## Assignment 3: Macro Processor

- \* Aim: Study assignment for macro processor
- \* Objective: i) To understand macro facility, features and its use in assembly language programming
  - assembly language programming

    ii) Study now macro definition is processed and how macro

    call results in expansion of code.
- \* Outcomes: i) Understood macro facility, features and its use in assembly language programming
  - language programming

    ii) Understood macro definition processing and macro call
    results in the exponsion of code.

## Theory:

- An Assembly language made facility is to extend the set of operations provided in an assembly language.
- In order that programmers can repeat identical parts of their program, macro permits the programmer to define an abbrieviation for a part of program & use this abbreviation in the program.
- For all occurences (macro call) macro processor substitutes the definition

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|         | Macro definition:   |
|---------|---|
|         |   |
|         | - macro prototype statement: declares the name of the macro                                       |
|         | - macro prototype statement: declares the name of the macro & types of parameters.                |
|         |   |
| 14 2 34 | - model statement: assembly language statement is generated during expansion.                     |
|         | auring expansion.   |
|         | - Ose Oscargos statement . Und to restant auxiliary fraction                                      |
|         | - preprocessor statement: used to perform auxiliary function during macro expansion               |
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|         | Danamanaic Spannag  |
| 10.0    | Macro expansion mocro call replaces such statements by sequence                                   |
|         | Macro expansion mocro call replaces such statements by sequence of statement comprising the macro |
|         |   |
|         | Macro facilities:   |
|         | 1 laco lacilides:   |
| 30      | - Use of AIF & AGO allows us to alter the flow of control   |
|         | - Loops can be implemented using expansion time variables.  |
|         |   |
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| •       | Data Structures   |
| al ag   | ) Mars Occides Tue (MOT)  |
|         | i) Macro Definition Table (MDT) ii) Macro Name Table (MNT)  |
| at out  | iii) Parameter Name Table (PNTAB)   |
|         | iv) Expansion Time Variable Name Table (EVNTAB)   |
|         | v) Keyword parameter default table (KPDTAB)   |
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|       | (vi) Sequencing Symbol Table Name (SSNTAB)  vii) Sequencing Symbol Table (SSTAB) |
|-------|--|
|       | vii) Sequencing Symbol Table (SSTAB)   |
| 8074  | selencing plants of sell and only and at   |
|       | xalar croster  |
| *     | Algorithm  |
|       |  |
|       | 1) Initialise SSNTAB & PNTAB Ptr to 0 & fields of MNT                            |
|       |  |
| -     | 2) For macro prototype statement from MNT entry<br>a. Entry name into name field |
|       | a. Entry name into name field  |
| 683   | b. For each position parameter field   |
|       | i. Enter name in parameter name table  |
|       | II Increment PNTAB   |
|       | iii Increment pp by I  |
|       |  |
|       | C. KPDTP < KPDTP-ptrd  |
| LOS   |  |
|       | 3) do  |
|       | begin  |
|       | reod statement   |
|       | a. if ho label has SS then   |
|       | if SS in SSNTAB get index  |
|       | else   |
|       | begin  |
|       | enter ss in SSNTAB   |
|       | SSNTAB PET+  |
|       | Store MDT ptr in SSTAB   |
|       | if model statement then  |
|       | begin  |
|       | increment MPT ptr  |
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|         | if pre-processor statement   |
|---------|--|
|         | begin  |
|         | if AIF & AGO then if SS is already present SS  |
|         | retrieve index   |
|         | Alagatha - entineath   |
|         |  |
| *       | Conclusion. Thus we have studied macro processor in C.   |
|         |  |
|         | 2) For most o probating statement from MINT cottes   |
|         | a. Entry against who women feeth   |
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|         | State amon hatements in terms table  |
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