



## DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

ENCS336 - Computer Organization and Assembly Language

Course Project

Due date: Mar 2, 2023

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### Project Summary:

Write an Intel 8086 Assembly program that reads N numbers as Strings, convert them into variable sized Integer numbers, and then print the summation and average of the numbers. The program should allow the user to decide the size of the input number itself (assume integers in format but with variable size).

### Detailed Description:

- Have the program prompt the user to input N and the size of the number then request inputting the first number, then the second and so on until N numbers are input.
- Your code should allow users to select the size of the numbers, for example you can have integers with size of 1 Byte each, or you can make them 10 Bytes large.
- Validation: Your code should make sure user inputs Decimal numbers only, and with predetermined size only. When a user inputs a wrong value, your code should print an error message that explains it, and then gives the user another chance to input it correctly.
- When the user presses Enter, your code should read the input values as if they are Strings, then convert them into numbers in BCD format with predefined size, each two digits can be stored in one Byte.
- After reading all the numbers, calculate their summation and average then print the Sum and Avg

### Project Report:

Each team should write a report that explains how to run the project and then explain how the project has been implemented. Explain the code details

#### Software Needed:

Any of the followings would do:

- Emu8086
- Online Assemblers and IDEs
- TASM.exe and TLINK.exe
- DEBUG running on DosBox

#### An Example:

- Assume N is 3, and size of the integers is 10 Bytes
- User inputs the following:  
99887766554433221100 ← first number, 20 digits stored in 10 Bytes  
23323478649873 ← second number, 16 digits stored in 10 Bytes  
2174396053908547860A ← Error, this is not Decimal  
3232332213221332321321321 ← Error, this is larger than 10 Bytes

#### Submission Details:

- Total score: Total of 20 points; 15 points for project, 5 points for report
- Maximum team size: 3 students
- Due date: 2nd of March, 2023
- NOTE: Last minute submission could be risky, because no late submission will be accepted, **NOT A MINUTE LATE**