**Project Description**

Presenting our sophisticated database solution tailored for a dynamic liquor store environment! Our meticulously crafted database encapsulates the nuanced interactions with a diverse clientele of 9 individuals, comprising both male and female patrons, all engaging seamlessly with our extensive product offerings. Underpinning our operations is a team of 5 dedicated and diligent employees, featuring a harmonious blend of 2 male and 3 female professionals, with a notable nod to the exceptional commitment of our female workforce.

Discover an expansive selection of beverages that includes an enticing variety of beer, wine, and grain alcohol. Explore the unique profile of Hard Root Beer, a personal favorite that promises a distinctive taste experience – always savor responsibly to avoid any unforeseen slumbers! The resonance of our product range is evident in our robust sales performance, boasting an impressive tally of 11 transactions thus far this year.

On the technical front, our database boasts a seamlessly integrated composite foreign key, fusing sales\_id and cust\_id, to provide an exhaustive view of customer transactions. The adaptability of our system extends to a plethora of payment methods employed by our clientele, including Visa, MasterCard, cash, and American Express.

Step into the intersection of data and spirits with our database solution, meticulously designed to not only capture the operational intricacies of the liquor store but also reflect the essence of customer engagement and product diversity. Here's to a sophisticated and efficient database experience! Cheers!

**3. USER VIEWS**

**1.** Laura Williams who is the manager of the store wants to know the number of customers visited her store on 9th September, 2023. Below is the count report provided.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 11/20/23 |  |  |  |  |  | PAGE 1 |
|  |  | **Justice Liquor Store** | |  |  |  |
|  |  | **Total Customers Report** | |  |  |  |
| Date: 09-September-23 | |  |  |  | Location: Bridgeport | |
|  |  |  |  |  |  |  |
| Total\_Customers | |  |  |  |  |  |
| 2 |  |  |  |  |  |  |

**2.** Brian, who is the owner of Liquor stores wanted to check the transaction details of customer ROBBIE SEINFELD. He wanted to search the details.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 11/20/23 |  |  |  |  |  | PAGE 1 |
|  |  | **Justice Liquor Store** | |  |  |  |
|  |  | **Particular Customer Report** | |  |  |  |
| CUST ID:5 |  |  |  |  | Location: Bridgeport | |
|  |  |  |  |  |  |  |
| **FIRSTNAME** | **LASTNAME** | **DATE\_PURCHASE** | **COST** | **PAYMENT\_TYPE** | |  |
| ROBBIE | SEINFELD | 2023-09-09 | 20 | VISA |  |  |

**3.** Laura Williams, Manager of Justice Liquor Store wants to know all the products sold after 31st May 2023. So, she uses the below report which shows all the data of products and their quantities sold after any particular date.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 11/20/23 |  |  |  |  |  | PAGE 1 |
|  |  | **Justice Liquor Store** | |  |  |  |
|  |  | **Product Purchase Report** | |  |  |  |
|  |  |  |  |  | Location: Bridgeport | |
|  |  |  |  |  |  |  |
| **PNAME** | **DESCRIPTION** | **DATE\_PURCHASE** | **QUANTITY** | |  |  |
| VODKA | GRAIN ALCOHOL | 06-11-2023 | 1 |  |  |  |
| JAGER MEISTER | GRAIN ALCOHOL | 07-10-2023 | 1 |  |  |  |
| SAM ADAMS | BEER | 09-09-2023 | 2 |  |  |  |
| BEAUJOLAIS WINE | WINE | 09-09-2023 | 2 |  |  |  |
| MERLOT WINE | WINE | 10-08-2023 | 2 |  |  |  |
| COORS BANQUET | BEER | 11-06-2023 | 1 |  |  |  |
| MODELO | BEER | 07-25-2023 | 1 |  |  |  |

**4.** Laura Williams, Manager of the store wants to take a decision to install a new POS based on the flow of transactions. Below is the main report.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 11/20/23 |  |  |  |  |  | PAGE 1 |
|  |  | **Justice Liquor Store** | |  |  |  |
|  |  | **Payment Type Report** | |  |  |  |
| PAYMENT\_TYPE=VISA | | |  |  | Location: Bridgeport | |
| **FIRSTNAME** | **LASTNAME** | **PAYMENT\_TYPE** |  |  |  |  |
| JOHN | SMITH | VISA |  |  |  |  |
| JAMES | PETERSON | VISA |  |  |  |  |
| JAKE | SULLIVAN | VISA |  |  |  |  |

