Exploratary Data Analysis

Course code: PMDS604L

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1) Creating standard chart in Tableau Desktop:

→ Steps to create charts:

i) Bar chart: Drag a categorical field to columns and a numerical field to rows. choose 'Bar' as the visualization type.

ii) Line chart: Drag a date or categorical field to columns and a numerical field to rows. change the mark type to 'Line'.

iii) Scatter plot: place one measure on columns and another on rows. Add a dimension to "Detail" to distinguish points.

2) Advantages of Interactive visualization:

i) Deeper Insights: User can filter, drill down, and interact with data dynamically.

ii) Better storytelling: Interactive elements like hover tooltips and slicers help in understanding trends.

Example: A sales dashboard where users can filter by region, product category, and date to analyze performance.

3) Benifits & challenges of power BI:

→ Benifits:

i) Easy integration with microsoft ecosyst.
ii) strong AI powed at analytics and data modelling.
ii) Interactive reports and dashboard.

→ Challenges:

i) Learning curve for complex DAX queries.
ii) performance issues with very large datasets.
iii) Licensing ~~cons~~ costs for premium features.

4) Steps to create dashboard in Tableau Desktop:

step-1: connect to a data source
step 2: Create individual worksheets with required charts.
Step 3: Drag these sheets onto a dashboard.
Step 4: Add interactivity using filters and actions.

5) Interactive Dashboard in python:

→ plotly: Creates highly interactive graphs with zoom & hover features.

→ Bokesh: Allows dynamic updates and streaming of live data.

→ Dash: Used for building web-based dashboards with python.

6) Steps of Building power BI reports;

Step 1: Import data (Excel, SQL, etc).

Step 2: Transform and clean ~~query~~ data using power query.

Step 3: Create relationship in data models.

Step 4: Build visualization using charts, tables and slicers.

Step 5: publish to power BI service for sharing.

7) Importance of Data modeling in Power BI:

→ Ensure data consistency and accuracy.

→ Relationship between tables allow dynamic filtering and aggregation.

8) Visualizing Geospatial Data in Tableau & Power BI:

Step 1: Ensure location data is available.

Step 2: In tableau assign "Geographic Role" to location fields.

In power BI use "Map" or "Filled map" visuals.

Before that ensure accessing map data is allowed from the settings in power BI & Internet is connected.

9) configuring RLS :-

→ Power BI : Defines roles in power BI using DAX filters, then assign them in power BI service.

→ Tableau : Use filter and calculated fields to restrict data access.

10) Designing clean & user-friendly Dashboard :

→ Strategies :

i) minimalism : Avoid unnecessary visuals and excessive text.

ii) Consistency : Use uniform colours, fonts and spacing.

iii) User Guidence : Use tooltips, legends and navigation buttons.

→ Example : A KPI dashboard should highlight key metrics with drill down options for details.