Department of Computer Science

BSCS(Hons)

4th Semester

Database Systems

Project
Cinema Information Management System

Submitted to:

Sir Nadeem Zafar
Department of Computer Science
GC University, Lahore

Submitted by:

Jaweria Fayyaz 0237-BSCS-21
Maira Tanveer 0265-BSCS-21

Section: E1

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CINEMA INFORMATION MANAGEMENT SYSTEM

History of Organization

Cinepax is the first cinema in Pakistan that is providing a world-class movie experience to people of Pakistan by building a state of the art movie theatre in urban cities. Cinepax is the first dedicated Cineplex company in Pakistan that is building the country's first nationally branded Cineplex chain. It is targeting larger cities of Pakistan; Karachi, Lahore, Islamabad, Faisalabad, Gujranwala, Multan and Hyderabad. The company plans to develop 120 screens over 5 years. The cinema complex would screen premium contents in a family friendly environment having world class seating arrangements and air conditioned halls that would be open from 12 noon to 12 midnight. The Cinepax Cinema Packages Mall Lahore shows English, Chinese, Spanish, Turkish, Urdu, French movies. It is spread over an area of approximately 30 acres. Total cinema screens are 7 and halls are equipped with total 1400 seats.

Define Problems and constraints

Since the existing system is completely manual so it is really very difficult to maintain and to keep a full record about the daily purchase of tickets. The information is not up to date and manual system requires staff to maintain their records on registers. It creates many problems such as Black ticketing, duplication of data or information is present which creates an error. The need is to computerized the system of cinepax cinema.

General Constraints: No constraints have been noticed for the system.

Define Objectives

Our objective is to create the database for their business to keep detailed record of all transactions which would definitely enhance it's business and will lure the people towards the cinema. Cinepax is also planning to increase the number of screens which will boast the number of audience resulting in the success of

business. The database that is projected is able to overcome all flaws that are mentioned before and will be helpful for further expansion.

Define Scope and Boundaries

Development of Cinema Information Management System for Cinepax helps in managing the database for storing and retrieving required information about person, food_item, screen, ticket, seat, movie and genre. Our scope is around these entities. The software will provide ability to staff to enter the new records of the movies, update and also delete them. It will also allow keeping the record of the total tickets sold. The machine which runs this system is not too heavy. This system will run on home computer also.

Scenario

Cinepax Cinema Packages Mall Lahore is dedicated towards providing a best international quality cinema experience to the citizens of Pakistan. The Cinema complex would screen premium contents in a family friendly environment, now wants to build a database system to manage records for food item, ticket, screen, movie, genre etc. You were hired as an analyst. Every person has a name and mobile numbers. The system will assign id to every person. A person can order no any or maybe many food items and a food item can be ordered by many as well as no person. For food item, organization keeps record for id, name and its price. A person can book ticket(s) of one or many show(s) however a show can have many people with tickets or no one. For ticket, organization wants to store its id and price. A single ticket must allot a single seat. The cinema keeps record for id and name for every seat. A movie can be displayed on multiple screens having multiple show times, also one screens can have shows of multiple movies or no any. Every screen has a type. For movie, name, language, year and name of director will be recorded. The system assign id to every screen and movie. A screen can have multiple seats starting from one at least. A movie belongs to any specific movie-genre from many genres. Every genre has a specific id and name. A movie belongs to many genres starting from one and a single genre can have many or no any movie belonging to it.

