Assembly Language (G, H)

**Fall 2023**

**Assignment-2**

**Total Marks:75**

**Submission: Submit 3 .asm files on google classroom. The name of your file should be your roll number [underscore] question number e.g., 20l1234\_1.asm. Deadline -Sunday, 8th October 2023, 11:59 pm**

**Question 1: [15 Marks]**

Write an assembly program that checks **in binary** whether a 16-bit number is palindrome or not. Move 1 in dx register if it is a palindrome else move 0 in dx register. Palindrome is a number which reads the same backward or forward.

For example

0xA425 is a palindrome.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |

**Question 2: [15 Marks]**

Given an array of words, write an assembly program that sorts the even numbers and odd numbers in the array separately in ascending order.

For example

array1: db 10,17,6,5,11,8

The final sorted array should be

array1: db 6, 5,8,11,10,17

Note the even numbers in the array are in the sorted order and the odd numbers in the array are in sorted order. The code should work for array of any size so do not hard code and define a data label for size. You can create as many data labels as you like.

**Question 3: [15 Marks]**

Given a 3x3 matrix, write the code to find its determinant. The 3x3 matrix is stored as follows:

array1: db 1,2,3,4,5,6,7,8,9 represents the following matrix

Note the matrix is stored row by row.