WEEK - 12

**Name – Aditya Mishra**

**Reg. No. – RA2111003011817**

**Section – M2**

**DFA**

QUESTION 1:

Write a automata code for the Language that accepts all and only those strings that contain 001

**CODE:**

from automata.fa.dfa import DFA dfa = DFA(

states={'q0', 'q1', 'q2', 'q3'}, input\_symbols={'0', '1'},

transitions={

'q0': {'0': 'q1', '1': 'q0'},

'q1': {'0': 'q2', '1': 'q0'},

'q2': {'0': 'q2', '1': 'q3'},

'q3': {'0': 'q3', '1': 'q3'}

},

initial\_state='q0', final\_states={'q3'}

)

for i in range(1,4):

num = input("Enter the string :") if(dfa.accepts\_input(num)):

print("Accepted") else:

print("Rejected")

**OUTPUT:**

Enter the string :1001

Accepted

Enter the string :010101

Rejected

**NFA**

**QUESTION 2:**

Write a automata code for L(M)= a + aa\*b + a\*b.

**CODE:**

from automata.fa.nfa import NFA

# NFA which accepts strings that ends with '01'

nfa = NFA(

states={'q0', 'q1', 'q2','q3','q4'},

input\_symbols={'a', 'b'},

transitions={

'q0': {'a': {'q1', 'q2'}},

'q1': {'a': {'q2','q4'},'b':{'q4'}},

'q2': {'a': {'q2'},'b':{'q3'}},

'q3': {},

'q4': {}

},

initial\_state='q0',

final\_states={'q1','q3'}

)

for i in range(1,6):

num = input("Enter the string :")

if (nfa.accepts\_input(num)):

print("Accepted")

else:

print("Rejected")

**OTPUT:**

Enter the string :a

Accepted

Enter the string :aab

Accepted

Enter the string :baba

Rejected