**Andrew Wang**

**Homework 8**

1. **Code:**

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

# Author: Andrew Wang

# Date: 11/03/2019

# This programs that create a dictionary containing course numbers and room numbers of the rooms there the courses meet.

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

#Main function

def main():

#Room number for each course

room\_num = {'CS101':'3004','CS102':'4501','CS103':'6755','NT110':'1244','CM241':'1411'}

#Instructor for each course

instructor = {'CS101':'Haynes','CS102':'Alvarado','CS103':'Rich','NT110':'Burke','CM241':'Lee'}

#Meeting time for each course

meet\_time = {'CS101':'8:00 a.m.','CS102':'9:00 a.m.','CS103':'10:00 a.m.','NT110':'11:00 a.m.','CM241':'1:00 a.m.'}

#Allows user to input course number

course\_num = str(input('Enter a course number: '))

#If statement to print out the details of course

if course\_num in room\_num:

print('The details for course ' +course\_num+ ' are:')

print('Room: ' +room\_num[course\_num])

print('Instructor: '+instructor[course\_num])

print('Time: '+meet\_time[course\_num])

else:

print(course\_num+ ' is an invalid course number.')

#Calls main function

main()

**Output:**

A screenshot of a cell phone

Description automatically generated

1. **Code:**

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

# Author: Andrew Wang

# Date: 11/03/2019

# This programs reads two different text files and compares in different ways as in the frequency of each words,

# the words that appears in both files, and the words that appear in either file but not both.

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

#Main function

def main():

punc = '''!()-[]{};:'"\,<>./?@#$%^&\*\_~'''

word\_set1 = xian1(punc)

word\_set2 = xian2(punc)

commonandeither(word\_set1, word\_set2)

#Function that reads xian1.txt

def xian1(punc):

#Opens and reeads the file

xian\_1 = open('xian\_1.txt', 'r',encoding='utf8',errors="ignore")

out\_file1 = open('word\_freqeuncy\_1.txt', 'w')

line1 = xian\_1.readlines()

#Initializing variable

word\_list1 = []

word\_set1 = set()

word\_dir1 = {}

#For loop that removes punctuation, changes to lowercase, and put sentence into a list

for i in range(len(line1)):

line1[i] = line1[i].rstrip('\n')

line1[i] = line1[i].lower()

for word in punc:

line1[i] = line1[i].replace(word, '')

#For loop that get a single list with all the words in the file

for i in range(len(line1)):

current\_line = line1[i].split()

word\_list1.extend(current\_line)

word\_set1.update(word\_list1)

#For loop that gets unique word set in the file

for key in word\_set1:

count = word\_list1.count(key)

word\_dir1[key] = count

#For loop that get directiory which keys is words and value is frequency of the word

out\_file1.write('Word: Frequency\n')

for key in word\_dir1:

current\_line = key + ': ' + str(word\_dir1[key]) + '\n'

out\_file1.write(current\_line)

xian\_1.close()

out\_file1.close()

return word\_set1

#Function that reads xian2.txt

def xian2(punc):

#Opens and reeads the file

xian\_2 = open('xian\_2.txt', 'r',encoding='utf8',errors="ignore")

out\_file2 = open('word\_freqeuncy\_2.txt', 'w')

line2 = xian\_2.readlines()

#Initializing variable

word\_list2 = []

word\_set2 = set()

word\_dir2 = {}

#For loop that removes punctuation, changes to lowercase, and put sentence into a list

for i in range(len(line2)):

line2[i] = line2[i].rstrip('\n')

line2[i] = line2[i].lower()

for word in punc:

line2[i] = line2[i].replace(word, '')

#For loop that get a single list with all the words in the file

for i in range(len(line2)):

current\_line = line2[i].split()

word\_list2.extend(current\_line)

word\_set2.update(word\_list2)

