Calculator in Assembly Language

EMU8086_CALCULATOR

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Abstract:

This is our basic calculator made on emu-8086. This is a very efficient calculator and has the functionality of performing all the Arithmetic operations, we have made some additional features like performing square and cube of a specific number. Another extra feature we have is converting Temperature from Celcius to Farenheit and Farenheit to Celsius.

Objectives:

1. Basic objective behind making a calculator was to make our life easier as this program will compute all the operations on itself, no need to overthink.

2. Whenever a user inputs the number it will perform the calculation according to their needs.

3. It saves a lot of time for users. Calculators are a big help when doing mathematical equations correctly.
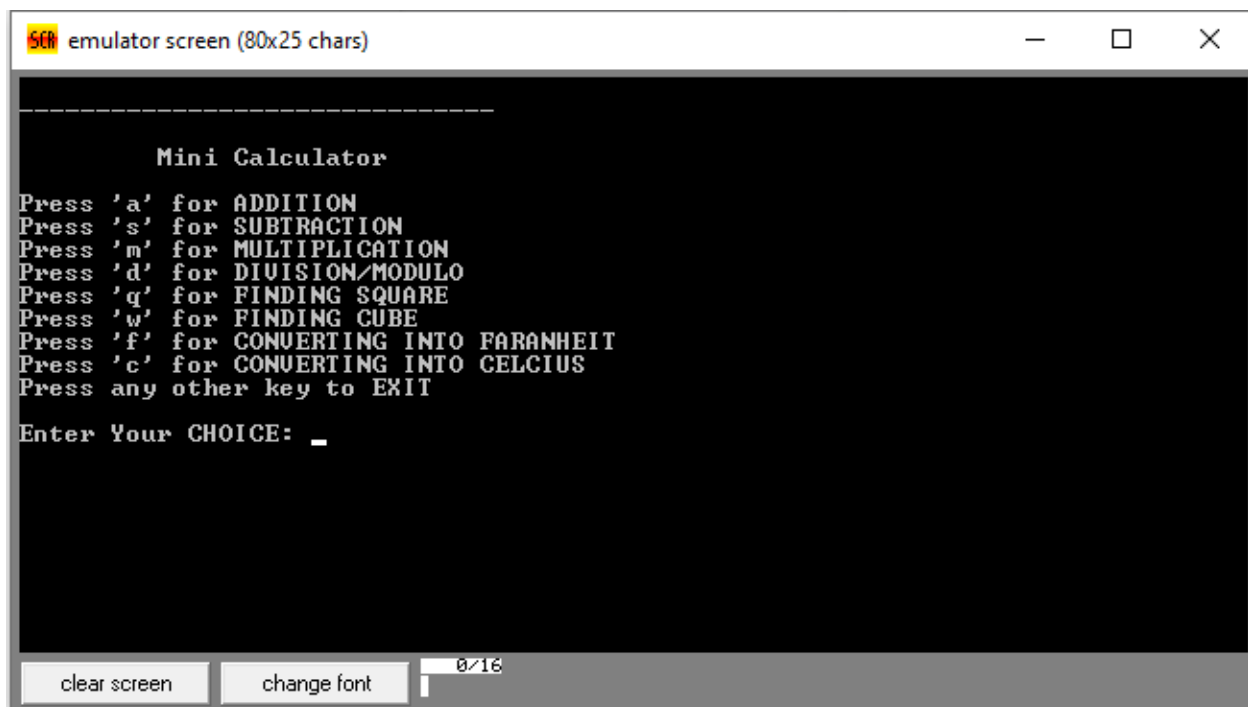
Problem Statement:

A long time ago calculations done manually were quite a difficult task. It was too time consuming and the probability of getting the correct answer was very low. As all the calculations were manual. It consumes a lot of time and sometimes we can get wrong answers. So we have solved the problem and made this calculator. Now it is very simple to handle and gives the answer 100% correct.

