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Assignment #6 (Midterm Exam – Part I)

PART 1:

1-**Tradional Enterprise Data** will be captured from UPC scanners and ERP Softwares and will be integrated into the database to Ensures a single consistent version of enterprise data for sharing throughout the enterprise.

Example of such data include: Item Information such as (ID=1123=Diary), Item Description(Descr=Milk Carton) and other corresponding information's. Human Resource information for example Job_ID(1080B),Job_ID_Descr(Business Analyist).Dept_ID(1001),Dept_ID_Desc(Accounts) and many others.

2-**Loyalty or Bonus Card Data:** Help us collect different customer data such as shopping habits, product descriptions, department preferences , brand preference, prices paid for product, buying frequency and type of items bought from specific stores. By combining such data with application we can create a clearer picture of when , where and how the people do there shopping.

3-**Customer Smartphone :** information is also important, we can see from which location more customers are ordering and see a demographic demand of our product with respect to geo-locationa and other relevant details, timing, product details, customer info (ages, gender etc.).

4- **Social media Logins by customers:** user logging in from social media platform will provide us in-depth customer details e.g. there name, age location and buying behavior. Most customer find it suitable to login via already being used platform rather than creating a retail site account. So this will help gathering more data.

5-**Online Contact**: via emails, inquires, cookies etc. Emails are really important they can be use for marketing and promotional purpose and see how the user is responding to different campaigns which will help the company decide which direction to take.(through emails, cookies, complaints, inquiries etc).Cookies provide with user and locational data etc.

6- **Purchasing Details/History:** such as purchasing history, quantity and return. Will given in-depth information about different products.

7- **RFID chips:** Helps in automated data collection of products and users. Can be use for product tracking also.

8 -**Virtual store:** it allows us to track the user navigation through our store. Helps in identifying buying behavior.

9-**CCTV Footage:** shop traffic at different times of the day/week/months/holidays etc.

10**-Inventory Stock:** help us see the demand of different products.

11 **Other Sources** :also include weather monitoring system, location of small sector retailers, register and non-register customers. etc.

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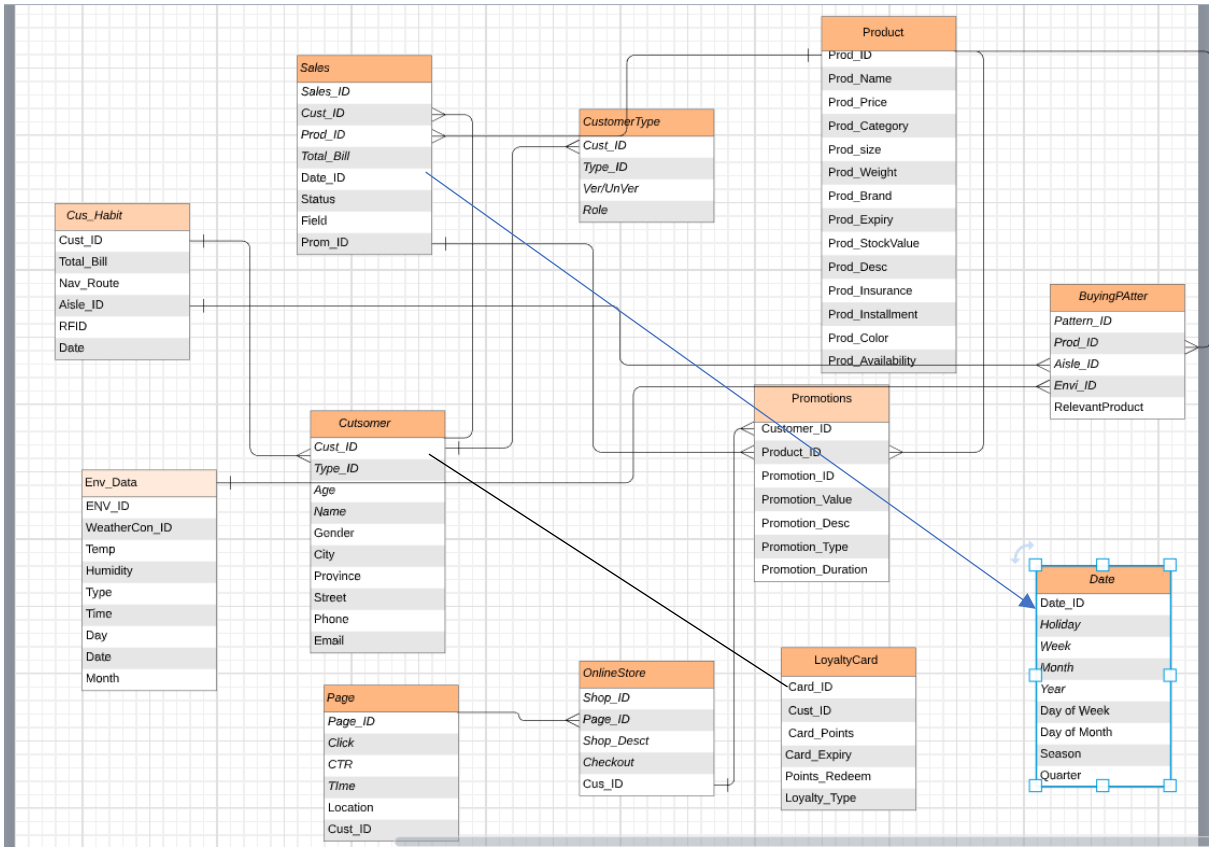
PART 2:


