CD163	PYTHON FOR DATA SCIENCE LAB	L	T	P	C	Int	Ext
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Semester II [First Year]

COURSE OBJECTIVES:

1. Introduce the fundamentals of Data Science and Python Programming language.
2. Teach students processing of files, mutable and immutable data types
3. Impart knowledge of NumPy and Pandas.

COURSE OUTCOMES:

After the successful completion of the course,students are able to

1. Explain the fundamentals of Data Science and Python programming language.
2. Create user defined functions to solve problems
3. Manipulate the data structures lists, Tuples, sets and dictionaries.
4. Use NumPy and Pandas in solving problems.

EXPERIMENTS:

1. a. Write a Python program to perform the following using arithmetic operators:
   i. Find the roots of a quadratic equation.
   ii. Design a desktop calculator program.
   b. Write a Python program to demonstrate bitwise operators
2. Write a menu driven program to find the properties of numbers. (Prime, Armstrong, Strong, Perfect)
3. Write a program to demonstrate the following built-in functions
   i. math module
   ii. ord( ), chr( ), id( ), type( ) functions.
4. Create recursive function for GCD, Fibonacci and factorial problems.
5. a. Write a user defined function to check whether a given string is Palindrome or not.
   b. Write a Python program to find the number of words, digits, uppercase letters and lowercase letters in the given sentence.
6. a. Write a Python program to count the occurrences of each word and also count the number of words in a given file.
   b. Write a Python program to demonstrate exceptions.
7. a. Write a Python programs to perform following List Processing operations
   i. Sorting
   ii. Searching
   b. Write a Python program to perform following operations on the given list:
   i. Find the mean, variance and standard deviations of the given data.
   ii. Remove duplicates from a list.
   c. Write a Python program to implement following list methods
   i. append( ) , ii. extend( ), iii. insert( ), iv. index( ) , v. sort( )
   d. Write Python program to perform the following operations:
   i. Multiply two matrices using nested loops.
   ii. Transpose of a matrix.
8. Write a Python program to demonstrate the following dictionary methods:
   i. get( )
   ii. keys( )
   iii. pop( )
   iv. update( )
   v. values( )
   vi. items( )
9. Write a program to insert a value at a given position in a tuple.
10. a.Write a Python program to perform operations using numpy..
    b.Write a Python program to perform operations on Data frame.
    c.Write a Python program to handle missing values.