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SARDAR VALLABHBHAI PATEL EDUCATION SOCIETY
MANAGED

N. G. PATEL POLYTECHNIC

COMPUTER ENGINEERING DEPARTMENT

FORMAT FOR ASSIGNMENTS

Course Name (With Code): Introduction to Machine Learning (4350702)

Semester / Year: Fifth/third

Assignment Number: 1

Assignment CO Number: 4350702.a

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 2 Marks**
1	What is machine learning?
2	Explain tools and Technology of machine learning (any two).
Part – B	**Questions carrying 3 Marks**
1	List Applications of machine learning
2	How does Machine Learning work? Explain it with block diagram
3	List out Types of Machine Learning and explain any one in detail.
4	Provide real-life examples for each type of machine learning and discuss the key characteristics that distinguish them
5	Elaborate how machine learning is utilized in healthcare domain
6	Explain Reinforcement Learning in detail.
7	Differentiate between Supervised and Unsupervised Learning
Part – C	**Questions carrying 4 Marks**
1	Differentiate between machine learning and human learning

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Course Name (With Code): Introduction to Machine Learning (4350702)

Semester / Year: Fifth/third

Assignment Number: 2

Assignment CO Number: 4350702.b

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 2 Marks**
1	List out Numpy Mathematics Functions
2	Define Numpy Array.
Part – B	**Questions carrying 3 Marks**
1	How to create Numpy Array & how to access it explain with example.
2	What is CSV file? How to read CSV file in Pandas?
3	Write a NumPy program to implement following operation 3.1 to split an array of 14 elements into 3 arrays, each with 2, 4, and 8 elements in the original order 3.2 to stack arrays horizontally (column wise)
4	Write a NumPy program to implement following operation 5.1 to find the maximum and minimum value of a given flattened array 5.2 to compute the mean, standard deviation, and variance of a given array along the second axis
Part – C	**Questions carrying 4 Marks**
1	How can you set the font size of a plot using Matplotlib?
2	Explain Pandas series with example.
3	Explain Pandas Plotting with example.
4	Explain stack () function in Numpy
5	List out Numpy Statistics Functions & explain any two in detail.
6	Explain pie chart of Matplotlib.
7	Explain Key concepts and features of sklearn.
8	Explain array_split () function in Numpy.
9	Write a NumPy program to implement following operation 2.1 to convert a list of numeric values into a one-dimensional NumPy Array 2.2 to create a 3x3 matrix with values ranging from 2 to 10 2.3 to append values at the end of an array 2.4 to create another shape from an array without changing its data(3*2

	to 2*3)
10	Write a Pandas program to implement following operation 6.1 to convert a NumPy array to a Pandas series 6.2 to convert the first column of a DataFrame as a Series 6.3 to create the mean and standard deviation of the data of a given Series 6.4 to sort a given Series
Part – D	**Questions carrying 7 Marks**
1	How to create a series from a list, numpy array and dict?
2	Explain following function with its syntax and example. 1. power() 2. ptp() 3. meidan() 4. read_CSV()
3	Write a NumPy program to implement following operation 4.1 to add, subtract, multiply, divide arguments element-wise 4.2 to round elements of the array to the nearest integer 4.3 to calculate mean across dimension, in a 2D Numpy array 4.4 to calculate the difference between neighboring elements, element-wise of a given array
4	Write a Pandas program to implement following operation 7.1 to create a dataframe from a dictionary and display it 7.2 to sort the DataFrame first by 'name' in ascending order 7.3 to delete the one specific column from the DataFrame 7.4 to write a DataFrame to CSV file using tab separator

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Course Name (With Code): Introduction to Machine Learning (4350702)

Semester / Year: Fifth/third

Assignment Number: 3

Assignment CO Number: 4350702.c

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 2 Marks**
1	Give difference between Categorical Data & Numeric Data.
Part – B	**Questions carrying 3 Marks**
1	Relate the appropriate data type of following examples. i) Nationality of students ii) Feedback from students to faculty iii) Temperature in thermometer
2	What are the missing values? And how do you handle missing values?
3	Explain Data preprocessing.
4	Give difference between Categorical Data & Numeric Data.
5	Write a Pandas program to filter all columns where all entries present,check which rows and columns has a NaN and finally drop rows with any NaNs from the given dataset.
6	Write a Python program using Scikit-learn to print the keys, number of rows-columns, feature names and the description of the given data.
Part – C	**Questions carrying 4 Marks**
1	Classify following applications based on types of machine learning. 1. Handwriting Recognition 2. Market Basket Analysis 3. Healthcare Data Analysis

	4. Language Translation
2	Describe different types of Machine learning Activities.
3	Explain Types of Data in Machine learning.
4	Explain Data quality and remediation.
Part – D	**Questions carrying 7 Marks**
1	Explain Ensemble Approach for performance improvement in detail
2	Explain Confusion matrix with suitable example
3	Write a Pandas program to filter all columns where all entries present, check which rows and columns has a NaN and finally drop rows with any NaNs from the given dataset.
4	Write a Pandas program to find and drop the missing values from the given dataset.

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FORMAT FOR ASSIGNMENTS

Course Name (With Code): Introduction to Machine Learning (4350702)

Semester / Year: Fifth/third

Assignment Number: 4

Assignment CO Number: 4350702.d

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 2 Marks**
1	What is classification?
2	What is supervised learning?
Part – B	**Questions carrying 3 Marks**
1	Explain Logistic Regression with example.
2	Explain advantage and disadvantage of supervised machine learning.
3	Write a Python program to implement K-Nearest Neighbour supervised machine learning algorithm for given dataset.
Part – C	**Questions carrying 4 Marks**
1	List out types of supervised learning explain any one in detail
2	Write application of Linear regression in real world
3	Explain working of supervised machine learning.
Part – D	**Questions carrying 7 Marks**
1	Discuss K-NN algorithm in detail.
2	List out types of Regression Analysis. Explain Linear regression in detail.

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FORMAT FOR ASSIGNMENTS

Course Name (With Code): Introduction to Machine Learning (4350702)

Semester / Year: Fifth/third

Assignment Number: 5

Assignment CO Number: 4350702.e

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 2 Marks**
1	List types of Unsupervised Learning Models.
Part – B	**Questions carrying 3 Marks**
1	Define Unsupervised Learning Model with example.
Part – C	**Questions carrying 4 Marks**
1	List out Types of Unsupervised Learning & explain any one with example.
2	Explain Association with example?
Part – D	**Questions carrying 7 Marks**
1	List Clustering Methods and explain any two in detail.
2	Answer Following. 1. Need of unsupervised learning 2. Working of unsupervised learning

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