5.2. Student Handout

Student Handout: Using Scored Output from a Machine Learning Model in Power BI

Welcome to the session on using scored output from a machine learning model in Power BI. This handout will guide you through the key concepts and steps involved in integrating and visualizing machine learning predictions in Power BI.

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1. Connecting Power BI to the Scored Data

Key Steps:

- **Open Power BI Desktop**: Start by launching Power BI Desktop.
- **Get Data**: Click “Get Data” and select your data source (e.g., database, Excel file, dataflow).
- **Connect to the Dataflow**: Authenticate and connect to the dataflow containing the scored output.

Examples:

1. Connect to a SQL database containing customer prediction scores.
2. Import scored data from an Excel file stored on OneDrive.
3. Access a Power BI dataflow with sales predictions.

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2. Importing and Visualizing the Scored Output

Key Steps:

- **Load the Data**: Click “Load” to import the data into Power BI.
- **Create Visuals**: Use the data to create visuals like bar charts and tables.

Examples:

1. Create a bar chart showing the distribution of prediction scores.

2. Display a table with customer IDs and their corresponding prediction scores.
3. Use a pie chart to visualize the proportion of high, medium, and low prediction scores.

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3. Understanding the Results and Patterns in the Scored Data

Key Questions:

- What is the average prediction score?
- Are there any outliers?
- How does the prediction score correlate with the actual outcome?

Examples:

1. Calculate the average prediction score for all customers.
2. Identify customers with prediction scores significantly higher or lower than the average.
3. Use a scatter plot to compare prediction scores with actual purchase outcomes.

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4. Building Reports Using Scored Output

Key Steps:

- **Create Visuals**: Develop charts, tables, and graphs.
- **Add Filters**: Implement filters for data segmentation.
- **Add Titles and Descriptions**: Ensure clarity with descriptive titles.

Examples:

1. Build a report page with visuals showing prediction scores by region.
2. Add a filter to view data for a specific product category.
3. Include a title and description for each visual to explain its purpose.

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5. Creating Charts, Tables, and Visuals Based on Model Predictions

Key Steps:

- **Drag and Drop Fields**: Use fields from your dataset to create visuals.
- **Customize the Visuals**: Adjust colors, labels, and titles for clarity.

Examples:

1. Create a line chart to show prediction score trends over time.
2. Develop a table listing top 10 customers by prediction score.
3. Use a stacked bar chart to compare prediction scores across different customer segments.

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6. Building Interactive Dashboards for Decision-Making

Key Steps:

- **Pin Visuals to the Dashboard**: Add visuals to a dashboard.
- **Add Interactivity**: Use slicers and filters for user interaction.

Examples:

1. Pin a bar chart and table to a dashboard for a quick overview.
2. Add a slicer to filter data by customer region.
3. Use a filter to display only customers with scores above a certain threshold.

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7. Best Practices for Visualizing Machine Learning Insights in Power BI

Best Practices:

- Use clear titles and labels.
- Avoid overloading the dashboard.
- Use color wisely to highlight key information.

Examples:

1. Ensure each visual has a descriptive title and axis labels.
2. Limit the number of visuals on a single dashboard page.

3. Use color to differentiate between high and low prediction scores.

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8. Highlighting Key Metrics and Predictions

Key Metrics to Highlight:

- Average Prediction Score
- Accuracy of the Model
- Top 10 Customers by Prediction Score

Examples:

1. Display the average prediction score prominently on the dashboard.
2. Include a visual showing the model's accuracy rate.
3. Highlight the top 10 customers with the highest prediction scores.

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9. Using Slicers and Filters to Drill into Model Performance

Key Steps:

- **Add a Slicer**: Drag a field to create a slicer.
- **Use Filters**: Focus on specific data segments.

Examples:

1. Add a slicer to filter data by customer segment.
2. Use a filter to show only customers with prediction scores above 0.8.
3. Implement a slicer to explore data by different time periods.

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10. Hands-On: Building a Power BI Report Using the Scored Output

Key Steps:

- **Connect to the Scored Data**: Use “Get Data” to connect.
- **Create Visuals**: Develop various charts and tables.
- **Add Slicers and Filters**: Enhance interactivity.
- **Build a Dashboard**: Compile visuals into a dashboard.

Examples:

1. Connect to a dataflow with customer purchase predictions.
2. Create a bar chart, table, and line chart to visualize the data.
3. Add a slicer to filter by product category and pin visuals to a dashboard.

Conclusion

You have now learned how to integrate and visualize machine learning predictions in Power BI. Practice these steps to enhance your skills and create insightful reports and dashboards.