

- 1.
2. 'Hello world program'
  - a. Things you should be able to explain/have understood
    - i. Purpose of extern
    - ii. Various sections and their purpose: data, text, rodata.
    - iii. nasm macros: db, dd etc.
    - iv. Understand function prologue and its purpose.
    - v. Understand function epilogue and its purpose.
    - vi. Calling convention when invoking functions.
      1. Arguments passing
      2. Stack cleanup.
      3. Setting/checking return value.
  - b. Things to try
    - i. Changing return value of main and observing what happens.
    - ii. Remove "global main" and execute.
    - iii. Remove "extern printf" and see what happens.
    - iv. Remove "BITS 32" and see what happens.
    - v. Write higher level code equivalent to assembly code.
3. Adding two numbers
  - a. Things you should be able to explain/have understood
    - i. bss section and nasm macros there.
    - ii. Explain why there is no [] in line 33 and 42 but there is in lines 47 and 48.
    - iii. Explain what is DWORD, WORD and BYTE and when each are used.
    - iv. Answer question in comments in line 54.
    - v. Explain when is [] required and when it is not.
    - vi. Learning how to understand what it does given an unknown instruction.
  - b. Things to try
    - i. Swap arguments of scanf and execute.
    - ii. Swap arguments of printf(line 51) and execute.
    - iii. Write higher level code equivalent to assembly code.
4. Program 3
  - a. Things you should be able to explain/have understood
    - i. Identify which programming construct is used and justify the claim.
    - ii. Identify distinguishing characteristics of the construct to be able to identify it later on: initialization, termination condition and body.
    - iii. Understand the concept of a label.
  - b. Things to do
    - i. Rename labels and variables to something more meaningful.
    - ii. Add comments to improve your understanding of the code.
    - iii. Write higher level code equivalent to assembly code.
5. Program 4
  - a. Things you should be able to explain/have understood
    - i. Identify which programming construct is used and justify the claim.

- ii. Identify distinguishing characteristics of the construct to be able to identify it later on.
  - b. Things to do
    - i. Rename labels and variables to something more meaningful.
    - ii. Add comments to improve your understanding of the code.
    - iii. Write higher level code equivalent to assembly code.
- 6. Program 5
  - a. Things you should be able to explain/have understood
    - i. `nasm %define macro`.
    - ii. Accessing command line arguments in main.
    - iii. Identifying all possible return values of the program.
  - b. Things to do
    - i. Rename labels and variables to something more meaningful.
    - ii. Add comments to improve your understanding of the code.
    - iii. Write higher level code equivalent to assembly code.