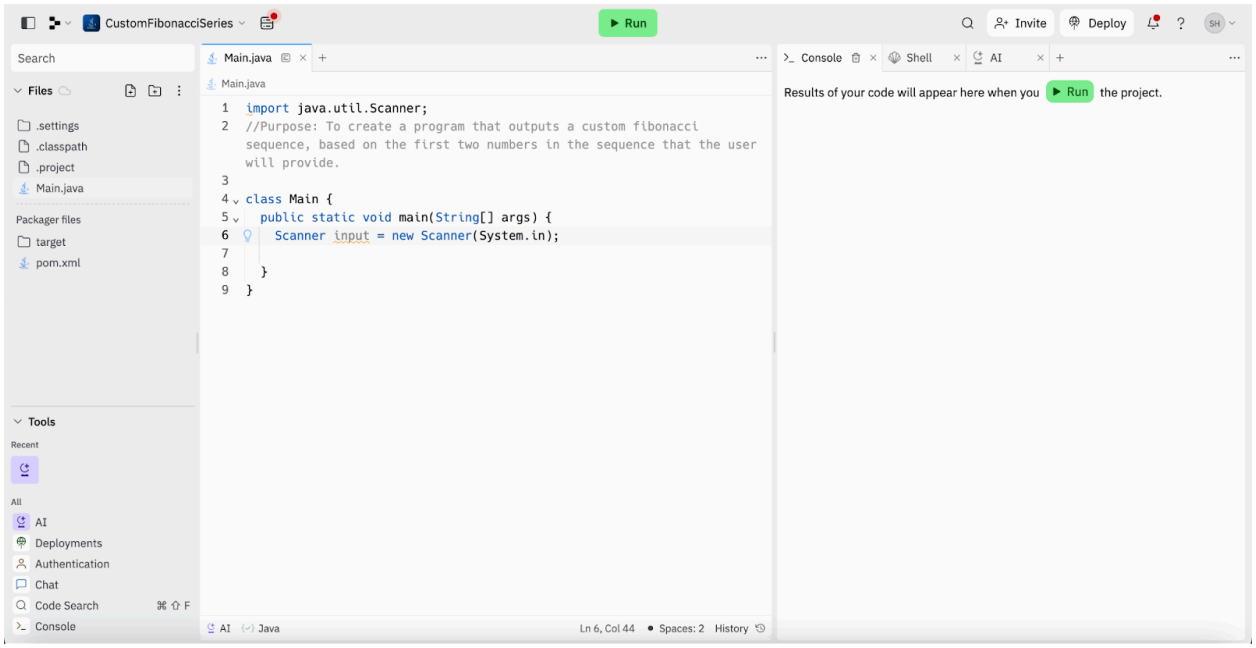



**2.** Now that we've created our Repl, let's import the java.util.Scanner class which allows us to collect input from the user, which we'll be needing to set the first two numbers of the series.

- Optional: Add a purpose, briefly describing your program (Always start it with "//" to make it a comment because this is not meant to be read by the computer)
- Don't forget to add a semicolon at the end of every line!

