#CPSC475 Dr.DePalma Fall 2016 asgn4

#Finite State Transducer of Soundex

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#

#To run on linux, go to your terminal then go to the directory in which

# this program is stored. Then type "python asgn4.py" in the command line

#This should execute the program

#########################

# State Manager

#

# This iterates through the input string to feed the FST

# characters

# There are 4 'main' states for the 4 different output

# each of which has other states for the various

# character values they can have

def StateManager(initialString):

i = 1

print(firstLetter(initialString))

length = len(initialString)

stateCounter = 0

pos = 1

digitState = 1

while digitState != 4:

if pos < length:

char = initialString[pos]

if digitState == 1:

digitState = digitState + firstDigit(char, stateCounter)

pos = pos + 1

elif digitState == 2:

digitState = digitState + secondDigit(char, stateCounter)

pos = pos + 1

elif digitState == 3:

digitState = digitState + thirdDigit(char, stateCounter)

pos = pos + 1

else:

digitState = digitState + 1

############################

# First Digit

#

# This prints the first digit. Since I cannot keep track of previous

# digits, each digit is a state in the machine

def firstDigit(char, stateCounter):

if transition(char) == stateCounter:

stateCounter = 0

else:

stateCounter = transition(char)

if stateCounter != 0:

print(stateCounter)

return 1

return 0

############################

# Second Digit

#

# This prints the second digit. Since I cannot keep track of previous

# digits, each digit is a state in the machine

def secondDigit(char, stateCounter):

if transition(char) == stateCounter:

stateCounter = 0

else:

stateCounter = transition(char)

if stateCounter != 0:

print(stateCounter)

return 1

return 0

############################

# Third Digit

#

# This prints the third digit. Since I cannot keep track of previous

# digits, each digit is a state in the machine

def thirdDigit(char, stateCounter):

if transition(char) == stateCounter:

stateCounter = 0

else:

stateCounter = transition(char)

if stateCounter != 0:

print(stateCounter)

return 1

return 0

############################

# State Transition

#

# Depending on the character, the machine can go to various states

def transition(char):

x = 0;

if char in 'aeiouwyAEIOUWY':

x = 0

elif char in 'bfpvBFPV':

x = 1

elif char in 'cgjkqsxzCGJKQSXZ':

x = 2

elif char in 'dtDT':

x = 3

elif char in 'lL':

x = 4

elif char in 'mnMN':

x = 5

elif char in 'rR':

x = 6

return x

#############################

# Transiton 0

#

# Prints the first letter

def firstLetter(initialString):

return initialString[0]

def main():

StateManager(raw\_input("Type in a name: \n"))

main()

