**Automata Formal Language and Logic**

**Assignment 1**

**30 Oct 2021**

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# **Simulate a DFA of minimum 5 states in a language of our choice**

L={every ‘a’ followed by a ‘bb’} for w={a,b}

**CODE:**

import automata

def start(c):

if (c == 'b'):

dfa = 0

elif (c =='a'):

dfa = 2

else:

dfa = -1

return dfa

def state1(c):

if (c == 'a'):

dfa = 4

elif (c == 'b'):

dfa = 2

else:

dfa = -1

return dfa

def state2(c):

if (c == 'a'):

dfa = 4

elif (c == 'b'):

dfa = 3

else:

dfa = -1

return dfa

def state3(c):

if (c == 'a'):

dfa = 1

elif (c == 'b'):

dfa = 3

else:

dfa = -1

return dfa

def state4(c):

if (c == 'a'):

dfa = 4

elif (c == 'b'):

dfa = 4

else:

dfa = -1

return dfa

def isAccepted(String):

l=len(String)

dfa = 0

for i in range(l):

if (dfa == 0):

dfa = start(String[i])

elif (dfa ==1):

dfa = state1(String[i])

elif (dfa ==2):

dfa = state2(String[i])

elif (dfa ==3):

dfa = state3(String[i])

elif (dfa ==4):

dfa = state4(String[i])

else:

return 0

if(dfa == 0 or dfa == 3):

return 1

else:

return 0

**Driver Code:**

1. **Accepted**

if \_\_name\_\_ == "\_\_main\_\_":

String = "abbabb"

if (isAccepted(String)):

print("String Accepted by DFA")

else:

print("String not Accepted by DFA")

Graphical user interface, text

Description automatically generated

if \_\_name\_\_ == "\_\_main\_\_":

String = "b"

if (isAccepted(String)):

print("String Accepted by DFA")

else:

print("String not Accepted by DFA")

Text

Description automatically generated

1. **Not Accepted**

if \_\_name\_\_ == "\_\_main\_\_":

String = "abbabbab"

if (isAccepted(String)):

print("String Accepted by DFA")

else:

print("String not Accepted by DFA")

Graphical user interface, text, application

Description automatically generated

if \_\_name\_\_ == "\_\_main\_\_":

String = "abbbab"

if (isAccepted(String)):

print("String Accepted by DFA")

else:

print("String not Accepted by DFA")

Graphical user interface, text

Description automatically generated