

# SIC/XE ASSEMBLER

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## Steps to compile and run the ASSEMBLER:

- Download the zip folder containing the assembler.
- Extract the zip folder.
- Open the terminal and navigate to the path of the extracted folder.
- It is advisable to use a WSL or linux environment to run else depending on the version of the software, it may or may not run properly.
- Run the command :

**g++ -std=c++11 pass2.cpp -o assembler.out**

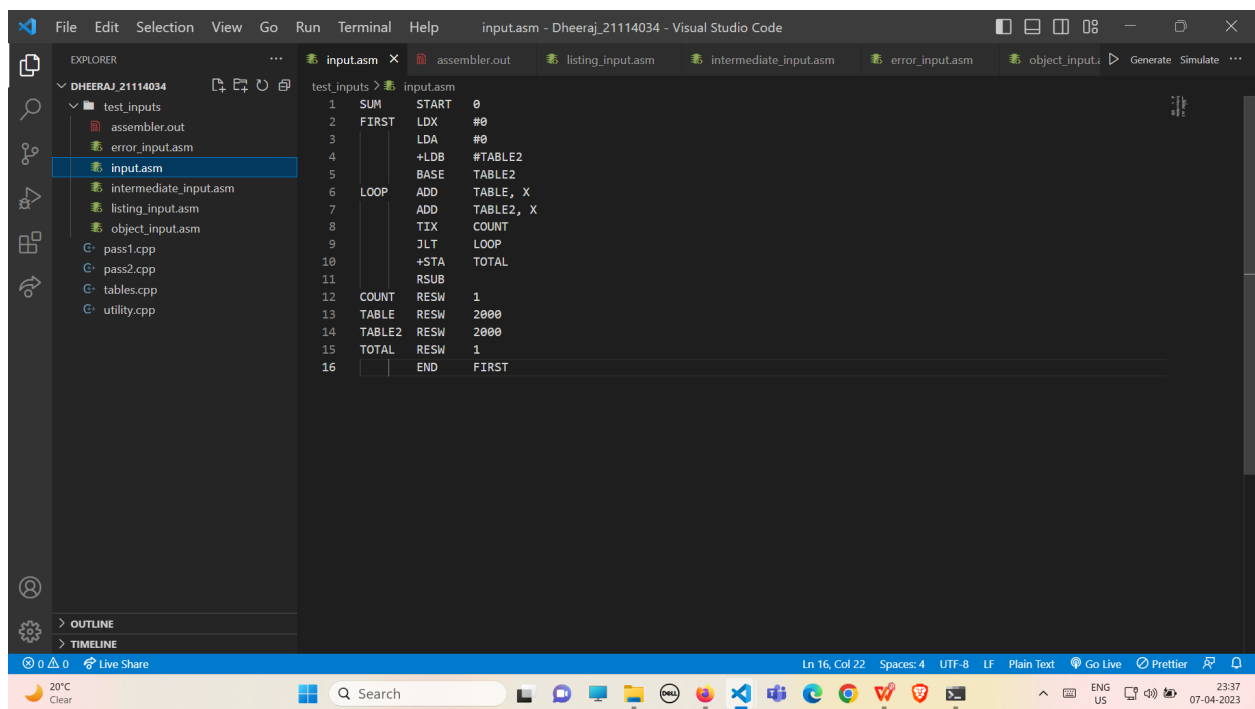
- A file named **assembler.out** will be created in the folder.
- Move the file to the **test\_inputs** folder.
- Navigate to the **test\_inputs** folder.
- Run the command :

**./assembler.out**

- The program to be run should be present in the **input.asm** file.
- Enter the name of the file as **input.asm** .
- The output has been written to the respective files.
- The errors if any will be listed in the file named **error\_input.asm** .

