**Pseudocode examples**

**CSCI 150, Fall 2003**

**Counting up**
Read number \( n \) and print the integers counting up to \( n \).

- Read \( n \).
- Initialize \( i \) to 1.
- **while** \( i \leq n \), **do**:
  - Write \( i \).
  - Increment \( i \).
- **end while**
- Stop.

**Power of two**
Read number \( n \) and print \( 2^n \).

- Read \( n \).
- Initialize \( power \) to 1.
- **repeat** \( n \) times:
  - Double \( power \).
- **end repeat**
- Write \( power \).
- Stop.

**Summing consecutive integers**
Read number \( n \) and print the sum of the integers up to \( n \),

\[
1 + 2 + \cdots + n .
\]

- Read \( n \).
- Initialize \( i \) to 1.
- **while** \( i \leq n \), **do**:
  - Increase \( sum \) by \( i \).
  - Increment \( i \).
- **end while**
- Write \( sum \).
- Stop.

**Multiplication**
Read numbers \( m \) and \( n \) and print \( m \cdot n \).

- Read \( m \).
- Read \( n \).
- Initialize \( sum \) to 0.
- **repeat** \( n \) times:
  - Increase \( sum \) by \( m \).
- **end repeat**
- Print \( sum \).
- Stop.

**Fibonacci sequence**
Read number \( n \) and print the first \( n \) numbers in Fibonacci sequence. The Fibonacci sequence,

\[
(1, 1, 2, 3, 5, 8, 13, \ldots) ,
\]

begins with two 1’s, and each successive number is the sum of the preceding two numbers (e.g., \( 13 = 5 + 8 \)).

- Read \( n \).
- Initialize \( a \) to 1.
- Initialize \( b \) to 1.
- **repeat** \( n \) times:
  - if \( a > b \), **then**:
    - Increase \( b \) by \( a \).
    - Write \( b \).
  - else:
    - Increase \( a \) by \( b \).
    - Write \( a \).
- **end if**
- **end repeat**
- Stop.