Noun Verb Analysis

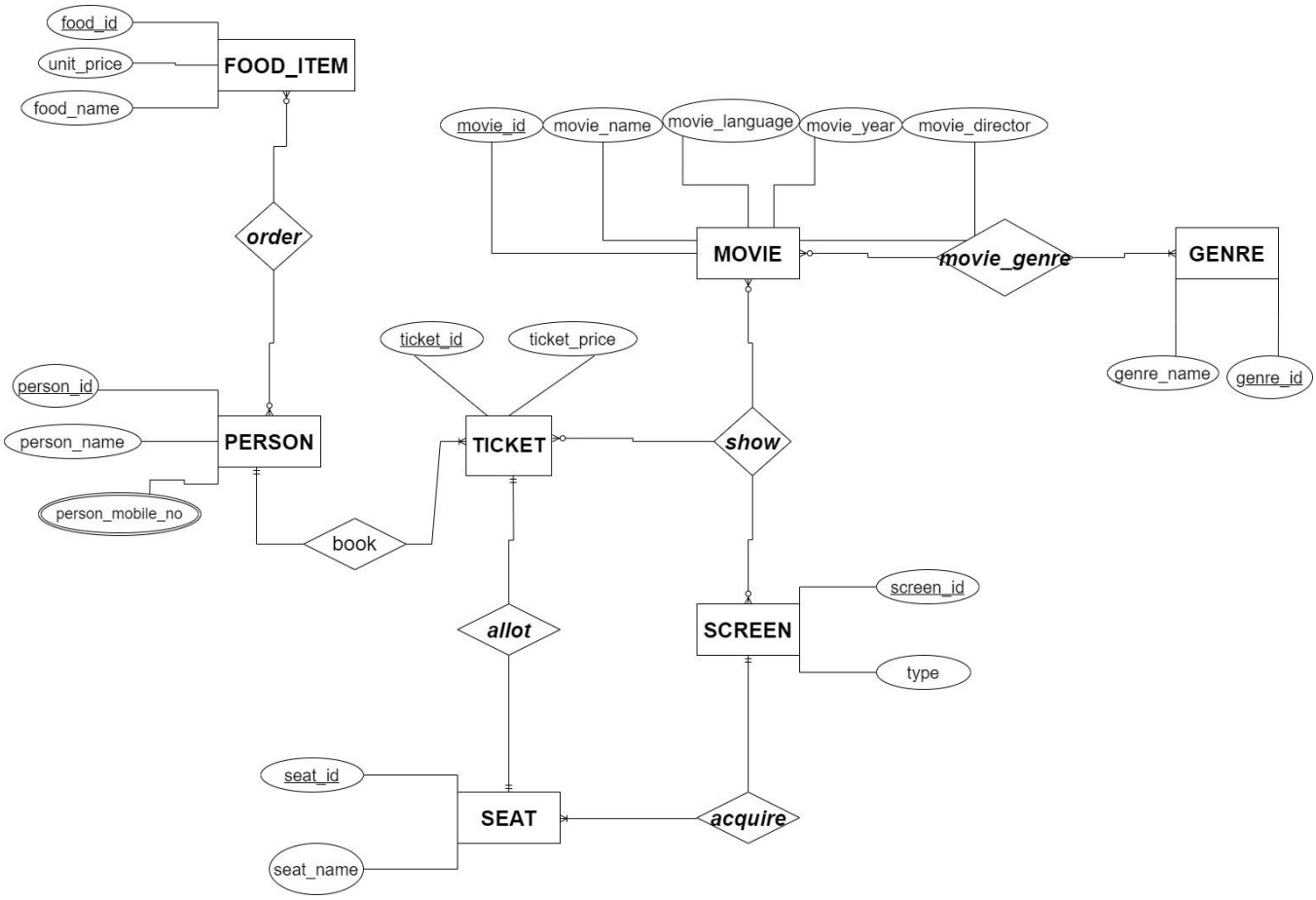
Nouns	Adjectives
Person	person_id, person_name, person_mobileno
Order (junction entity)	order_id, order_quantity, total_price
Food_item	food_id, food_name, unit_price
Ticket	ticket_id, ticket_price
Seat	seat_id, seat_name
Screen	screen_id, screen_name
Show(associative entity)	show_id, show_date, start_time
Movie	movie_id, movie_name, movie_language, movie_director, movie_year
Genre	genre_id, genre_name
Movie_genre (associative entity)	movie_id, genre_id (it will only have primary keys of movie entity and genre entity as foreign keys)

Verbs:

