#include<iostream>

using namespace std;

main()

{

int j=0, state=0;

int table[9][2]= { {5,1},{2,1},{3,2},{3,4},{4,4},{5,6},{6,7},{8,7},{8,8} };

int input;

int flag=0;

char st[10];

cin>>st;

while ( st[j]!='\0')

{

switch( st[j])

{

case 'a' : input = 0; break; //columun

case 'b' : input = 1; break; //columun

}

state = table[state][input];

if(state==4 || state==8)

{

flag = 1;

break;

}

j++;

}

if ( flag==1)

{

cout<<"Accepted";

}

else

{

cout<<"Not Accepted" ;

}

return 0;

}

**Gulay, Bernadeth B.**

**BS Computer Engineering**

**Structures of Programming Languages**

DFA:

Both ba & ab as substrings: (a+b)\*ba(a+b)\*ab(a+b)\* + (a+b)\*ab(a+b)\*ba(a+b)\*

**(a , b)**

**a**

**b**

**b**

**a**

**a**

**b**

**b**

**q4**

**q3**

**q2**

**q1**

**(a , b)**

**b**

**a**

**a**

**a**

**a**

**b**

**b**

**q7**

**q8**

**q6**

**q5**

**qo**

|  |  |  |
| --- | --- | --- |
| **state (q)** | **a** | **b** |
| 0 | 5 | 1 |
| 1 | 2 | 1 |
| 2 | 3 | 2 |
| 3 | 3 | 4 |
| 4 | 4 | 4 |
| 5 | 5 | 6 |
| 6 | 6 | 7 |
| 7 | 8 | 7 |
| 8 | 8 | 8 |