1. Write a program to find the first 20 Fibonacci numbers using a **for** loop. Break the loop if a number in the series exceeds 500.

public class Fibonacci {

public static void main(String[] args) {

int n = 20; // Number of Fibonacci numbers to find

int a = 0, b = 1;

System.out.println("First 20 Fibonacci numbers:");

for (int i = 0; i < n; i++) {

if (a > 500) {

break; // Break the loop if a number exceeds 500

}

System.out.print(a + " "); //a=0

int next = a + b; //next = 0+1=1;

a = b; // a=1=1;

b = next; //b= 1;

}

}

}

1. **Initialization**:
   * We define a class named **Fibonacci**.
   * Inside the **main** method, which is the entry point of the program, we initialize an integer variable **n** to 20. This variable represents the number of Fibonacci numbers we want to find.
   * We initialize two integer variables **a** and **b** to 0 and 1, respectively. These are the first two numbers of the Fibonacci sequence.
2. **Looping through Fibonacci numbers**:
   * We use a **for** loop to iterate **n** times, as we want to find the first 20 Fibonacci numbers.
   * Inside the loop, we check if the current Fibonacci number **a** exceeds 500. If it does, we break out of the loop using the **break** statement. This means if any Fibonacci number in the sequence exceeds 500, we stop the computation.
   * We print the current Fibonacci number **a** using **System.out.print(a + " ")**.
   * We calculate the next Fibonacci number by adding the previous two numbers: **next = a + b**.
   * We update **a** and **b** for the next iteration. **a** becomes **b**, and **b** becomes **next**, effectively shifting the Fibonacci sequence one step forward.
3. **Printing Output**:
   * The program prints the Fibonacci numbers as it computes them. It prints them on the same line, separated by spaces.
   * The output is labeled with "First 20 Fibonacci numbers:" to indicate what the printed numbers represent.
4. **Breaking the Loop**:
   * If any Fibonacci number in the sequence exceeds 500, the loop breaks, and the program terminates.

In summary, the program iterates through the first 20 Fibonacci numbers, computing each one by summing the previous two numbers. It prints each Fibonacci number as it computes them and stops the computation if any Fibonacci number exceeds 500.