**Executive Summary – DSA 2040A Group Project**

***Team Members & Roles:***

-

***1. Project Overview***

-

***2. ETL Process Summary***

**Initial extraction and short data inspection:**

* Loaded the cybersecurity intrusion CSV into a pandas DataFrame.
* Ran quick previews (.head(), .info()) to verify column types and sample content.
* Assessed data quality by counting missing values and detecting duplicate rows for subsequent data steps.

***3. Exploratory Data Analysis Summary***

-

***4. Data Mining Techniques & Findings***

-

***5. Insights & Dashboard Overview***

The Power BI dashboard analyzes cybersecurity session data to support intrusion detection and risk assessment. It is organized into two pages:

**Page 1: Risk & Threat Analytics**

Focuses on identifying suspicious sessions and highlighting threat patterns.

**Key Visuals:**

* **Attack vs. Non-Attack Sessions (Donut chart) -** Shows the overall distribution of attack-labeled vs safe sessions.
* **Top 20 Risky Sessions (Table) -** Lists sessions with the most critical risk factors (e.g., failed logins, low IP reputation).
* **Failed Logins by Browser (Stacked bar chart) -** Identifies browsers frequently used in failed login attempts.
* **Top 10 Longest Sessions (Clustered column chart) -** Highlights potentially stealthy or persistent session activity.
* **KPI Cards:** Summarize average attack rate, failed login attempts and IP reputation scores.

**Page 2: Cybersecurity Session Overview**

Provides broader trends across protocols, encryption and session behaviors.

**Key Visuals:**

* **Sessions by Encryption Type (Stacked column chart) -** Displays counts of sessions using AES, DES or no encryption.
* **Unusual Time Access (Pie chart) -** Shows the proportion of sessions occurring at non-standard hours.
* **Protocol Type Distribution (Donut chart) -** Compares session counts by protocol (TCP, UDP, ICMP).
* **Browser vs. Attack (Stacked bar chart) -** Relates browser usage to attack frequency.
* **Top 10 Sessions by Network Packet Size (Table) -** Displays the largest data sessions with browser and protocol details.
* **KPI Cards -** Show total sessions, number of attack sessions and average session duration.
* **Filters & Interactivity:** Includes a slicer to filter by protocol type for deeper drill-down.

***6. Tools & Libraries Used***

-

***7. Add whatever I may have missed***