2nd Assignment in the Course "Microprocessors"

2023-2024

Dr. Keramidas Georgios

The project is individual and should be implemented in x86 (16-bit) assembly language. The implementation should be done on the emu8086 emulator.

Second Project - Motion Scenario (Animation) (2 credits)

The goal is to create a motion script to be displayed in the Video Memory of an 8086-based microcomputer system. The proposed motion script is as follows:

- First, the following string "AA AA" should be printed on two lines of video memory (e.g. lines 15 and 17). These two lines will lead the way.
- At the top left of the video memory (see the figure) a red or green square should appear. This square should change colour every 1 second (use the interrupt timer to measure the time).
- Next, we need to create the moving "snake" (e.g. at line 16). The snake-- string will initially consist of a letter "B" and should move stepwise (by 1 position) to the right every 100milliseconds (via a loop).
- Each time the top square turns red, N additional squares should be added to the snake. "B". For example, if N is equal to 3, then the next string will be "BBBB".
- N should be extracted from a pseudorandom generator of choice (it can be quite simple). Each time the top square turns red, the pseudorandom generator should be called again to get a new value for N. N should be between 1 and 4.
- Each time the snake reaches the end of the line (right point), it must "continue" from the beginning of the line (reappear from the left part of the line).
- The process should continue until the snake occupies the whole line. At this point it should terminate your program by printing the following message: "It's not a bug; it's an undocumented feature".

Deliverables

The deliverables of the projects will be the Assembly code with sufficient comments (about 60% of the code should be comments).

SCHOOL OF INFORMATICS

Delivery Date

The delivery deadline for the second project is [8] January 2024. The third (and final) project will have a deadline of [26] January 2024.

Scoring method

The project is not compulsory. It corresponds to 20% of the final grade. The score of the third project will correspond to 30% - 40% of the final score.