

Theme – Improve Company's Data and Technology Infrastructure

Initiative 1 – Create a Data Warehouse

Epics

- A. Database System – The inventory and other data should be housed and managed in a database or pseudo-database. The usual create, read, update, delete (CRUD) operations should be possible so that individual products can be added, verified, updated, or deleted in the DB/pseudo-DB.
- B. Database Testing – To test the inventory DB, and to convince the executives in the company to continue investing in technology, there should be a way to simulate the inventory DB being updated through customer/buyer events (i.e. products being removed and/or quantities being decreased). [See the file named `customer_orders_teamX.csv` in your team's MS Teams -> Files directory.]
- C. Customer Orders in Database – The finance, marketing, and sales departments want to understand customers better but need the historical data to do so. They want to have a database/pseudo-DB that stores all of the customer order information along with the time and date of their orders. [This database will grow each simulated "day".]
- D. Data Governance for Customer Info – For security and regulatory purposes, it is required that access to customer PII (personally identifiable information) be restricted (or is capable of being restricted). All data tables with customer info should use a separate look-up table (with fields: `hashed_email` and `unhashed_email`). The hashed email is the one that should be used in tables that have broader access (e.g. customer order information). The unhashed emails should only be the look-up table (and with more limited access – although don't worry about permissions for our team projects). The customer should never see their hashed email of course, but behind the scenes (e.g. updating customer order history table), the hashed email should always be used.

Initiative 2 – Customer Features/Services

Epics

- E. Customer Orders - Customers should be able submit orders either via web/email/messaging platform. The customer will need to provide an email address, shipping address, and one or more tuples of the form (product id, quantity) denoting which product(s) they wish to buy and how many.
- F. Customer Chat/Messenger Service – Customers should be able to message the business on a common messenger platform (e.g. Slack, FB Messenger, etc.) and make the following requests such as the following (and maybe others):
 - a. Show me my past orders
 - b. Recommend a product to me
 - c. What products are available for less than \$20?
- G. Customer Replies and Cancellations – Customers should receive a confirmation (via email/message) when they make an order. They should also be able to cancel an order within a certain amount of time, and receive a confirmation of the cancellation.

Initiative 3 – Finance/Marketing Analytics

Epics

- H. Marketing Reports – The company’s marketing and sales departments wants to receive daily/weekly/monthly reports showing which were the ‘X’ most-ordered products, and who were the ‘X’ best customers (ordering the most by dollar amount).
- I. Finance Reports – The company’s finance department wants to receive weekly reports of:
 - a. Total number customer orders coming in
 - b. Total dollar amount of customer orders coming in
 - c. Change in number of customer and dollar amount of orders for this week vs earlier weeks
 - d. Reports should show a time-series plot for previous 3 months of both of these to allow for quick visual confirmation of what is happening over time.
- J. Instant Remarketing Emails – The marketing and sales departments want to have an email sent to a customer immediately after they make an order. The email should make a recommendation to the customer to buy one or more additional products. The recommended projects will be determined based on what past customer have often purchased when buying the same product.