# SAMPLE PROGRAM RUN

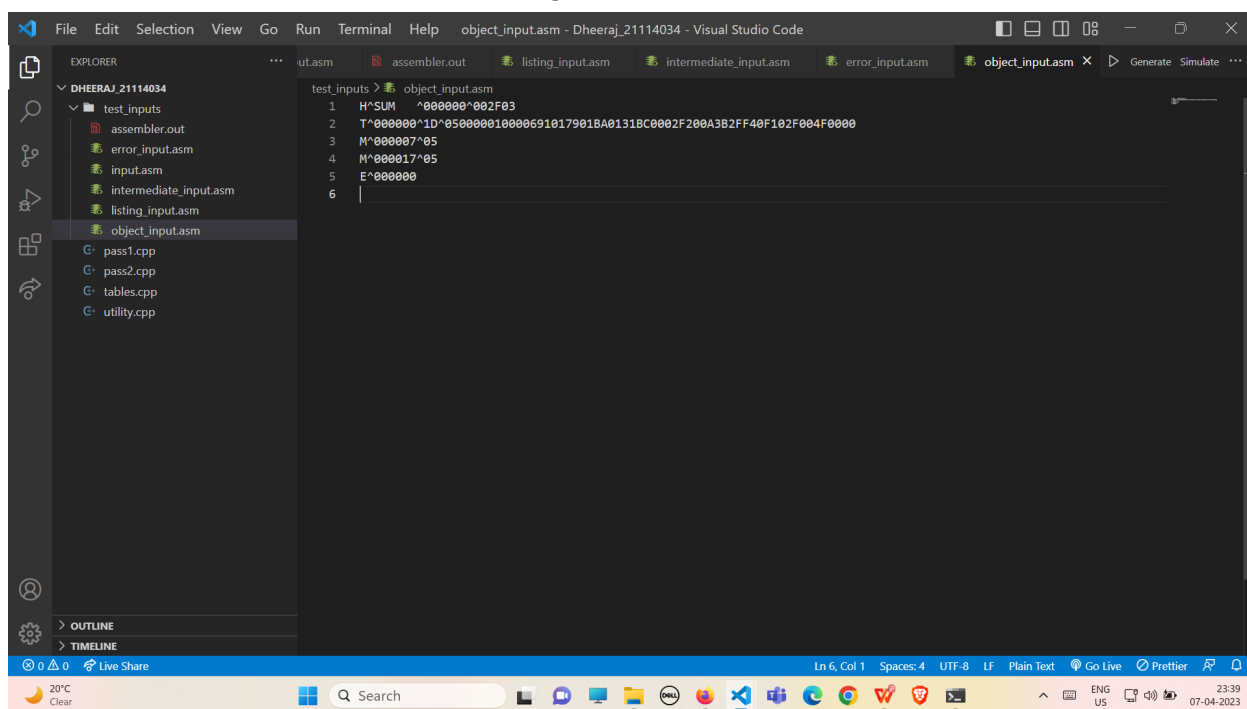
## Input



```
1 SUM      START      0
2 FIRST    LDY         #0
3          LDA         #0
4          +LDB        #TABLE2
5          BASE        TABLE2
6 LOOP     ADD         TABLE, X
7          ADD         TABLE2, X
8          TIX         COUNT
9          JLT         LOOP
10         +STA        TOTAL
11         RSUB
12 COUNT    RESW        1
13 TABLE   RESW        2000
14 TABLE2  RESW        2000
15 TOTAL    RESW        1
16          END        FIRST
```

# OUTPUT

## Object Code



The screenshot shows the Visual Studio Code interface with the file explorer on the left and the editor on the right. The file explorer shows a project named 'DHEERAJ\_21114034' with a subdirectory 'test\_inputs' containing several files, including 'object\_input.asm'. The editor displays the content of 'object\_input.asm', which contains assembly code for a test input. The code is as follows:

```
test_inputs > object_input.asm
1 H*SUM ^000000^002F03
2 T^000000^1D^0500000100006910179018A0131BC0002F200A3B2FF40F102F004F0000
3 M^000007^05
4 M^000017^05
5 E^000000
6
```

The status bar at the bottom indicates the current line is 6, column 1, with 4 spaces, using UTF-8 encoding, LF line endings, and Plain Text format. The system tray shows the temperature is 20°C, the language is set to English (US), and the date is 07-04-2023.

# Other Intermediate Files

## listing\_input.asm

```
1 Line Address Label Opcode Operand ObjectCode Comment
2 5 00000 0 SUM START 0
3 10 00000 0 FIRST LDX #0 050000
4 15 00003 0 LDA #0 010000
5 20 00006 0 +LDB #TABLE2 69101790
6 25 0000A 0 BASE TABLE2
7 30 0000A 0 LOOP ADD TABLE,X 1BA013
8 35 0000D 0 ADD TABLE2,X 1BC000
9 40 00010 0 TIX COUNT 2F200A
10 45 00013 0 JLT LOOP 3B2FF4
11 50 00016 0 +STA TOTAL 0F102F00
12 55 0001A 0 RSUB 4F0000
13 60 0001D 0 COUNT RESW 1
14 65 00020 0 TABLE RESW 2000
15 70 01790 0 TABLE2 RESW 2000
16 75 02F00 0 TOTAL RESW 1
17 80 02F03 0 END FIRST
18
```

# intermediate\_input.asm

The screenshot shows the Visual Studio Code interface with the file 'intermediate\_input.asm' open. The Explorer sidebar on the left shows a project structure with a 'test\_inputs' directory containing several assembly files. The main editor window displays the assembly code for 'intermediate\_input.asm'.

```
test_inputs > intermediate_input.asm
1 Line Address Label OPCODE OPERAND Comment
2 5 00000 0 SUM START 0
3 10 00000 0 FIRST LDX #0
4 15 00003 0 LDA #0
5 20 00006 0 +LDB #TABLE2
6 25 0000A 0 BASE TABLE2
7 30 0000A 0 LOOP ADD TABLE,X
8 35 0000D 0 ADD TABLE2,X
9 40 00010 0 TIX COUNT
10 45 00013 0 JLT LOOP
11 50 00016 0 +STA TOTAL
12 55 0001A 0 RSUB
13 60 0001D 0 COUNT RESW 1
14 65 00020 0 TABLE RESW 2000
15 70 01790 0 TABLE2 RESW 2000
16 75 02F00 0 TOTAL RESW 1
17 80 02F03 0 END FIRST
18
```

The status bar at the bottom indicates the current line and column (Ln 1, Col 1), encoding (UTF-8), and other editor settings. The system tray at the very bottom shows the date and time (23:41, 07-04-2023).