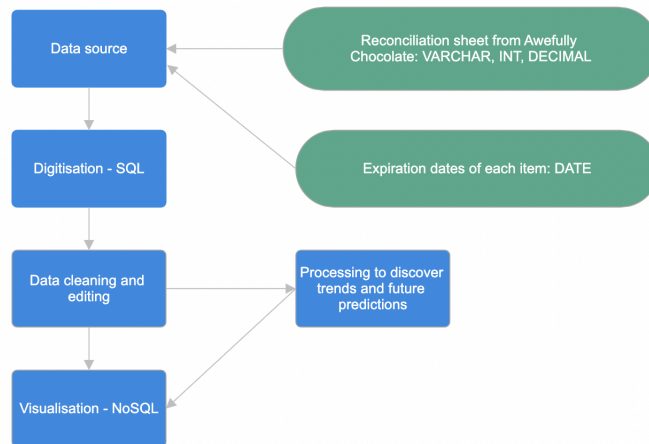


Group Report — Milestone 2

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Q1) The app uses the data collected by Awfully Chocolate (AC) on a day-to-day basis, recorded on the “Recon Sheet”, short for Reconciliation Sheet. This sheet contains information pertaining to: stock counting at the start and end of the day, wastage tabulation along with reason for wastage, in-store sales, 3rd party food delivery sales, and stock-in (when the branch receives new inventory from the central kitchen/factory). This recon is done manually using pen and paper at the end of the day, using a hand calculator to tabulate.



Additional data to include: special events happening on that day (Church service, Concerts, Public Holiday), requests turned down (customer asked but no stock) and expiry date of each product. The special events for each day could be linked via an API to The Star Performing Arts Centre’s database of events and to Singapore’s Google Calendar for observed public holidays.

Q2) For AC, inventory and operational data of a cafe being leaked or undermined by the app does not pose a substantial privacy risk as figures would be publicly estimable without a far deviation from the norm for cafes. However, there are still security issues for our app. This includes unauthorised access to more sensitive branch-specific sales data which pertains to strategy that AC may want to keep away from competing chains, and risks associated with integrating with third-party systems of communications between cafe branches and charities. To address these concerns, we aim to implement **mitigation strategies**, from technical backend supplemented by our course learnings – like **end-to-end encryption** for secure data transmission – to human user aspect oriented approaches, such as comprehensive **data privacy policy** as outlined below, and strict authentication measures.

Our app places a emphasis on safeguarding user privacy with prioritise minimal personal data collection, focusing on **two key areas**: past records on food wastage retrieved through the reconciliation sheet, and the expiry dates of stocks, obtained via the delivery order. We will only gather information directly relevant to these areas, such as the types of wasted food items and their quantities, as well as the expiration dates of stocked items. This data will solely be utilised to optimise inventory management, reduce food wastage, and ensure the freshness of stocked goods.

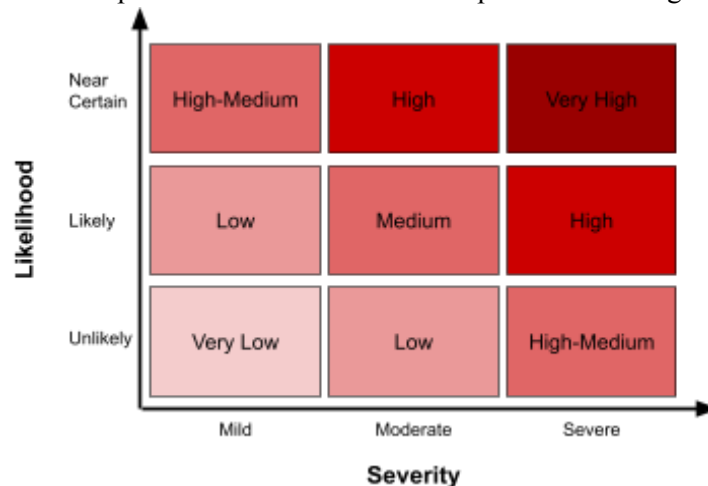
Furthermore, our app is designed to operate on a need-to-know basis, limiting access to sensitive information only to authorised personnel directly involved in inventory management tasks. The collected information will be strictly utilised for internal purposes, such as generating insights to streamline inventory operations, identifying patterns in wastage, and making informed procurement decisions. Under no circumstances will this data be shared with third parties or used for any commercial purposes.

In the event of any data sharing, it will only be the name of the employee to ensure accountability. This information might only include their name and employee ID which is a fair trade off for accountability and privacy of employees using the app. Overall, our data privacy policy is guided by

the principles of transparency, minimalism, and confidentiality, ensuring that users' personal information is handled with the utmost care and respect for their privacy rights.

Risk	Likelihood	Severity	Mitigation
Unauthorised access to sensitive sales data, such as discount strategies, which can be targeted by competing branches	Likely	Severe	Implement end-to-end encryption for sales data transmission, enforce strict user authentication protocols, and conduct regular security audits to identify and mitigate unauthorised access attempts.
Risks associated with integrating third-party inventory management systems	Likely	Moderate	Conduct thorough security assessments of third-party APIs, implement secure data transmission protocols, and enforce access controls to limit exposure of sensitive inventory information.
Interception of communications between cafe branches and charities due to	Unlikely	Moderate	Utilize robust encryption protocols for all communication channels, enforce secure authentication mechanisms, and regularly monitor communication networks for any suspicious activities or potential breaches.
Weak Password Policies: Employees using easily guessable or commonly used passwords.	Near Certain	Moderate	Two-Factor Authentication adding an additional layer of security beyond passwords, user awareness and training
Third-Party Risks: Security vulnerabilities in third-party integrations or services used by the app.	Unlikely	Mild	Strong encryption, with data transmission and storage without encryption, exposing it to interception.
Insider Data Theft: Employees intentionally stealing sensitive data for personal gain or malicious intent.	Unlikely	High	Role-based access control, user activity monitoring, data encryption, develop and maintain an incident response plan
Advanced Persistent Threats (APTs): Covert and sophisticated attacks aiming to infiltrate and persist within the company's network for espionage or sabotage e.g. DDoS Attacks	Unlikely	High	A comprehensive suite of security policies, including authentication and access control, end-to-end encryption, user awareness and training, regular security audits and penetration testing.

Our categorisation of risks for prioritisation of technical data protection strategies and policy :



Q4) Uploaded to Github (Email sent to Prof Mikhail)

We have five essential sheets in our SQL database: Firstly, the ID page offers a comprehensive overview of all products, including their categories and flavors. Secondly, the recon sheet provides crucial data such as costs, Start-Of-Day stock count, stock-in from the kitchen or factory, sales tabulation (price x quantity sold), orders for delivery services (such as Foodpanda, Grab), accumulated wastage, and End-Of-Day stock count. The subsequent page outlines product expiry dates, ranging from one day to one week. Following that, the fourth page delineates sales that were turned down and the corresponding lost revenue. Lastly, the final page furnishes daily insights, encompassing footfall, the most popular and wasted products, and the revenue loss stemming from food waste.