The Fibonacci numbers are a sequence of integers in which each number in the sequence is derived from the recursive formula

\[ f_n = f_{n-1} + f_{n-2} \]

Where \( f_0 = 0 \) and \( f_1 = 1 \) and \( n \geq 2 \)

Summary

- How to write a MIPS loop
- How to print to standard output and Using the stack
- How to create and use procedures

1 Problem 1 - How to write a MIPS loop

- \$1 contains a non-negative number \( n \)
- Find the \( n^{th} \) Fibonacci number and place it in \$3

2 Problem 2 - How to create and use procedures

- Convert Problem 1 into a procedure named \texttt{fib} which expects \$1 to be \( n \) and outputs the result in \$3
- Apart from \$3, upon return every register should contain the same value as when the procedure was called
3 Problem 3 - Printing to stdout and using the stack

- $1$ contains an integer $n \geq 1$
- Using the procedure $\text{fib}$ from problem 2, print the first $n$ Fibonacci numbers in reverse

4 Problem 4 - Various skills

- Using the procedure $\text{fib}$ from Problem 2, check if the array with starting address in $\$1$ and number of items in $\$2$ is a Fibonacci sequence