Procedure for running assembly code on MAC

1. **Install Homebrew**

```
/bin/bash -c "$(curl -fsSL
https://raw.githubusercontent.com/Homebrew/install/HEAD/ins
tall.sh)"
```

2. **Install Wine**

```
brew install --cask --no-quarantine wine-stable
```

3. If you are a non intel mac user then the system will ask you to install **rosetta 2**. Install it by following their given command.

4. **Download MASM32**
https://www.masm32.com/download.htm

   Go to the directory by your terminal where you have downloaded the MASM32. This might be a zip file so unzip it first. There should be a "**install.exe**" file. Install that through running the following command.

```
wine install.exe
```

This will take a while and throughout the installation process it will ask you to press many buttons. Keep doing this and after a while MASM32 will be installed. One important reminder is it will ask you to **choose a directory between C and Z. Select C.**

5. Enter "**winecfg**" in your terminal. It will open a gui. Go to application. Click on Add Application. Go into the masm folder. Then go into the bin folder. Select **ml.exe** file. Click on Open. Then enter Ok.

6. Type wine regedit on terminal. Go to **HKEY_CURRENT_USER**. Then go to the **environment** option. Create a new **string value** named "**PATH**" by right clicking on the **environment** option. The value of this string will be "**C:\masm32\bin;**". This is the path to your masm in your wine system.

7. You are all set now to run a masm code on your MAC. I figured out an issue with the code given in the Lab Manual i.e. I need to add a "**main**" keyword at the end of the .asm code after "**end**" keyword. Otherwise it gives errors.

8. Create a .asm file suppose I created main.asm with the following code.

```
.686 ; Pentium or below processors
.model flat, c
include C:\masm32\include\msvcrt.inc
includelib C:\masm32\lib\msvcrt.lib

.stack 100h
printf PROTO arg1:Ptr Byte
.data
msg byte "Hello World", 0Ah, 0
.code
main proc
    INVOKE printf, ADDR msg
```

```
    ret
main endp
end main
```

9. To run the code enter the following commands in your terminal. Make sure your terminal is in the same directory as your .asm file.

```
wine ml.exe /c /coff main.asm
wine link.exe main.obj
wine main.exe
```

10. I got the following output

```
0164:err:environ:init_peb starting
L"Z:\\Users\\abduzzami\\Downloads\\Compiler
4101\\Codes\\Lab 3\\main.exe" in experimental wow64 mode
Hello World
```

Even after that if you encounter any issue feel free to contact me.

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