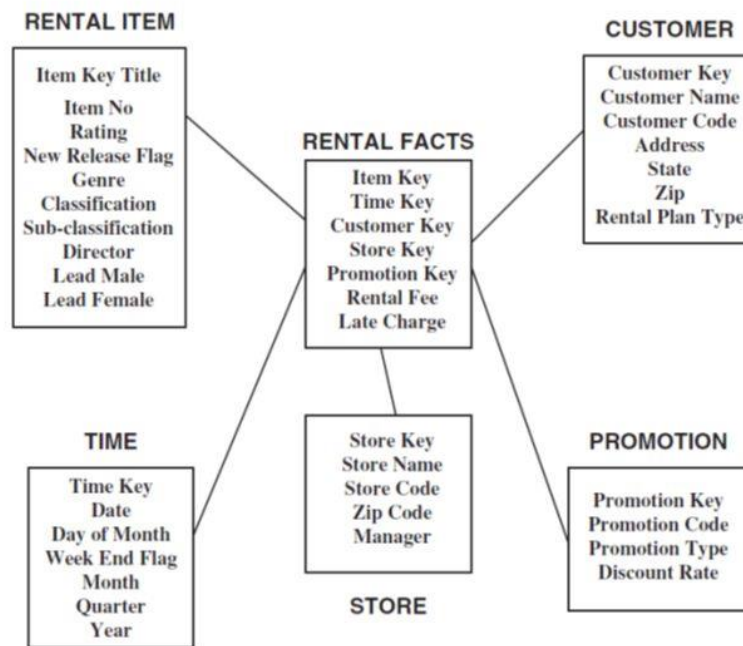Name➔Harsh V Jain

Roll No➔55

Practical No 1➔

AIM➔ Design a Star Schema Architecture For Given Problem.
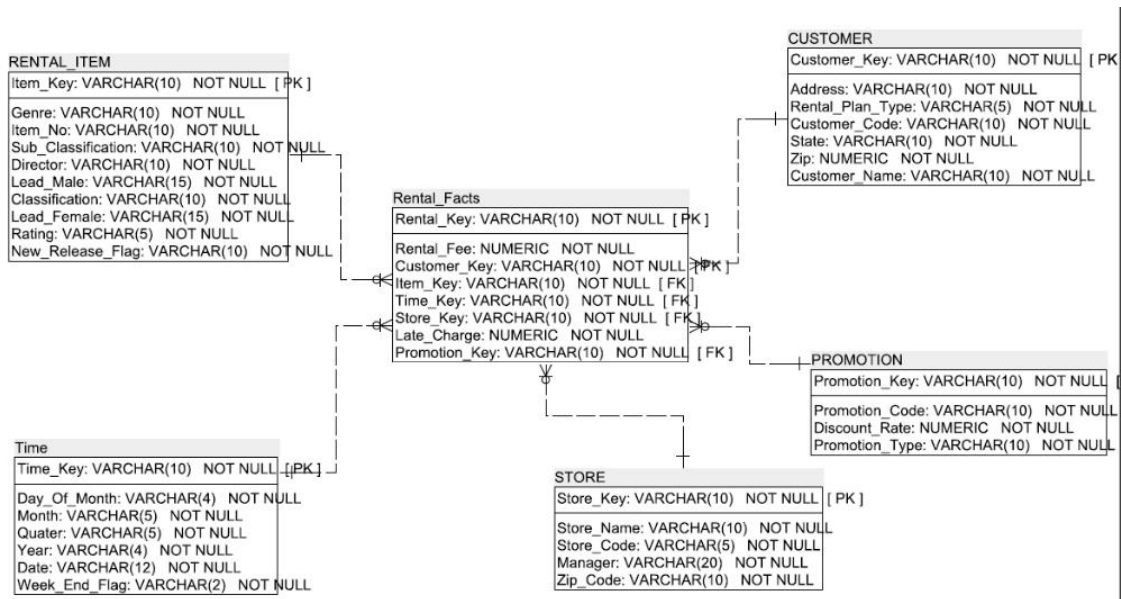
Video Rental Schema Picture➔

Example Star Schema:Video Rental

Solution ➔
Star Schema➔

RENTAL_ITEM
Item_Key: VARCHAR(10) NOT NULL [PK]