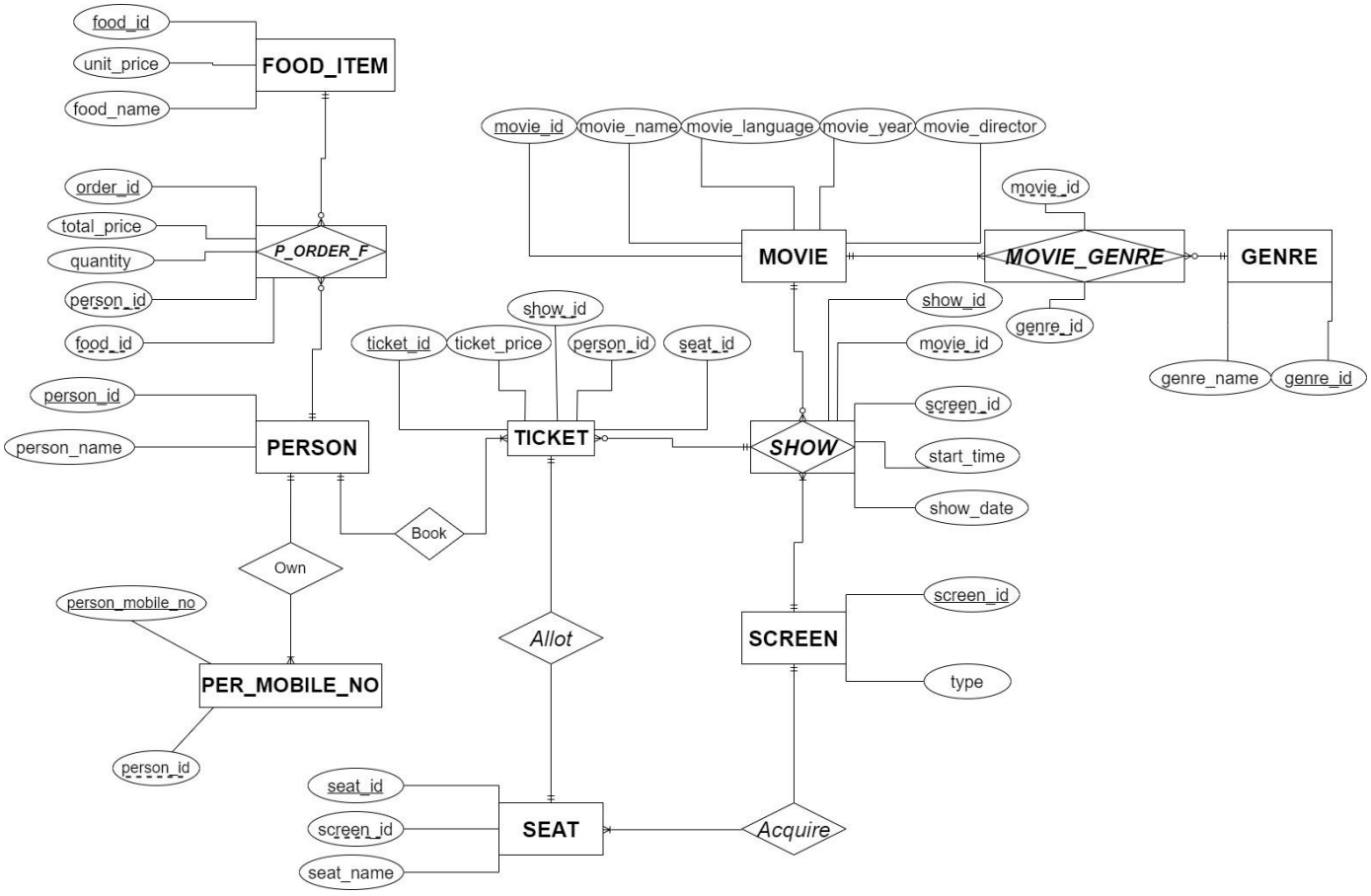
- A person can **order** a food_item.
- A person can **buy** ticket(s) for show(s).
- A ticket **allot** a seat.
- A screen can **acquire** many seats.
- A screen has a **show** for a movie.
- A movie belongs to any specific **movie_genre** from many genres.

