Table of Contents

[1 Quizzes 2](#_Toc530574245)

[1.1 06/11/2018 – After the 1st session 2](#_Toc530574246)

[1.2 10/11/2018 – After the 2nd session 3](#_Toc530574247)

[1.3 19/11/2018 – 5](#_Toc530574248)

[2 CLASS ROOM EXERCISES 6](#_Toc530574249)

[2.1 06/11/2018 – ROUND 001 6](#_Toc530574250)

[2.2 ROUND - 002 7](#_Toc530574251)

[2.3 ROUND - 003 9](#_Toc530574252)

[2.4 ROUND - 004 - Introduction to processing a CSV file 10](#_Toc530574253)

[2.5 ROUND - 005 - Altman Z Score exercise (Processing a CSV file) 11](#_Toc530574254)

[2.6 ROUND - 006 - Nested dictionaries 11](#_Toc530574255)

[2.7 ROUND - 007 - Playing around with CSV files – continued 11](#_Toc530574256)

[2.8 ROUND - 008 - Understanding how to process a CSV file 12](#_Toc530574257)

[2.9 ROUND - 009 - General data structure exercises 12](#_Toc530574258)

[2.10 ROUND - 010 - Functions in Python 12](#_Toc530574259)

[2.11 ROUND - 010 - Functions in Python 13](#_Toc530574260)

# Quizzes

## QUIZ 1 – To test very basic understanding of Python

|  |  |  |
| --- | --- | --- |
| **#** | **Question** | **Answer** |
| 1 | Using IDLE is mandatory for writing Python programs – Yes/No ? |  |
| 2 | Python only runs on Windows – True/False? |  |
| 3 | X = 1 , is this a valid declaration in Python ? |  |
| 4 | Is it possible to learn Python without using the Interactive Shell ? |  |
| 5 | Learning Python automatically ensures that you know data sciences |  |
| 6 | myNum = 1  myNum = myNum + myNum + myNum + myNum  Is this valid ? |  |
| 7 | Given a string, do you need to write code from scratch to convert it to say uppercase, lowercase ? |  |
| 8 | If you had to join/concatenate two strings, what would you do ? |  |
| 9 | Somebody gives you a Python program and the name of the file is **“wqeqwewqe.txt – what would be your reaction ?** |  |
| 10 | A colleague has created a Python program  >>>>>>>>>>> Program has three lines only  X = 1  Y = 1  Z = 1  Do you think that it is complete ?. What are the possible lines that you can add to the program ? |  |
| 11 | Another colleague has created a Python program  >>>>>>>>>>> Program has the following lines only  Print (1)  Print (2)  Print (3)  Print (4)  Print (5)  Print (6)  Print (7)  Print (8)  Print (9)  Print (10)  Print (11)  It works, but what would you advise your colleague to do ? |  |
| 12 | Yet another colleague has created a Python program  >>>>>>>>>>> Program has the following lines only  Uououooou = “test”  Dfgfdgdfg = ‘dddd’  myNum = “20”  Print (Uououooou + Dfgfdgdfg + myNum )  It works, but what would be your immediate reaction apart from requesting that person to take up an alternate profession ? |  |
| 13 | "***Alphabetic-Chairs"***.upper().lower().upper().lower().upper()  Will the above work ? In general, what is the above style of programming referred to > |  |
| 14 | Can you declare a string and assign multi line text to it ? |  |
| 15 | Does Python support multi line comments ? |  |