Genre: VARCHAR(10) NOT NULL
Item_No: VARCHAR(10) NOT NULL
Sub_Classification: VARCHAR(10) NOT NULL
Director: VARCHAR(10) NOT NULL
Lead_Male: VARCHAR(15) NOT NULL
Classification: VARCHAR(10) NOT NULL
Lead_Female: VARCHAR(15) NOT NULL
Rating: VARCHAR(5) NOT NULL
New_Release_Flag: VARCHAR(10) NOT NULL

CUSTOMER
Customer_Key: VARCHAR(10) NOT NULL [PK

Address: VARCHAR(10) NOT NULL
Rental_Plan_Type: VARCHAR(5) NOT NULL
Customer_Code: VARCHAR(10) NOT NULL
State: VARCHAR(10) NOT NULL
Zip: NUMERIC NOT NULL
Customer_Name: VARCHAR(10) NOT NULL

Rental_Facts
Rental_Key: VARCHAR(10) NOT NULL [PK]

Rental_Fee: NUMERIC NOT NULL
Customer_Key: VARCHAR(10) NOT NULL [PK]
Item_Key: VARCHAR(10) NOT NULL [FK]
Time_Key: VARCHAR(10) NOT NULL [FK]
Store_Key: VARCHAR(10) NOT NULL [FK]
Late_Charge: NUMERIC NOT NULL
Promotion_Key: VARCHAR(10) NOT NULL [FK]

PROMOTION
Promotion_Key: VARCHAR(10) NOT NULL [

Promotion_Code: VARCHAR(10) NOT NULL
Discount_Rate: NUMERIC NOT NULL
Promotion_Type: VARCHAR(10) NOT NULL

Time
Time_Key: VARCHAR(10) NOT NULL [PK]

Day_Of_Month: VARCHAR(4) NOT NULL
Month: VARCHAR(5) NOT NULL
Quater: VARCHAR(5) NOT NULL
Year: VARCHAR(4) NOT NULL
Date: VARCHAR(12) NOT NULL
Week_End_Flag: VARCHAR(2) NOT NULL

STORE
Store_Key: VARCHAR(10) NOT NULL [PK]

Store_Name: VARCHAR(10) NOT NULL
Store_Code: VARCHAR(5) NOT NULL
Manager: VARCHAR(20) NOT NULL
Zip_Code: VARCHAR(10) NOT NULL

Db table →
CREATE TABLE RENTAL_ITEM (
        item_Key VARCHAR(10) NOT NULL,
        Genre VARCHAR(10) NOT NULL,
        Item_No VARCHAR(10) NOT NULL,
        Rental_Key VARCHAR(10) NOT NULL,
        Director VARCHAR(10) NOT NULL,
        Lead_Male VARCHAR(15) NOT NULL,
        Classification VARCHAR(10) NOT NULL,
        Lead_Female VARCHAR(15) NOT NULL,
        Rating VARCHAR(5) NOT NULL,
        New_Release_Flag VARCHAR(10) NOT NULL,
        CONSTRAINT iTEM_kEY PRIMARY KEY (item_Key)
);

CREATE TABLE PROMOTION (
        Promotion_Key VARCHAR(10) NOT NULL,
        Promotion_Code VARCHAR(10) NOT NULL,
        Discount_Rate NUMERIC NOT NULL,
        Promotion_Type VARCHAR(10) NOT NULL,
        CONSTRAINT Promotion_Key PRIMARY KEY (Promotion_Key)
);

CREATE TABLE STORE (
        Store_Key VARCHAR(10) NOT NULL,
        Store_Name VARCHAR(10) NOT NULL,

```sql
        Store_Code VARCHAR(5) NOT NULL,
        Manager VARCHAR(20) NOT NULL,
        Zip_Code VARCHAR(10) NOT NULL,
        CONSTRAINT Store_Key PRIMARY KEY (Store_Key)
);


CREATE TABLE Time (
        Time_Key VARCHAR(10) NOT NULL,
        Day_Of_Month VARCHAR(4) NOT NULL,
        Month VARCHAR(5) NOT NULL,
        Quater VARCHAR(5) NOT NULL,
        Year VARCHAR(4) NOT NULL,
        Date_1 VARCHAR(12) NOT NULL,
        Week_End_Flag VARCHAR(2) NOT NULL,
        CONSTRAINT Time_Key PRIMARY KEY (Time_Key)
);


CREATE TABLE CUSTOMER (
        Customer_Key VARCHAR(10) NOT NULL,
        Address VARCHAR(10) NOT NULL,
        Rental_Plan_Type VARCHAR(5) NOT NULL,
        Customer_Name VARCHAR(10) NOT NULL,
        State VARCHAR(10) NOT NULL,
        Zip NUMERIC NOT NULL,
        CONSTRAINT Customer_Key PRIMARY KEY (Customer_Key)
);


CREATE TABLE Rental_Facts (
        Rental_Key VARCHAR(10) NOT NULL,
        Rental_Fee NUMERIC(5),
        Customer_Key VARCHAR(10) NOT NULL,
        Item_Key VARCHAR(10) NOT NULL,
        Time_Key VARCHAR(10) NOT NULL,
        Store_Key VARCHAR(10) NOT NULL,
        Late_Charge NUMERIC(2),
        Promotion_Key VARCHAR(10) NOT NULL,
        CONSTRAINT Rental_Fee PRIMARY KEY (Rental_Key)
);


ALTER TABLE Rental_Facts ADD CONSTRAINT RENTAL_ITEM_Rental_Facts_fk
FOREIGN KEY (Item_Key)
```

