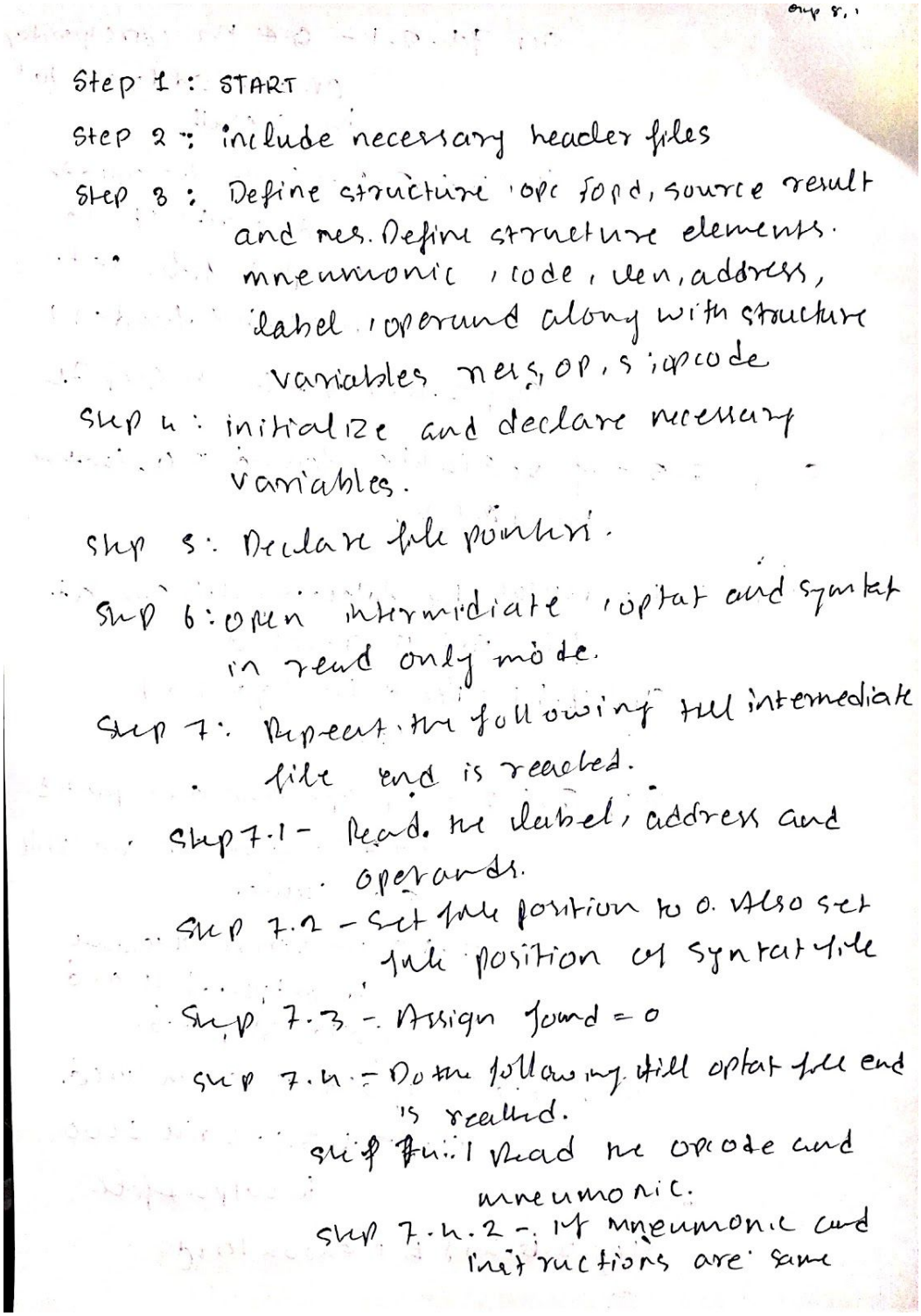
Experiment 5 **Surya Narayanan**

Pass two of two pass assembler

s5 csb 48



Step 1 : START

Step 2 : include necessary header files

Step 3 : Define structure opc found, source result and nes. Define structure elements. mnemonic, code, len, address, label, operand along with structure variables nes, op, s ; opcode

Step 4 : initialize and declare necessary variables.

Step 5 : Declare file pointers.

Step 6 : open intermidiate, optab and symtab in read only mode.