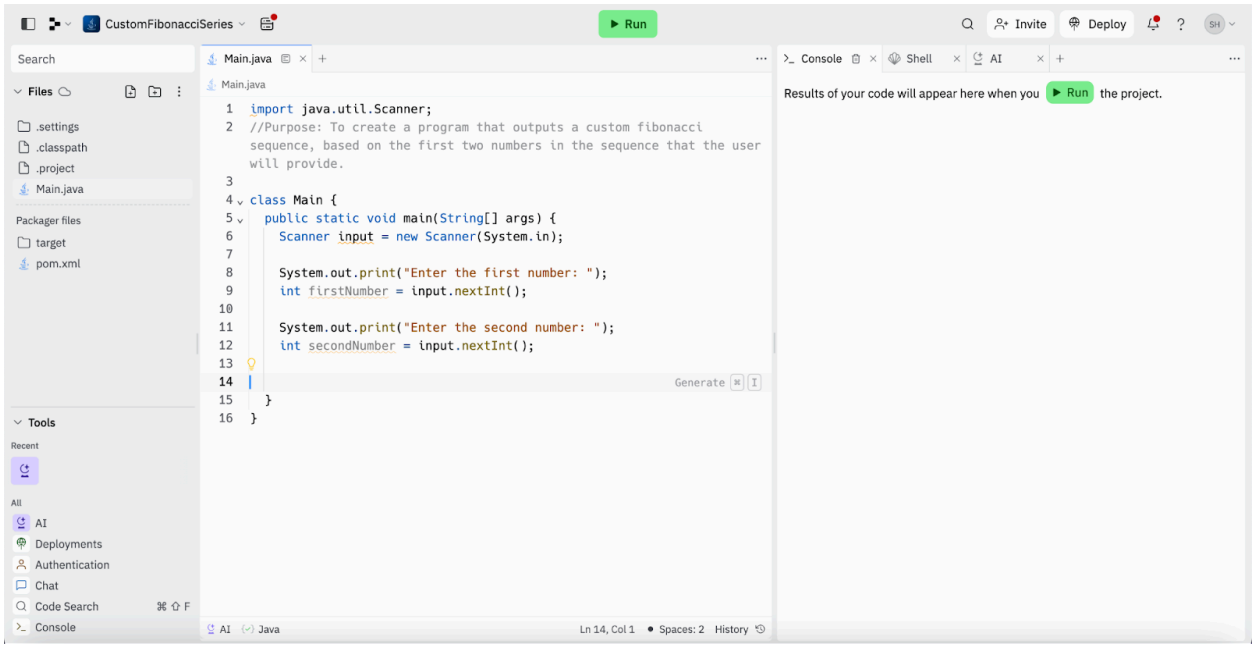



**3.** Define your class "Main" which encapsulates the whole program. Inside of this class, define your function, "main" which will be the only function we use for this program. Then call upon the class, "Scanner" so that we can read input from the user. I know it looks ugly but trust me it'll make sense!

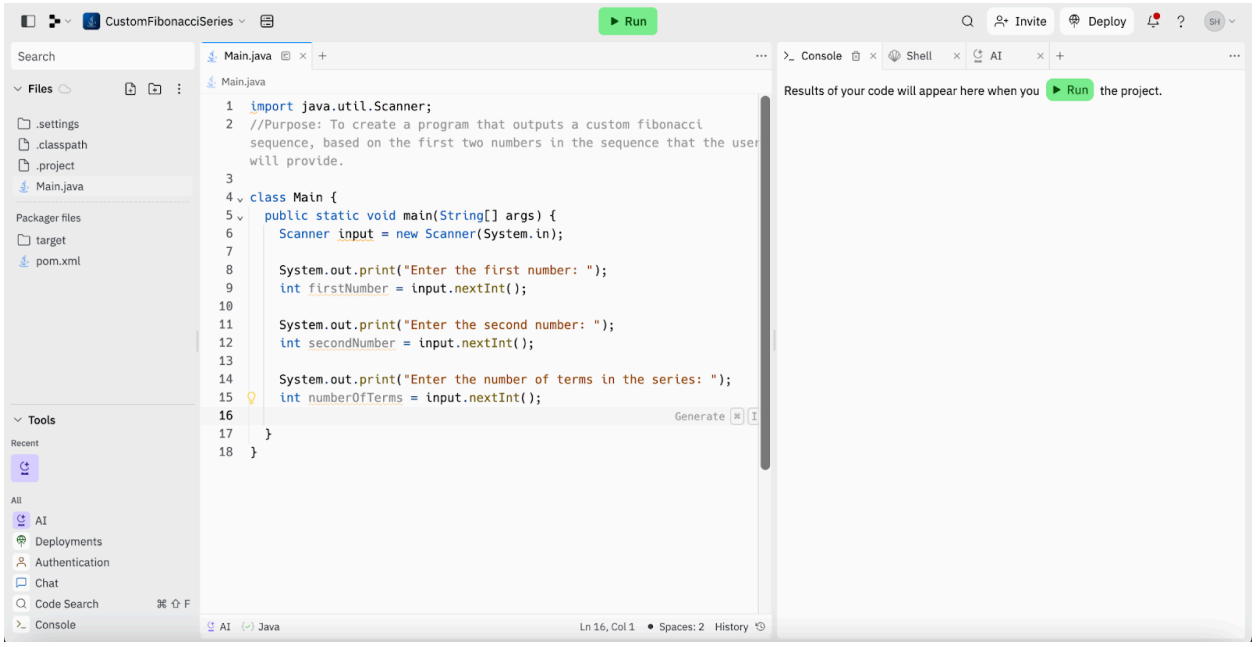



**4.**

- In order to print anything to the user, we use a print statement: System.out.print() or System.out.println() to print after a new line. Prompt the user to enter the first number using a print statement and type your message (also called a String) in between the brackets.
- The next line declares the variable for the first number and uses input.nextInt() to call upon the Scanner class and gather input from the user, as they are choosing this number. Repeat this process for the second number, as well.