Product
Prod_ID
Prod_Name
Prod_Price
Prod_Category
Prod_size
Prod_Weight
Prod_Brand
Prod_Expiry
Prod_StockValue
Prod_Desc
Prod_Insurance
Prod_Installment
Prod_Color
Prod_Availability
Sales
Sales_ID
Cust_ID
Prod_ID
Total_Bill
Date_ID
Status
Field
Prom_ID
CustomerType
Cust_ID
Type_ID
Ver/UnVer
Role
Cus_Habit
Cust_ID
Total_Bill
Nav_Route
Aisle_ID
RFID
Date
BuyingPAtter
Pattern_ID
Prod_ID
Aisle_ID
Envi_ID
RelevantProduct
Promotions
Customer_ID
Product_ID
Promotion_ID
Promotion_Value
Promotion_Desc
Promotion_Type
Promotion_Duration
Cutsomer
Cust_ID
Type_ID
Age
Name
Gender
City
Province
Street
Phone
Email
Env_Data
ENV_ID
WeatherCon_ID
Temp
Humidity
Type
Time
Day
Date
Month
Date
Date_ID
Holiday
Week
Month
Year
Day of Week
Day of Month
Season
Quarter
LoyaltyCard
Card_ID
Cust_ID
Card_Points
Card_Expiry
Points_Redeem
Loyalty_Type
OnlineStore
Shop_ID
Page_ID
Shop_Desct
Checkout
Cus_ID
Page
Page_ID
Click
CTR
TIme
Location
Cust_ID

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PART 3:

(a)

Dimensions→ Procedures↓	Time/ Date	Customer	Product	Employee	Dealer	Ware house	Store	Promotion	Sales	Website	Social media	Shelf	Payment
Purchasing	✕		✕		✕	✕	✕	✕	✕			✕	✕
Sales	✕	✕	✕				✕	✕		✕			✕
Marketing	✕	✕	✕	\ ✕	✕		✕	✕	✕	✕	✕		✕

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(b)

Payment
Method
OrderType
Promotion
Currency
Cheque/Account Numb
Date

Time
Month
Quarter
Year
Day of Week
Day of Month
Fiscal Week
Fiscal Year
Weekday
Date
Major Event

Product
Name
Desc
Category
Type
Model
Weight
Color
SKU Number
Brand
PackageStyling
Price
ShelfNumber
Size
Units

