**CPSC531-01 Advanced RDBMS**

**Project Proposal**

**CERULEAN BEE**

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# **ABSTRACT**

Cerulean Bee is a small company whose product is customized apparels. The main target audience

For this company are local clubs who want customized T-shirts, Jerseys and other apparels which they either sell or give to everyone who registers.

Artwork orders are placed by customers either individually or by an organization. Sometimes customers come with either a vague idea of the artwork they need on attire or computer-printed designs. In most cases, the artist must clean up the artwork reasonably well on the desired item. The art must be color separated so that color has its film. The final product should have color separation, so the colors don't overlap, and the separate layers align separately.

As location of each design can be different it needs a separate pass through the print process as each color requires a different film and a distinct imprint, for achieving this each print will require a different setup. And due to this, customers are charged by the number of artwork elements and the number of colors included. The total price of the artwork generally consists of a setup and per-item charges.

Organizations order items in bulk with the same print, so sometimes, organizations are given a discount. But these discounts are unpredictable and decided by Bob. Most customers provide orders to create attire associated with some event, for example, festival, party, and bike ride. It's the artist's responsibility to work on a design according to the event theme.

# **1.0 Introduction**

1.1 Background

Bob's sales report is the focus of this effort. The main focus of this project is on Bob Bee, an artist who owns a firm that designs and prints t-shirts and jerseys. The purpose of this database project is enabling Bob Bee's management to monitor personnel logs, print orders, project cost evaluations, and artwork orders. SQLITE is used to implement the project. These projects are on database creation and management technology. This project makes it simple to organize all CRUD processes.

The project's key feature is that it maintains all of the information about staff and clients, including the artwork they need computer printed. There would be four major players. They are as follows:

1. Artwork: It will hold information about clients such as their name, contact information, phone number, orders, the date their order was accepted, the sort of item they require, the quantity required, and the color required. And the employee's information, such as the completion date, which employee is working on that item, and how much they are paid.

**Artwork\_order**

**Customer**

customer\_id, customer\_name, contact, phone, discount, total\_price,

order\_date, date\_approval, scheduled\_print\_date, event, theme, apparel\_item,

base\_colors, max\_colors

**Art**

art\_location, art\_description, art\_cost, employee\_name, date\_complete, art\_colors

Table

Description automatically generated

1. 2. An employee work log: An employee work log keeps track of which employee is allocated to which task, which person is working on which project for how long, whether the employee is full-time or part-time, and what they are using in the art, as employees are paid based on their time logs.

**Employee works log:**

**Employee**

employee\_id, employee\_name, employee\_phone, job\_type, job\_date, start\_time,

employee\_work\_time

**Project**

Project\_id, project\_description, art\_item, task

Table

Description automatically generated

1. Print Order: This diagram shows the customer's information as well as the art item or colors utilized for the items. It will keep track of both the order and delivery dates. It would also keep track of how much money was collected as a deposit and how much money was left over. It will also display the pricing per unit of an item, as well as the size of the item required and the colors to be utilized for the order. It will display all of the charges for the item, including color, delivery, and other fees. It would be similar to the product's invoice.

**Print order**

**customer**

customer\_id, customer\_name, contact, phone, email, setup\_charge, deposit, discount, total\_cost, order\_date, due\_date, apparel\_order\_date, art\_film\_date, print\_date, delivered\_date

**apparel\_item**

base color, vendor\_name, item\_size, item\_number, item\_additional\_charges, per\_unit\_base\_price, item\_color\_charge, total\_blank\_price

**art\_details**

art\_print, art\_location, art\_size, art\_color\_charge, art\_slide\_date, total\_color\_list

Table

Description automatically generated

1. Project Cost Analysis: Only the admin will see this figure because it saves the value of how much profit the company made from each project. How many items were used, and how much did each item cost per unit? It will also specify how much time staff devote to each project and how they are compensated.