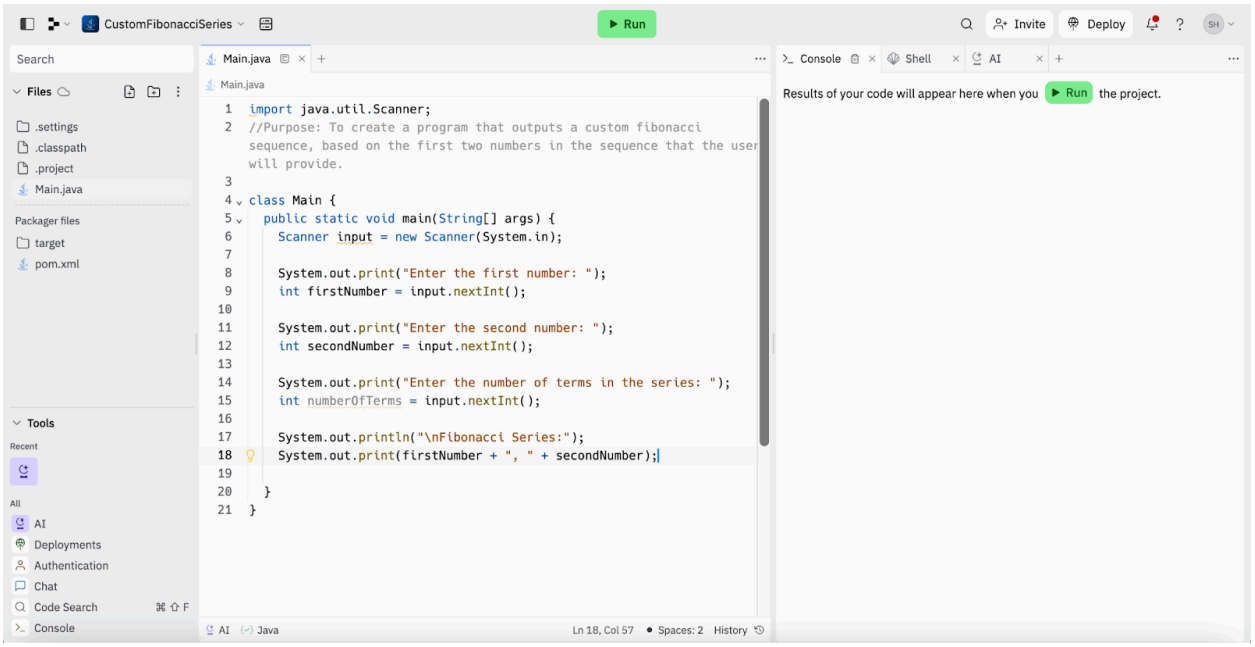

**5.** Ask the user for the number of terms they want in the series and apply the same process as you did in the last step, declaring the variable numberOfTerms and collecting input from the user for it.




**6.** Print the title of your program, “Fibonacci Series: ” to the user and begin the print statement with “\n” in order to start this statement after a new line in the program to make the output look neat and organized.

