<table>
<tr><th>Sr. No.</th><th>Assignment No./ Title</th><th>CO Mapped</th></tr>
<tr><td colspan="3">Assignment No.1 –Based on Installation and study of R Studio/Python Framework</td></tr>
<tr><td>1.</td><td>Write the steps of Installation of R console and R Studio/Python</td><td rowspan="2">CO1</td></tr>
<tr><td>2.</td><td>Explain about R Studio/Python Framework</td></tr>
<tr><td colspan="3">Last date of Submission:10/8/2024</td></tr>
<tr><td colspan="3">Assignment No.2 – Based on use of data structure, functions, Importing / Exporting Data and Control Structures of R/Python</td></tr>
<tr><td>1</td><td>Write a R program to create three vectors a,b,c with 3 integers. Combine the three vectors to become a 3×3 matrix where each column represents a vector. Print the content of the matrix.</td><td rowspan="11">CO2</td></tr>
<tr><td>2</td><td>Write a R program to create a list containing a vector, a matrix and a list and give names to the elements in the list. Access the first and second element of the list.</td></tr>
<tr><td>3</td><td>Write a R program to create an array with three columns, three rows, and two "tables", taking two vectors as input to the array. Print the array.</td></tr>
<tr><td>4</td><td>Write a R program to create a data frame from four given vectors
name = c('Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew','Laura', 'Kevin', 'Jonas')
score = c(12.5, 9, 16.5, 12, 9, 20, 14.5, 13.5, 8, 19)
attempts = c(1, 3, 2, 3, 2, 3, 1, 1, 2, 1)
qualify = c('yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no', 'yes')</td></tr>
<tr><td>5</td><td>Write a R program to create a factor corresponding to height of women data set, which contains height and weights for a sample of women</td></tr>
<tr><td>6</td><td>Use R to create the following two matrices and do the indicated matrix multiplication.
$\begin{bmatrix} 7 & 9 & 12 \\ 2 & 4 & 13 \end{bmatrix} \times \begin{bmatrix} 1 & 7 & 12 & 19 \\ 2 & 8 & 13 & 20 \\ 3 & 9 & 14 & 21 \end{bmatrix}$
What is the resulting matrix?</td></tr>
<tr><td>7</td><td>WAP to Print the Fibonacci Sequence.</td></tr>
<tr><td>8</td><td>WAP to import data in R from csv, excel, txt file.</td></tr>
<tr><td>9</td><td>WAP to export data from R to CSV, Excel, Text File and Google drive.</td></tr>
<tr><td>10</td><td>Write a R program to create an array of two 3x3 matrices each with 3 rows and 3 columns from two vectors. Print the second row of the second matrix of the array and the element in the 3rd row and 3rd column of the 1st matrix.</td></tr>
<tr><td>11</td><td>VAT has different rate according to the product purchased. Imagine we have three different kind of products with different VAT applied:
<table>
<tr><th>Categories</th><th>Product</th><th>VAT</th></tr>
<tr><td>A</td><td>Book, magazine, newspaper, etc...</td><td>8%</td></tr>
<tr><td>B</td><td>Vegetable, meat, beverage, etc...</td><td>10%</td></tr>
<tr><td>C</td><td>Tee-shirt, jean, pant, etc...</td><td>20%</td></tr>
</table>
Write a chain to apply the correct VAT rate to the product customer bought and calculate a price.</td></tr>
</table>

