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ASSIGNMENT - 1

TITLE :

Design of Pass I of two Pass assembler

AIM :

Design suitable data structure & implement pass I of two pass assembler pseudo machine.

OBJECTIVE :

Design suitable data structure and implement pass I of two pass assemblee pseudo machine subset should consist of a few instruction From each category & few assembler directive.

THEORY :

1. **ASSEMBLER :** Program known as assembler is used to translate assembly language into machine language. The input to an assemble is called the source program and the output is a machine language translation. It converts symbols opcodes to binary. It convert address to binary. Put translated instruction into file as future use.

2. **DESIGN SPECIFICATION OF AN ASSEMBLER :-**

- Identify the information necessary to perform the table.

- Design the suitable data structure to record the information.
- Determine the processing necessary to obtain and manage the information.
- Determine the information necessary to perform the task.

ANALYSIS PHASE :

To determine the address of a particular symbolic name. Fix the address of all element preceding it.

1. Seperate Lable, op code and operand.
2. Build the symbolic table.
3. Perform LC processing.
4. Contruct LC.

SYNTHESIS PHASE :

1. Obtain the machine opcode corresponding to memorise
2. Obtain the adress of memory operand from symbol table.
3. Synthesis the machine instruction.

3 ALGORITHM :

Algorithm for Pass I,

1. loc cntr = 0 ;

2. While next statement is not an END statement
   a) If label is present then
      This label = symbol in label field ;
      Enter in SYMTAB
   b) If a start or origin statement then,
      loc cntr = value specified in operand field.
   c) If an EQU statement then
      i) this address = value of <address spec> ;
      ii) Correct the symtab entry for this label to (this label, this address)

   d) If a declaration statement then
      i) code = code of the declaration statement
      ii) size = size of memory area required by DC / DS
      iii. loccntr = loccntr + size ;

3. Processing of END statement
   a) Generate IC
   b) Go to Pass II

Listing and Error Handling
Listing & Error Handling.

OUTPUT

1 MNEMORIC TABLE

Mnemonic	opcode	length

2. Symbol Table

Symbol	Labls	Address

3. Intermediate form / Final Out put

Address (Location)	opcode	operand 1	operand 2

CONCLUSION : The function of Pass I in assembler are studied along with errors coming in each pass

PLATFORM :- LINUX