

QUIZ 1

COMP9021 PRINCIPLES OF PROGRAMMING

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$ python3
...
>>> from quiz_1 import *
>>> transitions_1 = ('q0', 0): 'q1', ('q1', 1): 'q0'
>>> describe_automaton(transitions_1)
When in state "q0" and processing "0", automaton's state becomes "q1".
When in state "q1" and processing "1", automaton's state becomes "q0".
>>> transitions_2 = ('state_1', 0): 'state_2', ('state_1', 1): 'state_1',\
...                 ('state_2', 0): 'state_1', ('state_2', 1): 'state_2'
>>> describe_automaton(transitions_2)
When in state "state_1" and processing "0", automaton's state becomes "state_2".
When in state "state_1" and processing "1", automaton's state becomes "state_1".
When in state "state_2" and processing "0", automaton's state becomes "state_1".
When in state "state_2" and processing "1", automaton's state becomes "state_2".
>>> transitions_as_dict(['q0,0:q1', 'q1,1:q0'])
{('q0', 0): 'q1', ('q1', 1): 'q0'}
>>> transitions_as_dict(['state_1,0:state_2', 'state_1,1:state_1',\
...                     'state_2,0:state_1', 'state_2,1:state_2'])
{('state_1', 0): 'state_2', ('state_1', 1): 'state_1', ('state_2', 0): 'state_1',
... ('state_2', 1): 'state_2'}

>>> accepts(transitions_1, '00', 'q0', 'q1')
False
>>> accepts(transitions_1, '2', 'q0', 'q0')
False
>>> accepts(transitions_1, '0101010', 'q0', 'q0')
False
>>> accepts(transitions_1, '01010101', 'q0', 'q0')
True
>>> not accepts(transitions_1, '01', 'q0', 'q1') and\
....     accepts(transitions_1, '010', 'q0', 'q1')
True
>>> accepts(transitions_2, '011', 'state_1', 'state_1')
False
>>> accepts(transitions_2, '001110000', 'state_1', 'state_1')
True
>>> accepts(transitions_2, '1011100101', 'state_1', 'state_1')
True
>>> accepts(transitions_2, '10111000101', 'state_1', 'state_1')
False
```