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Assignment 2 : Pass II of Two Pass Assembler

* Aim : Write a program to implement pass - II of two pass assembler for output of assignment 1.

* Objectives : i) to study basic translation process of assembly language to machine language.

ii) to study two pass assembly process.

* Outcomes : At end of assignment, students should understand design & implemantation of pass II assembler

* Theory : Data structures required for pass I :

i) source file containing assembly program

ii) MOT : A table of mnemonic opcodes & related information. It has following fields :

a) mnemonic : such as ADD, END, DC
b) type : IS for imperative statement, DL for declarative, AD for assembler directive

c) opcode · operation code indicating operation to be performed

d) length : length of instruction required for location counter processing

iii) LITTAB : stores information about literals in the prog

iv) POOLTAB : stores pointers to the literals in the current literal pool

Data structures used for Pass II

i) OPTAB : A table of mnemonic opcodes & related information

ii) SYMTAB : Symbol table

iii) LITTAB : A table of literals used in the program

iv) IC generated by pass I

v) Output file containing target code, error listing

Opcode	Assembly mnemonic	Remarks
00	STOP	stop execution
01	ADD	first operand modified condition code set
02	SUB	first operand modified condition code set
03	MULT	first operand modified condition code set
04	MOVER	register to memory
05	MOVEM	memory to register
06	COMP	set condition code
07	BC	branch on condition
08	DIV	analogous to SUB
09	READ	first operand is not used
10	PRINT	first operand is not used.

* Conclusion : Thus we have designed & implemented pass 2 of two pass assembler in C++.