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**BS Computer Engineering**

**Structures of Programming Languages**

DFA:

W contains at most 5 occurrence of b: (a\*ba\*+ a\*ba\*ba\*+a\*ba\*ba\*ba\*+a\*ba\*ba\*ba\*ba\*+a\*ba\*ba\*ba\*ba\*ba\*)

**(a )**

**a**

**a**

**a**

**a**

**b**

**b**

**b**

**q4**

**q3**

**q2**

**q1**

**(a)**

**a**

**q5**

**qo**

**q6**

**a**

**(a,b)**

|  |  |  |
| --- | --- | --- |
| **state (q)** | **a** | **b** |
| 0 | 0 | 1 |
| 1 | 1 | 2 |
| 2 | 2 | 3 |
| 3 | 3 | 4 |
| 4 | 4 | 5 |
| 5 | 5 | 5 |
| 6 | 6 | 6 |

// spl code 1st.cpp : Defines the entry point for the console application.

//

#include "stdafx.h"

#include <iostream>

#include <cstring>

using namespace std;

int \_tmain(int argc, \_TCHAR\* argv[])

{

int j=0, state=0;

int table[7][2] = { {0,1}, {1,2}, {2,3}, {3,4} , {4,5}, {5,6}, {6,6} };

int input;

int flag = 0;

char st[100];

gets(st);

while (st[j] != '\0' && (st[j] == 'a' || st[j] == 'b') )

{

switch(st[j])

{

case 'a' :

input=0;

break;

case 'b' :

input=1;

break;

}

state = table[state][input];

// just wanna check the state in every character

// cout<<st[j]<<" State "<<state<<endl;

j++;

if(state==0|| state==5 || state==1 || state==2 || state==3 || state==4)

{

flag=1;

}

else {flag=0;}

}

if(flag == 1)

{

cout<<"Accepted"<<endl;

}

else

{

cout<<"Not Accepted"<<endl;

}

return 0;

}