## QUIZ 2 – Looping, Iterations and other basic concepts

|  |  |  |
| --- | --- | --- |
| **#** | **Question** | **Answer** |
| 1 | You need to iterate through a list of 10 elements.  Which loop would you use – For loop or While loop ? |  |
| 2 | There are 50 students in a class.  What kind of loop would you use to print the names of all these 50 students ? |  |
| 3 | Does Python treat a String as a sequence of values ? |  |
| 4 | Is it possible to use a loop to iterate over the values of a String ? |  |
| 5 | Give a quick way of generating numbers from 1 to 20 using a Python built in |  |
| 6 | How does Python identify a block of code ? |  |
| 7 | Will this code work ?  X = 1  If X=1:  X=X+1 | No – there is no indentation |
| 8 | Is it possible to slice a string in Python ?  (Extract just a portion of it) |  |
| 9 | In Python, is iteration from start to end or can it be done in the reverse direction as well ?. |  |
| 10 | What do you think is wrong with this code snippet  #This is the start of the program  X= 1  If Y= 1:  X= X+ 1  Print (“Value of X is”, X) |  |
| 11 | I have a string whose value is “Eats Shoots and Leaves”.  How would I print each character of the above string ? |  |
| 12 | Do you think that Python lets you generate random numbers ? |  |
| 13 | Do you think that this works ?  # # Chaining Comparison Operators  i = 5;    ans = 1 < i < 10  print(ans) |  |
| 14 | Python’s special Slice Operator, what does it let you do ?  >>  It is a way to get items from lists |  |
| 15 | What is the output of the following program :   |  | | --- | | i = 0  while i < 3:         print i         i++         print i+1  >>  ANS : 0 2 1 3 2 4 | |  |
|  |  |  |

## QUIZ III – Data Structures, the basics

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| --- | --- | --- |
| **#** | **Question** | **Answer** |
| 1 | What is a data structure ? |  |
| 2 | In general, what are the operations that one can perform on data structures ? |  |
| 3 | How would you eliminate duplicate values from this list  [25, 45, 36, 47, 69, 48, 68, 78, 14, 36, 45, -100, -101, 0, 36] |  |
| 4 | In a single line how would you generate the following list  [ [1, -1], [2,-2], [3,-3], [4,-4], [5,-5]] |  |
| 5 | In a single line, how would you generate the following dictionary  {“a” : “abcd”, “b”: “abcd”, “c”: “abcd”, “d” : “abcd”} |  |
| 6 | Given  ('a','b','c','d','e') and (1,2,3,4,5)  What is the easiest way to create the dictionary from the above two tuples ? |  |
| 10 | Sentence = “**Peter Piper** picked a peck of pickled peppers. A peck of pickled peppers **Peter Piper** picked”  What structure would you use to get the count of each word in the sentence ? |  |
| 11 | Sentence = “I wish to wish the wish you wish to wish, but if you wish the wish the witch wishes, I won't wish the wish you wish to wish”  How would you use List comprehension to store each word in the list ? |  |
| 12 | Set1 = {1,3,4,5,2}  Set2 = {2,5,1,4,3}  Is Set1 = Set2 ? |  |
| 13 | In the example that we have gone through for processing csv files, each line of the file gets stored in which Python data structure ? |  |
| 14 | Can we iterate and remove elements from a dictionary at the same time ? |  |
| 15 | Give a few examples where the dictionary key needs to be a tuple ? |  |
| 16 | matrix = [[0, 0, 0, 1, 0],  [0, 0, 0, 0, 0],  [0, 2, 0, 0, 0],  [0, 0, 0, 0, 0],  [0, 0, 0, 3, 0]]  This is an example of a sparse matrix. Most of the values are zero. What would be your approach to storing the values of this matrix more efficiently ?  Imagine if you have sparse matrices of higher dimensions |  |
| 17 | Consider the following data  Sales Person Item Sale-Qty  A1 Pen 150  A1 Pen 70  A1 Pencil 200  A1 Pencil 120  A1 Eraser 100  A2 File 55  A2 File 45  A2 Book 300  A2 Book 20  How would you store this data in Python, so that for any Sales Person and Item combination, we have the total sales qty ? |  |

