

CS 5200 – Project Final Report

Community Rental App

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Description

For our final project, we created a community rental application. The data stored will contain users, items, item categories, item listings, user wishlists, ratings for users and items, and payment information. The users of the application can be a customer and/or a seller. A customer can rent items from sellers and create a wishlist of items they would like to rent. A seller owns items that customers can rent and list items they have available. Items for rent belong to a specific category (e.g., bike, book, sports equipment, etc.). Customers and sellers can rate each other, based on how well they treated the item while in use (customer), and how communicative they were (seller). Customers can also leave a rating for items they have rented. Users can search for items (by category, owner, or item ID) that they're looking for. The database also keeps track of the different payment information and payment types for each user.

README

Steps to run application for the first time:

- Run project_data_dump.sql
- python3 -m pip install PyMySQL
- pip install cryptography
- pip install bcrypt
- pip install tabulate
- python3 community_rental.py

Steps to run application after the first time:

- python3 community_rental.py

Technical Specifications

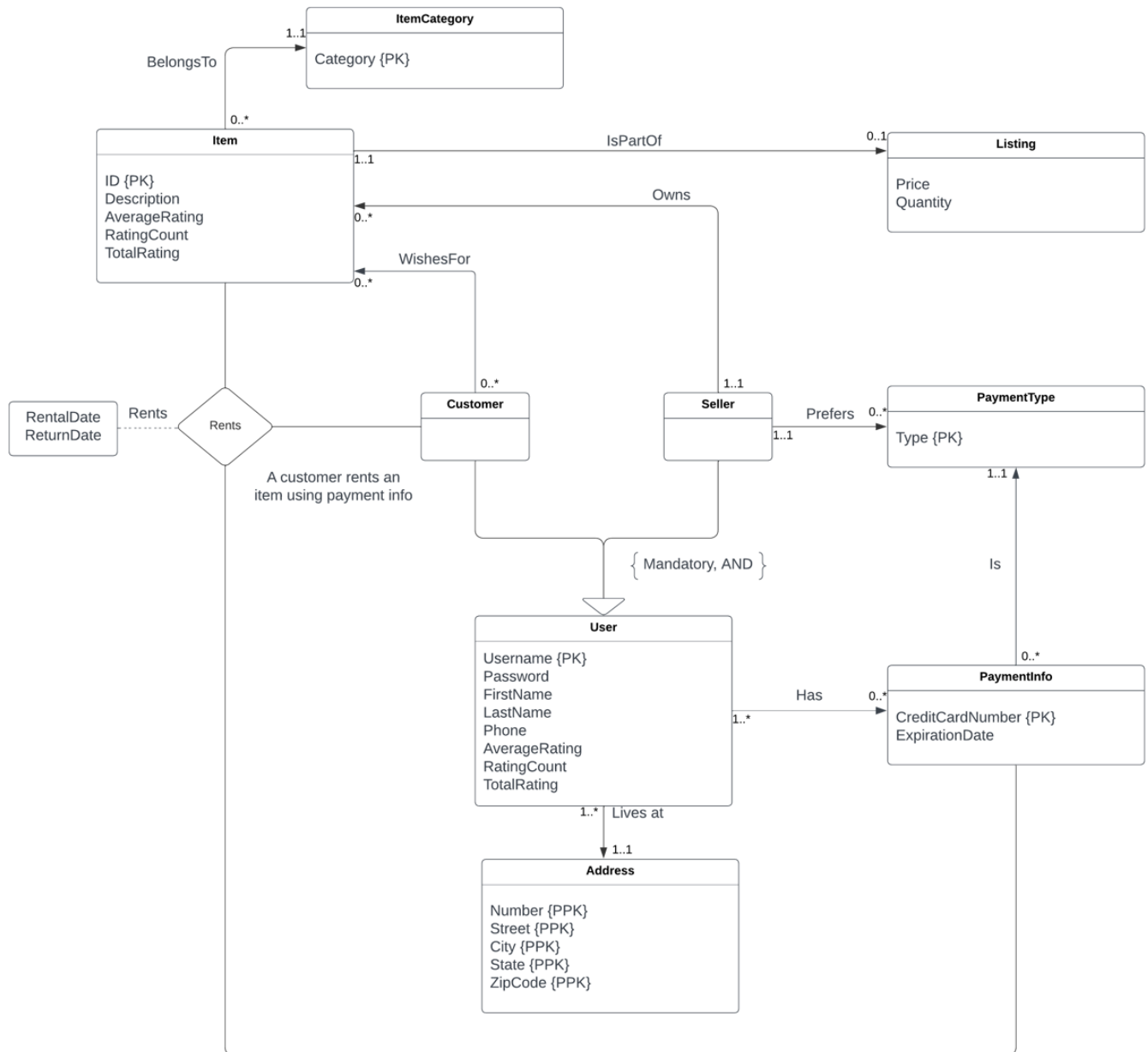
We used SQL and MySQL Workbench to create and manage the database. The user application was created with Python 3.9 and connected to the database via PyMySQL. We made use of the 'bcrypt' and 'cryptography' Python packages to encrypt user passwords, and the 'tabulate' Python package to improve the command-line table presentation.