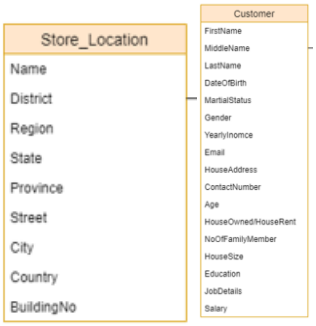
Employee
FirstName
MiddleName
LastName
DateOfBirth
MartialStatus
Gender
YearlyInomce
Email
HouseAddress
ContactNumber
Age
HouseOwned/HouseRent
NoOfFamilyMember
HouseSize
Education
JobDetails
Salary
OvertimeHrs
WorkingDays
VicationsDays
SickDays
HireDays
WorkingHours
WorkingHours

Shelf
Width
Height
Number
Area
Level
Dept

Promotion
Name
Desc
Category
Type
Coupon
Amount
StartDate
EndDate

Dealer
FullName
Email
ContactNumber
BusinessName
Address
DeliveryFrequency
DeliveryDate

SocialMedia
Account_type
PlatformName
ProfilePhoto



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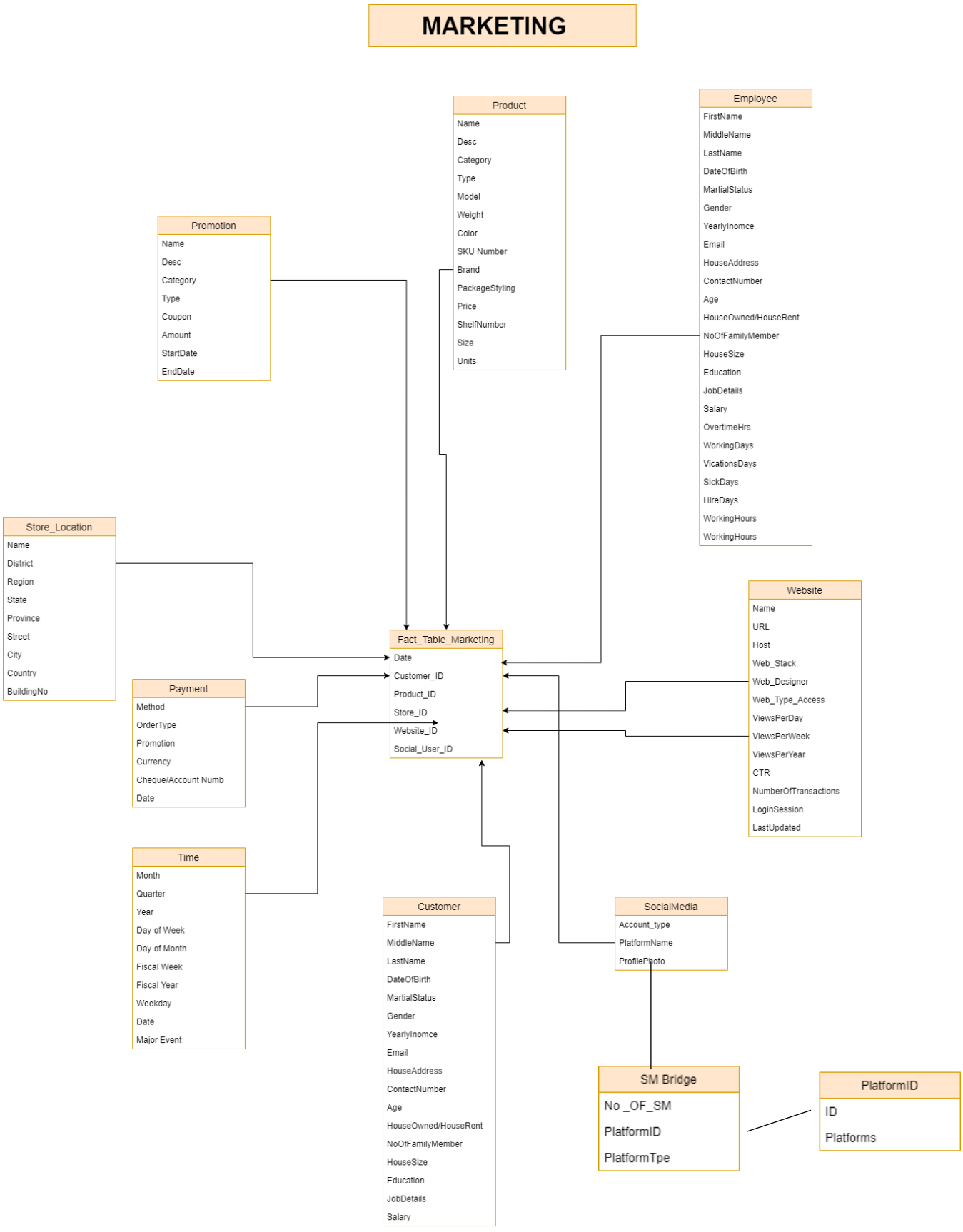
(c)


