Data Warehouse

Predictive Analytics

- **Student Performance**
  - **Line Chart:** To get average grades for each semester across different courses
  - **Heatmap:** Show grade distribution across different courses and semesters.

- **Attendance Trends**
  - **Bar Chart:** Compare attendance rates for each course and semester.
  - **Line Chart:** Track attendance trends over time.

PRESIDIO®

Predictive Analytics

- **Resource Utilization**
  - **Pie Chart:** Splitting up the resource usage by type in a pie
  - **Line Chart:** Monitor the trend in resource usage hours over semesters.
  - **Bar Chart:** Compare resource costs by course or department.

- **Enrollment Trends**
  - **Bar Chart:** Track the number of students enrolled in each course over time as bar chart
  - **Stacked Area Chart:** Show the total number of students enrolled across different departments by semester.

PRESIDIO®

Predictive Analytics

- **Resource Utilization**
  - **Scatter Plot:** Correlate instructor experience with average student performance.
  - **Bar Chart:** Compare average grades across courses taught by different instructors.

PRESIDIO®

ETL Process

Extract:

- **Source Systems:** Identify various academic systems, such as Student Information Systems (SIS), Learning Management Systems (LMS), and Resource Management Systems.
- **Data Extraction:** Schedule regular extraction of data using APIs, database queries, or file exports.

PRESIDIO®

ETL Process

Transform:

- **Data Cleaning:** Remove duplicates, handle missing values, and standardize data formats.
- **Data Transformation:**
  - Normalize grades, attendance, and resource usage data to ensure consistency.
  - Aggregate data where necessary
  - Apply business rules to derive new metrics.

PRESIDIO®

ETL Process

Load:

- **Data Loading:** Insert the transformed data into the respective fact and dimension tables in the data warehouse.
- **Incremental Load:** Implement incremental loading to update the warehouse with new or modified data without reloading the entire dataset.
- **Data Validation:** Ensure data consistency and accuracy after loading by running validation checks.

PRESIDIO®

Thank You

PRESIDIO®