Methodology:

Basically a menu will be displayed that will contain all the operations of addition,subtraction,multiplication,division,square,cube,celsius to fahrenheit and fahrenheit to celsius. All these will be displayed along with their key when a user enters the specific key it will perform the specific operation and return to the main menu.
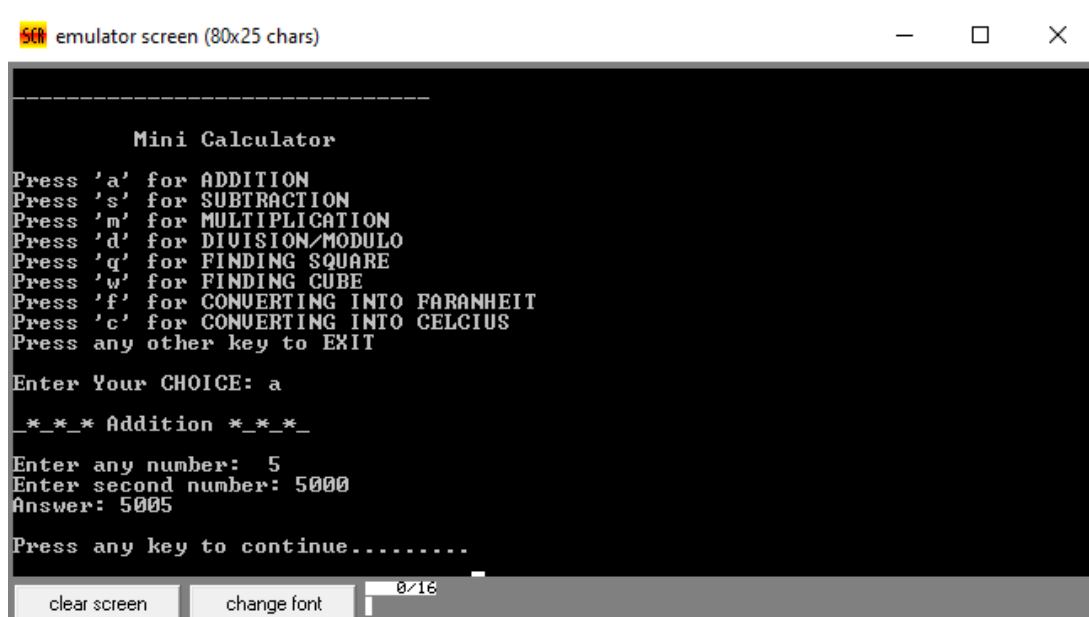
Project Deployment Snippets:-

Menu:-

Addition Function:-

Subtraction Function:-

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SCR  emulator screen (80x25 chars)                          —    □    ×

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        Mini Calculator
Press 'a' for ADDITION
Press 's' for SUBTRACTION
Press 'm' for MULTIPLICATION
Press 'd' for DIVISION/MODULO
Press 'q' for FINDING SQUARE
Press 'w' for FINDING CUBE
Press 'f' for CONVERTING INTO FARANHEIT
Press 'c' for CONVERTING INTO CELCIUS
Press any other key to EXIT