ERD(Entity Relationship Diagram)

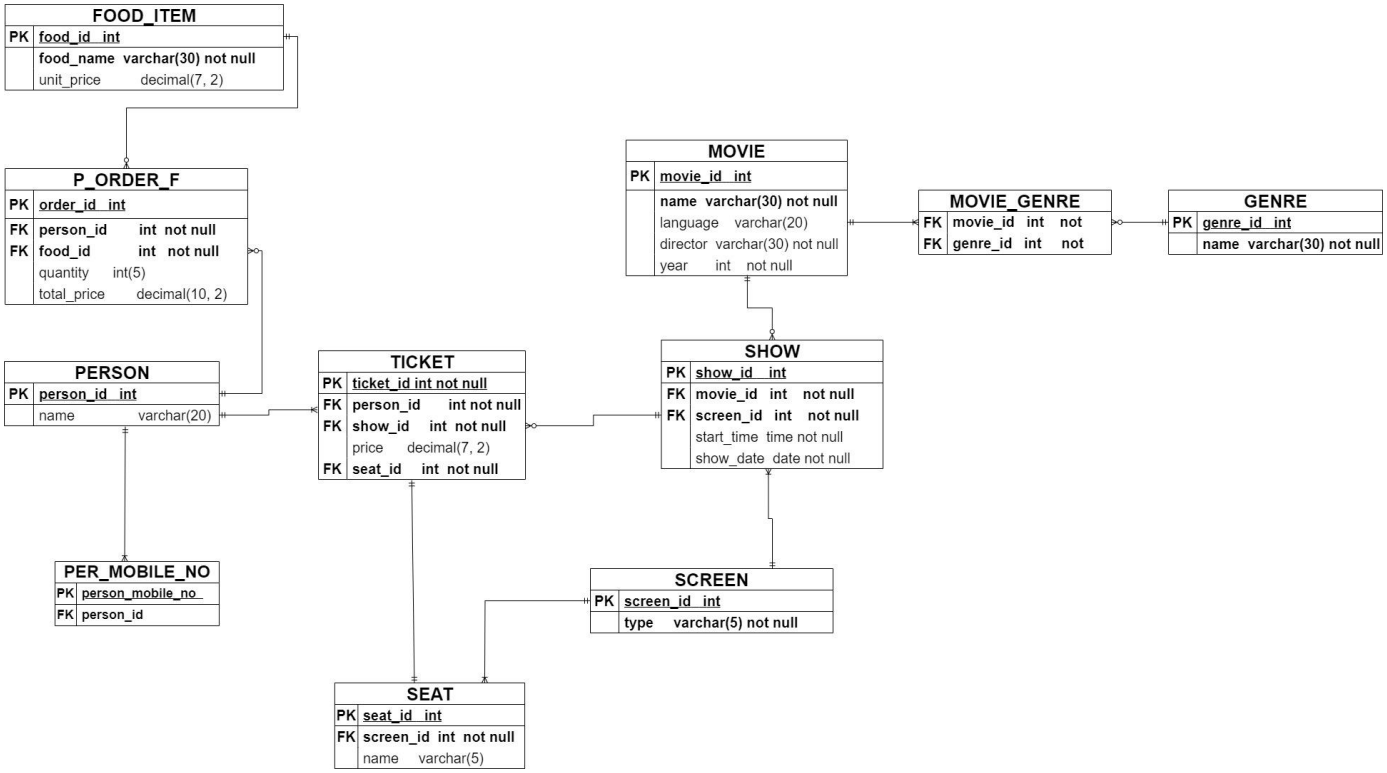
Abnormal Form:



Normalized Erd:



Relational Model



Software Requirements

- Microsoft Sql Server Management System
- Draw.io for ERD creation

Implementation

Tables:

Person:

```
create table person(
person_id int not null,
person_name varchar(20),
constraint person_pk primary key(person_id)
)
```