**5.** Brian, Owner of the store wants to promote TIM BREAD and he would like to assess him performance by knowing the number of sales he is doing. Below is the report.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 11/20/23 |  |  |  |  |  | PAGE 1 |
|  |  | **Justice Liquor Store** | |  |  |  |
|  |  | **Employee Sales Report** | |  |  |  |
| Emp Id: 1 |  |  |  |  | Location: Bridgeport | |
|  |  |  |  |  |  |  |
| **EMPLOYEE\_NAME** | **DATE\_PURCHASE** | **PNAME** |  |  |  |  |
| TIM BREAD | 5-10-2023 | HARD ROOT BEER |  |  |  |  |
| TIM BREAD | 09-09-2023 | SAM ADAMS |  |  |  |  |
| TIM BREAD | 10-08-2023 | MERLOT WINE |  |  |  |  |
| TIM BREAD | 07-25-2023 | MODELO |  |  |  |  |

**6**. Laura Williams, Manager of the store identified that there is some missing product in SAM ADAMS. She wants to know which customers purchased it so that she can track them on Camera.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 11/20/23 |  |  |  |  |  | PAGE 1 |
|  |  | **Justice Liquor Store** | |  |  |  |
|  |  | **customer product report** | |  |  |  |
|  |  |  |  |  | Location: Bridgeport | |
|  |  |  |  |  |  |  |
| **FIRSTNAME** | **PNAME** | **DESCRIPTION** | **QUANTITY** | |  |  |
| TIM | SAM ADAMS | BEER | 1 |  |  |  |

**4) Normalization steps on User Views**

1. All the tables are already taken normalized.  
     
   User View 1 – Total Customers Report

1NF customer (**Customer\_id**,firstname,lastname,purchase\_product)

|

| (remove partial dependencies.) Partial dependencies can occur if you have

| a concatenated key. All non-key attributes should depend on the PK.

V

2NF customer (**Customer\_id**, firstname, lastname, purchase\_product)

|

| ( remove transitive dependencies) Transitive dependencies occur when a non-key

| attribute determines the value of another non-key attribute.

V

3NF customer (**Customer\_id**, firstname, lastname)

sales(**salesId**, productid, **customerid**, employeeid, date\_purchase, quantity)

1. User View 2 – Particular Customer Report

1NF customer (**Customer\_id**,firstname,lastname,purchase\_product)

Sales (**salesID**,Fname,Product\_name,Price, Quantity,Date\_Purchase)  
product ( **Product\_ID**, Name, Availability)

|

| (remove partial dependencies.) Partial dependencies can occur if you have

| a concatenated key. All non-key attributes should depend on the PK.

V

2NF customer (**Customer\_id**,firstname,lastname,purchase\_product)

Sales (**salesID**,Fname,Product\_name,Price, Quantity,Date\_Purchase)  
product ( **Product\_ID**, Name, Availability)

|

| ( remove transitive dependencies) Transitive dependencies occur when a non-key

| attribute determines the value of another non-key attribute.

V

3NF customer (**Customer\_id**,firstname,lastname)

Sales (**salesID**, productid, customerid, employeeid, date\_purchase, Quantity)  
product ( **Product\_ID**, Name, Availability)

3.User View 3 – Product Purchase Report

1NF Sales (**salesID**,Fname,Product\_name,Price, Quantity,Date\_Purchase)  
product ( **Product\_ID**, Name, Availability)

|

| (remove partial dependencies.) Partial dependencies can occur if you have

| a concatenated key. All non-key attributes should depend on the PK.

V

2NF Sales (**salesID**,Fname,Product\_name,Price, Quantity,Date\_Purchase)  
product ( **Product\_ID**, Name, Availability)

|

| ( remove transitive dependencies) Transitive dependencies occur when a non-key

| attribute determines the value of another non-key attribute.

V

3NF Sales (**salesID**, productid, customerid, employeeid, date\_purchase, Quantity)  
product ( **Product\_ID**, Name, Availability)

4. User View 4 – Payment type report  
  
1NF customer (**Customer\_id**,firstname,lastname,purchase\_product)

Payment (**payment\_id**,Name, cost, stock, payment\_type)

|

| (remove partial dependencies.) Partial dependencies can occur if you have

| a concatenated key. All non-key attributes should depend on the PK.

V

2NF customer (**Customer\_id**, firstname, lastname, purchase\_product)

Payment (payment**\_id**,Name, cost, stock, payment\_type)

|

| ( remove transitive dependencies) Transitive dependencies occur when a non-key

| attribute determines the value of another non-key attribute.

V

3NF customer (**Customer\_id**, firstname, lastname)

Payment (**payment\_id**, SALES\_ID, CUSTOMER\_ID, cost, payment\_type)

Sales (**salesID**, productid, customerid, employeeid, date\_purchase, Quantity)

5.User View 5 – Employee sales report

1NF Employee( **Employee\_ID**, Name, Hire\_Date, Salary, Job\_title)  
product ( **Product\_ID**, Name, Availability)

|

| (remove partial dependencies.) Partial dependencies can occur if you have

| a concatenated key. All non-key attributes should depend on the PK.

