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| College | R.V. College of Engineering | | |  |
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| Department | Computer Science & Engineering | | |  |
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| Semester & Lab Batch | 6th Semester, B1 Batch | Date of |  | 26-02-2016 |
|  |  | Submission |  |  |
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| Mini Project Title | Two Pass Loader For SIC/XE | | |  |
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**OBJECTIVE:**

To implement a two pass loader for SIC/XE

**INTRODUCTION:**

A loader is a system program that performs the loading functions. Many loaders also support relocation and linking. Some systems have a linker to perform the linking operations and a separate loader to handle relocation and loading. In most cases all the program all the program translators on a particular system produce object programs in the same format. Thus one system loader can be used regardless of the original source programming language.

The input to the 2 pass loader algorithm usually consists of of a set of object programs that are to be linked together.

**METHODOLOGY:**

a)The data structures required are:

ESTAB

i)Stores the name and address of each external symbol in the set of control sections being loaded.

ii)Indicates in which control section the symbol is defined.

iii)Hashed organization is used for this table

The other two important variables are PROGADDR (program load address) and CSADDR (control section address). PROGADDR is the beginning address in memory where the linked program is to be loaded. CSADDR contains the starting address assigned to the control section currently being scanned by the loader.

b) Procedure to implement the given system software

Code in a suitable language will be written to implement the system software. The software will read the input file. During the first pass, the loader processes only the Header and Define record types in the control section. The beginning load address for the linked program (PROGADDR) is obtained from the operating system. This becomes the starting address (CSADDR) for the first control section in the input. All external symbols appearing in the Define record for the control section are entered in ESTAB. At end of Pass 1, ESTAB contains all the external symbols defined in the set of control sections together with the address assigned to each. Pass 2 of the loader performs the actual loading, relocation and linking of the program and loader transfers control to the loaded program to begin execution which is the output.

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