

SCRIPTING LANGUAGES LAB

PART B Questions	
Course Code: ISL58	Credits: 0:0:2:0
Course Coordinator: Dr.Mydhili K Nair	Sem 5

PART B Python Questions	
1	Introduction to Python Functions: Write a temperature converter python program, which is menu driven. Each such conversion logic should be defined in separate functions. The program should call the respective function based on the user's requirement. The program should run as long as the user wishes so. Provide an option to view the conversions stored as list of tuples with attributes - from unit value, to unit value sorted by the user's choice (from-value or to-value).
2	Python Classes: Write a python class to reverse a sentence (initialized via constructor) word by word. Example: "I am here" should be reversed as "here am I". Create instances of this class for each of the three strings input by the user and display the reversed string for each, in descending order of number of vowels in the string.
3	Python for Data Science: Load Titanic Dataset into one of the data structures (NumPy or Pandas). Perform data pre-processing on this dataset. Create dataframes, perform computations and visualize the results appropriately.
4	Python File Handling & List Comprehension: Write a python program to read contents of a file (filename as argument) and store number of occurrences of each word in a dictionary. Display the top 10 words with most number of occurrences in descending order. Store the length of each of these words in a list and display the list. Write a one-line reduce function to get the average length and one-line list comprehension to display squares of all odd numbers and display both.
5	<p>a) Load the 'Student Performance' dataset into one of the data structures (NumPy or Pandas).</p> <p>b) Display header rows and description of the loaded dataset.</p> <p>c) Remove unnecessary features (E.g. drop unwanted columns) from the dataset such as 'lunch' and 'test preparation course'.</p> <p>d) Manipulate data by replacing empty column values in 'parental level of education' with a default value.</p> <p>e) Convert the attribute 'race/ethnicity' to have 'groupA' to be 'Asian Students', 'groupB' to be 'African Students', 'groupC' to be 'Afro-Asian Students', 'groupD' to be 'American Students' and 'groupE' to be 'European Students'.</p> <p>f) Perform the following visualizations on the loaded dataset:</p> <ul style="list-style-type: none"> i) Tally of the Number of Male & Female students who took up the 'test preparation course' and those who did not. ii) Total Number of Male & Female Students belonging to each student group iii) No of students who 'failed'(less than 40), 'second class'(between 40 & 50), 'first class'(between 60 & 75) and 'distinction'(above 75) in 'Maths', 'Reading' and 'Writing'.

6	<p>a) Load the 'Black Friday' dataset into one of the data structures (NumPy or Pandas).</p> <p>b) Display header rows and description of the loaded dataset.</p> <p>c) Remove unnecessary features (E.g. drop unwanted columns) from the dataset such as 'User_ID', 'Product_ID', 'Stay_In_Current_City_Years'.</p> <p>d) Manipulate data by replacing empty column values in 'City_Category' with a default value for the city.</p> <p>e) Convert the attribute 'City_Category' to have 'A' to be 'Metro Cities', 'B' to be 'Small Towns', 'C' to be 'Villages'.</p> <p>f) Convert the attribute 'Product_Category_1' to have 'Baseball Caps', 'Product_Category_2' to have 'Wine Tumblers' and 'Product_Category_3' to have 'Pet Raincoats'.</p> <p>g) Convert the attribute 'Marital_Status' to have '1:Married' and '0:Un-Married'.</p> <p>h) Perform the following visualizations on the loaded dataset:</p> <ul style="list-style-type: none"> i) Tally of the Number of Male & Female persons who bought 'Product_Category_1' and 'Product_Category_2'. ii) Total Number of Male & Female persons belonging to each city category.
PART B Javascript Questions	
7	<p>JSON JavaScript (JS): Dynamically loading JSON data - Implement a HTML+JS application that has a JSON Array with details of different kinds of data. Example: Model, Name, Price, Year. Display details of each vehicle dynamically by only showing details of the vehicle that the user has selected (via mouse-over).</p>
8	<p>Python and JavaScript - ATM Application: Design a HTML form that displays user's current balance, an input field to enter amount and buttons to withdraw or deposit money. Validate the form such that negative amount cannot be entered and Users cannot withdraw more than 5000 at one time.</p>
9	<p>Python and JavaScript - Shopping Cart Application: Design a simple Shopping Cart application which allows users to add items to their cart from a list of products. Allow users to view their cart (items and quantities of each).</p>
10	<p>Python and JavaScript – Student Registration: Design a HTML form that displays</p> <ul style="list-style-type: none"> • Two text fields to input the user's USN and Date of Birth. • Three text boxes to input three marks. <p>Validate the data entry on the server side using Javascript so that null values are not accepted for all the five text boxes.</p> <p>Validate the entry on server-side using Python to ensure that USN is accepted in a proper pattern as well as date validations are done.</p> <p>Calculate the average using Python on server-side and display the result.</p>
11	<p>JSON JavaScript (JS): Create two JSON objects. One contains the details of a 'Patient' as "name", "AadharNumber" and a JSON array which has the "lab-tests" the patient has taken. The other contains the 'Hospital' details as "hospital-name" and "location". Create a web page that displays the Hospital details when the page loads along with the text "Patient Details:". On mouse-hover the text "Patient Details:" changes colour and displays the details of the patient stored in the JSON object.</p>