MARKETING
Product
Name
Desc
Category
Type
Model
Weight
Color
SKU Number
Brand
PackageStyling
Price
ShelfNumber
Size
Units
Employee
FirstName
MiddleName
LastName
DateOfBirth
MartialStatus
Gender
YearlyInomce
Email
HouseAddress
ContactNumber
Age
HouseOwned/HouseRent
NoOfFamilyMember
HouseSize
Education
JobDetails
Salary
OvertimeHrs
WorkingDays
VicationsDays
SickDays
HireDays
WorkingHours
WorkingHours
Promotion
Name
Desc
Category
Type
Coupon
Amount
StartDate
EndDate
Store_Location
Name
District
Region
State
Province
Street
City
Country
BuildingNo
Fact_Table_Marketing
Date
Customer_ID
Product_ID
Store_ID
Website_ID
Social_User_ID
Website
Name
URL
Host
Web_Stack
Web_Designer
Web_Type_Access
ViewsPerDay
ViewsPerWeek
ViewsPerYear
CTR
NumberOfTransactions
LoginSession
LastUpdated
Payment
Method
OrderType
Promotion
Currency
Cheque/Account Numb
Date
Time
Month
Quarter
Year
Day of Week
Day of Month
Fiscal Week
Fiscal Year
Weekday
Date
Major Event
Customer
FirstName
MiddleName
LastName
DateOfBirth
MartialStatus
Gender
YearlyInomce
Email
HouseAddress
ContactNumber
Age
HouseOwned/HouseRent
NoOfFamilyMember
HouseSize
Education
JobDetails
Salary
SocialMedia
Account_type
PlatformName
ProfilePhoto
SM Bridge
No _OF_SM
PlatformID
PlatformTpe
PlatformID
ID
Platforms