**Project\_cost\_analysis**

**Project**

project\_id, project\_name, event, toal\_item, customer\_id, customer\_name, order\_date, delivered\_date

**Material\_cost**

mat\_item, mat\_per\_unit\_cost, price\_charged, unit\_buy, mat\_cost, total\_mat\_cost, mat\_revenue, total\_mat\_revenue

**Labour\_costs**

employee\_id, employee\_name, task\_id, time, wage\_rate, cost, total\_labour\_cost

**Total\_revenue**

total\_money\_recevied, total\_mat\_charge, total\_artwork\_fees, fixed\_charge, total\_mat\_cost, total\_labour\_cost, shipping\_cost, discounts, project\_net\_profit

Table

Description automatically generated

At the end of each project, Bob creates a report that includes a cost analysis for each recent endeavor. This data was utilized to help establish prices and determine which jobs increase profits. He starts with the net profit data and then moves on to the subtotal breakdown. He only examines the material and labor expenses in circumstances that appear unique.

The normalization of databases was also discussed in this research. We also used the ER model to highlight the relationship between the tables. We also included functional requirements such as business functions, input and output layouts at the end of this project proposal.

1.2 Project Goals and Benefits

• The business owner receives a system that he may use to analyze customer orders and determine whether the company has generated a profit or loss.

•The employee can submit their work logs as well as the project specifics on which they are currently working.

• The customer can place their own order based on their preferences as well as the theme or event style. They can also add color and artwork to their jerseys or shirts as needed.

1.3 Relevance and Significance

1. Gained experience with table normalization and database implementation.

2. Discovered how to make tables for certain purposes.

3. Acquired knowledge of relational databases, such as Sqlite.

4. Acquired real-world experience with databases.

5. To improve an e-commerce website's cost analysis, it's critical to create a database and save all necessary data on staff and apparel.

1.4 Assumptions and Limitations

**Assumptions:**

• The employee can also see, edit, delete, and add client and artwork details. They must also record their labor in accordance with their project and artwork. They must be logged into their portal to do so.

• Customers should be able to register, place orders, and track their orders through the online application.

• Only the app's owner has access to creating, updating, and removing different clients, orders, and workers.

• We presume that only the admin, or the owner of the program, may see, change, and delete the material cost, per unit cost, price charged, and income.

**Limitations:**

# • There is no analysis system that can tell BOB what type of consumer is coming to the organization in terms of preferences, likes, dislikes, and so on.

# • There is no database for the warehouse to use to determine if a product is in stock or not.

# • Because the buyer only sees the image of the artwork during the ordering process, the final product may change from what was shown during the purchase process.

# **2.0 Project Requirements**

2.1 Data requirements

2.1.1 Conceptual Model (ER Model)

We present all of the different entities and their relationships in the ER model for this project. We indicate the cardinality of the link between entities and provide all additional attributes used for the corresponding entities.

The ER diagram is as follows.

Diagram

Description automatically generated

2.1.2 Logical Data Model (Database Normalization)

**Datebase 1:**

**Artwork\_order** : customer\_name, contact, phone, discount, total\_price, order\_date, date\_approved, scheduled\_print\_date, event, theme, apparel\_item, base\_colors, max\_colors, art\_location, art\_description, art\_cost, employee\_name, date\_complete, art\_colors)

**1NF:**

**Customer** (customer\_id, art\_id, customer\_name, contact, phone, discount, total\_price, order\_id)

**Order\_Details**( customer\_id, order\_id ,order\_date, date\_approval, scheduled\_print\_date, theme, apparel\_id)

**Art** (art\_id, art\_location, art\_description, art\_cost, employee\_id , date\_complete, art\_colors, art\_print, art\_size, art\_color\_charge)

**2NF:**

**Customer** (customer\_id, art\_id, customer\_name, contact, phone, discount, total\_price, order\_id)

**Order\_Details**( customer\_id, order\_id ,order\_date, date\_approval, scheduled\_print\_date, theme,apparel\_id)

**Art** (art\_id, art\_location, art\_description, art\_cost, employee\_id , date\_complete, art\_colors, art\_print, art\_size, art\_color\_charge)

