VIGNAN'S NIRULA
INSTITUTE OF TECHNOLOGY & SCIENCE FOR WOMEN
(Approved by AICTE, New Delhi & Affiliated to JNTU Kakinada)
Vignan Avenue, Peda Palakaluru, Guntur - 522009

Department of Information Technology

Innovative Teeaching Practice

Faculty Name : Mrs.T.Naga Navya,Mr.B.V.Suresh Kumar
Course Name : Big Data Analytics
Class : III B. Tech II Semester
Academic Year : 2022-2023
Title of the Topic : Techniques for mining data stream
Activity Name : Think-Pair-Share

Objective of the Activity:
The objective of this Think-Pair-Share activity is to help students understand and analyze various techniques for mining data streams in Big Data Analytics. By focusing on methods such as sliding window, sampling, and approximation algorithms, students will explore how real-time data is processed and mined for insights.

Activity Procedure :

Preparation:

- Provide students with an overview of key data stream mining techniques, including sliding window, sampling, and approximation algorithms.
- Prepare sample data streams that demonstrate the characteristics of real-time, high-velocity data.
- Distribute worksheets with questions to guide students through the process of applying these techniques to the sample data streams.
- Briefly explain the techniques, their use cases, and how they address challenges in Big Data Analytics, such as the need for real-time processing, limited memory, and continuous data influx.

1. **Phase 1 – Think (5-7 minutes):**

- Students work individually on applying one mining technique to a sample data stream.
- They calculate and document the results of their chosen technique, such as identifying patterns, trends, or anomalies in the stream.
- Students also note the advantages and limitations of using this technique with the given data stream.

2. **Phase 2 – Pair (10-15 minutes):**

- Students collaborate with a partner to compare their results and discuss the technique they used.

- Each pair explores how different techniques (e.g., sliding window vs. sampling) affect the analysis of the data stream.
- Partners discuss the trade-offs of accuracy, efficiency, and memory usage between the techniques.
- Students are encouraged to brainstorm which technique would perform best under specific real-time conditions.

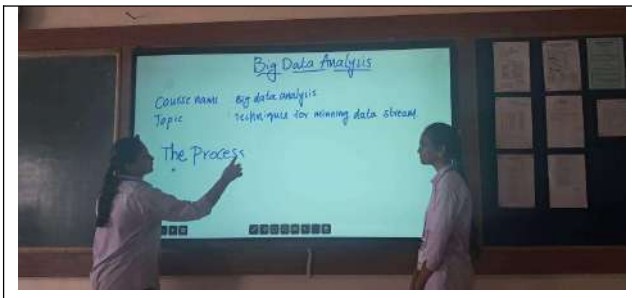
3. **Phase 3 – Share (10-12 minutes):**

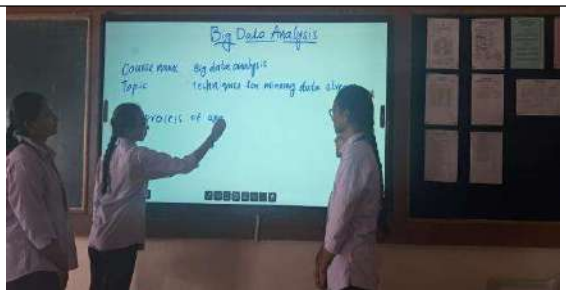
- Each pair shares their findings with the class, presenting their analysis, results, and insights on the data stream they worked with.
- A class-wide discussion follows, focusing on the strengths and weaknesses of each technique in different Big Data Analytics scenarios.
- The instructor helps to compare the techniques, highlight their practical applications, and provide real-world examples of how they are used in industries such as finance, e-commerce, and social media.

4. **Wrap-Up (5 minutes):**

- Reflect on the techniques explored and key learning outcomes.
- Discuss how different mining techniques can be applied to solve specific challenges in data stream analytics, such as dealing with large-scale, continuously generated data.
- Students share their thoughts on which technique they found most effective for the given task and why, gaining insights into the real-world applicability of these methods in Big Data Analytics.

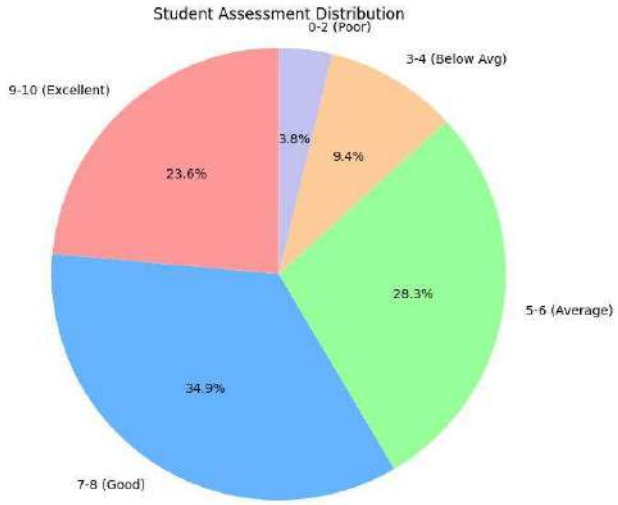
Screenshot of the Practice





Assessment Analysis

Marks Range	Number of Students	Percentage
9-10 (Excellent)	25	23.58%
7-8 (Good)	37	34.91%
5-6 (Average)	30	28.30%
3-4 (Below Avg)	10	9.43%
0-2 (Poor)	4	3.77%
Total	107	100%



Conclusion :

Techniques for mining data streams in Big Data Analytics play a critical role in managing and extracting meaningful insights from continuous, high-velocity data. Techniques such as sliding window, sampling, and approximation algorithms help address the challenges posed by real-time data processing, limited storage, and the need for timely analysis..

Signature of the Faculty **Head of the Department**