

# First Pass

This is an implementation of the first pass of a two-pass assembler for **Intel 8086 Microprocessor**. It builds the Symbol Table for a **.asm** file of an assembly program.

## Getting Started

Follow these instructions to run the software:

1. Add your **.asm** program file in the folder named **docs**.

Name	Date modified	Type	Size
docs	10/29/2018 6:32 PM	File folder	
resources	10/29/2018 9:27 PM	File folder	
src	10/29/2018 9:24 PM	File folder	
firstpass	10/29/2018 9:24 PM	Executable Jar File	20 KB
README.md	10/29/2018 9:22 PM	Adobe Acrobat D...	34 KB

  

Name	Date modified	Type	Size
swap.asm	10/29/2018 5:32 PM	Assembler Source	1 KB

2. Open **firstpass.jar**.

Name	Date modified	Type	Size
docs	10/29/2018 6:32 PM	File folder	
resources	10/29/2018 9:17 PM	File folder	
src	10/29/2018 9:24 PM	File folder	
firstpass	10/29/2018 9:24 PM	Executable Jar File	20 KB
README.md	10/29/2018 9:22 PM	Adobe Acrobat D...	34 KB

3. Enter the name of your file. (eg. swap.asm)

(You can use the filename of files already present in docs folder)

## Two Pass Assembler

Enter File Name :

swap.asm

**START PASS 1**

4. Click on **START PASS 1**.
5. If there are no errors, click on **SHOW SYMBOL TABLE**.

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## Two Pass Assembler

Enter File Name :

./docs/swap.asm

**Pass 1 successful!**

**SHOW SYMBOL TABLE**

**LOAD ANOTHER FILE**

The symbol table gets displayed.

NAME	OFFSET	SIZE	TYPE	SEGMENT
DATA	0	-5	SEGMENT	(ITSELF)
MYARRAY	0	1	VAR	DATA
SIZE	5	1	VAR	DATA
SUM	6	1	VAR	DATA
CODE	1	-5	SEGMENT	(ITSELF)
REPEAT	11	-1	LABEL	CODE

- Click on **LOAD ANOTHER FILE** to build symbol table for another file.

To view source code open folder named **src**.

It contains 6 files:

- Main.java
- Pass1.java
- AddressingModesHelper.java
- AssemblerDirectiveTable.java
- MachineInstructionTable.java
- SymbolTable.java

## Prerequisites

- JAVA Runtime Environment

## Supported Instructions

Programs that include one or more of the following instructions are supported.

- MOV

- LDS
- LEA
- LES
- XCHG
- ADD
- ADC
- SUB
- SBB
- CMP
- INC
- DEC
- MUL
- IMUL
- DIV
- IDIV
- DAA
- DAS

## Supported Directives

Programs that include one or more of the following directives are supported.

- DB
- DW
- DD
- ASSUME
- END

- ENDS
- SEGMENT
- HLT

## Supported Addressing Modes

Programs that include one or more of the following addressing modes are supported.

- Immediate - ( eg. ADD AX, 100H )
- Direct - ( eg. MOV AX, [1592H] )
- Register - ( eg. ADD BX, AX )
- Register Indirect - ( eg. MOV AX, [BX] )
- Register Relative - ( eg. ADD AX, [BX + SI] )
- Based Indexed - ( eg. MOV AX, [BX + 7] )
- Relative Based Indexed - ( eg. ADD AX, [BX + SI + 7] )