REFERENCES RENTAL_ITEM (item_Key);

ALTER TABLE Rental_Facts ADD CONSTRAINT PROMOTION_Rental_Facts_fk
FOREIGN KEY (Promotion_Key)
REFERENCES PROMOTION (Promotion_Key);

ALTER TABLE Rental_Facts ADD CONSTRAINT STORE_Rental_Facts_fk
FOREIGN KEY (Store_Key)
REFERENCES STORE (Store_Key);

ALTER TABLE Rental_Facts ADD CONSTRAINT Time_Rental_Facts_fk
FOREIGN KEY (Time_Key)
REFERENCES Time (Time_Key);

ALTER TABLE Rental_Facts ADD CONSTRAINT CUSTOMER_Rental_Facts_fk
FOREIGN KEY (Customer_Key)
REFERENCES CUSTOMER (Customer_Key);

DB INSERTED VALUES→
SQL> select * from customer;

CUSTOMER_K	ADDRESS	RENTA	CUSTOMER_N	STATE	ZIP
101	ITWARI	A	ELENA	MH	93
102	SADAR	B	JUSTIN	UK	94
103	PANJI	A	ARIANA	MH	95
104	SHANTI	C	RIYA	GOA	96
105	NEHRU	D	GIGI	UP	97

SQL> select * from store;

STORE_KEY	STORE_NAME	STORE	MANAGER	ZIP_CODE
101	JAIN STORE	10005	RAMESH	09993
102	JOSHIS	10006	SURESH	09994
103	KHANS	10007	ASIM	09995
104	AGENT	10008	ROY	09996
105	VINOD	10009	AJAY	09997

SQL> select * from promotion;

PROMOTION_ PROMOTION_ DISCOUNT_RATE PROMOTION_

```
---------- ---------- ------------- ----------
101     PRO_101        10 PRIME
102     PRO_101         0 NON-PRIME
103     PRO_101         2 NON-PRIME
104     PRO_104        25 PRIME
105     PRO_200        20 PRIME
```

SQL> select * from time;

```
TIME_KEY   DAY_ MONTH QUATE YEAR DATE_1     WE
---------- ---- ----- ----- ---- ------------ --
102     SAT  JUN  Q2   2018 06      0
103     SUN  AUG  Q3   2013 02      0
104     WED  APR  Q1   2007 01      1
105     MON  MAY  Q2   2001 03      0
```

SQL> SELECT * FROM RENTAL_ITEM;

```
ITEM_KEY  GENRE     ITEM_NO  SUB_CLASSI DIRECTOR  LEAD_MALE    CLASSIFICA LEAD_FEMALE
RATIN NEW_RELEAS
---------- ---------- ---------- ---------- ---------- --------------- ---------- --------------- ----- ----------
101     MYSTERY  1     REAL    CHRIS    LEONARDO    MYSTERY  ERICKA    8   2016
102     SCI-FI   1     IMAGINARY CHRIS    CHRIS      REALITY  ERICKA    9   2013
103     ACTION   1     BRUTAL   ROHIT    TOM       MISSION  KIM      8   2017
104     ANIME    3     REAL    JAKE     KARAN     MYSTERY  MIA      3   2014
105     MOTIVATION 4     REAL    CHRIS    LEONARDO    FIGHTING NIDHI     8   2016
```