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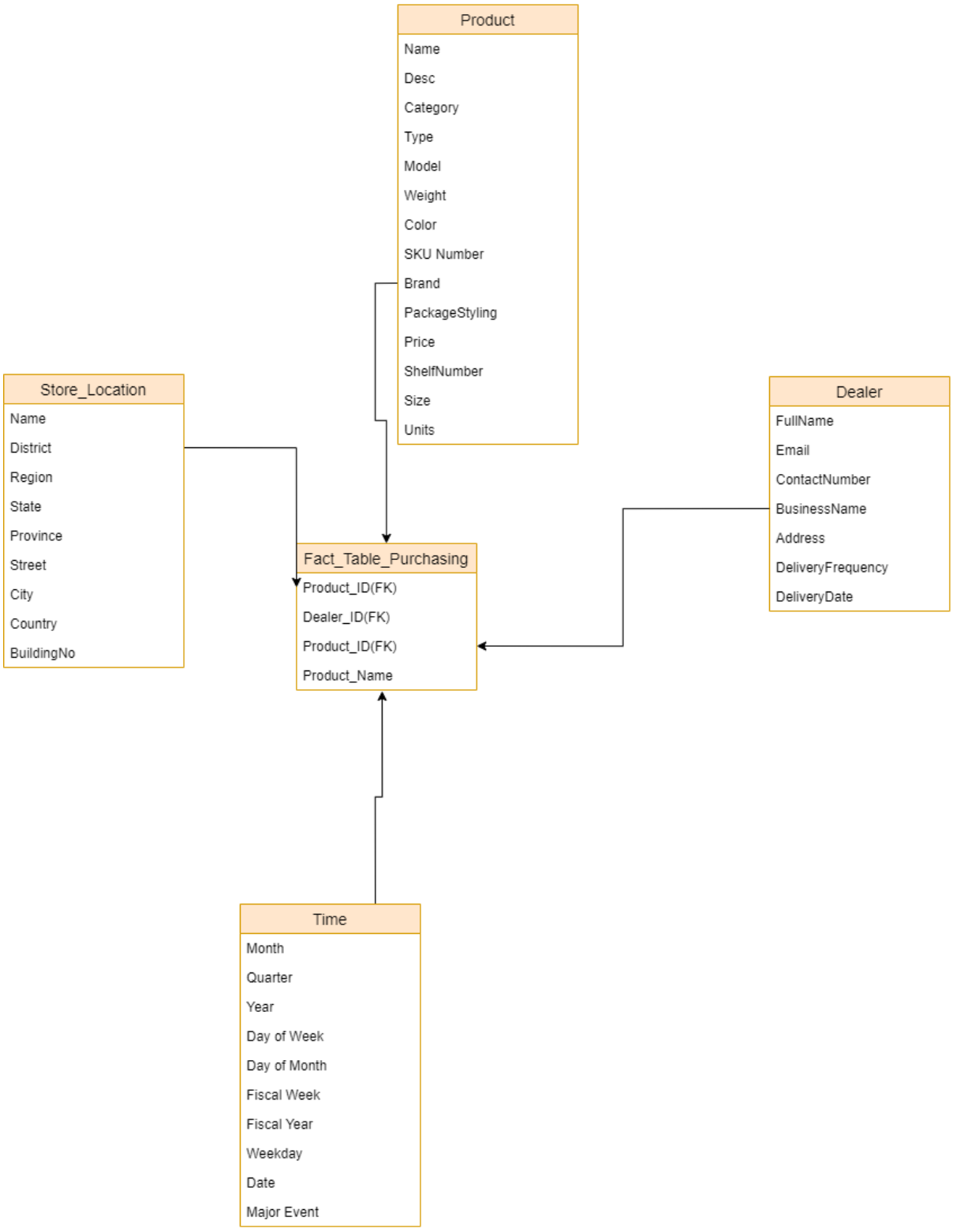
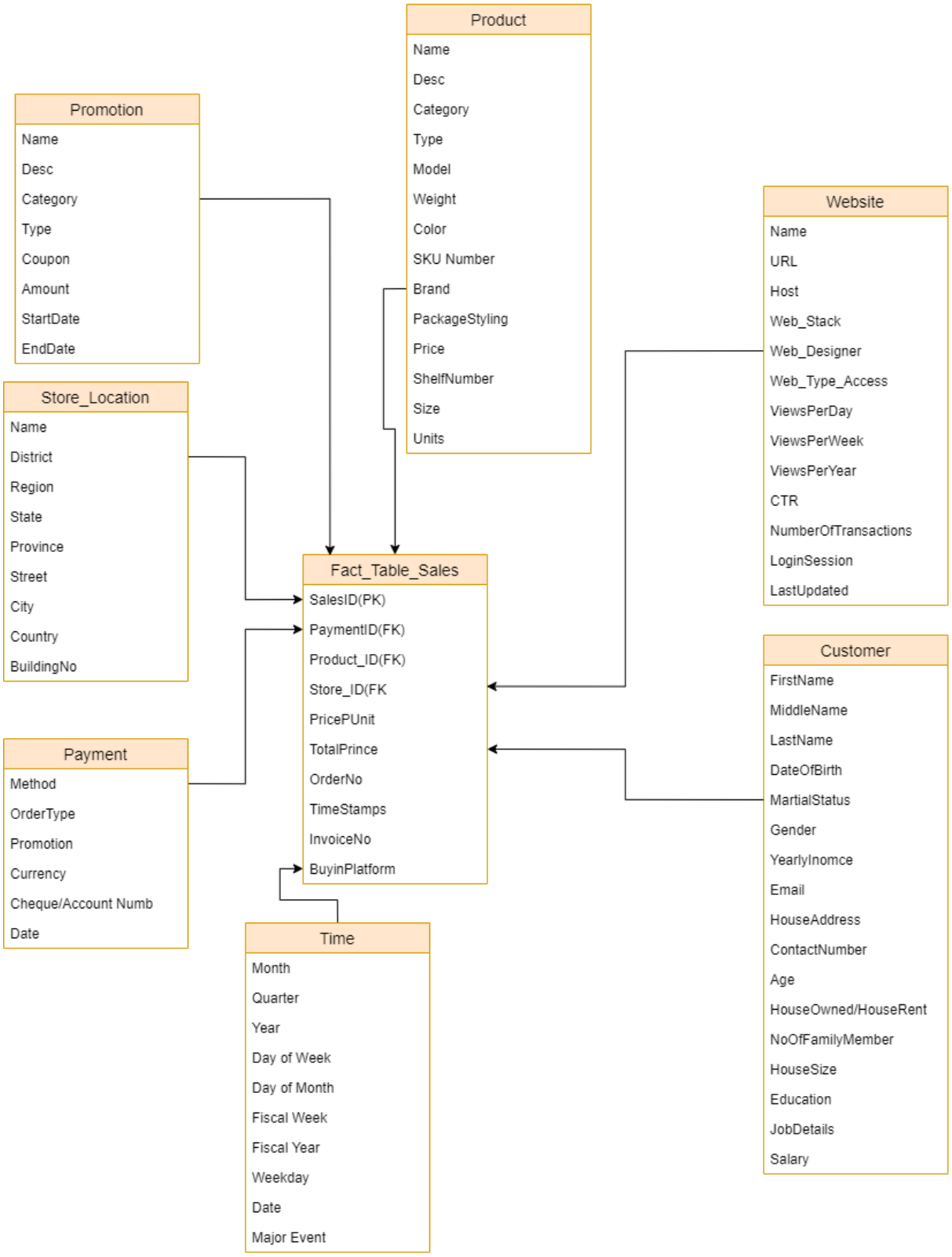
Purchasing