V

2NF Employee( **Employee\_ID**, Name, Hire\_Date, Salary, Job\_title)  
product ( **Product\_ID**, Name, Availability)

|

| ( remove transitive dependencies) Transitive dependencies occur when a non-key

| attribute determines the value of another non-key attribute.

V

3NF Employee( **Employee\_ID**, Name, Hire\_Date, Salary, Job\_title)

product ( **Product\_ID**, Name, Availability,Price, Description)

Sales (**salesID**, productid, customerid, employeeid, date\_purchase, Quantity)

6. User View 6 – Customer Product Report

1NF customer (**Customer\_id**, firstname, lastname, purchase\_product)  
Sales (**salesID**,Fname,Product\_name,Price, Quantity,Date\_Purchase)  
product ( **Product\_ID**, Name, Availability)

|

| (remove partial dependencies.) Partial dependencies can occur if you have

| a concatenated key. All non-key attributes should depend on the PK.

V

2NF customer (**Customer\_id**, firstname, lastname, purchase\_product)  
Sales (**salesID**,Fname,Product\_name,Price, Quantity,Date\_Purchase)  
product ( **Product\_ID**, Name, Availability)

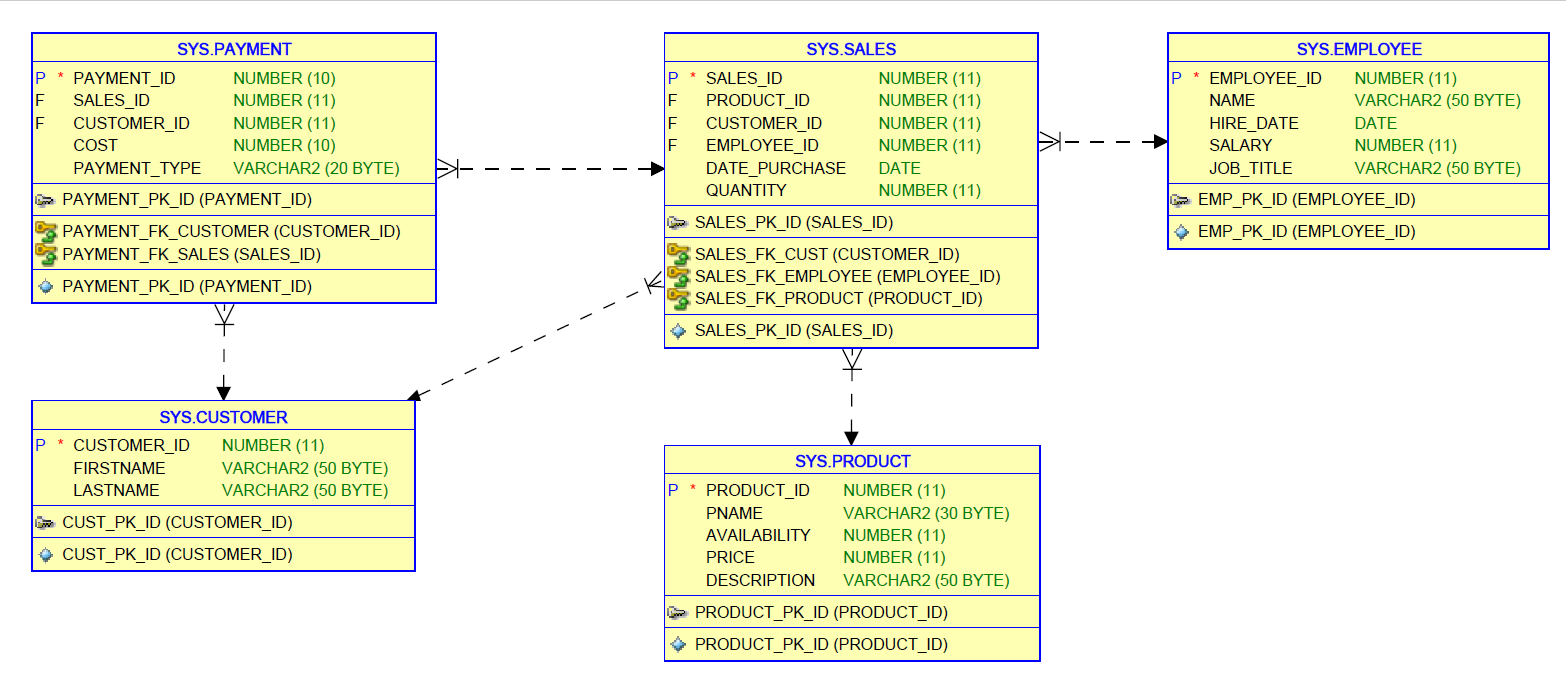
|

| ( remove transitive dependencies) Transitive dependencies occur when a non-key

| attribute determines the value of another non-key attribute.

