HW3

- Due Feb 5 by 5pm
- Points 100
- Submitting a file upload
- File Types docx, pdf, asm, and lst
- Available Jan 26 at 8am - Feb 12 at 5pm

This assignment was locked Feb 12 at 5pm.

HW # 3: Theme: Data declarations, Small program

All main questions carry equal weight.Credit awarded to only those answers with work shown

1. The processor accesses memory using memory read and write cycles. Draw a synchronous memory read cycle timing diagram and explain it with a few sentences.
2. Use assembler directives to declare the following:
    I. A data variable each for a 32-bit signed and an unsigned integer with no initial values.
    II. A data variable for a 16-bit signed integer with the initial value of 84F1h
    III. A data variable for a 16-bit unsigned integer with the initial value of 1477h
    IV. A null-terminated string variable with the value “Architecture”
    V. A signed DWORD array of 3-elements and initialize it with the following values: 0F5h, 127h, 0F456A689h.
    VI. Show how to calculate the number of elements in the previous array and assign that value to a symbolic constant named “*NumberOfElements*”
    VII. A symbolic **constant** named “*Perimeter of a circle*” using the equal-sign directive and assign it an arithmetic expression that calculates the perimeter in terms of *Pi* and diameter, *D* of the circle.
3. Write the individual bytes in memory for the following variables *stored in little Endian order (list the bytes along with their symbolic addresses, e.g. :* Orange: <byte value>, Orange + 1: <byte value>)

```
Orange        SWORD 0ABCDh
Apple         DWORD 1234ABCDh
Mango          WORD  1234h,5678h  ;this is an array with variables
```

4. Using the *AddTwo.asm* program from the textbook as a reference, write a program *Add3.asm* that adds 3-unsigned word sized integers. Hand write the code. You do not need to assemble/execute at this time.