## QUIZ 4– Refreshing whatever we have learnt so far

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| --- | --- | --- |
| **#** | **Question** | **Answer** |
| 1 | What extension is a Python program given ? |  |
| 2 | What kind of a loop will you use to print each letter of the string *“Barking dogs seldom bite”* |  |
| 3 | Please name at least 4 functions/methods that one can use to manipulate strings |  |
| 4 | A = {1,2,3,4,5,7}, what kind of a data structure is this ? |  |
| 5 | From the user, you need to accept a number.  If it is less than 10 then you need to print “less than 10”. Between 10 and less than 50, then you need to print “10 <50”, otherwise you need to print “>=50”  What conditions will you include in your program |  |
| 6 | For the above flowchart, what kind of a loop will you use in Python |  |
| 7 | Print (“a”)  Print (“b”)  Print (“c”)  Print (“d”)  Print (“e”)  Print (“f”)  Print (“g)  How can you simplify the above program using loop ? |  |
| 8 | Given the  String “I wish I wish for you to wish that for everybody to be able to wish for good wishes”  Which special Python data structure will you use to store the count of each word in the above sentence ? |  |
| 9 | How can you split the following sentence  “I**#**really**#**like**#**doing**#**nothing”  In what kind of a data structure is the above result stored ? |  |
| 10 | What feature do you need to you use in Python to create re-usable code ? |  |
| 11 | List1 = [“deadly”, “assassin”, “deadly”, “viper”, “killer”, “agent”, “killer”, “whale”]  How will you eliminate duplicates from the above list ? |  |
| 12 | In a program, you need to store employee data. Each employee has a unique employee id. Also, employees have multiple attributes like name, address, date of birth, etc.  What data structure will you use to store employee data for fast access of information ? |  |
| 13 | What feature of Python is used to identify blocks of code ? |  |
| 14 | Which function can be used in Python to quickly generate a sequence of numbers ? |  |
| 15 | Name one data structure in Python that is immutable ? |  |
| 16 | What is list or dictionary comprehension ?  1 or 2 examples ? |  |
| 17 | Which Python module did we use to process “csv” files ? |  |
| 18 | Using a single command, can you merge two dictionaries ? |  |
| 19 | When you merge two dictionaries , what happens to the values of keys that are common to the two dictionaries |  |
| 20 | List1 = [1,2,3,4,6,7,8]  List2 = [“a”, “b”, “c”, “d”, “e”, “f”, “g”]  Describe two ways in which the two lists can be combined to create dictionaries ? |  |
| 21 | Can you append a list to a tuple ?  Can you append a tuple to a list ? |  |
| 22 | myList = [[“1”, “chicken tikka”], [2, “butter chicken”], [“3”, “chicken stroganoff”], [“4”, “chicken a la kiev”], [“5”, “chicken supreme”]]  For fast access, what would you convert the above nested list to ? |  |
| 23 | Can you slice a dictionary ? |  |

# CLASS ROOM EXERCISES

## 06/11/2018 – ROUND 001

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **Assignment Group** | **Assignment** | **Hints** | **D.O.D**  **(S – Simple**  **M – Medium**  **C - Complex)** | **Status** |
| 1 | PY-CL-ASSIGN-ROUND1 | Declare a string variable  Convert this string to uppercase |  |  | Completed |
| 2 | PY-CL-ASSIGN-ROUND1 | Declare a string variable  Convert this string to lowercase |  |  | Completed |
| 3 | PY-CL-ASSIGN-ROUND1 | Declare 5 integer variables. Print the average of these five numbers |  |  | Completed |
| 4 | PY-CL-ASSIGN-ROUND1 | Given a number, use an available function from the standard library to always print the number as a positive value |  |  | Completed |
| 5 | PY-CL-ASSIGN-ROUND1 | Write a program to print the value and type of integer, string and float variables |  |  | Completed |
| 6 | PY-CL-ASSIGN-ROUND1 | Modify the above program to include the following at the end  **del** <var1> <var2> <var3>  print the values again . What happens ? |  |  | Completed |
| 7 | PY-CL-ASSIGN-ROUND1 | Write a program to either print “Number is greater than zero “ or “less than zero” depending upon its value |  |  | Completed |
| 8 | PY-CL-ASSIGN-ROUND1 | Write a program to calculate the maximum of three numbers |  |  | Completed |
| 9 | PY-CL-ASSIGN-ROUND1 | Given two strings, print <A> is included in <B> if <B> contains <A>  ( “fully” is contained in “fully-loaded-pizza” ) |  |  | Completed |

