Project Planning Exercise

Group Project

Students will work in their groups to answer the questions in the following handout. The resulting submission will be graded as part of the group project.

# Learning Objectives

* Fully examine the project instructions and plan out the project
* Discuss code design and other material necessary for coding
* Coordinate effort between team members and prepare the necessary environment

# Understanding the Project & Planning

To develop the project, it is important to have a complete understanding of what is being asked. Take a close look at the project instructions and answer the following questions:

1. What problem is the project attempting to solve?
   1. What documents do we have to analyze or support the problem?

The project is to implement a database design and implement JDBC with a Java application that interacts with the database. It will track a customer’s orders, inventory and their information, including customer reviews. We must analyze a dataset given by our teachers and normalize it. The problem we must solve is to keep track of its products, its inventory, and the customer’s orders through different stores. We’re given a super store in the format of a spreadsheet, and we must normalize it, create the tables and data.

1. What is a product?

Products are articles that are manufactured for sale. Each product has a unique name, it’s impossible to have 2 products with the same name. Each product has a unique name, a category, a review, a review score (1 to 5) and a price.

1. What is an order?

An order is made through a store, by a customer only and only if a product has more than 1 quantity and only if there is available stock in the warehouse. Each order keeps track of the customer detail, address, detail of the product, order date, quantity, and their review score and review description.

1. What is a store?

A store is a retail establishment selling products to the public. For which we’re making inside the database to store the data.

1. Where will the final program run?

It will run using PL/SQL and runnable on PDBORA19C.

1. What tools and languages will be required?
   1. What libraries will be used?

Java.sql.\*; the sql library

* 1. How will code be managed?

It can be managed on different files. But in SQL Oracle, it will be managed in packages. Code should also be managed in procedures. Functions should compute derived data and perform validation.

* 1. What setup steps will be necessary for the developer?

Put the dependency in the pom.xl, copy the url to connect to the database (url)

Create maven project.

* 1. What setup steps will be necessary for the user?

Input the username and password.

1. What is the workflow? Think about how you will use git to manage the project.

Use gitlab, having a private project shared between teammates which will use different merges and merge requests within our own respective branches so that each teammate can simply look at the code and double check if everything is all good before merging to Main.

1. How long do we have to do the project?

We have until November 19th to finish the project.

1. How much class time will be available to work on the project?

Every lab

1. When is the project due?

November 19th

1. What are the deliverables?

* A readme.md that includes to link to your gitlab repo,
* Ensure all steps to setting up the database are well documented.
* Ensure all steps to compile and run the Java application are well documented.
* Ensure names and student ids of group members are listed –
* Design.pdf containing ERD diagrams describing your final design.
* Source code for the PL/SQL packages setup.sql which setups up the database, creates the appropriate packages etc.
* remove.sql which removes any tables, types, and packages created by setup.sql
* Source code for the Java application Must include any necessary configuration files such as a POM.xml to run the code.

# Examining the Requirements

Since you are tasked with building a product, it is important to understand the requirements and features. Examine the requirements and answer the following questions:

## Database

1. What information does the database need to capture?
   1. How many tables will there be?

The database needs to capture information related to the products, orders, customers, reviews, inventory, store. Each of the entities should have tables to store their own data.

* 1. How will tables be related?

Since we have quite a few tables, each table will be somehow related products will be related to orders, orders are related to customers, customers are related to reviews, products are related to inventory and inventory is related to store

1. What PL/SQL packages will the DB have?

Currently unsure but we will have Procedures for placing orders, updating inventory, remove or add products, functions to find specific products or anything to sort.

1. What will the procedures do?

Procedures in the PL/SQL packages will be responsible for performing any action that revolves around updating, removing, inserting data in the database. Like Mentioned above, update inventory, update price and such.

1. What will the functions do?

Functions will be used to compute derived data and returning specific values we are looking for. For example, order total, average review, search for specific values.

## Application

1. What will be the interface for the application?

As of now we will use the command line interface but if time permits, we will learn and implement A GUI

* 1. How will the user enter information?

Users will enter information in the command Line in java using JDBC

* 1. How will information be displayed to the user?

Information will be displayed to the user through text in The CLI of whatever IDE is being used.

1. What operations can a user perform?

A user could place orders for products, view product details and their availabilities, making and seeing reviews, checking inventory levels, checking customer information (modify if he has admin rights)

1. How will the application interact with the database?

The application will use JDBC to establish a connection to the database. It will send sql queries and commands to retrieve, update, manage data. Call made procedures and functions from packages.

1. How many objects will we have?

Objects will represent the entities we have such as products, orders, customers and etc. So, the amount will be based on the number of Tables we will have.

## Starting Point

1. What needs to be done first?

The first step will be normalizing the provided dataset and design a schema. Making the tables structures, their relationship, PKS and FKS and constraints such as Not null.

1. What needs to be done second?

After designing the schema, next step will be to create and set up necessary tables and relationships in the database. Additionally, we will start setting up the Java project structure.

1. How will tasks be split up?

To efficiently manage the project each person will do a little bit of everything since all of us need to be involved in each part of the work. We will divide everything based on comfortability and availabilities for each.

# Code Design and Setup

Having a better understanding of the requirements, determine how your code will be designed by answering the following questions:

1. What will the project folders look like? Think about how Java projects are structured.

-Fall2023Database2FinalProject (folder)

-sql (folder)

-setup.sql

-remove.sql

-documents (folder)

-ProjectPlanningExercise.doc

-ProjectPlanning.pdf

-Design.pdf

-code (folder)

-src (folder)

-main (folder)

-java (folder)

-(package) (folder)

-(group) (folder)

-App.java

-Services.java (all the methods)

-product.java

-orders.java

-customers.java

-reviews.java

-inventory.java

-store.java

-test (folder like main)

-target (folder)

-classes (folder like main)

-test-classes (folder like main)

-pom.xml

1. What scripts will you need to set up the project?
2. Create a git repo and place it on Gitlab with the group members for the project. Add the instructor to this repo and provide the URL

https://gitlab.com/wuKevin/fall2023database2finalproject

1. Setup the basic elements of the Java Project as per the project specs and your answers to the questions above
   1. Ensure that the required files are present in the repo
   2. Add any libraries that are required
   3. Ensure that all team members can clone the repo and compile and run the project

# Deliverable

Create a pdf document called ProjectPlanning.pdf with the following sections:

* Plan your project stages
* You should plan out your tasks and to do’s for 3 weeks (3 stages defined and tasks for each member).
* Understanding the Project
  + Answer the questions given above about the project. Ensure you answer the questions with the number used for the questions.
* Examining the Requirements
  + Answers the questions above about the requirements
* Code Design
  + Answer the questions above about the Code Design
  + Setup the repo as described and provide a URL for the instructor

Submit the result in Moodle, note only one submission is needed per group.