import java.util.Arrays;

import java.util.Scanner;

public class DAA\_1 {

public static void main(String[] args) {

// TODO Auto-generated method stub

Scanner in = new Scanner(System.in);

System.out.println("Enter a number : ");

int n = in.nextInt();

while (true) {

System.out.println("Enter your choice: ");

System.out.println(" 1. Recursive approach.");

System.out.println(" 2. Non-recursive approach.");

System.out.println(" 3. Exit.");

int ch = in.nextInt();

switch (ch) {

case 1:

System.out.println(fiboRec(n));

break;

case 2:

System.out.println(fiboNRec(n));

break;

case 3:

System.out.println("Thank you!");

return;

}

}

}

public static long fiboRec(int n) {

if (n <= 1) {

return n;

} else {

return fiboRec(n - 1) + fiboRec(n - 2);

}

}

public static long fiboNRec(int n) {

int prev2 = 0;

int prev1 = 1;

for (int i = 2; i <= n; i++) {

int curr = prev1 + prev2;

prev2 = prev1;

prev1 = curr;

}

return prev1;

}

// Time complexity :

// recursive - O(2^n) and space -O(n).

// Non recursive - O(n) & space -O(1).

}