**Bahria University, Lahore Campus**

Department of Computer Science

Lab Journal 10

**(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 two dimensional array and enums formed from the Transition Tablesto code for 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 using ASCII values) by considering the DFA and TT.

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.**