SCIT, University of Wollongong

CSIT110: Fundamental Programming with Python

Term 3 - 2019

Assignment 3 (10%) due on 18th August 2019 23:55PM (Wollongong NSW time)

Objectives

* Able to write clear code with comments and follow coding convention
* Able to use loop statement
* Able to use function
* Able to write function
* Able to use string manipulation

Submission instructions

1. Put all your python code into a single file and submit it via Moodle.
2. Name your Python file as A3.py
3. After the submission, please click on the link to the submitted file to verify that the file can be displayed correctly. If your file cannot be displayed, please copy your code into a text file and resubmit it.
4. Late submissions will be marked with a 25% marks deduction for one day late, including weekend. Submissions more than 3 days late will not be marked.
5. If you need an extension, please apply for an Academic Consideration through SOLS on or before the assignment due date.
6. Plagiarism is treated seriously. If we suspect any work is copied, all students involved are likely to receive zero for the entire assignment

Assignment questions. (10 marks)

Write clear code with comments and follow coding convention. Comments should include your name, student number and subject code on top of your code. In this assignment, you must write your own functions and make the code clear, scalable, extensible and efficient.

Question 1 (4 marks)

Write a function “isValidSKUFormat” that takes in a SKU, and apply the following rules to check whether it has a valid format.

* Has a length of 8.
* The first 7 characters are all integers
* The last character is a letter (A-J,Z)
* The last character is compute based on the following rules
  + Multiply each of the 7 numbers with 2, 7, 6, 5, 4, 3, 2 in sequence.
  + Divide the sum result by 11 and get the reminder.
  + Match the remainder with the letter in the table.

|  |  |
| --- | --- |
| Remainder | Valid Letter |
| 0 | J |
| 1 | Z |
| 2 | I |
| 3 | H |
| 4 | G |
| 5 | F |
| 6 | E |
| 7 | D |
| 8 | C |
| 9 | B |
| 10 | A |

* + For example, “1234567” produces a remainder 7, so it should end with a “D”.

The function returns a True if the format is right, else it returns the invalid reason.

Question 2 (3 marks)

Write a program to read in a data.csv file and list the down the item SKU that is invalid.

The program should print the SKU and Product ID and the reason for being invalid.

The invalid reason should be generated from the program.

The program should use the function isValidSKUFormat(SKU) written in question 1.

Below is a sample output:

|  |
| --- |
| SKU | PRODUCT ID | Invalid reason  2233445J | TEC-AC-10003033 | Last letter should be Z  123456D | FUR-CH-10003951 | Length of SKU is not 8 |

Other possible invalid reasons include:

* "First seven characters should be all digits"
* "Invalid last letter, should be A-J,Z"

Question 3 (3 marks)

State the SKU that you have used to test your program, the rule to test in the data.csv file. (See the data.csv for examples.) State all the invalid cases first then the valid cases.

Note: You need to include both valid and invalid test.

Appendix

File format for the data.csv

|  |
| --- |
| ROW,SKU,PRODUCT ID,NAME,CATEGORY,SUB-CATEGORY,STOCK LEVEL,Comments  1,2233445J,TEC-AC-10003033,Plantronics CS510 - Over-the-Head monaural Wireless Headset,Technology,Accessories,5,Invalid last letter  2,123456D ,FUR-CH-10003951,Novimex Executive Leather Armchair White,Furniture,Chairs,5,Should have at least 7 integers  3,1234567D,FUR-CH-10003950,Novimex Executive Leather Armchair Black,Furniture,Chairs,8,Valid  4,2948376J,TEC-PH-10000030,"Samsung Smart Phone, with Caller ID",Technology,Phones,7,Valid  5,1594334C,FUR-HON-10000224,Hon Computer Table with Bottom Storage,Furniture,Tables,12,Valid  6,3059483E,OFF-AP-10003500,KitchenAid Microwave White,Office Supplies,Appliances,8,Valid |

Use the following Python codes to read and display the data.csv file

|  |
| --- |
| import csv  filePath = "data.csv"  with open(filePath) as csvfile:  reader = csv.DictReader(csvfile)  for row in reader:  print(row['ROW'], row['PRODUCT ID']) |

END OF THE ASSIGNMENT