Step 7 : Repeat the following till intermediate file end is reached.

Step 7.1 - Read the label, address and operands.

Step 7.2 - Set file position to 0. Also set file position of symtab file

Step 7.3 - Assign found = 0

Step 7.4 - Do the following till optab file end is reached.

Step 7.4.1 Read the opcode and mnemonic.

Step 7.4.2 - If mnemonic and instructions are same

Step 7.4.2.1 – ~~Get~~ the corresponding opcode address to the result.

Step 7.4.2.2 – Copy the opcode and write it to output file. set variable found as 1

Step 7.4.2.3 – Go to Step 7.6.

Step 7.5 – If variable found is 0, continue the process.

Step 7.6 – Repeat the following till Symtab file end is reached.

Step 7.6.1 – Read the Symtab contents.

Step 7.6.2 – If operand and pointed by the symtab variable are same.

Step 7.6.2.1 – write the same to output file and go to Step 7.6.

Step 7.6.3 If ** is encountered.

Step 7.6.3.1 – write 0000 to output file.

Step 7.6.4 If # is encountered

Step 7.6.4.1 - copy the operand value to s1 and decrement strlen by 1.

Step 7.6.4.2 - print '0' in result till variable i decrements from 4.

Step 7.6.4.3 - Set j as 1.

Step 7.6.4.4 - work value of s1[j] to output till j<1

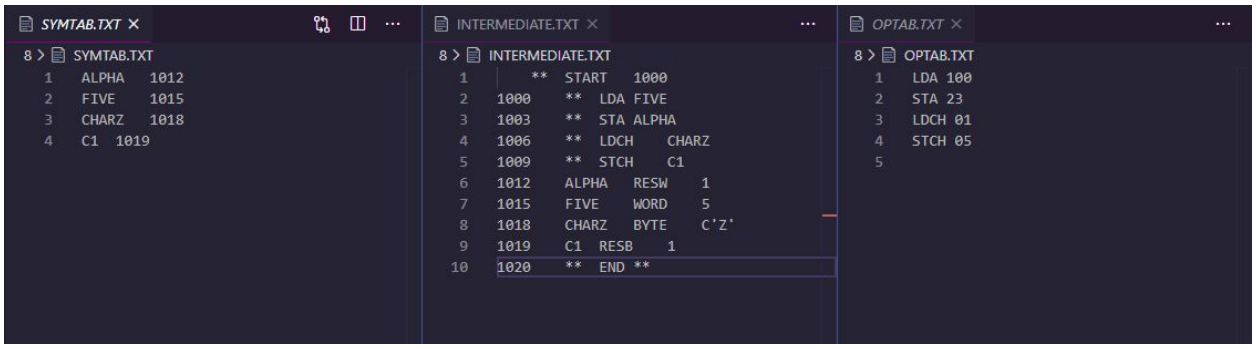
Step 7.6.4.5 - Go to step 7.

Step 8 - Display completion message and close all the files

Step 9 - STOP.

Program

Input



SYMTAB.TXT

```
ALPHA   1012
FIVE    1015
CHARZ   1018
C1  1019
```

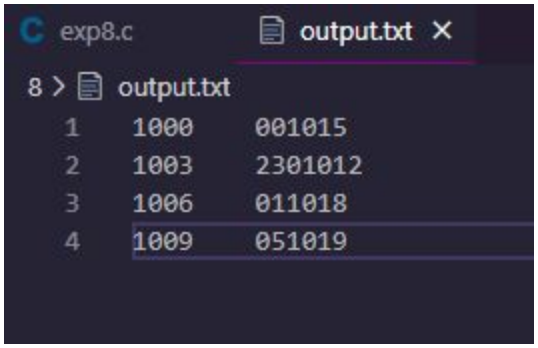
INTERMEDIATE.TXT

```
    **  START   1000
1000    **  LDA FIVE
1003    **  STA ALPHA
1006    **  LDCH    CHARZ
1009    **  STCH    C1
1012    ALPHA   RESW    1
1015    FIVE    WORD    5
1018    CHARZ   BYTE    C'Z'
1019    C1  RESB    1
1020    **  END **
```

OPTAB.TXT

```
LDA 100
STA 23
LDCH 01
STCH 05
```

Output



exp8.c | output.txt

```
1000    001015
1003    2301012
1006    011018
1009    051019
```