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| --- | --- |
| **Total Marks:** | **04** |
| **Obtained Marks:** |  |

**Finite Automata Theory and Formal Languages**

**Assignment # 02**

**Last date of Submission: 24 Oct 2024**

**Submitted To: Muhammad Nadeem Khokhar**

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**Student Name: Ubaid Bin Waris**

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***Instructions****: Copied or shown assignments will be marked zero. Late submissions are not entertained in any case.*

**Question**

Based on the provided transition diagram, construct the corresponding transition table and implement the finite automaton (FA) using the transition table. Test the implementation by running the FA with the input strings "abbba" and "ab," and provide screenshots of the runtime output during the testing process.



**Note:**

1. Change the filename to your ID, e.g. 2073105.doc
2. Upload the .doc on Google Classroom.
3. Do not use system calls.
4. Make sure that the output screen does not have colored/black background.
5. Poor indentation and wrong format will result in deduction of marks.

**Solution**

**Transition table**

|  |  |  |
| --- | --- | --- |
| **OLD state** | **New State** | |
| **A** | **B** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**CODE**

#include <iostream>

using namespace std;

int main()

{

int a[4][2] = { {1, 2},

{3, 1},

{2, 2},

{2, 2} };

int index = 0;

int current\_state = 0;

string language;

cout << "Enter string : ";

cin >> language;S

while (index != language.length())

{

if (language[index] == 'a')

{

current\_state = a[current\_state][0];

}

else if (language[index] == 'b')

{

current\_state = a[current\_state][1];

}

else

{

cout << "string contains invalid characters ! ! ! ";

return 0;

}

index++;

}

if (current\_state == 3)

{

cout << "String Accpected > > > " << endl;

}

else

{

cout << "string NOT Accpected ! ! ! " << endl;

}

}

**Output**



