**CPSC531-01 Advanced RDBMS**

**Project Proposal**

**CERULEAN BEE**

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# 1.0 Project Description

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.

# 2.0 Data Model

Tables that need to be implemented

The complete data is divided into 4 parts and the project will utilize these different data points for generating various types of reports for sales reports, work logs and order reports.

**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

**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

**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

**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

## 2.1 Conceptual Model (ER Model)

Diagram

Description automatically generated

## 2.2 UML/ CLASS DIAGRAM

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

Diagram, schematic

Description automatically generated

# 3.0 Logical Data Model (Database Normalization)

**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)

**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)

**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)

**Project\_cost\_analysis** (**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, **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))

**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)

# 4.0 Functional Requirements (Business functions, Input and Output Layouts)

1. **Employee Work Log**

1. Employee will create account and record will be saved.

2. Bonus will be provided to the employees for working extra hours.

3. Daily timesheet of the customer will be created and stored.

4. Work history of the employee can be fetched.

5. Monthly cost of the employee will be calculated based on their work log.

6. 1% commission will be given based upon quality of the work.

7. Admin access will be able to have CRUD operations for customers and employees.

1. **Print Order**
2. Details of customer and the art item or colors used for the items are stored.
3. Date of order as well as the delivered date are stored
4. Deposit amount is collected as a deposit calculate balance remaining.
5. Show the price as the unit of an item and item size
6. It will show all the charges for the item, color, delivery charges along with material cost.
7. Generates a item invoice of the product.
8. **Project Cost Analysis**
9. Admin access only page, access control enabled here
10. Saves the value of how much profit company earned from each project.
11. Shows how many items are been used, and what's the price of each item per unit.
12. It will also calculate how many employees work for which project
13. Shows employee cost incurred for each project
14. This will be the overall budget calculation used by the owner
15. **Art Order**
16. Customer details are shown here
17. Admin will be able to edit the customer details based on requirements
18. Details like order approval date, completion date, item type, item color, employee assigned, employee cost are shown.
19. Customer can view their order details once the order is processed.
20. Create a login/Registration page for customers and workers.
21. Customer can add their choice of artwork by filling and submitting the artwork form on the website.
22. Sending a confirmation email to the customer after successful order creation.