import java.util.Arrays;

class Main {

public static void main(String[] args) {

long[] memo = new long[100];

memo[0] = 0;

memo[1] = 1;

System.out.println(fibmemorization(30, memo));

System.out.println(fibmemorization(50, memo));

System.out.println(fibmemorization(70, memo));

System.out.println(Arrays.toString(memo));

}

public static long fib(long n) {

if (n == 0 || n == 1)

return n;

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

}

public static long fibmemorization(long n, long[] memo) {

if (n == 0 || n == 1)

return n;

if (memo[(int) n] != 0)

return memo[(int) n];

long val = fibmemorization(n - 1, memo) + fibmemorization(n - 2, memo);

memo[(int) n] = val;

return memo[(int) n];

}

}