**3NF:**

**Customer** (**customer\_id**, art\_id, customer\_name, contact, phone, discount, total\_price, order\_id)

**Order\_Details**( customer\_id, order\_id ,order\_date, date\_approval, scheduled\_print\_date, theme,apparel\_id)

**Art** (**art\_id**, art\_location, art\_description, art\_cost, employee\_id , date\_complete, art\_colors, art\_print, art\_size, art\_color\_charge)

**Employee\_work\_log** (**employee\_id**, employee\_name, phone, job\_type, job\_date, start\_time, project\_id, project\_description, art\_item, task\_id, time)

**Database 2:**

**1NF:**

**Employee** (**employee\_id,** employee\_name, employee\_phone, job\_type, job\_date, start\_time, employee\_time, project\_id)

**Project** (**project\_id,** project\_description, art\_items, task\_id , project\_name, event, total\_item, customer\_id, order\_date, delivered\_date)

**2NF:**

**Employee** (**employee\_id**, employee\_name, employee\_phone, job\_type, job\_date, start\_time, employee\_time, project\_id)

**Project** (**project\_id**, project\_description, art\_items, task\_id , project\_name, event, total\_item, customer\_id, order\_date, delivered\_date)

**3NF:**

**Employee** (**employee\_id**, employee\_name, employee\_phone, job\_type, job\_date, start\_time, employee\_time, project\_id)

**Project** (**project\_id,** project\_description, art\_items, task\_id , project\_name, event, total\_item, customer\_id, order\_date, delivered\_date)

**Print\_order** (**customer\_id**, customer\_name, contact, phone, email, setup\_charge, deposit, discount, total\_cost, order\_date, art\_slide\_date, due\_date, apparel\_order\_date, art\_film\_date, print\_date, delivered\_date)

**apparel\_item** (**apparel\_id,** order\_id, base\_color, vendor\_name, item\_size, item\_number, item\_additional\_charges, per\_unit\_base\_price, item\_color\_charge, total\_blank\_price, art\_print, art\_location, art\_size, art\_color\_charge, total\_color\_list, total\_price)

**Database 3:**

**1 NF:**

**Print\_order** (**customer\_id**, customer\_name, contact, phone, email, setup\_charge, deposit, discount, total\_cost, order\_date, art\_slide\_date, due\_date, apparel\_order\_date, art\_film\_date, print\_date, delivered\_date, item\_id, art\_print, art\_location, art\_size, art\_color\_charge, total\_color\_list)

**Apparel\_item** (**apparel\_id**, order\_id, base\_color, vendor\_name, item\_id, item\_size, item\_number, item\_additional\_charges, per\_unit\_base\_price, item\_color\_charge, total\_blank\_price)

**2 NF:**

**Print\_order** (**print\_customer\_id**, setup\_charge, invoice\_id, art\_slide\_date, apparel\_order\_date, art\_film\_date, print\_date, delivered\_date, item\_id, art\_id, total\_color\_list)

**Invoice** (**invoice\_id**, deposit, discount, total\_cost, order\_date, due\_date)

**Apparel\_item** (**apparel\_id**, order\_id, base\_color, vendor\_name, item\_id, item\_size, item\_number, item\_additional\_charges, per\_unit\_base\_price, item\_color\_charge, total\_blank\_price)

**3 NF:**

**Print\_order** (**customer\_id**, setup\_charge, invoice\_id, item\_id, art\_id, total\_color\_list)

**Order\_date** (**order\_id**, art\_slide\_date, apparel\_order\_date, art\_film\_date, print\_date, delivered\_date)

**Invoice** (**invoice\_id,** deposit, discount, total\_cost, order\_date, due\_date)

**Apparel\_item** (**apparel\_id**,base\_color, vendor\_name, item\_id, item\_size, item\_number, item\_additional\_charges, per\_unit\_base\_price, item\_color\_charge, total\_blank\_price)

**Datebase 4:**

**1NF:**

**Project** (**project\_id,** project\_name, event, total\_item, customer\_id, order\_date, delivered\_date)

**Material\_cost** (**material\_id**, material\_item**,** material\_per\_unit\_cost, price\_charged, unit\_no, material \_cost, total\_ material \_cost, material \_revenue, total\_ material \_revenue)

