

HCA1109 – CMAP Assignment (40% module weight)

Assemble a program named **menu.exe** in MASM6.15 using .586 instructions with the following specifications:

Your program should have a menu screen consisting of 6 options with an input selection line below as follows:

MENU

1. Factorial
2. Prime Numbers
3. Quadratic equation root
4. Area of a quadrilateral using Brahmagupta Formula
5. Binary
6. Exit Program

Please choose an option: (The program should only take inputs 1 to 6. Any other inputs should display back the input selection line above until a valid input is entered) [2 marks]

Option 1: This prompts the user to enter a **positive integer** and should output the factorial of the integer as answer. (Note: 2 marks will be obtained for up to 9! - 3 marks for up to 12! - 6 marks for > 12!)

Option 2: This prompts the user for a **positive integer**, say **n** and outputs the first n consecutive prime numbers. (Example: if you input 9, output should display: 2,3,5,7,11,13,17,19,23.) [8 marks]

Option 3: The program asks the user to enter **3 values** for **a, b** and **c** according to the equation $ax^2 + bx + c = 0$ and output only the positive root for **x**. (Example: if inputs are 2, 5, -3 respectively, then $x=0.5$) [10 marks]

Option 4: The user is asked to enter the length of the 4 sides (**a, b, c** and **d**) of any quadrilateral and output the area using Brahmagupta formula $A = \sqrt{(s-a)(s-b)(s-c)(s-d)}$ where $s = (a+b+c+d)/2$ [10 marks]

Option 5: The program should ask the user to enter a **positive decimal integer** and should output the binary equivalent on screen. [3 marks]

Option 6: This option exits the program. [1 mark]

You should zip the executable file **menu.exe**, source file **menu.asm** and object file **menu.obj** in **groupX.zip** file.

You have to put the **group members names & index numbers** at the top of the source file (*commenting the lines*).

You should upload your zip file on Google Classroom **before the deadline**.

Any resit student must mail me at rheerasing@umail.utm.ac.mu and cc to siteexams@umail.utm.ac.mu

Note: If you encounter any issues while uploading on Google Classroom as Google might detect your exe file as a virus, you will have to upload your zip file directly on my FTP server. Please refer to a separate link on my website in the assignments section that will guide you.

The deadline is 20th July 2022. Late submission will incur usual penalties. **Maximum marks: 40**