**Assignment**

1. **Explain feature transformation types along with examples?(Problem 1).**
2. **Consider the following data categorical nominal data(Problem 2)**

|  |  |
| --- | --- |
| Student\_RollNo | Course Taken |
| 1 | Machine Learning |
| 2 | Deep Learning |
| 3 | AI |
| 4 | Machine Learning |
| 5 | AI |

1. How the above data is converted into numerical with encoding techniques(At least two) (With table explain)
2. Justify why the conversion of categorical into numerical is required?
3. Write the python code for the above example

**(Problem 3)**

|  |  |
| --- | --- |
| Name | Grade |
| ABC | A |
| DEF | B |
| GHI | A |
| IJK | C |
| KLM | D |

1. How the above data is converted into numerical with encoding techniques (With table explain)
2. Justify why the conversion of categorical (ordinal)l into numerical is required?
3. Write the python code for the above example

Problem 4: Demonstrate the steps of Linear Discriminant analysis (LDA)(Problem).

Write a Python code to implement LDA.

**Problem 5:** Analyze the need of text feature extraction(Basics of Nature Language Processing) with an example

* Write the python code for analyzing the text features.

**Problem 6:**

* Calculate the SVD on any matrix and specify the properties of SVD
* Develop python code for applying SVD on image.

Problem 7: Demonstrate the steps of Principal Component analysis (Problem 7)

Write a Python code to implement PCA.

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| --- | --- |
| Problem | RollNo’s |
| problem1 | 2,3,6,9, 13,16,18,33,44,61 |
| problem2 | 1,7,14,21,28,35,42,49,56,le-3 |
| problem3 | 8,12,16,20,24,32,36,40,48,52, le-1 |
| Problem4 | 10,11,15,26, 31,37,39,53,55,57,59, |
| Problem5 | 5,17,19,23,47,4,60,le2,,4 |
| Problem6 | 22,25,27,29,30,34,35,38,41,43,45,46, , 63 |
| Problem7 | 4, 47,50,51,54,58, 62, ,64,le-5,le-6 |

Note: For each and every problem at the end you need write the observations/conclusion related to the solution

* If any roll no is repeated then choose one problem
* If any roll no is missing then do the problem 7
* Write the above assignment task on A4 papers or Continue in the earlier assignment book

**Last Date of submission: 13-9-2022**