Bcrypt: <https://pypi.org/project/bcrypt/>

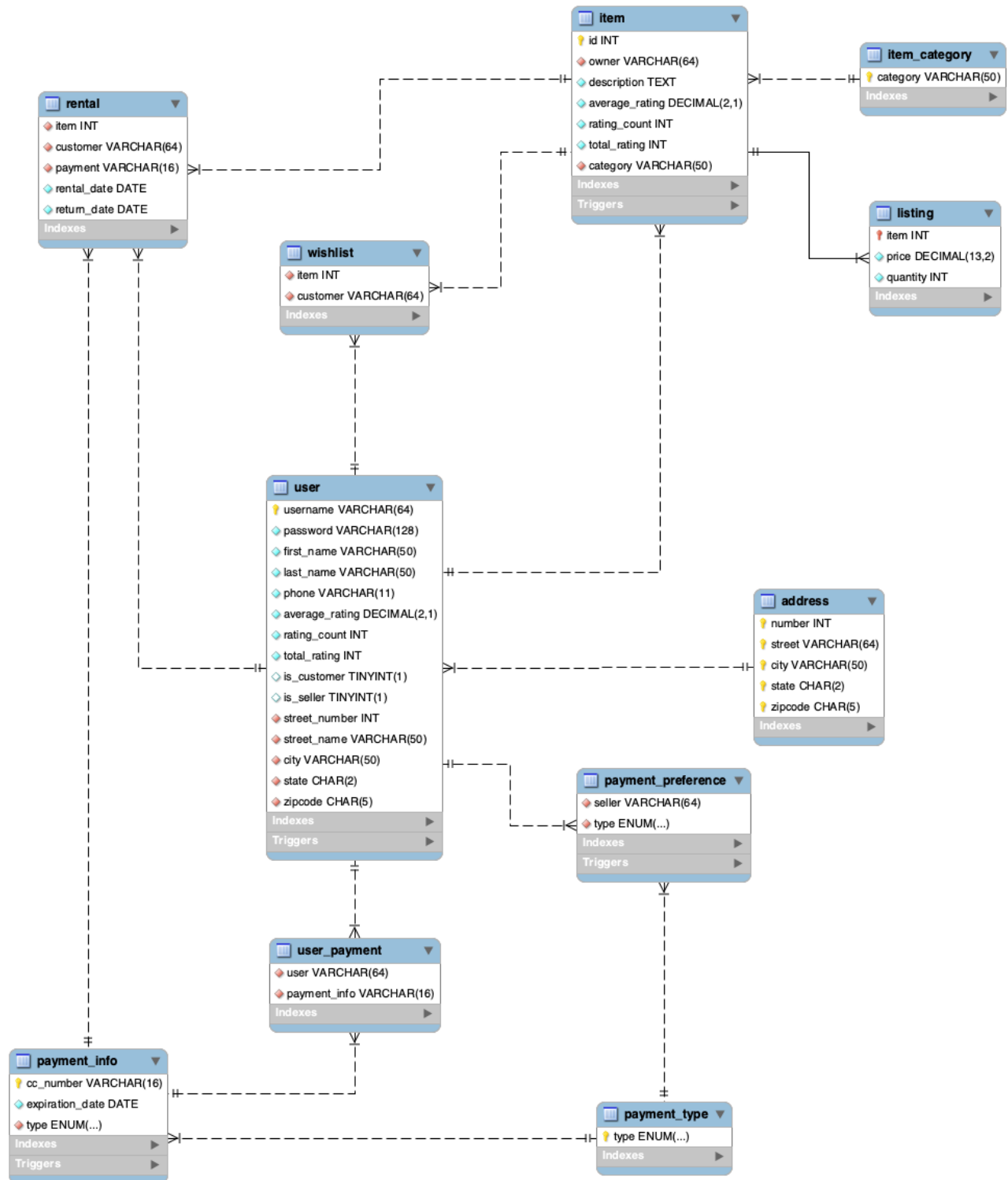
Cryptography: <https://pypi.org/project/cryptography/>