**Labour\_costs** (**employee\_id**, task\_id, time, wage\_rate, cost, total\_labour\_cost)

**Total\_revenue** (**revenue\_id**, order\_id, total\_money\_recevied, total\_mat\_charge, total\_artwork\_fees, fixed\_charge, total\_mat\_cost, total\_labour\_cost, shipping\_cost, discounts, project\_net\_profit)

**2NF:**

**Project** (**project\_id**, project\_name, event, toal\_item, customer\_id,)

**Material\_cost** (**material\_id**, material\_item, material \_per\_unit\_cost, price\_charged, unit\_no, material \_cost, total\_ material \_cost, material \_revenue, total\_ material \_revenue)

**Labour\_costs** (**employee\_id,** task\_id, time, wage\_rate, cost, total\_labour\_cost)

**Total\_revenue** **(revenue\_id**, total\_money\_recevied, total\_material\_charge, total\_artwork\_fees, fixed\_charge, total\_mat\_cost, total\_labour\_cost, shipping\_cost, discounts, project\_net\_profit)

**3NF:**

**Project** (**project\_id**, project\_name, event, toal\_item, customer\_id)

**Material\_cost** (**material\_id**, material\_item, material \_per\_unit\_cost, price\_charged, unit\_no, material \_cost, total\_ material \_cost, material \_revenue, total\_ material \_revenue)

**Labour\_costs** (**employee\_id** , task\_id, time, wage\_rate, cost, total\_labour\_cost)

**Total\_revenue** (**revenue\_id**, order\_id, total\_money\_recevied, total\_material\_charge, total\_artwork\_fees, fixed\_charge, total\_mat\_cost, total\_labour\_cost, shipping\_cost, discounts, project\_net\_profit)

**To identify fields with unique values:**

A unique value is required to combine tables with data contained in different tables. To link other tables, each table should have its own identity. The primary key is a set bridge like this. There is a primary key, a foreign key, and numerous primary key fields in this database.

**For example:**

The primary key attribute for the table art details is ART ID, and the table also has a foreign key called EMP ID, which acts as a link between the two tables.

ORDER ID is a foreign key in the order date table, while ORDER ID is the primary key in the invoice table.

**To determine the relationships between the tables:**

We must establish a relationship between the tables once the material has been separated into subjective tables. Table connections are divided into four categories:

1. One to one (1 – 1)

2. One to many (1 – M)

3. Many to many (M – M)

4. Many to One (M – 1)

This relationship between the table is figured in the ER model.

Diagram, schematic

Description automatically generated

2.2 Functional Requirements (Business functions, Input, and Output Layouts)

Bob wants to gather all of the necessary information and complete the task within the time limit.

Let's explore how much data Bob can glean from diverse photographs.

1. **Figure 1:** Bob needs all the customer information, art specifics, art colors, order dates, printing dates, approval dates, customer event, customer theme, and apparel items. So, if he needs detailed client information, he may use Customer id to retrieve it.
2. **Figure 2:** In this figure, Bob will locate all of the employee information, for which he will require employee id. He can use employee id to determine which employee is working on which assignment or art.

**3. Figure 3:** In this figure, Bob will find all of the customer's print order details. Customer information, associated dates, various costs, apparel/item information, and art information are all included in the specifics.

**4. Figure 4:** Bob will locate all of the project cost analysis reports in this figure. As a result, he can keep track of all profit and loss statements. This graph can extract project information, customer information, material costs, labor costs, total funds received, artwork fees, shipping charges, discounts, and net profit.