**7.** Now, we print the Fibonacci series!

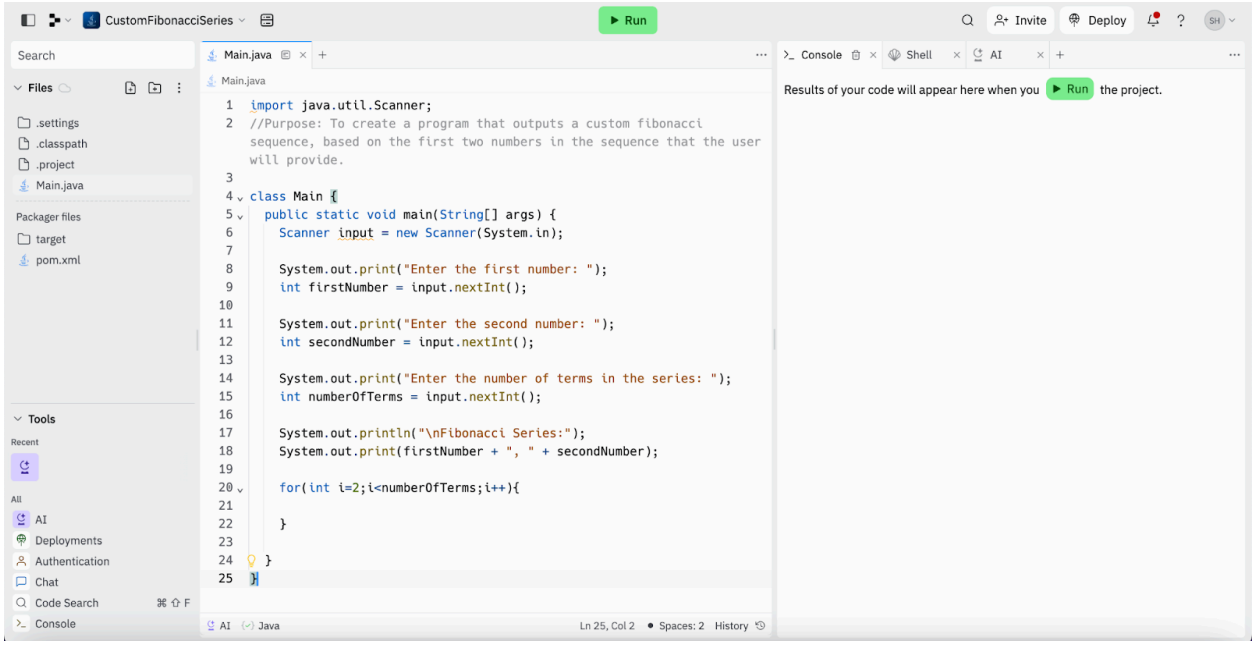
- First, print the first number the user entered by simply using the variable firstNumber. Then, we use something called concatenation which is just adding a plus sign in our print statement to combine two or more strings/messages.
- We will use concatenation to add a comma after the first number and then, our second number after that comma. This is the beginning of our Fibonacci series.




**8.** We will be using a for loop to constantly repeat the process of adding the previous two numbers which will run for the number of terms in the series defined earlier by the user. For loops have three arguments inside their brackets: The initializer/starting point, condition/end point and the increment/decrement.

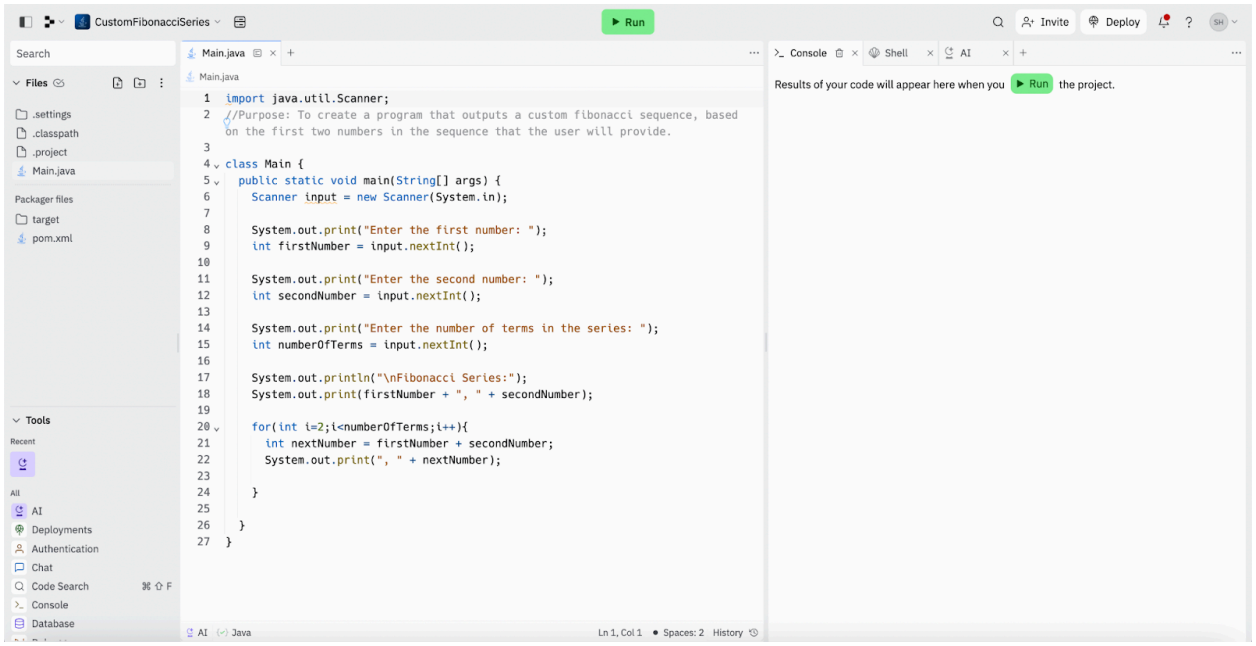
- Since the next number in the series will be the third number, we will start this loop at the third number, hence why i=2 (i represents the term number and in programming, numbers start from 0, not 1, so 0, 1, 2 makes the third number of index/term number 2).
- The condition is that this loop will run until i is less than the number of terms in a programming context, which means when i is equal to the number of terms in our context (remembering that in programming, the numbers start one number early, from 0).