#For loop that gets unique word set in the file

for key in word\_set2:

count = word\_list2.count(key)

word\_dir2[key] = count

#For loop that get directiory which keys is words and value is frequency of the word

out\_file2.write('Word: Frequency\n')

for key in word\_dir2:

current\_line = key + ': ' + str(word\_dir2[key]) + '\n'

out\_file2.write(current\_line)

xian\_2.close()

out\_file2.close()

return word\_set2

#Function that finds the common\_words and eitherbutnotboth

def commonandeither(word\_set1, word\_set2):

#Finds intersection and symmetric difference

common\_words = word\_set1 & word\_set2

eitherbutnotboth = word\_set1 ^ word\_set2

#Creates file for writing

common\_file = open('common\_words.txt', 'w')

either\_file = open('eitherbutnotboth.txt', 'w')

#For loop that writes common\_words into file

for i in common\_words:

common\_file.write(str(i) + '\n')

#Writes eitherbutnotboth into file

either\_file.write(str(eitherbutnotboth))

common\_file.close()

either\_file.close()

#Calls main function

main()

1. **Code:**

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

# Author: Andrew Wang

# Date: 11/03/2019

# This programs reads this file and allows user to enter a year which the program will print out the team

# that won the worlds series that year and how many time they've won since 1903 - 2009

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

#Main function

def main():

#Reads the file

ww\_winner = open('WorldSeriesWinners.txt','r')

line = ww\_winner.readlines()

#Initializing variables

team = {}

team\_win = set()

team\_win\_d = {}

count = 0

#Creates a list with new line removed

for i in range(len(line)):

line[i] = line[i].rstrip('\n')

#Creates a dictionary that correspondes year with winning team

for i in range(len(line) + 2):

dict\_year = i + 1903

if dict\_year == 1904 or dict\_year == 1994:

team[dict\_year] = None

line.insert(i, None)

else:

team[dict\_year] = line[i]

#Creates a dictionary that counts how many times each team have won

team\_win.update(line)

for key in team\_win:

wins = line.count(key)

team\_win\_d[key] = wins

#Allows user to input year

year = int(input('Enter a year in the range 1903-2009: '))

#If statement that determines the user inputted year and the winning team of that year

if year >= 1903 and year <= 2009:

if year == 1904 or year == 1994:

print('The world series wasn\'nt played in the year %d' %year)

else:

win\_team = team.get(year)

for v in team.values():

if v == win\_team:

count += 1

print('The team that won the world series in %d is the %s.' %(year, win\_team))

print('They won the world series %d times.' %count)

else:

print('The data for year %d is not included in our database.' %year)

ww\_winner.close()

#Calling main function

main()

**Output:**

**A screenshot of a social media post

Description automatically generated**

1. **Code:**

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

# Author: Andrew Wang

# Date: 11/03/2019

# This programs creates a dictionary that contains U.S state as key and capital as values and the program randomly

# quizes the player the state's capital and keep count the number of times the user is correct and incorrect

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

import random

#Main function

def main():

#Open and reads file

us\_s = open('us\_state.txt', 'r')

us\_c = open('us\_cap.txt', 'r')

line\_s = us\_s.readlines()

line\_c = us\_c.readlines()

#Initializing variables

us\_sc = {}

correct = 0

incorrect = 0

#Creating a list for state and capital and combining into dictionary

for i in range(len(line\_s)):

line\_s[i] = line\_s[i].rstrip('\n')

line\_c[i] = line\_c[i].rstrip('\n')

us\_sc[line\_s[i]] = line\_c[i]

#While loop that keeps quizing the user

while True:

index = random.randint(0, len(line\_s) - 1)

#Allows user to input the answer to the question

question = str(input('What is the capital of ' +line\_s[index]+ '? (or enter 0 to quit): '))

#If statement that breaks when user enter 0

if question == '0':

break

else:

#Retrives the correct answer

capital = us\_sc.get(line\_s[index])

#If statement that determines if the user is correct and keeps count

if question == capital:

print('You are correct.')

correct += 1

else:

print('You are incorrect.')

incorrect += 1

print('You had %d correct responses and %d incorrect responses.' %(correct, incorrect))

us\_state.close()

us\_cap.close()

#Calling main function

main()

**Output:**

**A screenshot of a cell phone

Description automatically generated**