2.2.1 Interface Requirements

**Customer**

* Customer\_id accepts numeric data entry
* Customer\_name accept text data entry
* Customer\_contact accept numeric data entry
* Customer\_phone accept numeric data entry
* Customer\_email accept email data entry
* Customer\_discount accepts numeric data entry
* Customer\_order\_id accepts numeric data entry

**Order\_details**

* Customer\_order\_id accepts numeric data entry
* Order\_date accepts data entry
* Date\_approval accepts data entry
* Scheduled\_print\_date accepts data entry
* Theme accepts character entry
* Event accepts character entry
* Apparel\_item accepts character entry
* Base\_color accepts color entry
* Max\_colors accept color entry

**Art**

* Art\_id accepts numeric data entry.
* Art\_location accepts location entry
* Art\_print accept design entry.
* Art\_description accepts character only.
* Art\_cost accept numeric entry.
* Art\_size accept numeric as well as length entry.
* Art\_colors accept character entry.
* Art\_color\_change accepts color entry.
* Employee\_id accepts numeric data entry.

**Employee**

* Employee\_id accepts numeric data entry
* Employee\_name accepts character entry
* Employee\_phone accept numeric data entry
* Job\_type accept boolean type
* Job\_date accept data entry
* Start\_time accept time entry
* Employee\_work\_time accept time entry
* Project\_id accept numeric data entry.

**Project**

* Project\_id accept numeric data entry
* Project\_name accept character entry
* Project\_description accept character entry
* Project\_task accept character entry
* Event accept character entry
* Art\_items accept character entry
* Customer\_id accept numeric data entry

**Material Cost**

* Material\_id accept numeric data entry
* Material\_item accept character entry
* Material\_per\_unit\_cost accept numeric data entry
* Material\_qty accept numeric data entry
* Material\_cost accept numeric data entry
* Total\_material\_cost accept numeric data entry
* Material\_revenue accept numeric data entry
* Total\_material\_revenue accept numeric data entry

**Total Revenue**

* Order\_id accept numeric data entry
* Total\_money\_recevied accept numeric data entry
* Total\_material\_charge accept numeric data entry
* Total\_material\_cost accept numeric data entry
* Total\_artwork\_fees accept numeric data entry
* Fixed\_charge accept numeric data entry
* Total\_labour\_cost accept numeric data entry
* Shipping\_cost accept numeric data entry
* Project\_net\_profit accept numeric data entry

**Print order**

* Customer\_id accepts numeric data entry
* Setup\_charge accepts numeric data entry
* Inovice\_id accept numeric data entry
* Item\_id accept numeric data entry
* Art\_id accept numeric data entry
* Total\_color\_list accepts character data

**Order date**

* Customer\_id accepts numeric data entry
* Art\_slide\_date accepts date entry
* Apparel\_order\_date accept date entry
* Art\_film\_date accpet date entry
* Print\_date accpet date entry
* Delivered\_date accpet date entry

**Invoice**

* Invoice\_id accept numeric data entry
* Deposit\_amount accept numeric data entry
* Discount\_amount accept numeric data entry
* Total\_cost accept numeric data entry
* Order\_date accept date entry
* Due\_date accept date entry

**labour cost**

* Employee\_id accept numeric data entry
* Employee\_name accept character data entry
* Task\_id accept numeric data
* Time accept time data
* Wage\_rate accept numeric data
* Labour\_cost accept numeric data
* Total\_labour\_cost accept numeric data entry

2.2.2 Business Requirements

# The following are the business requirements for this project that must be met:

# • Employees have full access to and control over all database data.

# • Customers can submit information about their clothing, artwork, and theme via the website's form.

# • All customer and staff information can be created, viewed, updated, and deleted by BOB.

# • All data must be stored in databases.

# • All artwork orders, print orders, personnel work logs, and project cost analysis data can be kept in BOB.

# • Each employee's worklogs and artwork would be updated, and they'd be assigned to their project chevalier.

# **3.0 Methodology**

The following topics are intended to serve as a jumping off point:

In this section, you may include the following items.

DDLs are used to create databases and tables.

