**DEMO CLASS 14th March 2018**

1. Introduction
2. Python Intro
3. Interactive Mode Programming
4. Python Identifiers (used to identify a variable , function, class, module or other object
   1. Reserved Words
   2. Lines and Indentation
   3. Multi-Line Statements
   4. Quotation in Python
   5. Comments in Python
5. raw\_input
6. Python Variable Types
   1. Int
   2. Float
   3. String
   4. Multiple assignment a = b = c = 1 Or a,b,c = 1,2,"john"
7. Standard Data Types
   1. Numbers
   2. String
   3. List
   4. Tuple *(The main differences between lists and tuples are: Lists are enclosed in brackets ( [ ] ) and their elements and size can be changed, while tuples are enclosed in parentheses ( ( ) ) and cannot be updated. Tuples can be thought of as read-only lists.)*
   5. Dictionary (AKA: *associative arrays*)
8. Type casting(conversion):
   1. Ord():Converts a single character to its integer value.
   2. Hex():Converts an integer to a hexadecimal string.
   3. Oct():Converts an integer to an octal string.
   4. bin():Converts an integer to an binary equivalent.
   5. int('<str>', base) Converts an string to an equivalent base format
9. Loops
   1. For
   2. While

**FIRST CLASS: 25th March 2018**

Introduction and installation

**SECOND CLASS: 31st March 2018**

1. String intro and exercise
   1. Definition
   2. Indexing
   3. Slicing
   4. Repetition
   5. Concatenation
   6. min/max
2. List intro and exercise
   1. Definition
   2. Indexing
   3. Slicing
   4. Repetition
   5. Concatenation
   6. append/deletion/pop/min/max
3. Tuple intro and exercise
   1. Definition
   2. Indexing
   3. Slicing
   4. Repetition
   5. Concatenation
   6. append/deletion/pop/min/max
4. Dictionary intro and exercise
   1. Definition
   2. Indexing
   3. Slicing
   4. append/deletion/iterate over Items

**Class Assignment**:

1. Create a list which contains a number from 1 to 10

2. Using slicing filter even and odd number

3. Create a list of 10 numbers using list comprehension

4. from 3rd que, create dictionary using dict comprehension having key as index and element as value

5. Using list comprehension, create a list of even and odd numbers between 1 to 100

6. Using list comprehension, create a list of squares of 1 to 100

7. Using dict comprehension, create a dict of power of 3 from 1 to 50 and which will have original number as key and power of 3 as value

**THIRD CLASS: 1st April 2018**

1. Making Decisions - if Statement
2. If
3. If..else
4. Nested if..else
5. Multiple Condition using logical operators
6. Loop Control
7. While
8. For
9. Nested loops
10. All loops with “else” statement
11. Break , continue and PASS statement in loops
12. Iterator
13. List iterator
14. Tuple iterator
15. Dictionary iterator

**Home Assignment**: multiply Each item of list1 with list2 elements.

* Store the result in new list.
* While performing this operation, filter even and odd numbers from result and store them in a separate list
* Make sure to remove duplicates from the resultant list
* Using iter function print only even and odd numbers of a list between 1 to 100

**All the above can be found here:**

**List & Loop:**

<https://docs.google.com/presentation/d/1x14FVuvcO7SNNW7VP3DbXXTmc6dIvnlMAtA8kQ-aR00/edit#slide=id.g1c1e2302a2_0_95>

<https://docs.google.com/presentation/d/12Pdc-AHCV3caTp2de9Nson4CI7AnxoEFB_VmZBNDrZU/edit#slide=id.g1c3cb20054_0_16>

**Tupple & Dictionary:**

<https://docs.google.com/presentation/d/1d8rCKdH5vqfrBx7vIcOz8kTMHYVuVx8sI8iEVUMGLXM/edit#slide=id.p>

**FOURTH CLASS: 07th April 2018**

1. **Functions & Scope of variables**
   1. Definition
   2. Syntax with example
   3. Calling function with reference and value
   4. Return statement
   5. Arguments:
      1. Required arguments
      2. Keyword arguments
      3. Default arguments
      4. Variable-length arguments
   6. The Anonymous lambda Function
   7. Use of filter,map and reduce with lambda function
   8. Scope of Variables local and global

**Exercise:**

* + - 1. Write a Python function that accepts a string and calculate and return the number of upper case letters and lower case letters count as dictionary.