Enter Your CHOICE: s

_*_*_* Substraction *_*_*_

Enter any number:  1005
Enter second number: 6
Answer: 999

Press any key to continue.........
                                              0/16
     clear screen        change font
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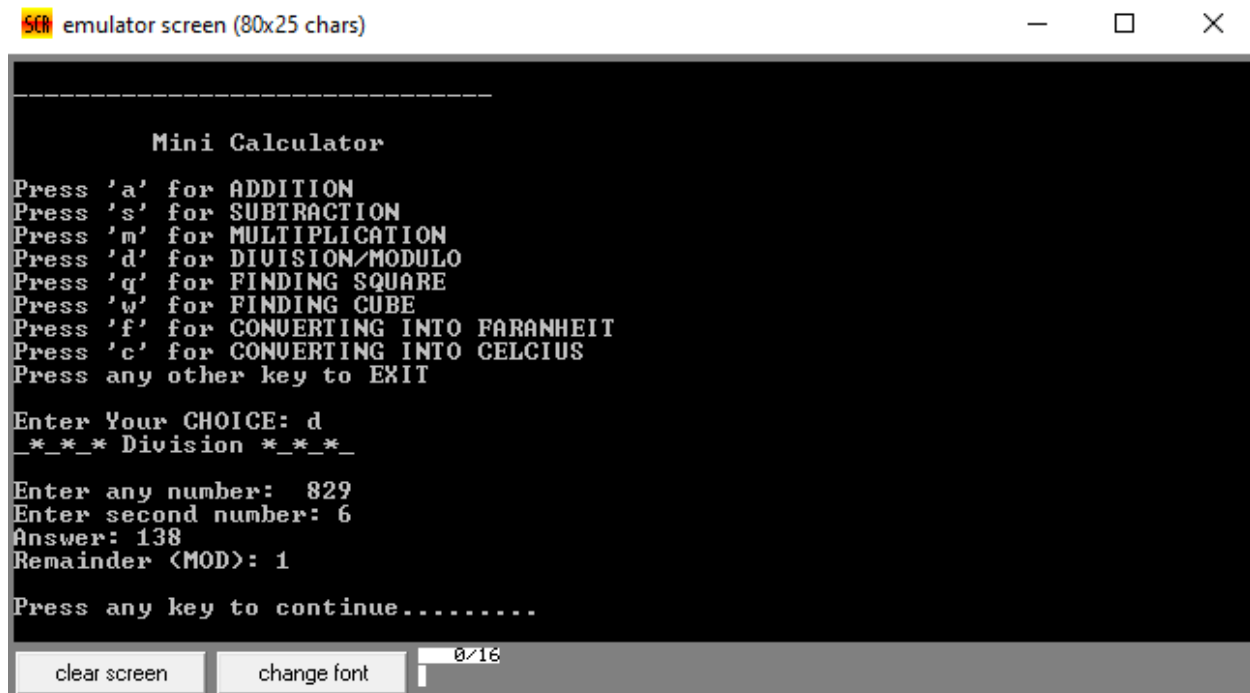
Multiplication Function:-

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SCR  emulator screen (80x25 chars)                          —    □    ×

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        Mini Calculator
Press 'a' for ADDITION
Press 's' for SUBTRACTION
Press 'm' for MULTIPLICATION
Press 'd' for DIVISION/MODULO
Press 'q' for FINDING SQUARE
Press 'w' for FINDING CUBE
Press 'f' for CONVERTING INTO FARANHEIT
Press 'c' for CONVERTING INTO CELCIUS
Press any other key to EXIT

Enter Your CHOICE: m

_*_*_* Multiplication *_*_*_

Enter any number:  1400
Enter second number: 20
Answer: 28000

Press any key to continue.........
                                              0/16
     clear screen        change font
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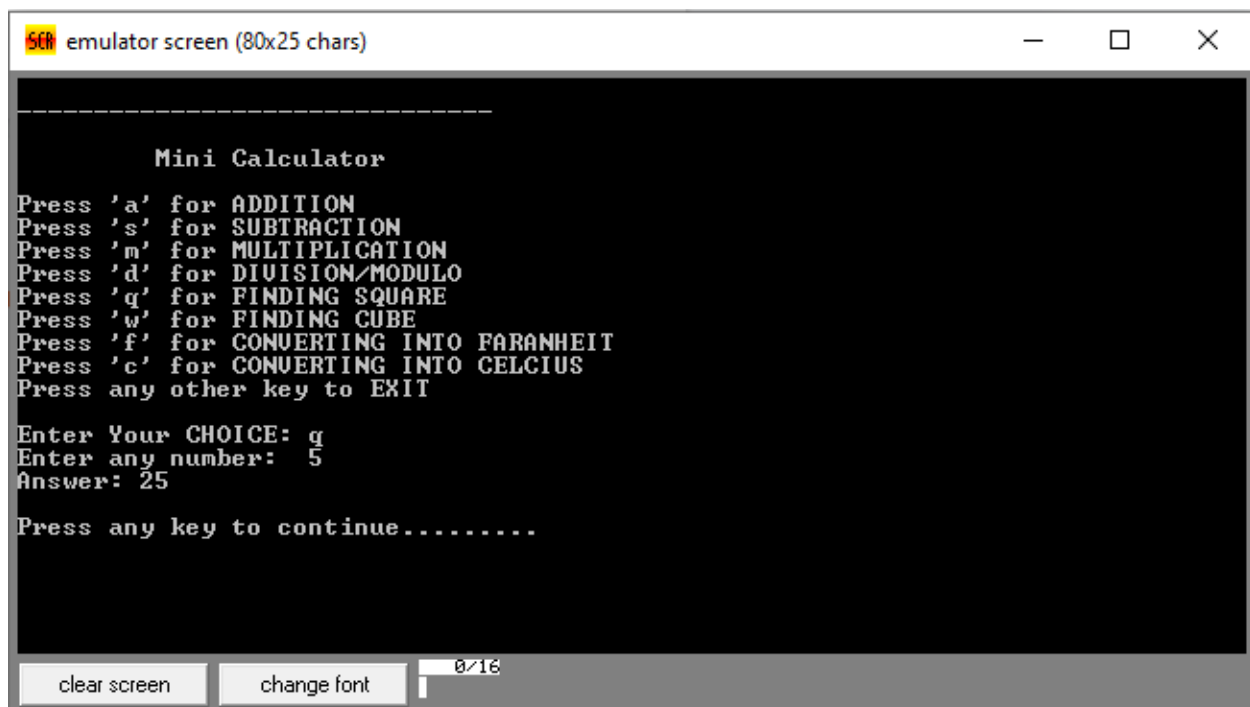
Division/ Modulo Function:-