2. Tools, strategies, and procedures for projects

3. System architecture and programming languages utilized, as well as hardware and software requirements.

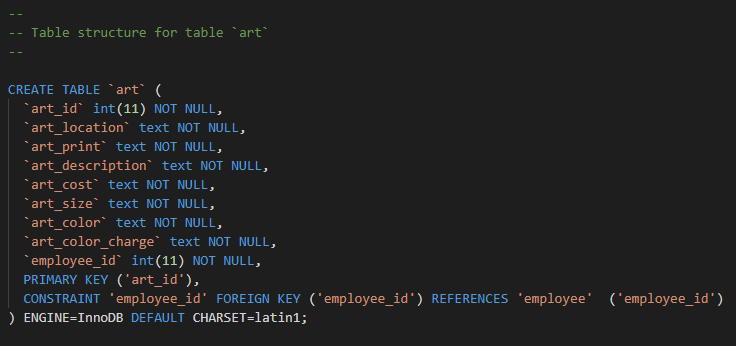
4. Data Model and Data Requirements: Detailed data inputs and reporting information.

5. Create a list of all application functions, including inputs, outputs, screens, and reports, and organize them by function names. (Use tables to summarize)

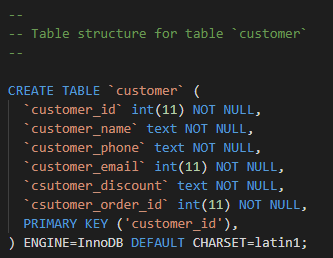
6. System configuration and implementation