Product
Name
Desc
Category
Type
Model
Weight
Color
SKU Number
Brand
PackageStyling
Price
ShelfNumber
Size
Units
Store_Location
Name
District
Region
State
Province
Street
City
Country
BuildingNo
Dealer
FullName
Email
ContactNumber
BusinessName
Address
DeliveryFrequency
DeliveryDate
Fact_Table_Purchasing
Product_ID(FK)
Dealer_ID(FK)
Product_ID(FK)
Product_Name
Time
Month
Quarter
Year
Day of Week
Day of Month
Fiscal Week
Fiscal Year
Weekday
Date
Major Event

`

SALES


Product
Name
Desc
Category
Type
Model
Weight
Color
SKU Number
Brand
PackageStyling
Price
ShelfNumber
Size
Units
Promotion
Name
Desc
Category
Type
Coupon
Amount
StartDate
EndDate
Website
Name
URL
Host
Web_Stack
Web_Designer
Web_Type_Access
ViewsPerDay
ViewsPerWeek
ViewsPerYear
CTR
NumberOfTransactions
LoginSession
LastUpdated
Store_Location
Name
District
Region
State
Province
Street
City
Country
BuildingNo
Fact_Table_Sales
SalesID(PK)
PaymentID(FK)
Product_ID(FK)
Store_ID(FK
PricePUnit
TotalPrince
OrderNo
TimeStamps
InvoiceNo
BuyinPlatform
Customer
FirstName
MiddleName
LastName
DateOfBirth
MartialStatus
Gender
YearlyInomce
Email
HouseAddress
ContactNumber
Age
HouseOwned/HouseRent
NoOfFamilyMember
HouseSize
Education
JobDetails
Salary
Payment
Method
OrderType
Promotion
Currency
Cheque/Account Numb
Date
Time
Month
Quarter
Year
Day of Week
Day of Month
Fiscal Week
Fiscal Year
Weekday
Date
Major Event

