Product Price & Stock Tracking Database

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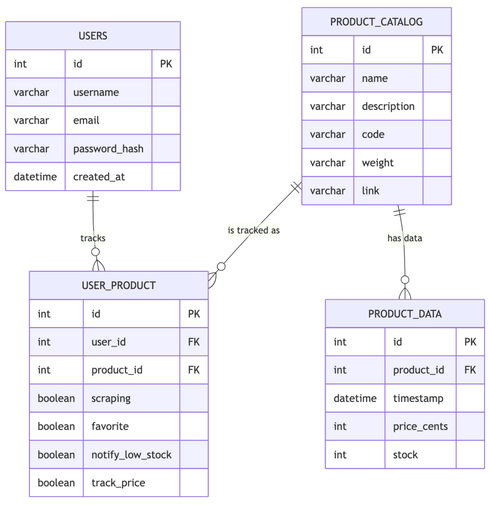
Overview

- This database is used to track and store the price and stock quantity history of products on *AzureStandard*. Users can choose which products they want to track and see their historical data.
- A user will be able to evaluate price or stock trends. They can generate reports or graphs and set notifications to know when a product hits their price target.

Design

- Four tables: users, user_product, product_catalog, product_data.
- User_product associates users and products.
- All tables normalized
- Key decision, didn't normalize weight column to maintain simplicity.
- Users – holds the users of the database.
- User_product – contains user and product associations
- Product_catalog – all the products that are in the database.
- Product_data – current and historical data of each product

ER Model



Data

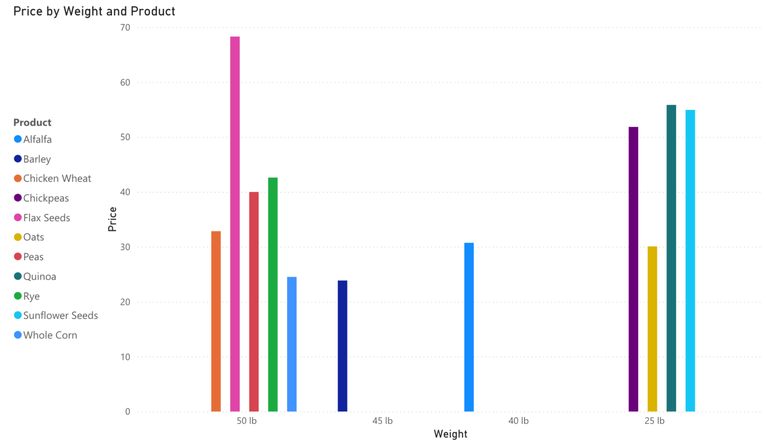
- Users has data like: user_id, username, email, password, created_at date.
- Example: (3, ben, ben@gmail.com, hash3, current_timestamp)
- User_product has: id, user_id, product_id, scraping, favorite, and notify_low_stock.
- Example: (1, 2, TRUE, FALSE, TRUE, TRUE)
- Product_catalog: id, name, description, code, weight, and link.
- Example: (2, Oats, desc…, 123ABC, 50lb, https://…)
- Product_data: id, product_id, timestamp, price_cents, stock
- Example: (1, 2024-06-24 17:24:47, 2358, 2589)

Queries

- CREATE VIEW user_favorites_latest AS
- SELECT u.username, pc.name AS product_name, pd.price_cents, pd.stock
- FROM users u
- JOIN user_product up ON u.id = up.user_id
- JOIN product_catalog pc ON up.product_id = pc.id
- JOIN product_data pd ON pc.id = pd.product_id
- WHERE up.favorite = TRUE
- AND pd.timestamp = (SELECT MAX(timestamp) FROM product_data WHERE product_id = pc.id);
- SELECT * FROM user_favorites_latest;

```
+----------+-----------------+-------------+--------+
| username | product_name    | price_cents | stock |
+----------+-----------------+-------------+--------+
| clay     | Oats            |        2985 |   101 |
| david    | Oats            |        2985 |   101 |
| ben      | Oats            |        2985 |   101 |
| ben      | Chicken Wheat   |        3305 |  1220 |
| clay     | Alfalfa         |        3080 |   920 |
| ben      | Whole Corn      |        2445 |   470 |
| clay     | Sunflower Seeds |        5505 |    87 |
+----------+-----------------+-------------+--------+
```

Reports



- The above graph displays the price of a product and its weight.
- The below report shows the minimum quantity of stock the product ever had and the date of the occurrence.

Product	Min of stock	Year	Month	Day
Alfalfa	910	2024	August	19
Barley	2589	2024	June	24
Chicken Wheat	1052	2024	July	1
Chickpeas	690	2024	July	8
Flax Seeds	820	2024	July	1
Oats	98	2024	July	8
Peas	355	2024	July	1
Quinoa	1320	2024	July	1
Rye	600	2024	July	29
Sunflower Seeds	60	2024	July	1
Whole Corn	460	2024	July	29
Total	**60**			

Future Work

- In the future this database could have an expanded users table with different user permissions, or custom alerts. One useful change may be to add normalized weight fields for more in depth reporting. Another addition could also be a logging table for debugging and monitoring.

Works Cited

"Standard of Healthy & Abundant Living - Azure Standard." *www.azurestandard.com*, www.azurestandard.com/.