3.1 DDL Commands

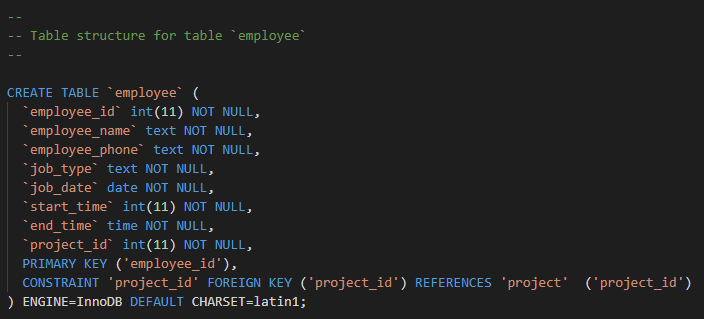
**Art Table**



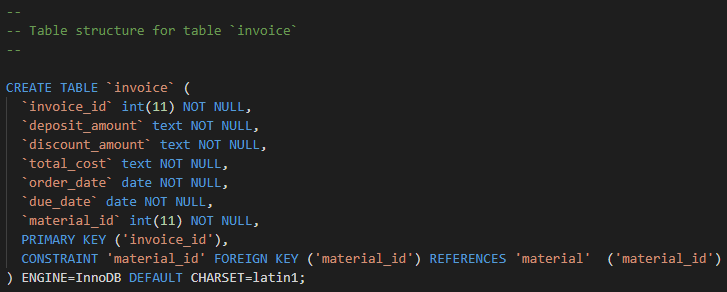
**Customer Table**



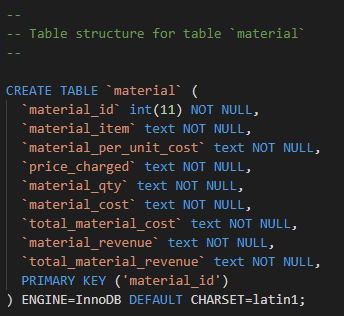
**Employee Table**



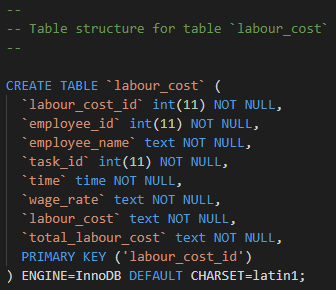
**Invoice Table**



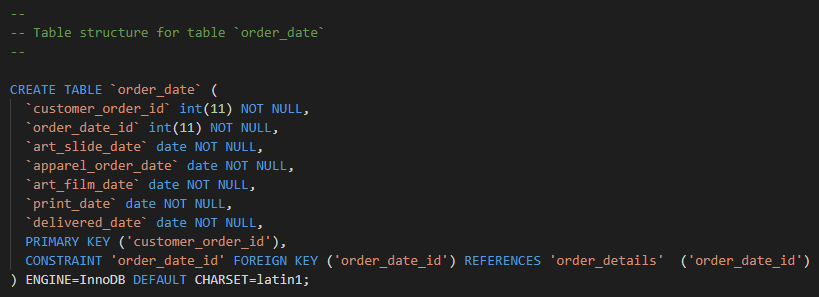
**Material Table**



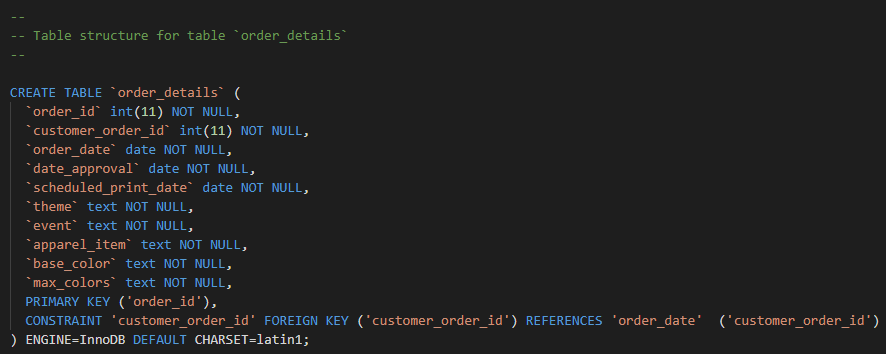
**Labor Table**



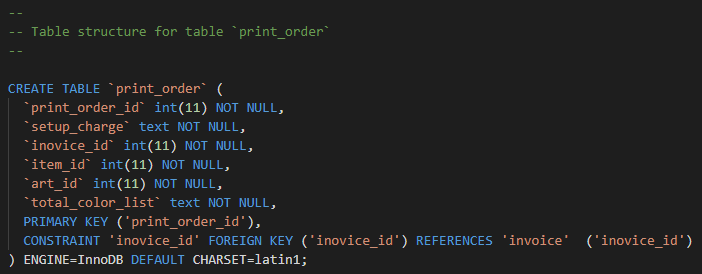
**Order Date Table**



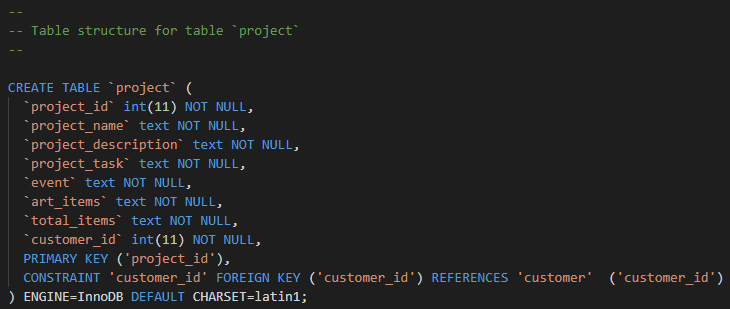
**Order Details Table**



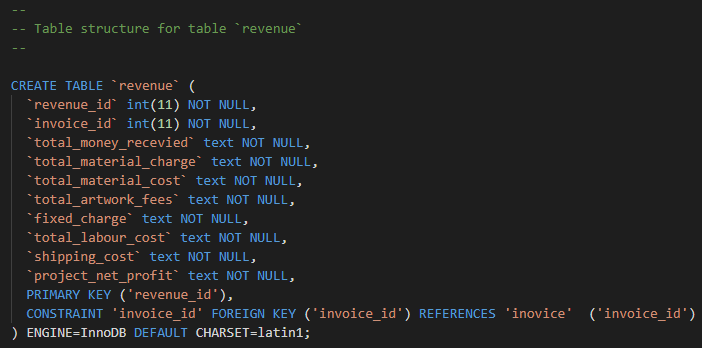
**Print Order Table**



**Project Table**



**Revenue Table**



3.2 Software Stack

3.2.1 Database:

* MySQL

3.2.2 Programming Language:

* **Backend**: Core PHP
* **Frontend**: HTML, CSS, Bootstrap, JavaScript

3.2.3 Software:

* Xampp
* PhpMyAdmin
* Visual Studio Code Editor

**3.2.4 Hardware**:

* Operating System: Windows 11

# **4.0 Results and Discussion**

This chapter includes an objective description and analysis of the application results (outputs screens and reports). Limit the use of charts, tables, and figures to those that are needed to support the narrative. Full reports can be included as part of the appendices.

