10M17CI171: Software Systems Lab-I

Course Credit: 2
Semester: M.Tech I

Objective:

1.Discuss the importance of algorithms in the problem-solving process.
2. Discuss how a problem may be solved by multiple algorithms, each with different properties.
3. Implement, test, and debug simple recursive functions and procedures.
4. Implement a divide-and-conquer algorithm for solving a problem.
5. Identify the data components and behaviors of multiple abstract data types.
6. Identify the relative strengths and weaknesses among multiple designs or implementations for a problem.

Learning Outcomes:

The students shall acquire the generic skills to design and implement a system software along with analysis of practical aspects.

List of Experiments

S NO	Topics
1	Implement a symbol table with functions to create, insert, modify, search, and display.
2	Implement pass one of a two pass assembler.
3	Implement pass two of a two pass assembler.
4	Implement a single pass assembler.
5	Implementation of Lexical analysis
6	Program for computation of FIRST AND FOLLOW of non-terminals.
7	Write a program to check whether a grammar is left recursive or not, if it is remove left recursion.
8	Implementation of Predictive Parsing Table Construction
10	Implementation of Shift Reduce Parsing
11	Implementation of Operator Precedence Parsing
12	Implementation of LR Parsing
13	Intermediate Code Generation
14	Implementation of Code Generation
15.	Case Studies LINE AND SCREEN EDITOR BOOTSTRAP LOADERS MULTI PASS ASSEMBLERS MACRO PROCESSOR AN ABSOLUTE LOADER. A RELOCATION LOADER. PASS1 OF A DIRECT LINKING LOADER. PASS2 OF A DIRECT LINKING LOADER.

	A TEXT EDITOR.

References

1. A.V. Aho, M.S. Lam, R. Sethi, and J.D. Ullman, Compilers: Principles, Techniques, and Tools, Pearson Education, 2007 (second ed.).
2. K.D. Cooper, and L. Torczon, Engineering a Compiler, Elsevier, 2004.

Evaluation Scheme:

1.	Mid Term Exam (Viva and Written Exam)	20
2.	End term Exam (Viva and Written Exam)	30
3.	Lab Records	5
4.	Regular Assessment (Quality and quantity of experiment performed, Learning laboratory skills, Attendance etc.)	30
5.	Project	15
	Total	**100**