

1) Promotion dimension table

```
create table promotion_dimension(promotion_key number(6) constraint promotionDimPK
primary key,
promotion_id number(6), promotion_code varchar2(8) , promotion_name varchar2(10),
promotion_amount number(2), promotion_startDate date ,
promotion_expirationDate date
);
```

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
► PROMOTION_KEY	1	1	N	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
PROMOTION_ID	2		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
PROMOTION_CODE	3		Y	VARCHAR2 (8 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
PROMOTION_NAME	4		Y	VARCHAR2 (10 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
PROMOTION_AMOUNT	5		Y	NUMBER (2)		None		<input type="checkbox"/>	<input type="checkbox"/>
PROMOTION_STARTDATE	6		Y	DATE		None		<input type="checkbox"/>	<input type="checkbox"/>
PROMOTION_EXPIRATIONDATE	7		Y	DATE		None		<input type="checkbox"/>	<input type="checkbox"/>

indexes->

Implicit non clustered index on <promotion_key> ,

Which is created implicitly by oracle,

To improve the performance of retrieving rows from the dimension table

2) fare_basis_dimension

```
create table fare_basis_dimension(fare_basis_key number(6) constraint
fareBasisDimPK primary key,
fare_basis_id number(6), fare_basis_code varchar2(10),
class_type varchar2(20),
fare_basis_description varchar2(1000) );
```

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
► FARE_BASIS_KEY	1	1	N	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
FARE_BASIS_ID	2		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
FARE_BASIS_CODE	3		Y	VARCHAR2 (10 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
CLASS_TYPE	4		Y	VARCHAR2 (20 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
FARE_BASIS_DESCRIPTION	5		Y	VARCHAR2 (1000 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>

indexes->

Implicit non clustered index on <fare_basis_key> ,

Which is created implicitly by oracle,
To improve the performance of retrieving rows from the dimension table

3) aircraft_dimension

```
create table aircraft_dimension(aircraft_key number(6) constraint aircraftDimPK primary
key,
aircraft_id number(6),
aircraft_capacity number(6) ,
aircraft_model varchar2(1000)
);
```

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
AIRCRAFT_KEY	1	1	N	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
AIRCRAFT_ID	2		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
AIRCRAFT_CAPACITY	3		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
AIRCRAFT_MODEL	4		Y	VARCHAR2 (1000 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>

indexes->

Implicit non clustered index on <aircraft_key>,
Which is created implicitly by oracle,
To improve the performance of retrieving rows from the dimension table

4) flight_dimension

```
create table flight_dimension( flight_key number(6) constraint flightDimPK primary key,
flight_id number(6) , departureTime date ,departureDate date , duration number(3),
miles number(8,2),
departure_airport varchar2(20) , arrival_airport varchar2(20)
);
```

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
FLIGHT_KEY	1	1	N	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
FLIGHT_ID	2		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
DEPARTURETIME	3		Y	DATE		None		<input type="checkbox"/>	<input type="checkbox"/>
DEPARTUREDATE	4		Y	DATE		None		<input type="checkbox"/>	<input type="checkbox"/>
DURATION	5		Y	NUMBER (3)		None		<input type="checkbox"/>	<input type="checkbox"/>
MILES	6		Y	NUMBER (8,2)		None		<input type="checkbox"/>	<input type="checkbox"/>
DEPARTURE_AIRPORT	7		Y	VARCHAR2 (20 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
ARRIVAL_AIRPORT	8		Y	VARCHAR2 (20 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>

indexes->

Implicit non clustered index on <flight_key> ,

Which is created implicitly by oracle,

To improve the performance of retrieving rows from the dimension table

5) Payment_type_dimension

```
create table payment_type_dimension( payment_key number(6) constraint
PaymentTypeDimPK primary key,
payment_id number(6) ,
payment_type varchar2(20)
);
```

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
PAYMENT_KEY	1	1	N	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
PAYMENT_ID	2		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
PAYMENT_TYPE	3		Y	VARCHAR2 (20 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>

indexes->

Implicit non clustered index on <payment_key> ,

Which is created implicitly by oracle,

To improve the performance of retrieving rows from the dimension table

6) Date_dimension

```
create table date_dimension( date_key number(6) constraint dateDimPK primary key,
date_year number(2) ,
date_month varchar(20) ,
date_day varchar(20) ,
date_day_of_month number(3)
);
```