Per_Mobile_No:

```
create table per_mobile_no(
person_mobile_no char(11) not null,
person_id int not null,
constraint mobno_pk primary key(person_mobile_no),
constraint per_mobno_fk foreign key(person_id)
references person(person_id)
)
```

Food_Item:

```
create table  food_item
(
food_id int  not null,
food_unit_price decimal(7,2) not null,
food_name varchar(30) not null,
constraint f_pk primary key(food_id)
)
```

P_Order_F:

```
create table p_order_f(
order_id int not null,
order_total_price decimal(10,2) null,
order_quantity int,
person_id int not null,
food_id int not null,
constraint order_pk primary key(order_id),
constraint order_per_fk foreign key(person_id)
references person(person_id),
constraint order_food_fk foreign key (food_id)
```

```
references food_item(food_id)
)
```

Screen:

```
create table screen
(
screen_id int not null,
screen_type varchar(7) not null,
constraint screen_pk primary key(screen_id)
)
```

Movie:

```
create table movie(
movie_id int not null,
movie_name varchar(40) not null,
movie_language varchar(20) not null,
movie_year int,
movie_director varchar(30) not null,
constraint movie_pk primary key(movie_id)
)
```

Genre:

```
create table genre(
genre_id int not null,
genre_name varchar(20) not null,
constraint genre_pk primary key (genre_id)
)
```

Movie_Genre:

```
create table movie_genre
(
movie_id int not null,
genre_id int not null,
constraint m_g_m_fk foreign key(movie_id)
references movie(movie_id),
constraint m_g_g_fk foreign key(genre_id)
references genre(genre_id)
)
```

Seat:

```
create table seat(
seat_id int not null,
```

```
seat_name varchar(10) null,
screen_id int not null,
constraint seat_pk primary key(seat_id),
constraint seat_screen_fk foreign key(screen_id)
references screen(screen_id)
)
```

Show:

```
create table show(
show_id int not null,
show_start_time time not null,
show_date date not null,
screen_id int not null,
movie_id int not null,
constraint show_pk primary key(show_id),
constraint screen_show_fk foreign key(screen_id)
references screen(screen_id),
constraint movie_show_fk foreign key(movie_id)
references movie(movie_id)
)
```

Ticket:

```
create table ticket(
ticket_id int not null,
ticket_price decimal(7,2),
person_id int not null,
seat_id int not null,
show_id int not null,
constraint ticket_pk primary key(ticket_id),
constraint person_ticket_fk foreign key(person_id)
references person(person_id),
constraint seat_ticket_fk foreign key(seat_id)
references seat(seat_id),
constraint show_ticket_fk foreign key(show_id)
references show(show_id)
)
```

Insert Data:

Person:

```
insert into person(person_id,person_name)
values('1','Maira'), ('2','Jiya'), ('3','Saira'), ('4','Hamza'), ('5','Hamid'), ('6','Haziq'),
('7','shoqia'),('8','Maria'), ('9','Jasia'), ('10','Saira'), ('11','Hamza'), ('12','David'),
('13','Hadiq'), ('14','Shizuka'), ('15','Hadia'), ('16','Hina')
```

Per_Mobile_No:

```
insert into per_mobile_no(person_id, person_mobile_no)
values('1','03004475160'), ('2','03014475160'), ('3','03114475160'),
('4','03004475750'), ('5','03007775160'), ('6','03004478160'),
('7','03224475160'), ('8','03008875160'),  ('9','03004495160'),
('10','03004475188'),  ('11','03004443160'),  ('12','03334475160'),
('13','03924475160'),  ('14','03009975160'),  ('15','03008075160'),
('16','03004473760')
```