**Don’t use inbuilt functions.**

**Homework:**

Write a Python program that accepts a hyphen-separated sequence of words as input and prints the words in a hyphen-separated sequence after sorting them alphabetically. Go to the editor Sample Items : green-red-yellow-black-white

Expected Result : black-green-red-white-yellow

Use reduce function and using “+” operator, add only 1st element of passed number. Check the result?

E.g:

tmp = [10,2,3]

reduce(lambda x,y:x+1,tmp) **==??**

also

reduce(lambda x,y:x,tmp) **==??**

Using reduce function, retrieve only the 1st and last element of the given list.

Write a Python function to find the Max of three numbers

Write a Python function to calculate the factorial of a number (a non-negative

integer). The function accepts the number as an argument

6. Write a Python function to detect the number of local variables declared in a function (to be passed as parameter name)

**Note:** Try to optimize above program using lambda function if possible.

**FIFTH CLASS: 08th April 2018**

**Modules**

1. What is module
2. Import statement
   1. Definition and its syntax
   2. Import single and multiple functions
   3. Import functions with aliasing
   4. From …Import statement
   5. From …Import \* statement
   6. Dir() function
   7. globals() and locals() functions

**Homework:**

1. Write a module (with one line of documentation) to generate a list of reverse, even and odd numbers of a given list of integers
2. Call above written module using “**import”** in different file and load various available modules and perform the same operations (i.e. generate list of reverse, even and odd numbers)

**SIXTH CLASS: 14th April 2018**

**File I/O**

1. What is File
2. How to open File for following operations
   1. Read (r,r+,rb,rb+)
   2. Write (w,w+,wb,wb+)
   3. Append (a,a+,ab,ab+)
   4. Close
   5. File positions:
      1. tell()
      2. seek()
   6. next
   7. with statement
   8. file attributes (file.name/closed/mode)
   9. Some “os” related file operations
      1. rename
      2. remove
      3. mkdir
      4. chdir
      5. getcwd

**Exercise:**

1. Write a script which opens a text file and read the each line and print them along with line number.
2. Write a script which opens scripts itself in read only mode and print your program as output. Make sure that newline is not printed since each print statement will by default add one new line
3. Write a program to filter out those lines which is ending with even number in the statement. Also make sure that blank line is not available in final output.

Content of txt file:

This is line1

This is line2

This is line3

This is line4

This is line5

This is line6

This is line7

This is line8

This is line9

This is line10

**SEVENTH CLASS: 15th April 2018**

**Regular Expression**

1. What is Regular expression
2. Match V/s Search
3. Search and Replace
4. Meta and literal characters
5. Regular Expression Modifiers: Option Flags
6. Patterns & descriptions
7. Greedy & non-greedy option
8. BACK REFERENCING

**Homework:**

1. Write a Python program to search 3’letter strings in a string.

Sample text : 'The quick brown fox jumps over the lazy dog.'

Searched words : 'fox', 'dog'

1. Write above program again which takes input from user to enter email ID and return the message if email ID is valid or not
2. Write a script which takes input to enter IP address and return a message if IP address is valid or not

**NOTE:**

Continue above exercise to make search pattern more optimized

**EIGHTH CLASS: 21st April 2018**

**Logging**

1. What is Logging
2. How to log using “import logging” module

**Debugging**

1. What is debugging
2. How to debug your program using “import pdb” module
3. Frequently used and supported commands for pdb

**Exception**

1. What is Exception
2. How to catch exception using “Try … Except”
3. Catching cause of the exception using variable
4. Try … Except….Finally…. clause
5. Raise an exception using “raise …”
6. Assert an exception

**Homework:**

* + 1. Write a program to read some file which is not existin. Execption will be thrown. Handle the exception gracefully and read the print the content of it.
    2. Debug above program using pdb module by using all the existing keywords