SQL> SELECT * FROM RENTAL_FACTS;

```
RENTAL_KEY RENTAL_FEE CUSTOMER_K ITEM_KEY  TIME_KEY  STORE_KEY  LATE_CHARGE
PROMOTION_
---------- ---------- ---------- ---------- ---------- ---------- ----------- ----------
101     2000 102    102    102    102     200 102
102     1000 103    103    103    103     1200 103
103     1000 104    104    104    104     1200 104
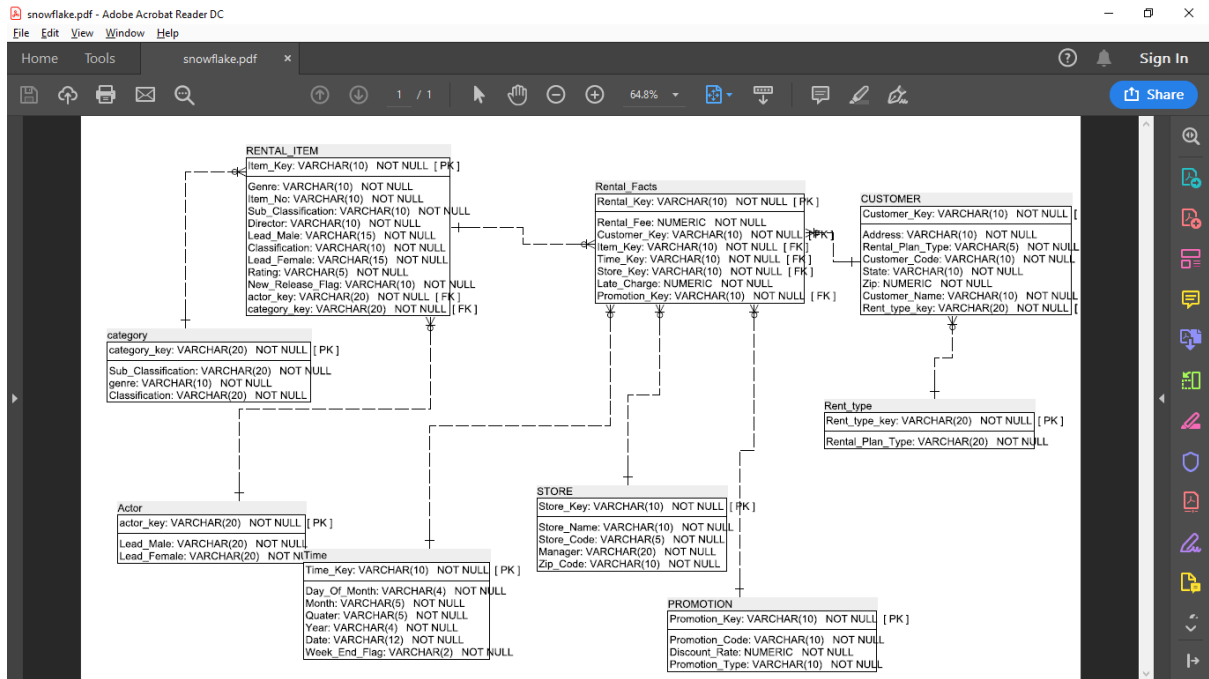```

SQL>

SnowFlake Schema →

TABLE CREAION →

CREATE TABLE RENTAL_ITEM (
        item_Key VARCHAR(10) NOT NULL,
        Genre VARCHAR(10) NOT NULL,
        Item_No VARCHAR(10) NOT NULL,
        Rental_Key VARCHAR(10) NOT NULL,
        Director VARCHAR(10) NOT NULL,
        Lead_Male VARCHAR(15) NOT NULL,
        Classification VARCHAR(10) NOT NULL,
        Lead_Female VARCHAR(15) NOT NULL,
        Rating VARCHAR(5) NOT NULL,
        New_Release_Flag VARCHAR(10) NOT NULL,
        CONSTRAINT iTEM_kEY PRIMARY KEY (item_Key)
);


CREATE TABLE PROMOTION (
        Promotion_Key VARCHAR(10) NOT NULL,
        Promotion_Code VARCHAR(10) NOT NULL,
        Discount_Rate NUMERIC NOT NULL,
        Promotion_Type VARCHAR(10) NOT NULL,
        CONSTRAINT Promotion_Key PRIMARY KEY (Promotion_Key)
);