## ROUND - 002

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| **#** | **Assignment Group** | **Assignment** | **Hints** | **D.O.D**  **(S – Simple**  **M – Medium**  **C - Complex)** | **Status** |
| 1 | PY-CL-ASSIGN-ROUND2 | Find the number of occurrences of a word in a sentence |  |  | Done |
| 2 | PY-CL-ASSIGN-ROUND2 | Find the number of occurrences of a character in a word or in each word of a sentence or in a total sentence |  |  | done |
| 3 | PY-CL-ASSIGN-ROUND2 | Create a program that will play the “cows and bulls” game with the user.  Say the number generated by the computer is 1038. An example interaction could look like this:  Welcome to the Cows and Bulls Game!  Enter a number:  >>> 1234  2 cows, 0 bulls  >>> 1256  1 cow, 1 bull |  |  | Done |
| 4 | PY-CL-ASSIGN-ROUND2 | Write a program that accepts a sentence and calculates the number of upper case letters and lower case letters. |  |  | Done |
| 5 | PY-CL-ASSIGN-ROUND2 | Write a program that first accepts the following values from the user –   1. Character to print 2. Number of iterations   It then prints  A + AA + AAA + AAAA |  |  |  |
| 6 | PY-CL-ASSIGN-ROUND2 | **“ \* “**  **“\* \* \*“**  **“\* \* \* \* \*“**  **“\* \* \* \* \* \* \* “**  **“\* \* \* \* \* \* \* \* \* “** |  |  |  |
| 7 | PY-CL-ASSIGN-ROUND2 | **\* \* \* \* \* \* \* \* \* \* \* \* \* \* \*** |  |  |  |
| 8 | PY-CL-ASSIGN-ROUND2 | \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* |  |  |  |
| 9 | PY-CL-ASSIGN-ROUND2 | \*  \*\*  \*\*\*  \*\*  \* |  |  |  |
| 10 |  | Given the string ‘ABC’, print all permutations of it using for loops |  |  |  |

## ROUND - 003

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| **#** | **Assignment Group** | **Assignment** | **Hints** | **D.O.D**  **(S – Simple**  **M – Medium**  **C - Complex)** | **Status** |
| 1 | PY-CL-ASSIGN-ROUND3 | Consider the following list  superVillians = [“Joker”, “The Riddler”, “Penguin”, “Mad Hatter”, “Thanos”, “GoldFinger”]  Replace “The Riddler”, “Penguin” and “Mad Hatter”in the list with “Dr. Dang” |  |  | Done |
| 2 | PY-CL-ASSIGN-ROUND3 | Write a program which first creates and empty list  Keep accepting input from the user. Every time the user enters a value, extend the list and print  Use CTRL + C to exit |  |  | Done |
| 3 | PY-CL-ASSIGN-ROUND3 | Consider the following list  awfulDishes = [“Karela curry”, “methi bhajji”, “palak bhajji”, “packaged masala oats”]  Write a program to delete “palak bhajji” and “packaged masala oats” from the list |  |  | Done |
| 4 | PY-CL-ASSIGN-ROUND3 | Using a WHILE Loop print the elements of a list that has any 10 elements |  |  | Done |
| 5 | PY-CL-ASSIGN-ROUND3 | Consider the following list –  [ [1,1], [2,3], [4,5], [7,8]]  Assume that this nested list contains length and breadth of rectangles  Build a dictionary containing the following elements  Part 1 - {1:1, 2:6, 3:20, 4:56}  Part 2 – {1:[1, 4], 2:[6,10], 3:[20,18], 4:[56,30]} |  |  | Done |
| 6 | PY-CL-ASSIGN-ROUND3 | Consider the following dictionary  {1:”aeiou”, 2:”x”, 3:”x”, 4 : “fleabag”, 5:”shotto”, 100:”shebanggg”, 201:”@#” }  Delete all elements for which the value is “x” |  |  | Done |