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_____
         Mini Calculator
Press 'a' for ADDITION
Press 's' for SUBTRACTION
Press 'm' for MULTIPLICATION
Press 'd' for DIVISION/MODULO
Press 'q' for FINDING SQUARE
Press 'w' for FINDING CUBE
Press 'f' for CONVERTING INTO FARANHEIT
Press 'c' for CONVERTING INTO CELCIUS
Press any other key to EXIT

Enter Your CHOICE: d
_*_*_* Division *_*_*_

Enter any number:  829
Enter second number: 6
Answer: 138
Remainder (MOD): 1

Press any key to continue.........
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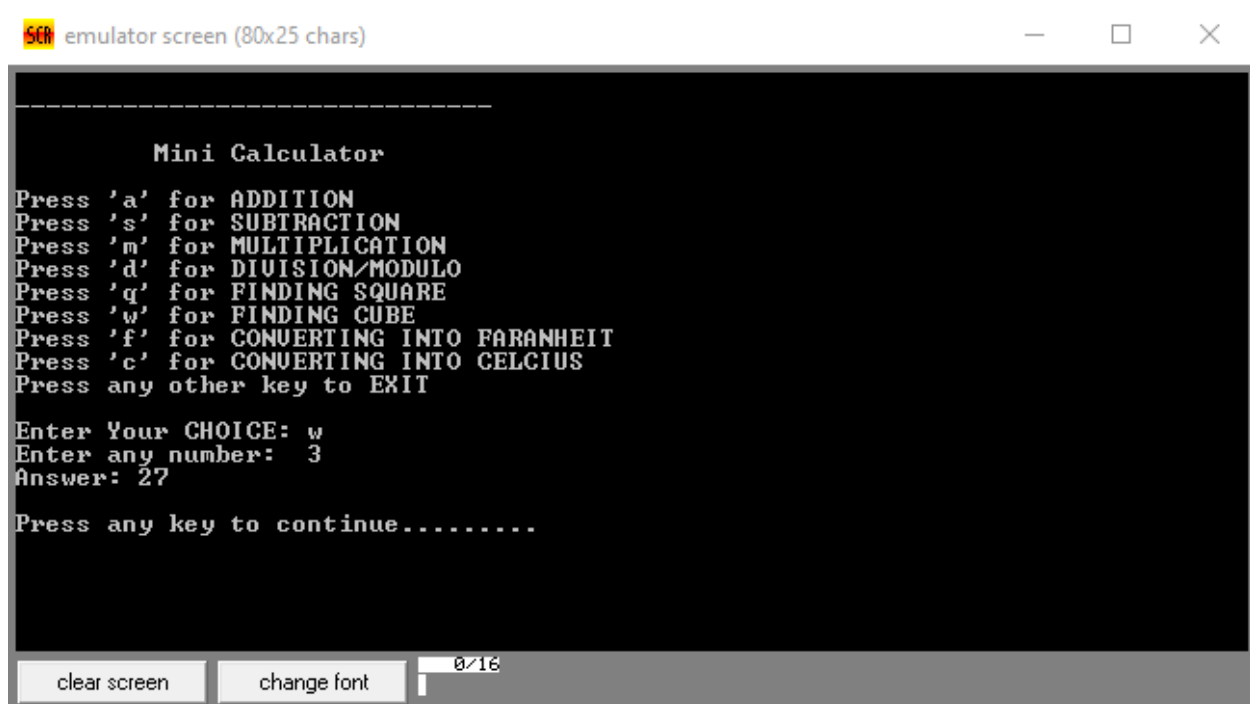
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Square Function:-