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
DATE_KEY	1	1	N	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
DATE_YEAR	2		Y	NUMBER (5)		None		<input type="checkbox"/>	<input type="checkbox"/>
DATE_MONTH	3		Y	VARCHAR2 (5 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
DATE_DAY	4		Y	VARCHAR2 (10 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
DATE_DAY_OF_MONTH	5		Y	NUMBER (3)		None		<input type="checkbox"/>	<input type="checkbox"/>

indexes->

Implicit non clustered index on <date_key> ,

Which is created implicitly by oracle,

To improve the performance of retrieving rows from the dimension table

7) channel_dimension

create table channel_dimension (channel_key number(6) constraint channelDimPK primary key,

channel_id number(9) ,

channel_type varchar(20)

);

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
CHANNEL_KEY	1	1	N	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
CHANNEL_ID	2		Y	NUMBER (9)		None		<input type="checkbox"/>	<input type="checkbox"/>
CHANNEL_TYPE	3		Y	VARCHAR2 (20 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>

indexes->

Implicit non clustered index on <channel_key> ,

Which is created implicitly by oracle,

To improve the performance of retrieving rows from the dimension table

8) Reservation_fact

create table reservation_fact(date_key number(6)

REFERENCES date_dimension(date_key) ,

```

promotion_key number(6)
REFERENCES promotion_dimension(promotion_key) ,
fare_basis_key number(6)
REFERENCES fare_basis_dimension(fare_basis_key) ,
channel_key number(6)
REFERENCES channel_dimension(channel_key) ,
passenger_key number(6) REFERENCES passenger_dimension(passenger_key) ,
flight_key number(6)
REFERENCES flight_dimension(flight_key) ,
payment_key number(6)
REFERENCES payment_type_dimension(payment_key) ,
aircraft_key number(6)
REFERENCES aircraft_dimension(aircraft_key) ,

ticket_number varchar2(50) ,
ticket_price number(8,2),
tax number(8,2),
reservation_fees number(8,2),
revenue number(8,2)
);

```

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
DATE_KEY	1		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
PROMOTION_KEY	2		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
FARE_BASIS_KEY	3		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
CHANNEL_KEY	4		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
PASSENGER_KEY	5		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
FLIGHT_KEY	6		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
PAYMENT_KEY	7		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
AIRCRAFT_KEY	8		Y	NUMBER (6)		None		<input type="checkbox"/>	<input type="checkbox"/>
TICKET_NUMBER	9		Y	VARCHAR2 (50 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
TICKET_PRICE	10		Y	NUMBER (8,2)		None		<input type="checkbox"/>	<input type="checkbox"/>
TAX	11		Y	NUMBER (8,2)		None		<input type="checkbox"/>	<input type="checkbox"/>
RESERVATION_FEES	12		Y	NUMBER (8,2)		None		<input type="checkbox"/>	<input type="checkbox"/>
REVENUE	13		Y	NUMBER (8,2)		None		<input type="checkbox"/>	<input type="checkbox"/>

indexes->

Bitmap index on all foreign keys

9) Passenger Dimension

```

CREATE TABLE Passenger_Dimension (
passenger_key NUMBER(8) CONSTRAINT Passenger_pkey PRIMARY KEY,
national_id NUMBER(12),
first_name VARCHAR2(20),

```

last_name VARCHAR2(20),
address VARCHAR2(100),
phone_number NUMBER(11),
frequent_flyer_id VARCHAR2(20),
status VARCHAR2(20)

)

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
▶ PASSENGER_KEY	1	1	N	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
NATIONAL_ID	2		Y	NUMBER (12)		None		<input type="checkbox"/>	<input type="checkbox"/>
FIRST_NAME	3		Y	VARCHAR2 (20 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
LAST_NAME	4		Y	VARCHAR2 (20 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
ADDRESS	5		Y	VARCHAR2 (100 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
PHONE_NUMBER	6		Y	NUMBER (11)		None		<input type="checkbox"/>	<input type="checkbox"/>
FREQUENT_FLYER_ID	7		Y	VARCHAR2 (20 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
STATUS	8		Y	VARCHAR2 (20 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>

Passenger key gets an implicit non clustered index

status gets an explicit non clustered index. as it is commonly used in filtering queries.