- We will be incrementing the term number by 1 each time, which is what i++ signifies. Congratulations, that was the hardest step to understand. We're almost done!



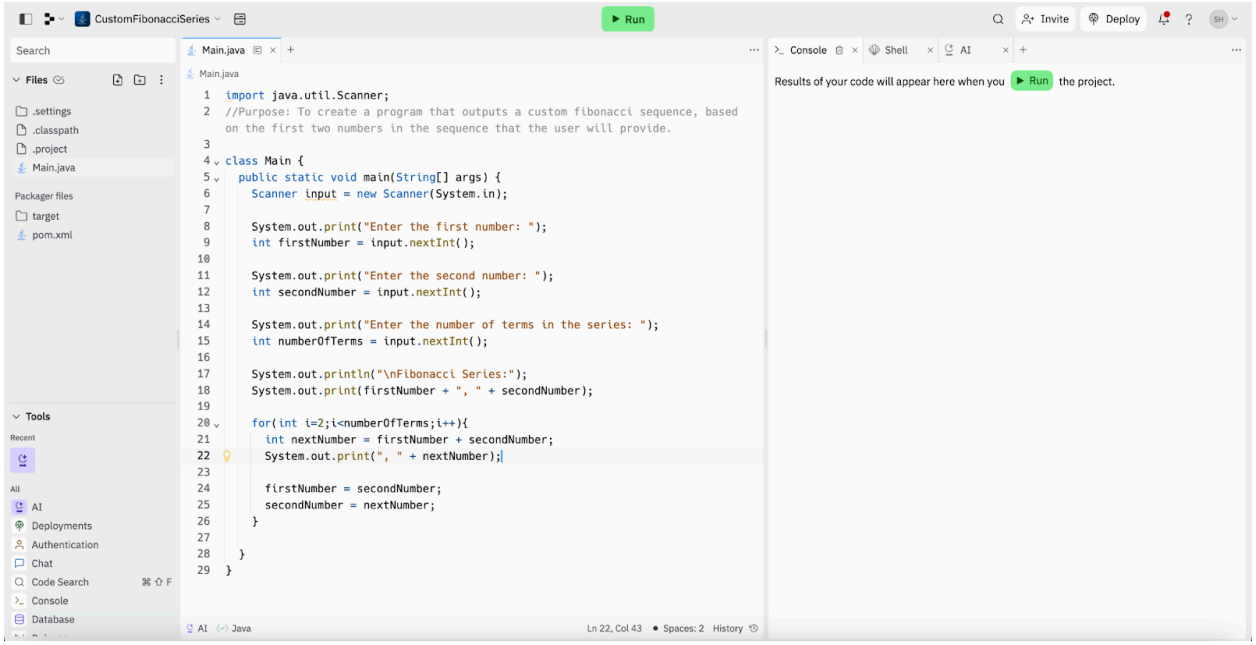

**9.** Now we add code inside the for loop we just created.

- We will declare a variable for the next number as the sum of the first number and the second number.
- We will print a comma (this will output after the print statement we created for the series in step 7, after the second number).
- After this comma, we will use concatenation to add nextNumber.




**10.** Now for the finale:

- Now that we have outputted the third number based on the first two numbers the user provided, this process will be repeated in the for loop.
- We just need to switch the positions of the variables, as in our next iteration, the second number will become the first number and the next number/third number will become the second number.



**BAM! If you made it this far, congratulations on completing your Custom Fibonacci Series program.** Hit “Run” and try experimenting with different numbers. Happy coding, maestro!