V

3NF customer (**Customer\_id**, firstname, lastname)  
Sales (**salesID**, productid, customerid, employeeid, date\_purchase, Quantity)  
product ( **Product\_ID**, Name, Availability)

**5) ER Diagram  
**

**6) Attributes Domain Listing - data types of attributes**

**Customer table**  
  
Name Null? Type

----------------------------------------- -------- ----------------------------

CUSTOMER\_ID NOT NULL NUMBER(11)

FIRSTNAME VARCHAR2(50)

LASTNAME VARCHAR2(50)

**Employee table**

Name Null? Type

----------------------------------------- -------- ----------------------------

EMPLOYEE\_ID NOT NULL NUMBER(11)

NAME VARCHAR2(50)

HIRE\_DATE DATE

SALARY NUMBER(11)

JOB\_TITLE VARCHAR2(50)

**Product Table**

Name Null? Type

----------------------------------------- -------- ----------------------------

PRODUCT\_ID NOT NULL NUMBER(11)

PNAME VARCHAR2(30)

AVAILABILITY NUMBER(11)

PRICE NUMBER(11)

DESCRIPTION VARCHAR2(50)

**Sales Table**

Name Null? Type

----------------------------------------- -------- ----------------------------

SALES\_ID NOT NULL NUMBER(11)

PRODUCT\_ID NUMBER(11)

CUSTOMER\_ID NUMBER(11)

EMPLOYEE\_ID NUMBER(11)

DATE\_PURCHASE DATE

QUANTITY NUMBER(11)

**Payment Table**

Name Null? Type

----------------------------------------- -------- ----------------------------

PAYMENT\_ID NOT NULL NUMBER(10)

SALES\_ID NUMBER(11)

CUSTOMER\_ID NUMBER(11)

COST NUMBER(10)

PAYMENT\_TYPE VARCHAR2(20)

**7. Attribute- User Matrix View**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Attributes** | **Userview1** | **Userview2** | **Userview3** | **Userview4** | **Userview5** | **Userview6** |
| CUSTOMER\_ID | **Checkmark** |  |  |  |  |  |
| FIRSTNAME |  | **Checkmark** |  | **Checkmark** |  | **Checkmark** |
| LASTNAME |  | **Checkmark** |  | **Checkmark** |  |  |
| EMPLOYEE\_ID |  |  |  |  |  |  |
| NAME |  |  |  |  | **Checkmark** |  |
| HIRE\_DATE |  |  |  |  |  |  |
| SALARY |  |  |  |  |  |  |
| JOB\_TITLE |  |  |  |  |  |  |
| PRODUCT\_ID |  |  |  |  |  |  |
| PNAME |  |  | **Checkmark** |  | **Checkmark** | **Checkmark** |
| AVAILABILITY |  |  |  |  |  |  |
| PRICE |  |  |  |  |  |  |
| DESCRIPTION |  |  | **Checkmark** |  |  | **Checkmark** |
| SALES\_ID |  |  |  |  |  |  |
| DATE\_PURCHASE |  | **Checkmark** | **Checkmark** |  | **Checkmark** |  |
| QUANTITY |  |  | **Checkmark** |  |  | **Checkmark** |
| PAYMENT\_ID |  |  |  |  |  |  |
| COST |  | **Checkmark** |  |  |  |  |
| PAYMENT\_TYPE |  | **Checkmark** |  | **Checkmark** |  |  |

**8. BUSINESS RULES OF DATABASE**

1. CUSTOMER\_ID, EMPLOYEE\_ID, PRODUCT\_ID, SALES\_ID, PAYMENT\_ID, COST, QUANTITY, AVAILABILITY, PRICE attributes cannot be NULL and minimum and maximum limit of the digits will be 1-11 whereas PAYMENT\_ID, COST maximum limit of the digits will be 10.
2. FIRSTNAME, LASTNAME, NAME, JOB TITLE, DESCRIPTION, PNAME, PAYMENT\_TYPE are strings which can contain alphabets, numbers, special characters and also combinations. Maximum values that can fit is 50 for attributes FIRSTNAME, LASTNAME, NAME, JOB TITLE, DESCRIPTION. PNAME, PAYMENT\_TYPE can fit 30 as maximum.
3. Attributes HIRE\_DATE, DATE\_PURCHASE are of DATE data type which should be in the format of 'YYYY-MM-DD'.

**9) Files are placed in main folder (Justice Liquor Store).**