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_____
         Mini Calculator
Press 'a' for ADDITION
Press 's' for SUBTRACTION
Press 'm' for MULTIPLICATION
Press 'd' for DIVISION/MODULO
Press 'q' for FINDING SQUARE
Press 'w' for FINDING CUBE
Press 'f' for CONVERTING INTO FARANHEIT
Press 'c' for CONVERTING INTO CELCIUS
Press any other key to EXIT

Enter Your CHOICE: q
Enter any number:  5
Answer: 25

Press any key to continue.........
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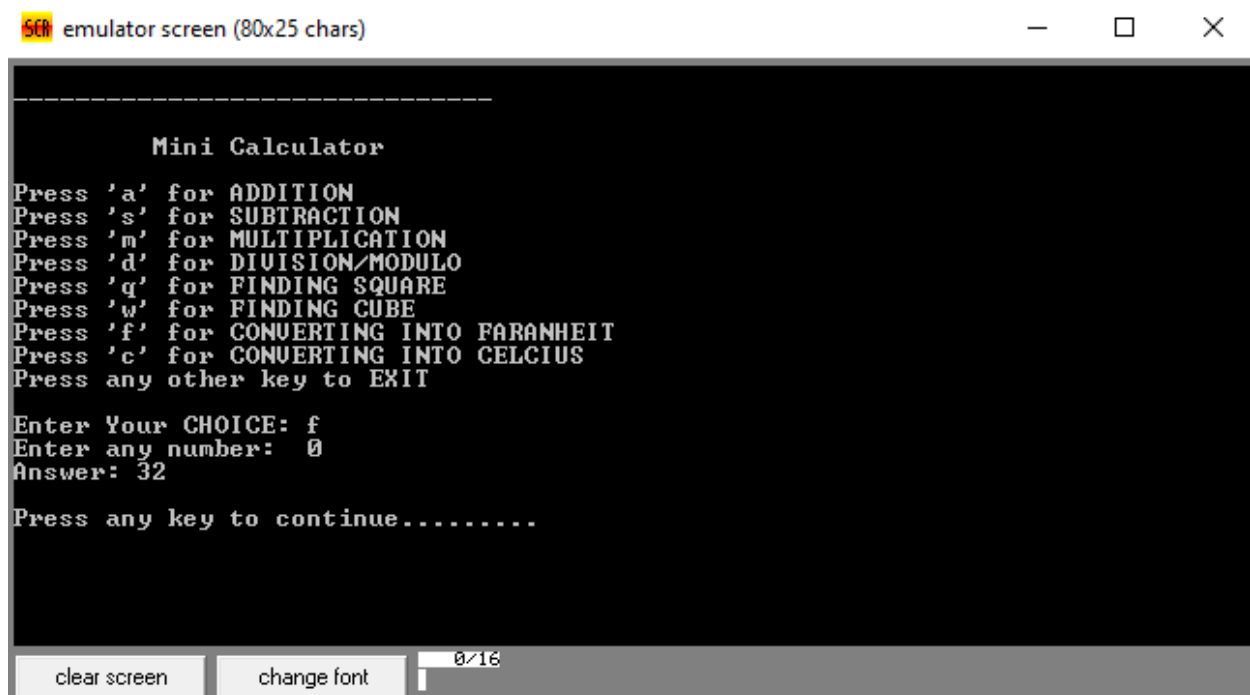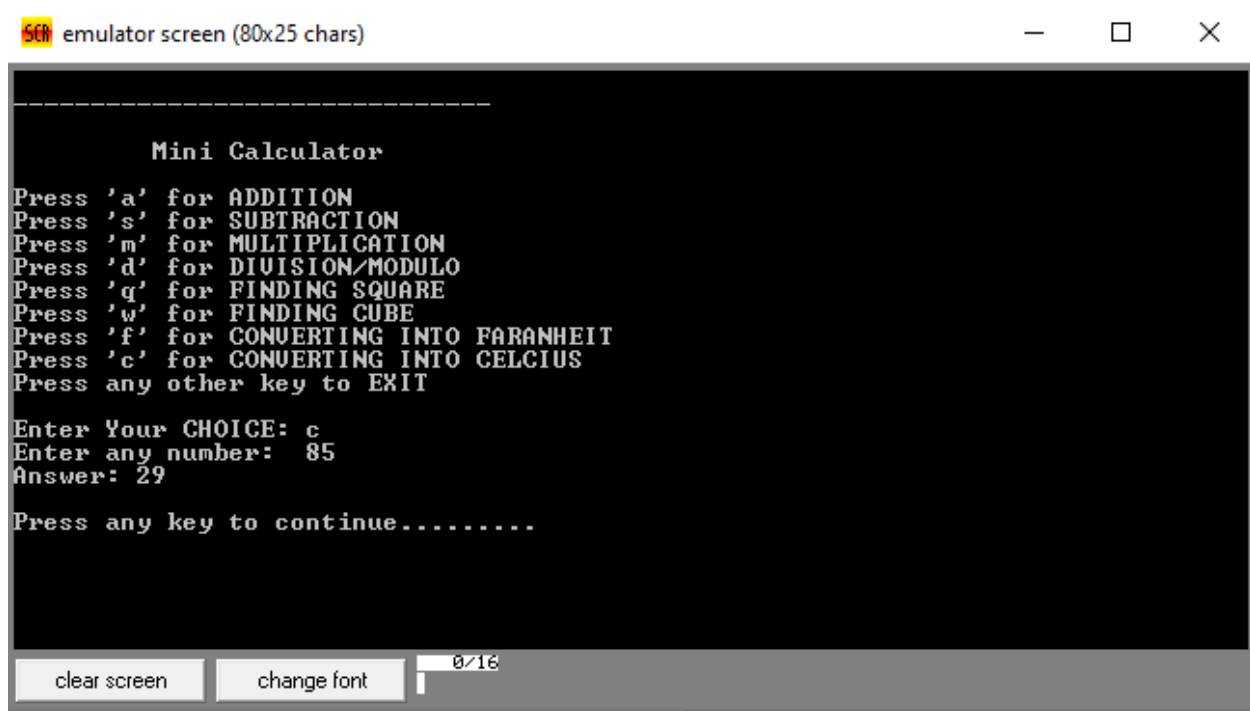
clear screen | change font | 0/16

Cube Function:-

Fahrenheit to Celsius Converter Function:-

Celsius to Fahrenheit Converter Function:-


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          Mini Calculator
Press 'a' for ADDITION
Press 's' for SUBTRACTION
Press 'm' for MULTIPLICATION
Press 'd' for DIVISION/MODULO
Press 'q' for FINDING SQUARE
Press 'w' for FINDING CUBE
Press 'f' for CONVERTING INTO FARANHEIT
Press 'c' for CONVERTING INTO CELCIUS
Press any other key to EXIT

Enter Your CHOICE: c
Enter any number:   85
Answer: 29

Press any key to continue.........
```

Conclusion:

While developing this project we have learned a lot of things like how to use registers and variables efficiently. While making this project we faced a lot of errors while debugging. We have learned a lot of things about assembly language. During the development phase we recognize some core critical conceptual skills including the concepts of Computer Organization and Assembly Language.