

Logical Database Design

Name of Database:

Table Name: Stock

| Name of column | Data type | Constraints (PK, FK, Surrogate, UNIQUE, NOT NULL, etc.) |
|------------------|-----------|---|
| Stock_ID | Number | PK, Surrogate |
| Store_ID | Number | FK REFERENCES Store Store_ID + Product_ID = Composite Key ON DELETE CASCADE |
| Product_ID | Number | FK REFERENCES Product Store_ID + Product_ID = Composite Key ON DELETE CASCADE |
| ShelfQty | Number | |
| StorageQty | Number | |
| ReorderThreshold | Number | |
| StockDate | String | |

Table Name: Store

| Name of column | Data type | Constraints (PK, FK, Surrogate, UNIQUE, NOT NULL, etc.) |
|----------------|-----------|--|
| Store_ID | Number | PK, Surrogate |
| StoreName | String | |
| Address | String | |

Table Name: Category

| Name of column | Data type | Constraints (PK, FK, Surrogate, UNIQUE, NOT NULL, etc.) |
|----------------|-----------|--|
| Category_ID | Number | PK, Surrogate |
| CategoryName | String | |
| CategoryDesc | String | |

Table Name: ShelfLocation

| Name of column | Data type | Constraints (PK, FK, Surrogate, UNIQUE, NOT NULL, etc.) |
|------------------|-----------|--|
| ShelfLocation_ID | Number | PK, Surrogate |
| FloorNumber | Number | |
| AisleName | String | |
| ShelfNumber | Number | |
| Product_ID | Number | FK REFERENCES Product |
| Store_ID | Number | FK REFERENCES Store ON DELETE SET NULL |

Table Name: Product

| Name of column | Data type | Constraints (PK, FK, Surrogate, UNIQUE, NOT NULL, etc.) |
|----------------|-----------|--|
| Product_ID | Number | PK, Surrogate |
| SKU | Number | |
| ProdName | String | |
| Price | Number | |

Table Name: Bill

| Name of column | Data type | Constraints (PK, FK, Surrogate, UNIQUE, NOT NULL, etc.) |
|----------------|-----------|--|
| Bill_ID | Number | PK, Surrogate |
| BillDate | String | |
| TotalBill | Number | |
| Payment_ID | Number | NULLABLE, FK REFERENCES Payment |

Table Name: Payment

| Name of column | Data type | Constraints (PK, FK, Surrogate, UNIQUE, NOT NULL, etc.) |
|----------------|-----------|--|
| Payment_ID | Number | PK, Surrogate |
| PaymentDate | String | |
| PaymentType | String | Discriminant, NULLABLE |
| PaymentAmount | Number | |
| Bill_ID | Number | NOT NULL, FK REFERENCES Bill |

Table Name: BillItem

| Name of column | Data type | Constraints (PK, FK, Surrogate, UNIQUE, NOT NULL, etc.) |
|----------------|-----------|--|
| BillItem_ID | Number | PK, Surrogate |
| Quantity | Number | |
| TotalPrice | Number | |
| Product_ID | Number | FK REFERENCES Product |
| Bill_ID | Number | FK REFERENCES BILL ON DELETE CASCADE NOT NULL |

Table Name: CardPayment

| Name of column | Data type | Constraints (PK, FK, Surrogate, UNIQUE, NOT NULL, etc.) |
|-----------------|-----------|--|
| Payment_ID | Number | PK, Surrogate, FK REFERENCES Payment ON DELETE CASCADE |
| CardNumber | Number | |
| ExpiryDate | String | |
| AuthReferenceNo | Number | |

Table Name: Product_Category

| Name of column | Data type | Constraints (PK, FK, Surrogate, UNIQUE, NOT NULL, etc.) |
|---------------------|-----------|--|
| Product_Category_ID | Number | PK, Surrogate |
| Product_ID | Number | FK REFERENCES Product Product_ID + Category_ID = Composite Key |
| Category_ID | Number | FK REFERENCES Category Product_ID + Category_ID = Composite Key |