**CS3723 Pgm 5 Python (20 pts)**

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**Business Problem:**

You have been tasked by a business to match customer addresses in preparation for an address change. Due to the business using many purchased software packages, the *same* address might be stored in multiple databases. The different systems store addresses differently (number of lines and size of a line). Some of the systems have zip+4 (10 characters including the dash); whereas, others just have 5 digits.

**Summary of Program 5 versus Program 6**

In program 5, you will read data from a file that contains command text lines and show the addresses in a readable style. In program 6, you will classify the parts of an address and then match the addresses for a customer.

**Program Requirements**

1. You will be provided an input file. Your program should be passed the name of that file as a command argument. Due to the business' potential to have millions of customers and many more addresses, it isn't feasible to use Python's capabilities to read all the data into memory at once. Instead, you **must read individual textlines using file.readline().**
2. Input (see the sample data below) will be multiple text lines per customer in the following format:

CUSTOMER customerName

ADDRBEG

LINE streetLine1

... (possibly multiple LINE commands for an address)

CITY city

STATE stateCD

ZIP zipCode (might be zip+4)

ADDREND

... (possibly multiple ADDRBEGIN ... ADDREND combinations for a customer)

CUSTOMEREND

There may be multiple street address lines ("LINE" commands) for an address. Concatenate them together with a space between the lines.

You may assume all data is uppercase.

1. Your Python source code must be separated into two files:

**p5Driver.py** validates the number of command arguments, opens the file (using the command argument), and contains the major input loop for customers. It invokes getAddress(*file*), prints a customer's name, and invokes printAddress (*addressD*, *addressNr*).

**address.py** contains two functions:

**getAddress**(*file*)   
Uses *file*.readline() to read the input lines for an address until it processes an "ADDREND". It returns the contents of the LINES, CITY, STATE, and ZIP as a dictionary. Note that LINES will be a concatenation of all LINE values separated by a space.

**printAddress**(*addressD*, *addressNr*)   
Prints the *addressNr* (which is just a sequence number) and contents of *addressD*["LINES"] on the first line of output for a customer. The next output line will contain the contents of *addressD*["CITY"], ",", *addressD*["STATE"], and *addressD*["ZIP"]. Examine the sample output.

To **import** code from another source file, use a Python statement like this:

**from** *fileName* **import** *funcName1, funcName2*

Note the actual file would be named *fileName.*py. In other words, the filename specified on the **from** would be without the .py.

1. Documentation:

* p5Driver.py must have documentation describing purpose, input, and output.
* address.py must have documentation for each function describing its purpose, parameters, and returns. Please document the purpose of each conditional statement.

1. **Any use of code from another web site will result in a 0 on this assignment, may result in an F for this course, and may cause you to be expelled from UTSA.**
2. Execute your code on a fox server using **python3**
3. Turn in a zip file named *LastnameFirstname*.zip which contains:

p5Driver.py

address.py

p5Out.txt – contains the output generated by your program

**Sample Data:**

**CUSTOMER BOB WIRE**

ADDRBEG

LINE 123 DIRT

LINE RD

CITY SAN ANTONIO

STATE TX

ZIP 78210

ADDREND

ADDRBEG

LINE 123 DIRT

CITY SAN ANTONIO

STATE TX

ZIP 78210

ADDREND

ADDRBEG

LINE 123 DIRT LN

CITY SAN ANTONIO

STATE TX

ZIP 78210

ADDREND

CUSTOMEREND

**CUSTOMER PENNY LOAFER**

ADDRBEG

LINE 111 SHOE LN

CITY SAN ANTONIO

STATE TX

ZIP 78249-1234

ADDREND

ADDRBEG

LINE 111 SHOE ST

CITY SAN ANTONIO

STATE TX

ZIP 78249-1234

ADDREND

ADDRBEG

LINE 111 BOOT ST SOUTH

LINE APT #5A

CITY SAN ANTONIO

STATE TX

ZIP 78230

ADDREND

ADDRBEG

LINE 111 S BOOT STREET NR 5A

CITY SAN ANTONIO

STATE TX

ZIP 78230

ADDREND

CUSTOMEREND

**CUSTOMER FLO N WATER**

ADDRBEG

LINE 45 S.W. VISTA RIO GRANDE RD

CITY SAN ANTONIO

STATE TX

ZIP 78210

ADDREND

ADDRBEG

LINE 45 S WEST VISTA RIO GRANDE RD

CITY SAN ANTONIO

STATE TX

ZIP 78210

ADDREND

ADDRBEG

LINE 45 SOUTHWEST VISTA RIO

LINE GRANDE ROAD

CITY SAN ANTONOI

STATE TX

ZIP 78210

ADDREND

CUSTOMEREND

**Output (see sample below)**

For each customer:

* Show the customer's name
* Show each address with a sequence number for identification purposes.

**Sample Output**

BOB WIRE

1 123 DIRT RD

SAN ANTONIO, TX 78210

2 123 DIRT

SAN ANTONIO, TX 78210

3 123 DIRT LN

SAN ANTONIO, TX 78210

PENNY LOAFER

1 111 SHOE LN

SAN ANTONIO, TX 78249-1234

2 111 SHOE ST

SAN ANTONIO, TX 78249-1234

3 111 BOOT ST SOUTH APT #5A

SAN ANTONIO, TX 78230

4 111 S BOOT STREET NR 5A

SAN ANTONIO, TX 78230

FLO N WATER

1 45 S.W. VISTA RIO GRANDE RD

SAN ANTONIO, TX 78210

2 45 S WEST VISTA RIO GRANDE RD

SAN ANTONIO, TX 78210

3 45 SOUTHWEST VISTA RIO GRANDE ROAD

SAN ANTONOI, TX 78210