The Academic College of Tel-Aviv-Yaffo
121113 Computer Structure and the 8086 Assembly Language
Spring 2002

Home Assignment No. 2

Due date: May 22, 2002

1. Declare two WORD size numbers in the data segment (A and B). Write a recursive program to find their Greatest Common Divisor (GCD), and print it.

2. Declare an N*N Matrix in the data segment (in 8086 ASM, matrices are declared using single dimensional arrays). Check whether the matrix you declared is symmetric relative to the primary and secondary diagonals. Print your checks results.

$$\begin{pmatrix} X & & & \\ & X & & \\ & & X & \\ & & & X \end{pmatrix} \text{ Primary Diagonal}$$

$$\begin{pmatrix} & & & X \\ & & X & \\ & X & & \\ X & & & \end{pmatrix} \text{ Secondary Diagonal}$$

Hint: Use the index registers to go through the matrix…

3. Declare a sorted binary tree in your data segment. Write a program that searches for a value in the tree, and if it finds the item/value, it removes the item from the tree.

   Reminder: A sorted binary tree is a binary tree that conforms to the following condition: For each node, the right son/tree is greater than the father, and the left son/tree is smaller than the father.

Have fun,

Eliav.