```sql
CREATE TABLE STORE (
        Store_Key VARCHAR(10) NOT NULL,
        Store_Name VARCHAR(10) NOT NULL,
        Store_Code VARCHAR(5) NOT NULL,
        Manager VARCHAR(20) NOT NULL,
        Zip_Code VARCHAR(10) NOT NULL,
        CONSTRAINT Store_Key PRIMARY KEY (Store_Key)
);


CREATE TABLE Time (
        Time_Key VARCHAR(10) NOT NULL,
        Day_Of_Month VARCHAR(4) NOT NULL,
        Month VARCHAR(5) NOT NULL,
        Quater VARCHAR(5) NOT NULL,
        Year VARCHAR(4) NOT NULL,
        Date_1 VARCHAR(12) NOT NULL,
        Week_End_Flag VARCHAR(2) NOT NULL,
        CONSTRAINT Time_Key PRIMARY KEY (Time_Key)
);


CREATE TABLE CUSTOMER (
        Customer_Key VARCHAR(10) NOT NULL,
        Address VARCHAR(10) NOT NULL,
        Rental_Plan_Type VARCHAR(5) NOT NULL,
        Customer_Name VARCHAR(10) NOT NULL,
        State VARCHAR(10) NOT NULL,
        Zip NUMERIC NOT NULL,
        CONSTRAINT Customer_Key PRIMARY KEY (Customer_Key)
);


CREATE TABLE Rental_Facts (
        Rental_Key VARCHAR(10) NOT NULL,
        Rental_Fee NUMERIC(5),
        Customer_Key VARCHAR(10) NOT NULL,
        Item_Key VARCHAR(10) NOT NULL,
        Time_Key VARCHAR(10) NOT NULL,
        Store_Key VARCHAR(10) NOT NULL,
        Late_Charge NUMERIC(2),
        Promotion_Key VARCHAR(10) NOT NULL,
        CONSTRAINT Rental_Fee PRIMARY KEY (Rental_Key)
);
```

```sql
CREATE TABLE Rent_type (
        Rent_type_key VARCHAR(20) NOT NULL,
        Rental_Plan_Type VARCHAR(20) NOT NULL,
        CONSTRAINT Rent_type_key PRIMARY KEY (Rent_type_key)
);


CREATE TABLE category (
        category_key VARCHAR(20) NOT NULL,
        SubClassification VARCHAR(20) NOT NULL,
        genre VARCHAR(10) NOT NULL,
        Classification VARCHAR(20) NOT NULL,
        CONSTRAINT category_key PRIMARY KEY (category_key)
);


CREATE TABLE Actor (
        actor_key VARCHAR(20) NOT NULL,
        Lead_Male VARCHAR(20) NOT NULL,
        Lead_Female VARCHAR(20) NOT NULL,
        CONSTRAINT actor_key PRIMARY KEY (actor_key)
);


ALTER TABLE CUSTOMER ADD CONSTRAINT Rent_type_CUSTOMER_fk
FOREIGN KEY (Rent_type_key)
REFERENCES Rent_type (Rent_type_key);

ALTER TABLE RENTAL_ITEM ADD CONSTRAINT category_RENTAL_ITEM_fk
FOREIGN KEY (category_key)
REFERENCES category (category_key);

ALTER TABLE RENTAL_ITEM ADD CONSTRAINT Actor_RENTAL_ITEM_fk
FOREIGN KEY (actor_key)
REFERENCES Actor (actor_key);

ALTER TABLE Rental_Facts ADD CONSTRAINT RENTAL_ITEM_Rental_Facts_fk
FOREIGN KEY (Item_Key)
REFERENCES RENTAL_ITEM (item_Key);

ALTER TABLE Rental_Facts ADD CONSTRAINT PROMOTION_Rental_Facts_fk
FOREIGN KEY (Promotion_Key)
REFERENCES PROMOTION (Promotion_Key);
```

```sql
ALTER TABLE Rental_Facts ADD CONSTRAINT STORE_Rental_Facts_fk
FOREIGN KEY (Store_Key)
REFERENCES STORE (Store_Key);

ALTER TABLE Rental_Facts ADD CONSTRAINT Time_Rental_Facts_fk
FOREIGN KEY (Time_Key)
REFERENCES Time (Time_Key);

ALTER TABLE Rental_Facts ADD CONSTRAINT CUSTOMER_Rental_Facts_fk
FOREIGN KEY (Customer_Key)
REFERENCES CUSTOMER (Customer_Key);
```