`

(D)

Fact table name	Fact granularity	Fact table type	Brief justification
Fact_Marketing	Product_ID	Transactional	We can check for each product if it has any promotion going on or not and we can check the placement of these products in various stores. And then see the impact of these on sales.
Fact_Sales	Store_ID	Transactional	We check purchases by store.Then for each store we can further check frequency and amount of product purchased.
Fact_Purchasing	Dealer_ID	Transactional	We check from which dealers are stores getting the most product. This way we can work with them to set up promotional offers

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(E)

Dimension table name	Dimension table name	Attribute hierarchies
Store	There are multiple stores across different location. We need to keep track of the sales pattern in each location to get an understanding of what needs to be focused on different stores.	Country → province → city→ region → district → zip→code → street
Product	Products have multiple divisions.Products->Category->Brands and so on.This allows us to have an indepth analysis of different product sales.	1. Product → weight → size → size range 2. Product name → package type → package styling 3. Product line→ product category → product type→ product brand → model number → product name
Customer	We need which customer visit which store. What they bought. How frequently did they bought? In order to determine buying patterns of our customers. As the whole basis is to increase customer sales. We need to have indepth detail of customer. Were they live what they earn ,other details and so on.	1. Customer→ name → birthdate→age → gender → phone→ email → address 2. Customer→ name →age→education level→ yearly income→ address→ home value→own or rent→ vehicles owned 3. Customer → name → age → gender→ marital status→ no of children→ no of people in house
Employee	Keeping tracks of employees gives us accountability's which stores reviews are better. Which is selling more. What is lacking which departmental employees are not working up to mark or are exceptional. To keep track	1. Employee → hire date→ salary month → salary date→ last paid → salary 2. Employee → working days → working hours → overtime hours →

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	of al of this wee need a employee table.	sick/leave hours → vacation hours 3. Employee name→ age → gender → marital status 4. Employee → department → title → salary
Time	To track the day to day and weekly/Yearly sales.See which day sold more and why? For example holiday seasons	1. Fiscal year → fiscal quarter → fiscal month → fiscal date 2. Day of year → day of month → day of week 3. Year → quarter → month → date → hour 4.
Website	Website data are really useful. It gives us track of each customer. What they bought, from where they bought it. Did they buy any of out recommended items? What is the rate of conversion of sales? Etc. All these queries can be solved by website data	1. Website-Number of clicks to order-number of transactions completed 2. Website -views per month-views per week=views per day-views per hour 3. Website-most clicked category-most clicked product-no of add to cart clicks **4.** Website - website host-website designer-site last updated-ease of access-variety of info desc
Social Media	Different social media accounts help us keep track of customers and provide relevant data as well	1. Platform-views per month-views per week-views per day 2. Platform-Number of clicks to order-number of transactions completed

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(F)

Design feature	Brief description	Brief justification
Fact less fact table	Used to know the cost of every product sold in each marketing schema.	FFT is used to directly link marketing to products with Prod_ID to find all the products in fact table.
Bridge table	Social media bridge table used in marketing star schema	Each customer will be counted as one in this table even if they login with different social account.

(G)

Problem: Bridging Issue in Website schema. Was solved by creating Social Media table. Our website would count single customer as one. Same goes with customers coming by stores.

Solution: create a bridge table, that counts the account person have. Link it with their other details to loyalty cards etc.

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