University of Pittsburgh

Design Document for Final Project

Team Name: **Joy Go**

Team Member: Chengzhuo Xiong (chx53@pitt.edu)

Yutong Tang (yut89@pitt.edu)

Course Name: INFSCI 2710 Database Management

Instructor: Prof. Dmitriy Babichenko

Date: 04/26/2023

Table of Contents

1. Preamble

- **IMPORTANT NOTICE:**
  - ***Please read `JOYGO/README.md` inside the project file before you want to run/test it.***
- ` README.md ` contains information about:
  - 1 - Introduction
  - 2 - Technology Used
  - 3 - How to Run
  - 4 - Access and Try
  - 5 – Preview (Several Screenshots for the project included)

2. Introduction

1.1. Project description

The *'Joy Go'* Online shopping mall is a web-based platform that allows customers to browse and purchase products over the internet.
This website is built using Java, SpringBoot, Mybatis, Druid and **MySQL**. It allows:

- Guests to view and search for specific products as well as view the detail information about different products.
- Users to view and search for specific products based on the category or keywords of the products.
- Users to sign-up, log-in, selecting goods into the shopping carts.
- Users to edit/delete the products in their shopping carts.
- Users to place order to the products and write comments/reviews about them.

1.2. Target audience

Generally, the target audience for our online shopping mall is individuals who prefer the convenience of shopping from their homes or workplaces, who enjoy a wide selection of products, who value competitive pricing, and who are comfortable with using technology and the internet to make purchases. This can include individuals of all ages, genders, and income levels who have access to the internet and are interested in purchasing goods and services online.

1.3. Purpose & Benefits

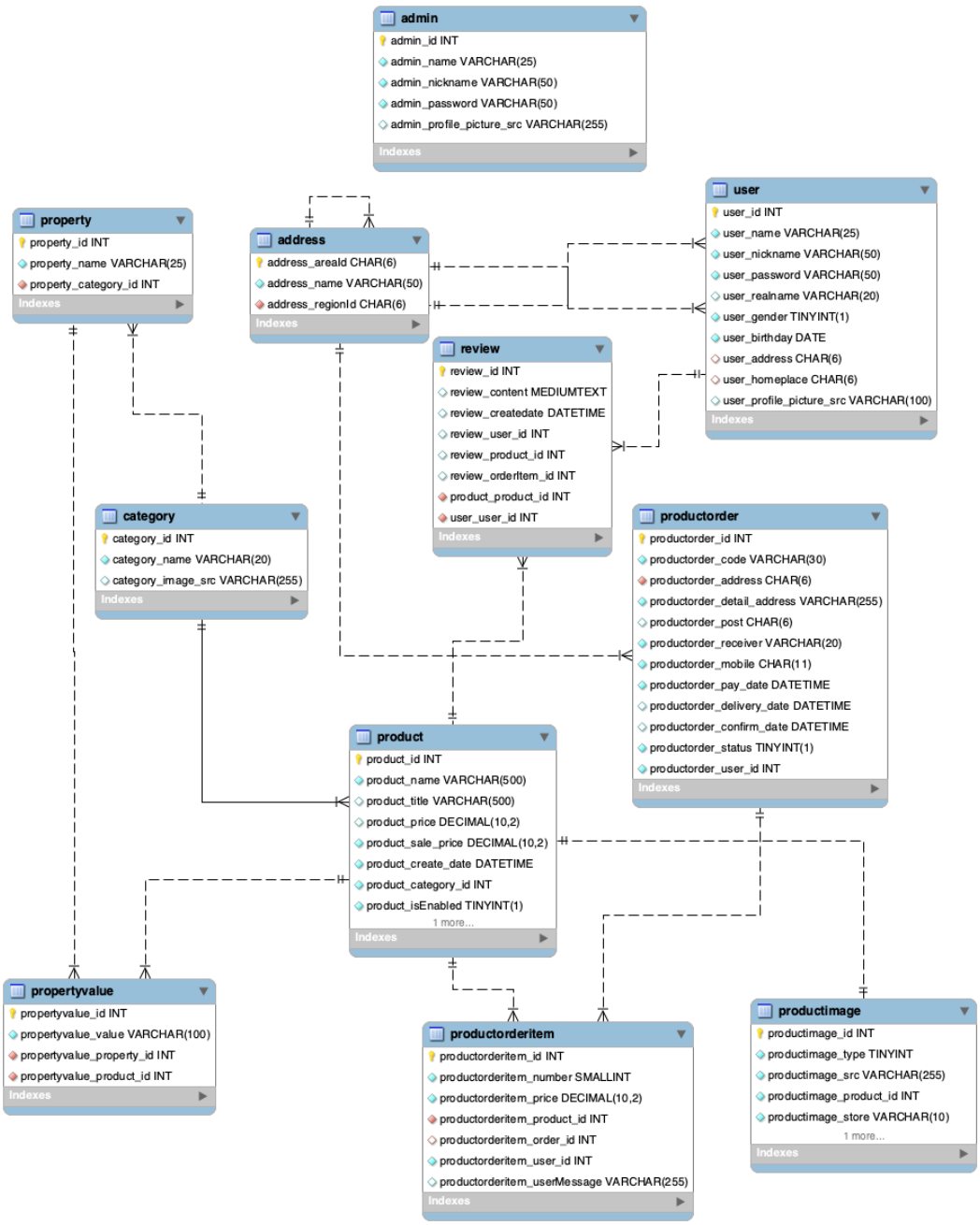
The purpose of our Joy-Go shopping mall is to provide a centralized platform for consumers to access a wide range of products and services from various sellers and brands, all in one place. Online shopping malls can offer a multitude of benefits, including:

1. Convenience: Online shopping malls allow customers to shop from the comfort of their homes, offices, or wherever they are located, at any time of day. This eliminates the need to travel to physical stores, search for parking, or wait in long checkout lines.
2. Greater Selection: Online shopping malls offer a vast selection of products from different brands and sellers, all in one place. This means customers have access to a wider range of products than they might find in a physical store.

3. Comparison Shopping: Online shopping malls allow customers to easily compare prices and products from different sellers, helping them to make informed purchasing decisions.
4. Increased Access: Online shopping malls can increase access to products and services, particularly for people who live in remote areas or have mobility issues.

3. E-R Model

Here is the E-R Model for our project exported from MySQL "reverse engineer":



4. Business Rules

Entity 1	Entity 2	Cardinality on Entity 1 side	Cardinality on Entity 2 Side	Business Rule(s)
Product	Product Image	1	1	One product for One product image and One product image for One product.
Product	Category	0..*	1	One product belongs to one specific category, one category can have 0 to many different products.
User	Product Order	1	0..*	One user can have 0~n orders. And one order can only belong to one user.
Product	Product Order Item	1	0..*	One product can exist in different order and one order item is only for one product.
Product Order Item	Product Order	0..*	1	One Order can have different order items while one order item belongs to one order.
User	Address	0..*	1	One user can have only one address while an address can belong to many different users.
Product	Review	1	0..*	One product can be commented many times while one review is only for one product.
User	Review	1	0..*	One user can comment many times while one comment belongs to only one user.
Address	Product Order	1	0..*	One Order can have only one Address for delivery while one address can exist in 0 or many orders.
Category	Property	1	0..*	One category can have many properties while one property only belongs to one category.
Product	Property	1..*	1..*	One product can have many properties and one property can belong to many products.

5. Epilogue

The most difficult aspect of working on a project about DBMS and its driver could be understanding the complex concepts involved in database management systems, such as data modeling, data normalization, and query optimization. It can also be challenging to learn the technical skills required to work with databases, such as SQL programming and database administration.

The easiest aspect of working on this project could be finding information and resources online. There are numerous articles, books, and tutorials available online that can help you learn about DBMS and its drivers. Many references were utilized for our project development such as:

- https://www.youtube.com/watch?v=9SGDpanrc8U
- https://www.youtube.com/watch?v=p0LPfK_oNCM
- https://maven.apache.org/
- https://docs.oracle.com/javase/tutorial/jdbc/basics/index.html

One insight that can be gained from working on a project about DBMS and the server as well as the front end of it is the importance of data management in modern businesses. DBMS helps businesses to store, manage, and retrieve data efficiently, which is crucial in today's data-driven world. Understanding how DBMS works and its drivers can provide valuable insights into how businesses can leverage data to make better decisions, improve customer experiences, and drive innovation.