EasyMarket

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Abstract

Increasingly people choose to shop online rather than visiting real stores. The current global pandemic has further strengthened this global trend of online shopping. Our main goal is to primarily set up an efficient database which can facilitate buying and selling of used products among people in an E-commerce web - platform .

1 Problem Statement

We aim to build an E-commerce platform for users to buy and sell quality items at a reasonable and negotiable cost.

The tentative design of the tables and the database include:

- User Login Information: The username and a masked password for validation while logging into the website
- User Personal Information: Name, Address, Contact Details, other personal Information and overall rating of the user
- User Purchase History: All items, cost, seller and item description purchased by the user
- User Sale History: All items, cost, buyer, item description and Sale status (Available or Sold) of items sold by the user.
- User Item Interest: This table contains items an user is looking to purchase and is currently not available in the market or does not meet his expectations.
- Item List: This table contains information of list of all items along with the description up for sale

2 Motivation

We would like to build a scalable database system which can handle large number of users who have a high number of items for sale listed. We would like to keep track of items purchased and items the user has so that we can perform analytics to customize and enrich the experience of the users. We cannot use excel over databases for the following reasons

- Databases can handle large amounts of data efficiently whereas excel sheets are limited to a set of records. Our system would have huge amount of data of users and items
- Excel can handle only text and numbers, whereas databases can easily incorporate different types of data like images, documents. Our system would include images of data for each item which can be handled by a database.
- Databases can quickly search and scan the databases for requested information whereas excel cannot do so efficiently
- Updates and deletion of users, item purchase history, etc to databases are very easy as in comparison to Excel and the processes are easily automated in databases
- We also want to discover values from the data, such as building recommendation systems and mining frequent patterns in purchases history. These tasks could not be easily done in excel.

3 Targeted Users

- Buyers - Individuals or companies looking to purchase items
- Sellers - Individuals or companies looking to Sell items
- Analysts - To develop new products and discover value from data

4 Relations

- Login Information : Information about the login credentials of the user and his forget me questions in case he wishes to reset password

Attributes	Data Type	Sample	Description
UserID	String	abc@gmail.com	Primary Key
Password	String	******	Masked Password
Forget Me Question	String	What is you favourite color?	Question
Forget Me Answer	String	***	Masked Answer

- User Information :Personal information of a user

Attributes	Data Type	Sample	Description
UserID	String	abc@gmail.com	Primary Key
Name	String	Surya Iyer	Full name
Phone Number	String	+1 (555) - 555 - 5555	Formatted Phone Number
Address	String	Pittsburgh, 15217	Address
Total Rating	double	36	Sum of all ratings Received
Number of Ratings	int	9	Number of all ratings Received
User Rating	float	4.0	Ratio of Total/Number

- User Item Description :List of all items User has put up for sale

Attributes	Data Type	Sample	Description
UserID	String	abc@gmail.com	Primary Key
ItemID	String	xxxxxxxx	Unique id for item
Cost	Numeric	150	Cost of item
Date of Sale	Timestamp	2020-05-02	1900-01-01 if not sold

- User Purchase History :List of all items User has purchased

Attributes	Data Type	Sample	Description
UserID	String	abc@gmail.com	Primary Key
ItemID	String	xxxxxxxx	Unique id for item
Cost	Numeric	150	Cost of item
Date of Purchase	Timestamp	2020-05-02	Date of Purchase

- Items for Sale

Attributes	Data Type	Sample	Description
ItemID	String	xxxxxxxx	Unique id for item
Item	String	Apple Earpods	Item name
Item Description	String	Headphones	Description of item
Cost	Numeric	150	Cost of item
Date of Upload	Timestamp	2020-05-02	Date when loaded

5 Web Interface

The web interface would contain multiple pages which include

- Login and Signup Page - A form where the user will requested an id password or the user will allowed to create a new account by means of a form requesting personal information
- Homepage - This page will show recommended items which are currently in sale for the user and allow the user to search for items which he would like to purchase. The search will hit the items for sale database and return the matched items in a similar view

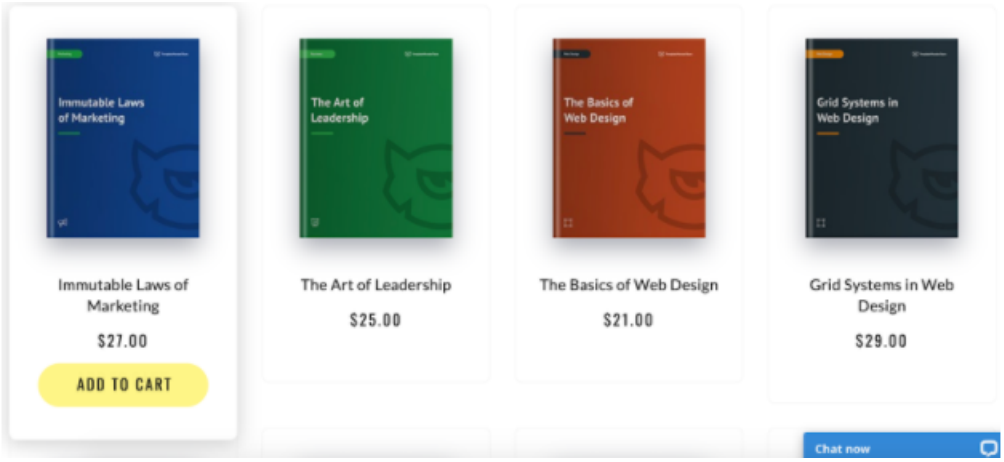

Figure 1: Page when searched for books

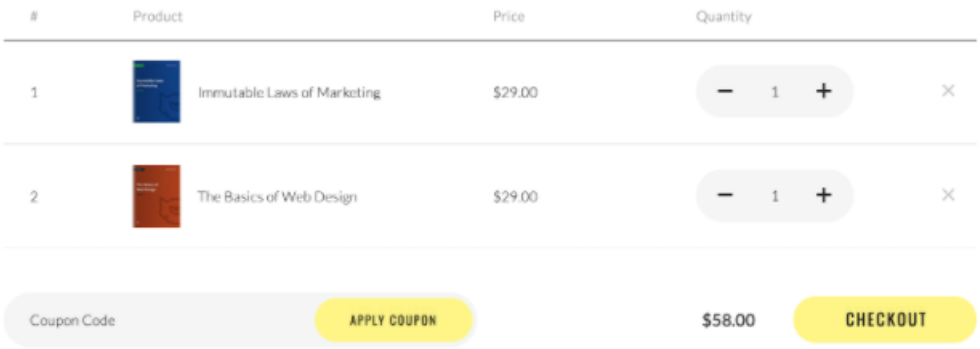

Figure 2: Caption

- Purchase Page - This page is the purchase page where the user confirms his purchases and it loads the data into user Purchase history
- Item upload page - The User can upload the items he wishes to sell.

6 Data

- Creating toy datasets by generating unique values for each primary and foreign key and random sampling values for the other fields in each relation (table)
- Web scraping open data source platforms with buyer and seller data available like eBay or Amazon
- Purchasing data from data exchange platforms like BDEX and Dawex