<table>
<tr><td>12</td><td>A cloth showroom has announced the following seasonal discounts on purchase of items. Write a R program using switch and if statement to compute the net amount paid by a customer.
<table>
<tr><td>Purchase Amount</td><td colspan="2">Discount</td></tr>
<tr><td></td><td>Mill Cloth</td><td>Handloom Items</td></tr>
<tr><td>0-100</td><td>-</td><td>5%</td></tr>
<tr><td>101-200</td><td>5%</td><td>7.5%</td></tr>
<tr><td>201-300</td><td>7.5%</td><td>10%</td></tr>
<tr><td>301 and Above</td><td>10%</td><td>15.0%</td></tr>
</table></td><td></td></tr>
<tr><td>13</td><td>Find Sum of Series $1^2+2^2+3^2+\ldots..+n^2$.</td><td></td></tr>
<tr><td>14</td><td>Write a R program to print the numbers from 1 to 100 and print "Fizz" for multiples of 3, print "Buzz" for multiples of 5, and print "FizzBuzz" for multiples of both.</td><td></td></tr>
<tr><td>15</td><td>Write a R Program to find the sum of digits of a number reducing it to one digit using repeat loop.</td><td></td></tr>
<tr><td colspan="3">Last date of Submission:29/8/2024</td></tr>
<tr><td colspan="3">Assignment No.3 Based on Implementation of Classification and Clustering techniques using R/Python</td></tr>
<tr><td>1</td><td>We have four things grape, green bean, nuts and orange with two characteristic s sweetness (8, 3, 3, 7) and Crunchiness (5, 7, 6, 3). Among them two are fruit s, one is protein and one is vegetable. Suppose we wanted to classify tomato int o one of the classes. Is tomato a fruit, vegetable or protein? Tomato has the foll owing characteristics: sweetness = 6, crunchiness = 4. Let’s add Carrot with ch aracteristics sweetness = 4 and crunchiness = 9 keep k=1. Try for k=4 also.</td><td>CO3</td></tr>
<tr><td>2</td><td>Using Titanic.CSV file predict which people are more likely to survive after the
collision with the iceberg using Decision Trees.</td><td></td></tr>
<tr><td>3</td><td>Load the <code>tissue_gene_expression</code> dataset. Run a k-means clustering on the data with K=7. Make a table comparing the identified clusters to the actual tissue types. Run the algorithm several times to see how the answer changes.</td><td></td></tr>
<tr><td>4</td><td>Plot the distribution of distances between data points and their fifth nearest neighbors using the <code>kNNdistplot</code> function from the <code>dbscan</code> package. Examine the plot and find a tentative threshold at which distances start increasing quickly. On the same plot, draw a horizontal line at the level of the threshold (use Iris dataset)</td><td></td></tr>
<tr><td colspan="3">Last date of Submission:10/09/2024</td></tr>
<tr><td colspan="3">Assignment No.4 Based on Implementation of Association Rule Mining techniques using R/Python</td></tr>
<tr><td>1</td><td>Use the Apriori algorithm on the grocery dataset with minimum support to 0.001 and minimum confidence of 0.8 indicate the top 5 association rules that are generated and highlight the strong ones, sort them by confidence.</td><td>CO4</td></tr>
<tr><td>2</td><td>Use the Eclat algorithm on given Market Basket Dataset and predict the items which are bought frequently.</td><td></td></tr>
<tr><td colspan="3">Last date of Submission: 25/09/2024</td></tr>
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Assignment No.5 Based on Visualize all the statistical measures (mean, mode, median, range, inter quartile range, etc.) using Histograms, Boxplots, scatter plots, etc.		
		CO5
1	Find the mean, median, Mode, Range, Interquartile Range IQR and normal distribution of the physical-fitness scores. Third graders at Roth Elementary School were given a physical-fitness test. Their scores were: a. 12 22 6 9 2 9 5 9 3 5 16 1 22 18 b. 6 12 21 23 9 10 24 21 17 11 18 19 17 5 c. 14 16 19 19 18 3 4 21 16 20 15 14 17 4 d. 5 22 12 15 18 20 8 10 13 20 6 9 2 17 e. 15 9 4 15 14 19 3 24	
2	Plot the line graph using v<- c(7,12,28,3,41) and save the plot.	
3	Read the file moviesData.csv create a bar chart of critics_score for the first 10 movies. Save the plot.	
4	Create a scatterplot of imdb_rating and imdb_num_votes to see their relation and save the plot.	
5	Use the data set “mtcars”and create boxplot for “mpg” and “cyl” columns.	
6	Read the file movies Data.csv, create a histogram of the object named imdb_num_votes in this file. Save the plot.	
Last date of Submission: 11/10/2024		
Assignment No.6		
1.	Design and Develop real-time Data Science Application (e.g. Image Recognition/ Intelligent Assistant/ Recommendation System/ Fake News Detection/Emotion Recognition/Chatbot/Other)	CO6
Last date of Submission: 21/10/2024		

Internal Assessment Tools (20% Weightage)

Sr. No.	Assessment Tool	Total no. of Assignments	Marks of each	Total Marks
1	Lab Assignments (LA1 to LA6)	6	10	80 (converted to 30)
2	Viva	2	5	10
3	Mock practical Exam	1	10	10
			Total	**50**
			Converted to	**25**

Rubrics for Lab Assignments (LA)

Implementation	*Level of Understanding*	*On time Submission*	*Attendance*
2	*1*	*1*	*1*

External Assessment Tools (80% Weightage)

Sr. No.	Assessment Tool	Marks
1	Practical Exam	50
	Total	**50**