Tabulate: <https://pypi.org/project/tabulate/>

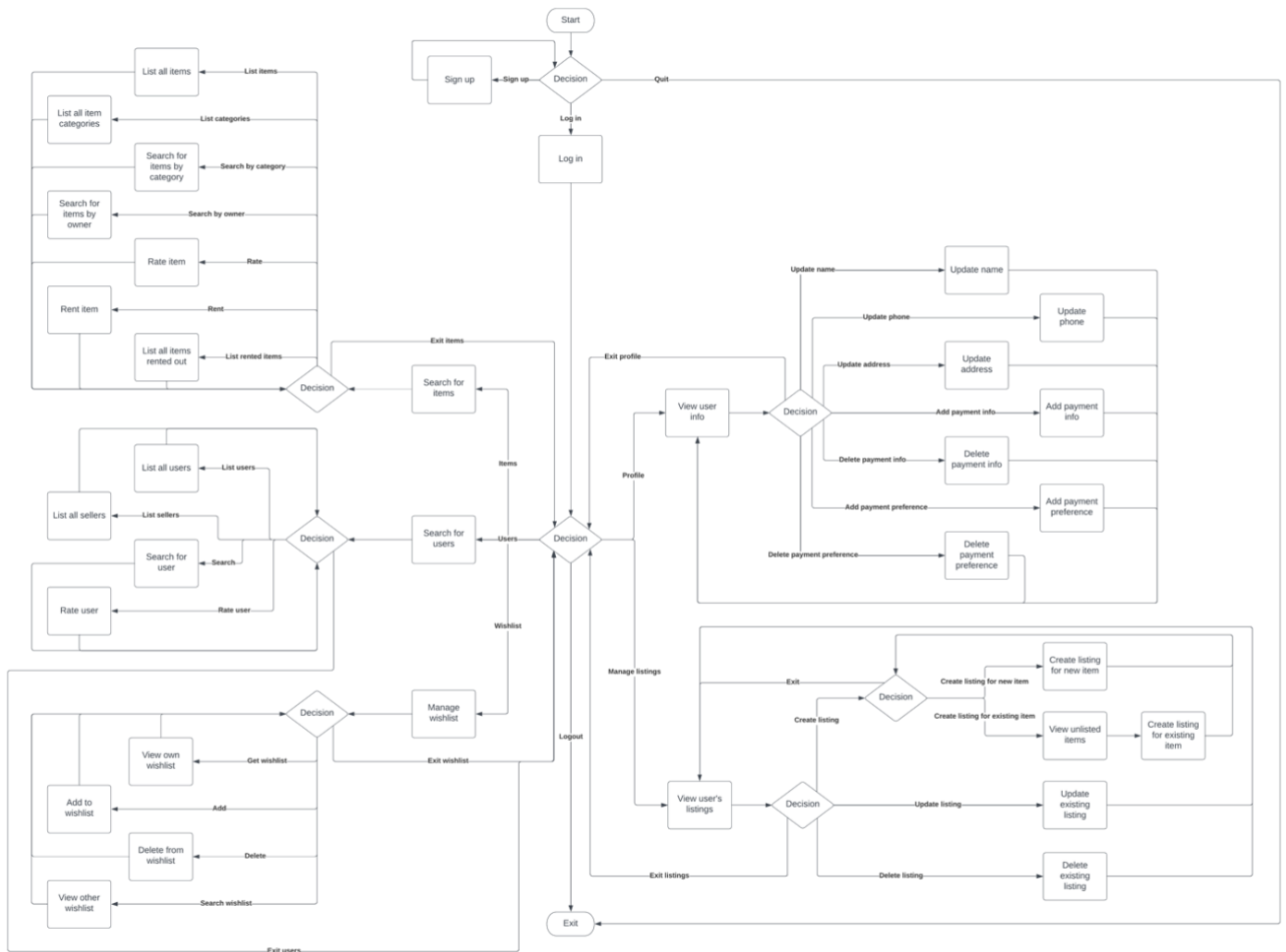
Conceptual Design



Logical Design



User Interaction



Lessons Learned

Through this project, we learned how to bring something that was just an idea to life. We gained experience in creating and connecting a Python application to a relational database, utilizing PyMySQL. For the database, we gained expertise in creating a relational database from a textual description. From the initial conceptual design to translating it into an actual relational database using MySQL, we created tables and database programming objects (procedures, functions, triggers, etc.) using DDL and DML commands.

We gained insight into how to manage our time when working as a group as well as how to collaboratively work on a project together. Our project files and information were shared through GitHub, so we had the opportunity to practice creating different branches for different stages of the project, reviewing pull requests, etc.

Future Work

This database could be used to help keep track of a small community's item sharing (e.g., a floor of a residence hall). Students could list items that other students would find useful and keep track of who was currently in possession of each item. One possible avenue for future work would be to implement an actual graphical user interface instead of a command-line interface. Another possibility would be to replace the current user authentication by linking the application to some existing form of online authentication, such as a user's email or Facebook account.