10) Fact_Flying

```
CREATE TABLE Fact_Flying (
  date_key NUMBER(8) CONSTRAINT FactFlying_fkey_date REFERENCES
date_dimension(date_key),
  passenger_key NUMBER(8) CONSTRAINT FactFlying_fkey_passenger REFERENCES
passenger_dimension(passenger_key),
  flight_key NUMBER(8) CONSTRAINT FactFlying_fkey_flight REFERENCES
flight_dimension(flight_key),
  fare_basis_key NUMBER(8) CONSTRAINT FactFlying_fkey_fare REFERENCES
fare_basis_dimension(fare_basis_key),
  payment_key NUMBER(8) CONSTRAINT FactFlying_fkey_payment REFERENCES
payment_type_dimension(payment_key),
  promotion_key NUMBER(8) CONSTRAINT FactFlying_fkey_promotion REFERENCES
promotion_dimension(promotion_key),
  is_transit NUMBER(1),
  ticket_number VARCHAR2(50),
  CONSTRAINT FactFlying_pkey PRIMARY KEY(date_key, passenger_key, flight_key,
fare_basis_key, payment_key, promotion_key)
)
```

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
▶ DATE_KEY	1	1	N	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
PASSENGER_KEY	2	2	N	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
FLIGHT_KEY	3	3	N	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
FARE_BASIS_KEY	4	4	N	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
PAYMENT_KEY	5	5	N	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
PROMOTION_KEY	6	6	N	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
IS_TRANSIT	7		Y	NUMBER (1)		None		<input type="checkbox"/>	<input type="checkbox"/>
TICKET_NUMBER	8		Y	VARCHAR2 (50 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>

- Date_key could be a clustered explicit index
- the other _key columns are explicit unclustered indices

11) Factless_PromotionFlight

```
CREATE TABLE Factless_PromotionFlight (
    promotion_key NUMBER(8) CONSTRAINT Factless_fkey_promotion REFERENCES
Promotion_Dimension(promotion_key),
    flight_key NUMBER(8) CONSTRAINT Factless_fkey_flight REFERENCES
Flight_Dimension(flight_key),
    CONSTRAINT Factless_PromotionFlight_pkey PRIMARY KEY (promotion_key,
flight_key)
)
```

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
▶ PROMOTION_KEY	1	1	N	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
FLIGHT_KEY	2	2	N	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>

12) Fact_OverNight_Layover

```
CREATE TABLE Fact_Overnight_Layover (
    date_key NUMBER(8) CONSTRAINT FactOverNight_fkey_date REFERENCES
date_dimension(date_key),
    passenger_key NUMBER(8) CONSTRAINT FactOverNight_fkey_passenger
REFERENCES passenger_dimension(passenger_key),
    payment_key NUMBER(8) CONSTRAINT FactOverNight_fkey_payment
REFERENCES payment_type_dimension(payment_key),
    bookin_time TIMESTAMP,
    DURATION NUMBER(8),
    PRICE NUMBER(8, 2),
    CONSTRAINT FactOverNight_pkey PRIMARY KEY(date_key, passenger_key,
payment_key)
)
```

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
DATE_KEY	1	1	N	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
PASSENGER_KEY	2	2	N	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
PAYMENT_KEY	3	3	N	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
BOOKIN_TIME	4		Y	TIMESTAMP(6)		None		<input type="checkbox"/>	<input type="checkbox"/>
DURATION	5		Y	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
PRICE	6		Y	NUMBER (8,2)		None		<input type="checkbox"/>	<input type="checkbox"/>

explicit clustered index on date_key

explicit non clustered index on the other keys

explicit non clustered b-tree index on duration

13) Product_Dimension

```
CREATE TABLE Products_Dimension (
    product_key NUMBER(8) CONSTRAINT DimProduct_pkey PRIMARY KEY,
    product_id NUMBER(8),
    product_name VARCHAR2(20),
    product_desc VARCHAR2(200)
)
```

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
PRODUCT_KEY	1	1	N	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
PRODUCT_ID	2		Y	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
PRODUCT_NAME	3		Y	VARCHAR2 (20 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
PRODUCT_DESC	4		Y	VARCHAR2 (200 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>

product_key is an implicit primary key non clustered index

14) Fact Product Sales

```
CREATE TABLE Fact_ProductSales (
    date_key NUMBER(8) CONSTRAINT FactProductSales_fkey_date REFERENCES
Date_dimension(date_key),
    passeenger_key NUMBER(8) CONSTRAINT FactProductSales_fkey_pass REFERENCES
Passenger_dimension(passenger_key),
    product_key NUMBER(8) CONSTRAINT FactProductSales_fkey_product REFERENCES
Products_dimension(product_key),
    payment_type NUMBER(8) CONSTRAINT FactProductSales_fkey_payment REFERENCES
Payment_Type_Dimension(payment_type),
    price NUMBER(8, 2)
);
```

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
DATE_KEY	1		Y	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
PASSENGER_KEY	2		Y	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>
PRODUCT_KEY	3		Y	NUMBER (8)		None		<input type="checkbox"/>	<input type="checkbox"/>


-explicit clustered index on date_key

-explicit non clustered indexes on the other key columns.

