**Bahria University, Lahore Campus**

Department of Computer Science

Lab Journal 07

**(Spring 2024)**

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| Course: | **Compiler Construction – Lab** | Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Course Code: | CSL 323 | Max Marks: 10 |
| Faculty’s Name: | Mr. M Mudassar |  |

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enroll No: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Objective(s):

Upon completion of this lab session, learners will be able to:

* The objective of this exercise is to get you to understand how the Transition Tables are formed from the DFA of a language.

Lab Tasks:

Your lab report is expected to contain the following for each exercise:

* C++ Source Code (any file)
* Screenshot of your output (optional)

## Task 1:

Write a C++ program for lexical analyzer (soft-coded method without using ASCII values) using the DFA and TT formed through below language criteria (completed in previous journal - 6).

Consider the below language and design its Determinsitic Finite Automaton (DFA). The language must consist of the following statements (constructs) and rules:

**Identifiers**: always start with alphabets or underscore, once an alphabet or underscore occurs, then any combination of alphabets, digits, or underscore is allowed.

**Reserve words**: Always starts with $ sign. After $ sign, at-least two alphabets must occur and then any combination of only alphabets can occur.

**Numbers**: cover the whole numbers (like 123, 45, 3, etc.), float numbers (like 1.23, 12.3, 4.567 etc.), and exponential numbers (like 12e^3, 123e^-45, 456e^+7, 245e^67 etc.). A separate token would be generated for each type of number.

**Operators**: cover at-least ten operators of your own choice (e.g., +, ++, \*, /, -, --, <, >, etc.).

**Comments**: Both single line and multiline comments.

**Note**: you may draw your DFA on any page on which you feel comfortable and easier to design.

**Lab Grading Sheet :**

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| --- | --- | --- | --- |
| **Task** | **Max Marks** | **Obtained Marks** | **Comments(*if any*)** |
| 1. | 10 |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **Total** | **10** |  | **Signature** |

**Note: Attempt all tasks and get them checked by your Lab Instructor.**