SIT111 Computer Systems

Code: In this code, RAM[17] is the temporary memory location.

@2

D=M

@17

M=D

@3

D=M

@2

M=D

@17

D=M

@3

M=D

@12

0;JMP

Explanation: This program is designed to flip values between two specific memory locations using a temporary location (RAM[17]). Here's a breakdown of the code:

The first line of code selects the memory location using the A-instruction syntax. Here, RAM[2] is selected.

The second line of code copies the value from the selected memory location (RAM[2]) to the D register.

The third line selects the memory location RAM[17].

The fourth line of code copies the value stored in the D register into RAM[17]. Now RAM[17] holds the original value from RAM[2].

The fifth line selects the memory location RAM[3].

The sixth line of code copies the value from RAM[3] to the M register.

The seventh line selects RAM[17].

The eighth line of code copies the value stored in RAM[17] into RAM[3]. Now RAM[3] holds the original value from RAM[2].

The ninth line selects RAM[12].

The tenth line specifies an unconditional jump (0;JMP) to the instruction at RAM[12].

The program continues in an infinite loop, flipping the values between RAM[2] and RAM[3] using the temporary location RAM[17].