CSE 107 HOMEWORK 3

Objective

Write an assembly language program using the **Viz Machine** to compute the first k numbers of the Fibonacci sequence. The value of k will be provided by the user at memory address 6F.

Instructions

1. **Initialization:**
   - Store the first two numbers of the Fibonacci sequence:
     - **Register 1** should hold the value 0 (first Fibonacci number).
     - **Register 2** should hold the value 1 (second Fibonacci number).
2. **Input Handling:**
   - The user will input the value of k (the number of Fibonacci numbers to compute).
   - Ensure that $k \geq 2$, since the first two Fibonacci numbers (0 and 1) are given.
3. **Iterative Calculation:**
   - Use a loop to calculate the next $k - 2$ Fibonacci numbers.
   - For each new Fibonacci number, use the formula:

$$F_n = F_{n-1} + F_{n-2}$$

   - Store each result in consecutive memory addresses after calculation.
4. **Output:**
   - After the calculation, all k Fibonacci numbers should be stored in consecutive memory locations, starting from address X.
5. **Termination:**
   - After computing the k-th Fibonacci number, terminate the program using the `halt` instruction.

Example Input/Output

- **Input:** User provides $k = 5$ at 6F address.
- **Output:** The Fibonacci numbers $0, 1, 1, 2, 3$ should be stored at memory addresses $X, X + 1, X + 2, X + 3, X + 4$.