AdvancedPythonProgramming Lab

CourseCode	23CS6451	Year	II	Semester	II
Course Category	Honors	Branch	CSE	CourseType	Practical
Credits	1.5	L-T-P	0-0-3	Prerequisites	Python Programming
Continuous Internal Evaluation:	30	SemesterEnd Evaluation:	70	TotalMarks:	100

CourseOutcomes		
Uponsuccessfulcompletionofthecourse,thestudentwillbeableto		
CO1	Apply Python programming constructs for solving problems.	**L3**
CO2	Conduct experiments as an individual, or team member by using Python programming.	**L3**
CO3	Develop an effective report based on various programs implemented.	**L3**
CO4	Apply technical knowledge for a given problem and express with an effective oral communication	**L3**
CO5	Analyze outputs generated through Python programming.	**L4**

Expt. No.	ExperimentDetails	MappedCO
1.	Developaprogramtocalculatethesquareofevennumbersina list and sum them using map, filter, and reduce.	**CO1,CO2,CO3, CO4,CO5**
2.	Developaprogramtosavedataintoa JSONand XMLfile,readit back, and modify it.	**CO1,CO2,CO3, CO4,CO5**

3.	Developaprogram forthe following
	   i) ToValidateEmailAddresses
	   ii) ToExtractDatesfroma Text
	   iii) toReplaceMultipleSpaceswith a Single Space
	   iv) ToExtractPhoneNumbersfroma String
	   v) FindAllWordsStarting withaSpecific Letter
		CO1,CO2,CO3, CO4,CO5

4.	Develop a Python program that demonstrates a wide range of NumPyoperations,includingarraycreation,reshaping,indexing, slicing, mathematical operations, aggregation, concatenation, splitting, and working with structured arrays.	**CO1,CO2,CO3, CO4,CO5**
5.	DevelopaPandasprogramthatdemonstratesvariousoperations including creating DataFrames, data selection, indexing, data cleaning,grouping,aggregation,stringoperations,and visualization.	**CO1,CO2,CO3, CO4,CO5**
6.	DevelopabasicPythonprogramtoestablishaconnectionbetween a client and server using TCP and UDP.	**CO1,CO2,CO3, CO4,CO5**
7.	DevelopaPythonprogramtodemonstratetheuseofthreadingand synchronization with a shared resource.	**CO1,CO2,CO3, CO4,CO5**
8.	DevelopaprogramtodemonstrateMultithreading.	**CO1,CO2,CO3, CO4,CO5**
9.	Develop a program for dataset loading, data preprocessing, definingamodel,training,evaluating,saving,andloadingthe modelusingTensorFlow andkeraslibraries.	**CO1,CO2,CO3, CO4,CO5**

LearningResources
TextBooks
1. WesMcKinney,PythonforDataAnalysis:DataWranglingwithPandas,NumPy,andIPython2nd Edition, O'Reilly Media.   2. KennethLambert,"FundamentalsofPython:FirstPrograms",CengageLearning,2019   3. "IntroductiontoPythonProgramming",Gowrishankar.S,VeenaA,CRCPress, 2019,TaylorandFrancisGroup
ReferencesTextBook
1. ModernPythonStandardLibraryCookbook,AlessandroMolina,2018,Packt.   2. ThePythonLibraryReference:Release3.6.4-Book1of2,GuidoVanRossum,   Python Development Team, 2018, 12th Media Services.
e-ResourcesandotherDigitalMaterial
1. https://media.oiipdf.com/pdf/21fee97b-17fd-4581-8eed-5d3fcdd0c86a.pdf   2. https://docs.python.org/3/library/index.html   3. https://github.com/lanzhiwang/python3-standard-library-example/tree/master/source   4. https://github.com/packtpublishing/modern-python-standard-library-cookbook