1- Customer care fact :

```
CREATE TABLE Customer_care
(
  DATE_KEY      NUMBER,
  PASSENGER_key NUMBER,
  flight_key     NUMBER,
  survey_ID     NUMBER,
  INTERACTION_ID NUMBER,
  PROBLEM_SEVERITY NUMBER,
  FEEDBACK      NUMBER
);
```

CUSTOMER_CARE: Created: 12/28/2022 7:25:33 PM Last DDL: 12/28/2022 8:12:11 PM

Columns	Indexes	Constraints	Triggers	Data	Script	Grants	Synonyms	Partitions	Subpartitions	Stats/Size	Referential	Used By	Policy
 <NO PRIMARY KEY>													
Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger				
DATE_KEY	1		Y	NUMBER		None		<input type="checkbox"/>	<input type="checkbox"/>				
PASSENGER_KEY	2		Y	NUMBER		None		<input type="checkbox"/>	<input type="checkbox"/>				
FLIGHT_KEY	3		Y	NUMBER		None		<input type="checkbox"/>	<input type="checkbox"/>				
SURVEY_ID	4		Y	NUMBER		None		<input type="checkbox"/>	<input type="checkbox"/>				
INTERACTION_ID	5		Y	NUMBER		None		<input type="checkbox"/>	<input type="checkbox"/>				
PROBLEM_SEVERITY	6		Y	NUMBER		None		<input type="checkbox"/>	<input type="checkbox"/>				
FEEDBACK	7		Y	NUMBER		None		<input type="checkbox"/>	<input type="checkbox"/>				

```
ALTER TABLE Customer_care ADD (
  FOREIGN KEY (DATE_KEY)
  REFERENCES date_dimension (DATE_KEY),
  FOREIGN KEY (PASSENGER_key)
  REFERENCES passenger_dimension (PASSENGER_key),
  FOREIGN KEY (flight_key)
  REFERENCES flight_dimension (flight_key),
  FOREIGN KEY (survey_id)
  REFERENCES surveys(survey_id),
  FOREIGN KEY ( INTERACTION_ID )
  REFERENCES Interaction ( INTERACTION_ID));
```

2- INTERACTION table:

CREATE TABLE INTERACTION

(

INTERACTION_ID NUMBER(8) CONSTRAINT inter_pkey PRIMARY KEY,

INTERACTION_TYPE VARCHAR2(50)

);

indexes->

Implicit non clustered index on <INTERACTION_ID> ,

Which is created implicitly by oracle,

To improve the performance of retrieving rows from the dimension table

INTERACTION: Created: 12/28/2022 7:50:16 PM Last DDL: 12/28/2022 7:50:16 PM

Columns	Indexes	Constraints	Triggers	Data	Script	Grants	Synonyms	Partitions	Subpartitions	Stats/Size	Referential	Used By	Policies	Auditing
INTERACTION_ID														
Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger					
INTERACTION_ID	1	1	N	NUMBER		None		<input type="checkbox"/>	<input type="checkbox"/>					
INTERACTION_TYPE	2		Y	VARCHAR2 (50 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>					

3- SURVEYS table :

CREATE TABLE SURVEYS

(

SURVEY_ID NUMBER(8) CONSTRAINT survey_pkey PRIMARY KEY,

SURVEY_CATEGORY VARCHAR2(50),

CUSTOMER_COMMENTS VARCHAR2(500)

);

indexes->



Implicit non clustered index on <SURVEY_ID> ,

Which is created implicitly by oracle,

To improve the performance of retrieving rows from the dimension table

SURVEYS: Created: 12/28/2022 7:50:16 PM Last DDL: 12/28/2022 7:50:16 PM

Columns Indexes Constraints Triggers Data Script Grants Synonyms Partitions Subpartitions Stats/Size Referential Used By Policies

               SURVEY_ID

Column Name	ID	Pk	Null?	Data Type	Default	Histogram	Encryption Alg	Salt	Seq/Trigger
▶ SURVEY_ID	1	1	N	NUMBER		None		<input type="checkbox"/>	<input type="checkbox"/>
SURVEY_CATEGORY	2		Y	VARCHAR2 (50 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>
CUSTOMER_COMMENTS	3		Y	VARCHAR2 (500 Byte)		None		<input type="checkbox"/>	<input type="checkbox"/>