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Lab Assignment - 4

Assignment Title: Design of Pass II of Two Pass Macroprocessor.

Aim: Design of pass II of Two Pass Macroprocessor.

Objective: Design suitable data structure & implement pass I of Two Pass Macroprocessor.

Algorithm for Pass II:

- 1] Read Instruction from source program output by pass I divide its field as label mnemonic opcode arguments.
- 2] Search through MNT to find match for opcode of instruction step 1 with macro name MNT.
- 3] /* if no macro call found */ if no match then it indicates that this instruction is not a macro call instruction and then hence:
 - write this instruction to expanded source program
 - check whether opcode of this instruction is END or NOT.
 - If NOT END then it indicates that this is not end of source program & hence go to Step 1
 - If Opcode = then this indicates end of source program and hence give the output pass II i.e. expanded source program to assembler.
- 4] /* if macro name found */ if OPCODE of (instruction read in step 1) = any macro name of MNT then it indicate & hence: this instruction is macro call instruction & hence:
 - Obtain corresponding MDI indent and assign to MDTP
 - ~~Set~~ Setup AIA (for association of integer indicates and actual parameters.
 - MDTP MDTP + 1

- Get next instruction from MDT.
- Substitute actual argument ~~is~~ instead of integer indicate
- If OPCODE of this instruction is not MEND then write this instruction to expand source program
- If OPCODE of this instruction is MEND then go to step 1 again.

Input:

1 Program without macro definition.

```

START
MOVER  AREG S1
MOVER  BREG S1
MCALL  D5  D8
INCR   D2  D1
S1     DC   5
D1     DC   2
D2     DC   3
D5     DC   5
D8     DC   1
END

```

2 Macro definition table

0	INCR	ARG1	ARG2
1	ADD	AREG	ARG1
2	ADD	BREG	ARG2
3	MEND		
4	MCALL	K1	K2
5	SUB	BREG	K1
6	SUB	DREG	K2
7	MEND		

3) Macro Name Table

0 INCR 0

1 MCALL 4

4) Argument List Array

0 &ARG1

1 &ARG2

2 &K1

3 &K2

Output: Expanded Code

START

MOVER AREG S1

MOVER BREG S1

SUB CREG D5

SUB DREG D8

ADD AREG D2

ADD BREG D1

S1 DC 5

D1 DC 2

D2 DC 3

D5 DC 4

D8 DC 1

END

5) Modified ALA

0 &D2

1 &D1

2 &D5

3 &D8

Conclusion: The function of pass II of a 2 pass macroprocessor is ~~stuffed~~ studied along with advanced macro ~~facility~~. facility.

Platform: Linux / windows