

An-Najah National University
Department of Computer Engineering
Microprocessors (10636322)

Assignment # 2 (ILO 1)

1. Write an inline assembly-C program that calculates the dot product of two integer square matrices, then print the resulting matrix. The reading and printing should be done in C, while the rest of the code should be in assembly, only. Your program should calculate the dot product for any given two matrices.

Example of dot product of a matrix.

$$\begin{array}{rcc} & \vec{c_1} & \vec{c_2} & \vec{c_3} \\ & \downarrow & \downarrow & \downarrow \\ \vec{r_1} \rightarrow & [1 & 2 & 3] \\ \vec{r_2} \rightarrow & [4 & 5 & 6] \\ \vec{r_3} \rightarrow & [7 & 8 & 9] \end{array} \cdot \begin{array}{c} [1 \ 2 \ 1] \\ [2 \ 4 \ 6] \\ [7 \ 2 \ 5] \end{array} = \begin{array}{c} [1(1) + 2(2) + 3(7) \\ \\] \end{array}$$
$$= \begin{array}{c} [26 \\ \\] \end{array}$$

2. Develop an 8086/8088 assembly language program that converts a decimal number to a specified numbering system: binary, octal, or hexadecimal.
 - The program should prompt the user to enter a 2-digit decimal number (num).
 - The user should then enter a character (base) to specify the target numbering system (case insensitive):
 - 'B' for binary conversion
 - 'O' for octal conversion
 - 'H' for hexadecimal conversion
 - The program will read the input, perform the conversion, and display the result on the screen.
 - If invalid inputs are provided, the program should prompt the user to enter the values again.
 - The program should display clear messages to guide the user through the input process, e.g., "Please enter a 2-digit decimal number" and "Please enter a base (B for binary, O for octal, H for hexadecimal)".

Deadline: Thursday 20/06/2024

Good Luck