Government Engineering College, Thrissur

CS331 – System Software Lab

Documentation -

Exp 10 – Single Pass Assembler

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Experiment 10

AIM

Implement a single pass assembler

Compiling of Code

Prerequisite

- The code is provided in the **pass.c** along with this documentation. You can open the terminal in Linux (Ubuntu 18.04 tested). Then run the command

  gcc program.c

  ./a.out

- Compile and run **pass.c** using the above code.
- We have **two** input files. One is *optab.txt* which denote the OPTAB of the assemblers. Also most importantly the source code is stored in the *input,txt.* Note in reality this file will be of *.asm extension. For the simplicity here we use *.txt extension

  1. *optab.txt:* It stores the operation codes allowed in the assembly language. Format for the input is

     <Opcode (String)> <Tab> <Hex Code corresponding to opcode (String)>

  2. *input.txt:* We store the assembly language in this file. The assembly language used is SIC (Simple Instruction Computer)

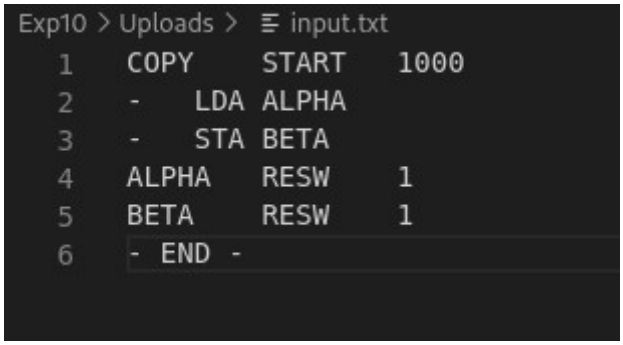
- There are **three** output files *symtab.txt, output.txt and result.txt*
- symtab.txt: Contains the information related to the symbols used in the source code (input.txt)
- output.txt: Contains the information pertaining to opcode, address of opcode and symbols. This file is used to generate the resulting object code
- result.txt: In this file we store the object code. The contents of this file is also shown in console. *In actual assembler there will not be'^' symbol used. For the better demonstration we have used ^ symbol for separating the columns of each record.*

P. T. O

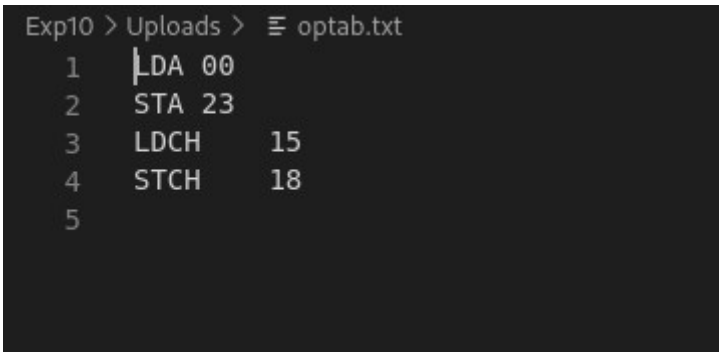
Output / Screenshots

Input

1) input.txt

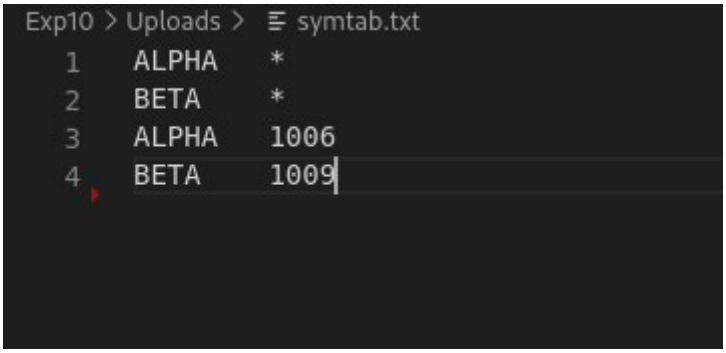


2) optab.txt

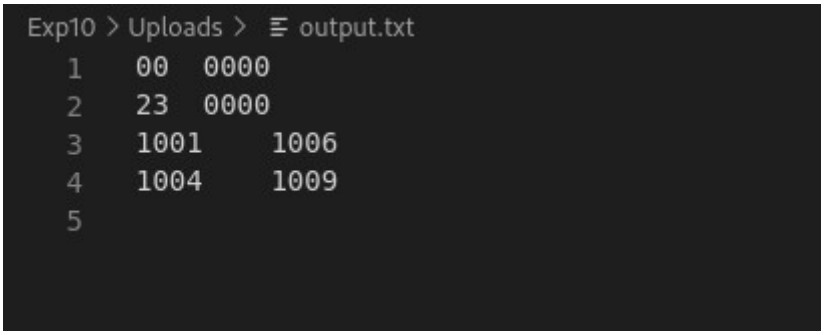


Output

1) symtab.txt



2) output.txt



3) result.txt

Exp10 > Uploads > result.txt

```
1  H^COPY^1000^0c
2  T^001000^0c^000000^230000
3  T^1001^02^1006
4  T^1004^02^1009
5  E^001000
```

4) Output in console

```
[hp@localhost Uploads]$ ./a.out
H^COPY^1000^0c
T^001000^0c^000000^230000
T^1001^02^1006
T^1004^02^1009
E^001000
```