DOUGLAS COLLEGE

COMMERCE & BUSINESS ADMINISTRATION
COMPUTING STUDIES & INFORMATION SYSTEMS
COMPUTER AND INFORMATION SYSTEMS (PBD)

CSIS 4495-050: APPLIED RESEARCH PROJECT

Progress Report 4:
End-to-End Data Engineering Solution for HR Analytics

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NEW WESTMINSTER/BC
FALL/2025

1.0 Work Hours

Date	Number of Hours	Description of Work Done
10/26/2025	3	Finalize Dash Course from Udemy (Complete sections 1-8) with completion certificate
10/31/2025	2	Update Web Application to connect to Databricks instead of fetching data from local CSV
11/1/2025	3	Add more graphs to the Dashboard: • Workforce Demographics • Promotion and Career Progression
11/2/2025	2.5	Update overall visuals of dashboard: • Separate each graph to respective tabs • Add theme • Customize CSS styling
11/6/2025	3	Meeting for midterm video presentation: • Discuss key points • Division of parts for the video • Time allocation for each member
11/6/2025	1.5	Update the script for web application part. Add more details for each section for web application demo
11/7/2025	4	Meet up with teammates for tentative video recording

2.0 Description of Work Done

Between October 26 and November 7, 2025, significant progress was made in developing and refining the Web Application for HR Analytics Dashboard. On October 26, I finalized the Plotly Dash course from Udemy (Sections 1–8), completing all modules and obtaining a certificate of completion. This training strengthened my understanding of Dash fundamentals, callback functions, interactive components, and layout customization, which directly supported our dashboard development.

By October 31, I updated the web application to connect directly to Databricks SQL instead of using static local CSV files. This marked a major milestone in integrating the visualization layer with our data engineering pipeline, enabling the dashboard to retrieve live data from the Gold Layer and demonstrate real-time analytical capability.

On November 1, I improved the dashboard's analytical scope by adding new visualizations for Workforce Demographics and Promotion and Career Progression. These additional charts enhanced the overall insight of the dashboard, allowing users to explore employee distribution, tenure, and advancement trends interactively.

On November 2, I focused on improving the dashboard's overall visual design and user experience. Each visualization was organized into its respective tab for better navigation, and a unified Plotly theme was applied to ensure consistent color schemes and font styles. I also added customized CSS styling making the interface look closely wih Power BI-style dashboards.

During November 6, our team met to prepare for the midterm video presentation. We discussed the key talking points, divided responsibilities among members, and allocated the time each section would take in the final video. Later that day, I revised and expanded the web application script used in the presentation, ensuring that each section of the demo, such as data connection, layout structure, interactivity, and visualization features, was clearly explained and well-timed.

Finally, on November 7, the team conducted a follow-up meeting for a tentative video recording session. We practiced transitions between segments, refined explanations of technical features, and confirmed the sequence of demonstrations for the final presentation.