The following topics are intended to serve as a guide:

* Functional process screens.
* Fully explained query Reports.
* Summary of screen results or reports and explained in detail.

4.1 Screens

**Login Screen**

**Graphical user interface, application, Teams

Description automatically generated**

**Sign Up**

**Graphical user interface, application, Teams

Description automatically generated**

**Dashboard**

**Graphical user interface, application, Teams

Description automatically generated**

**Artwork Order**

**Graphical user interface, application

Description automatically generated**

**Add Artwork Order**

**Graphical user interface, application, Teams

Description automatically generated**

**Employee Work Log**

**Graphical user interface, application, Teams

Description automatically generated**

**Add Employee Work Log**

**Graphical user interface, application

Description automatically generated**

**Print Order**

**Graphical user interface, application

Description automatically generated**

**Add Print Order**

**Graphical user interface

Description automatically generated with medium confidence**

**Project Cost Analysis**

**Graphical user interface, application, Teams

Description automatically generated**

**Add Project Cost Analysis**

**Graphical user interface, application, Teams

Description automatically generated**

# **5.0 Conclusions**

5.1 Significance

* Practical design-based database and web application experience

5.2 Learnings from this project

* Performing CRUD operations
* Application of database concept to real world objects.
* Application of front-end development tools
* We understand the how we can normalize any big sets of databases, how we can make it redundant and improve its efficiency.
* Also, Got exposure and hands-on experience in Programming language like HTML, CSS, Bootstrap, PHP.

5.3 Future Work

* In Future using AI and Computer Vision on the system we can create 3D trial on the system itself.
* We can predefine some items into the database so that it will be easy to add in invoice.
* We can improve User Interaction with the system.
* we can build a dynamic data set which can contain the values of different variants of same products.
* We can make an analysis system with the help of data base that what kind of customers are coming to BOB. (What are their preferences, likes, dislikes, size, etc...)

# **6.0 Appendices**

**Includes/**

breadcrumb.php

connections.php

footer.php

header.php

**map/**

style.css.map

**assests/**

**js/**

dashboard.js

main.js

map.js

**sass/**

accordion.scss

alerts.scss

badges.scss

btn.scss

cards.scss

datepicker.scss

dropDown.scss

features.scss

forms.scss

modal.scss

pagination.scss

pricing.scss

progressbar.scss

range-slider.scss

social.scss

components.scss

**element/**

breadcrumb.scss

content-block.scss

footer.scss

forum.scss

menu.scss

product.scss

sidebar.scss

tab.scss

team.scss

testimonial.scss

timeline.scss

elements.scss

**general/**

general.scss

**modules/**

dashboard.scss

product-single.scss

modules.scss

responsive.scss

style.scss

table-of-contents.scss

themes.scss

**vendor\_assets/**

**css/**

**bootstrap/**

bootstrap.css

bootstrap.scss

config.bs.scss

animate.css

font-awesome.min.css

jquery-ui.css

line-awesome.min.css

magnific-popup.css

owl.carousel.css

select2.min.css

simple-line-icons.css

slick.css

trumbowyg.min.css

venobox.css

**fonts/**

fontawesome.otf

line-awesome.ttf

simple-line-icon.eot

**js/**

jquery-ui.min.js

owl.carousel.min.js

select2.full.min.js

slick.min.js

trumbowyg.min.js

venobox.min.js

waypoint.min.js

add-artwork-order.php

add-employee-work.php

add-print-order.php

add-project-cost-analysis.php

artwork-order.php

check.php

dashboard.php

delete.php

employee-details.php

index.php

login.php

logout.php

print-order.php

project-cost-analysis.php

signup.php

style.css

view-artwork-order.php

view-employee-work.php

view-order.php

view-print-order.php

view-project-cost-analysis.php