## ROUND - 004 - Introduction to processing a CSV file

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| **#** | **Assignment Group** | **Assignment** | **Hints** | **D.O.D**  **(S – Simple**  **M – Medium**  **C - Complex)** | **Status** |
| 1 | PY-CL-ASSIGN-ROUND4 | Processing a simple CSV file   * import\_csv\_file\_example\_001.py |  |  | Done |

## ROUND - 005 - Altman Z Score exercise (Processing a CSV file)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **Assignment Group** | **Assignment** | **Hints** | **D.O.D**  **(S – Simple**  **M – Medium**  **C - Complex)** | **Status** |
| 1 | PY-CL-ASSIGN-ROUND5 | Altman Z Score exercise  (Students really struggled with this exercise ) |  |  | Done |

## ROUND - 006 - Nested dictionaries

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **Assignment Group** | **Assignment** | **Hints** | **D.O.D**  **(S – Simple**  **M – Medium**  **C - Complex)** | **Status** |
| 1 | PY-CL-ASSIGN-ROUND6 | Dictionary of dictionaries using student data |  |  | Done |
| 2 | PY-CL-ASSIGN-ROUND6 | Nested dictionary where the key is a list using Country and states data |  |  | Done |

## ROUND - 007 - Playing around with CSV files – continued

|  |  |  |  |  |  |
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| **#** | **Assignment Group** | **Assignment** | **Hints** | **D.O.D**  **(S – Simple**  **M – Medium**  **C - Complex)** | **Status** |
| 1 | PY-CL-ASSIGN-ROUND7 | Dictionary of dictionaries using student data |  |  | Done |

## ROUND - 008 - Understanding how to process a CSV file

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| --- | --- | --- | --- | --- | --- |
| **#** | **Assignment Group** | **Assignment** | **Hints** | **D.O.D**  **(S – Simple**  **M – Medium**  **C - Complex)** | **Status** |
| 1 | PY-CL-ASSIGN-ROUND8 | Understanding how one loops through a CSV file |  |  | Done |

## ROUND - 009 - General data structure exercises

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **Assignment Group** | **Assignment** | **Hints** | **D.O.D**  **(S – Simple**  **M – Medium**  **C - Complex)** | **Status** |
| 1 | PY-CL-ASSIGN-ROUND9 | * Loop through the file * Print the contents * Investigate the data structures used * Loop through the file * Print the contents * Store the data in a List * Store the data in a dictionary * import\_csv\_file\_example\_001.py * import\_csv\_file\_example\_001\_aa.py   (quebec car sales data) |  |  |  |

## ROUND - 010 - Functions in Python - 20/11

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| **#** | **Assignment Group** | **Assignment** | **Hints** | **D.O.D**  **(S – Simple**  **M – Medium**  **C - Complex)** | **Status** |
| 1 | PY-CL-ASSIGN-ROUND10 | Writing a function to calculate standard deviation for a given set of numbers  Basic Pandas examples |  |  |  |

## ROUND - 011 - Functions in Python - 21/11

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| **#** | **Assignment Group** | **Assignment** | **Hints** | **D.O.D**  **(S – Simple**  **M – Medium**  **C - Complex)** | **Status** |
| 1 | PY-CL-ASSIGN-ROUND11 | Writing functions to convert F to C and C to F |  |  |  |
|  |  | Nested dictionary |  |  |  |

## ROUND - 012 - 24/11 – Pandas basics

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| **#** | **Assignment Group** | **Assignment** | **Hints** | **D.O.D**  **(S – Simple**  **M – Medium**  **C - Complex)** | **Status** |
| 1 | PY-CL-ASSIGN-ROUND12 | Creating an empty data frame |  |  |  |
|  |  | Creating a data frame from a simple list |  |  |  |
|  |  | Creating a data frame from a nested list |  |  |  |
|  |  | Creating a data frame from a dictionary |  |  |  |
|  |  | Creating a data frame from a CSV file |  |  |  |
|  |  | Creating a data frame from an EXCEL file |  |  |  |