Food_Item:

```
insert into food_item(food_id,food_unit_price,food_name)
values('1','50.0','Lays'), ('2','40.0','Fries'), ('3','150.0','Coffee'), ('4','130.0','Tea'),
('5','350.0','Pizza'), ('6','50.0','Ice cream'), ('7','40','Popcorn'),
('8','130.0','Sandwitch'), ('9','150','Donut'),('10','350.0','Club Sandwitches'),
('11','250.0','Loaded Fries'), ('12','340','Chicken Patty'), ('13','130.0','Zinger
burger'), ('14','150','Nuttilicious'),('15','330.0','Brownie'), ('16','250','Nuttela
Shake')
```

P_Order_F:

```
insert into
p_order_f(order_id,order_total_price,order_quantity,person_id,food_id)
values('1','100.0','2','2','1'), ('2','80.0','2','16','2'), ('3','300.0','2','15','3'),
('4','120.0','3','5','7'), ('5','700.0','2','13','5'), ('6','150.0','1','10','9'),
('7','660','4','8','15'),('8','500.0','2','13','16'), ('9','300.0','2','10','9'),
('10','680','4','8','12')
```

Screen:

```
insert into screen(screen_id,screen_type)
values('1','2d'), ('2','3d'), ('3','Ld'), ('4','sd'), ('5','hd'), ('6','4d'), ('7','4k'), ('8','8k'),
('9','8k'), ('10','8k'), ('11','4d'), ('12','ld'), ('13','sd'), ('14','3d'), ('15','hd')
```

Seat:

```
insert into seat(seat_id,seat_name,screen_id)
```

values('1','A2','2'), ('2','A6','5'), ('3','B1','15'), ('4','B1','2'), ('5','B8','9'), ('6','A6','13'), ('7','B4','12'), ('9','A6','4'), ('10','A3','11'), ('11','B5','5'), ('12','B8','7'),('8','B2', '7')

Movie:

insert into movie(movie_id,movie_name,movie_language,movie_year,movie_director) values('1','Hollow Man','English','2007','Joseph'), ('2','Mission Abolished','English','1981','Samuel Santer'), ('3','Solider 88','English','2009','Mark Johnson'), ('4','Lovers Trap','Chinese','2018','Xin Gen'), ('5','Masterpiece','Spanish','2016','Cyrus Alberto'), ('6','The Biggest Illusion','Turkish','1999','Burak Ozberg'), ('7','Priceless Tag','Chinese','1999','Wang Si'), ('8','Imaginations','English','2017','Jonathan Perk'), ('9','The Real Independence','Urdu','2003','Maria Sameer'), ('10','Black Honey','English','1987','Jurie Oscar'), ('11','Last Day On Earth','English','2023','Rachel'), ('12','A Trip to Paris ','French','2008','Anthony Junior '), ('13','Hitlist 2','English','2020','Sussane'), ('14','The Seven Kingdoms ','English','1963','Katrina Ross'), ('15','Beautiful Sunshine','Turkish','1979','Karim Basit'), ('16','No Time To Cry','English','1995','Andrew Blacksmith')

Genre:

insert into genre(genre_name,genre_id) values('comedy','1'), ('fiction','2'), ('action','3'), ('drama','4'), ('science fiction','5'), ('romance','6'), ('adventure','7'), ('thriller','8'), ('crime','9'), ('fantasy','10'), ('literature','11'), ('Animation','12'), ('martial arts','13'), ('horror','14'), ('mystery','15')

Movie_Genre:

insert into movie_genre(movie_id,genre_id) values('4','6'), ('1','15'), ('2','8'), ('8','7'), ('12','7'), ('5','15'), ('7','9'), ('6','5'), ('9','3'), ('10','7')

Show:

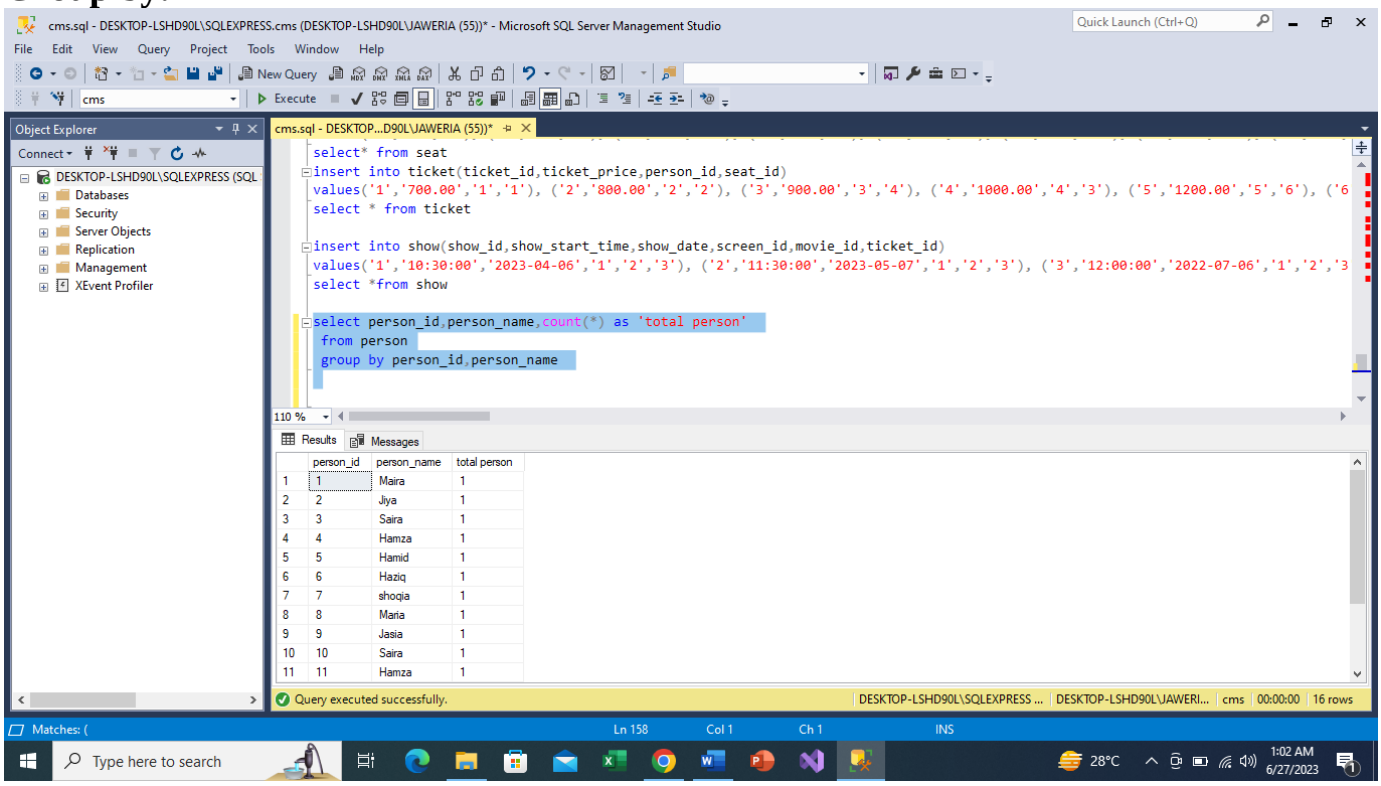
insert into show(show_id,show_start_time,show_date,screen_id,movie_id) values('1','10:30:00','2023-04-06','1','2'), ('2','11:30:00','2023-05-07','1','2'), ('3','12:00:00','2022-07-06','1','2'), ('4','1:50:00','2021-04-06','1','2'), ('5','2:45:00','2022-01-06','1','2'), ('6','4:17:00','2020-03-08','1','2'), ('7','8:30:00','2019-04-06','1','2'), ('8','9:50:00','2016-12-06','1','2'), ('9','7:30:00','2018-09-07','1','2'), ('10','10:10:00','2015-02-08','1','2'), ('11','8:20:00','2014-05-06','1','2')

Ticket:

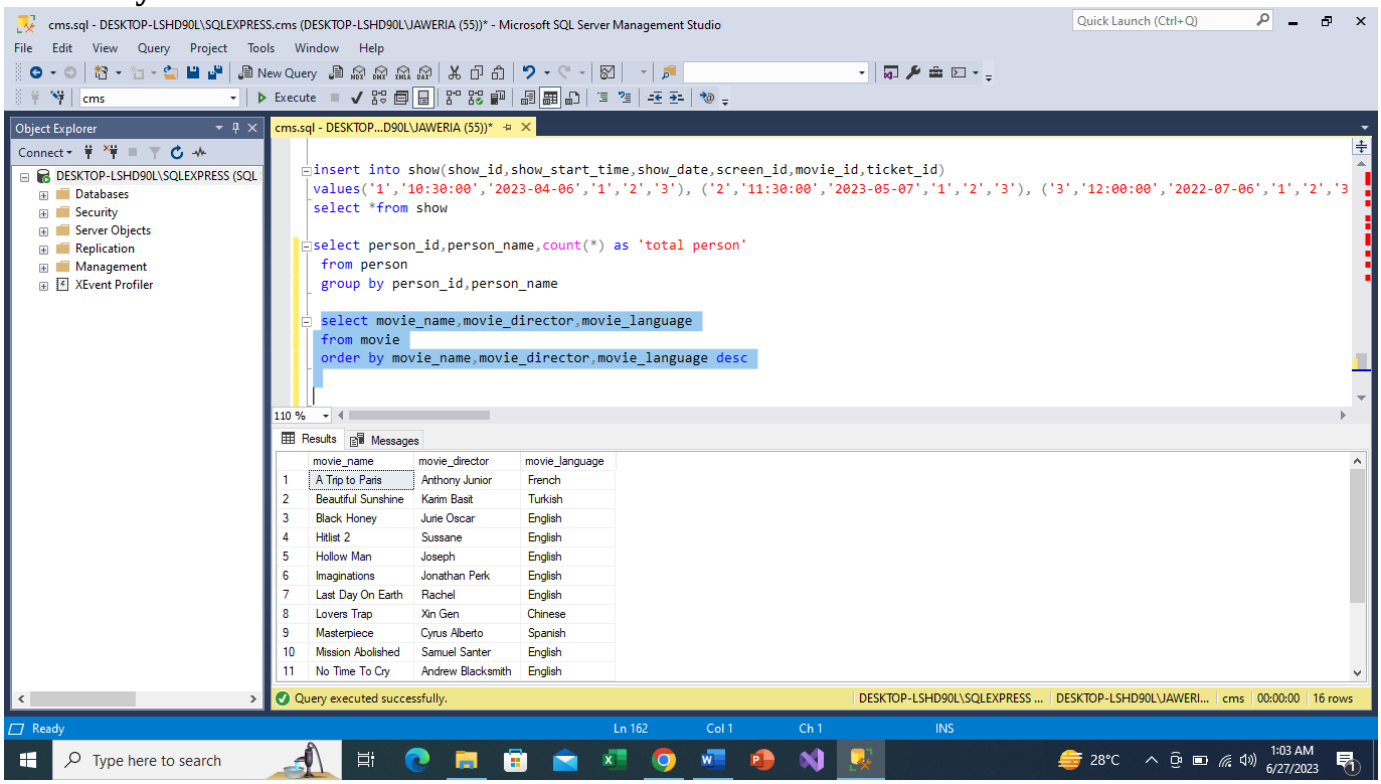
```
insert into ticket(ticket_id,ticket_price,person_id,seat_id,show_id)
values('1','700.00','1','1','1'), ('2','800.00','2','2','1'), ('3','900.00','3','4','1'),
('4','1000.00','4','3','2'), ('5','1200.00','5','6','3'), ('6','1300.00','6','5','3'),
('7','1800.00','7','8','2'), ('8','2000.00','8','7','4'), ('9','1900.00','9','10','5'),
('10','2300.00','10','11','6'), ('11','2500.00','11','9','7'), ('12','2600.00','12','11','8'),
('13','2700.00','13','12','7')
```

Testing:

Group by:

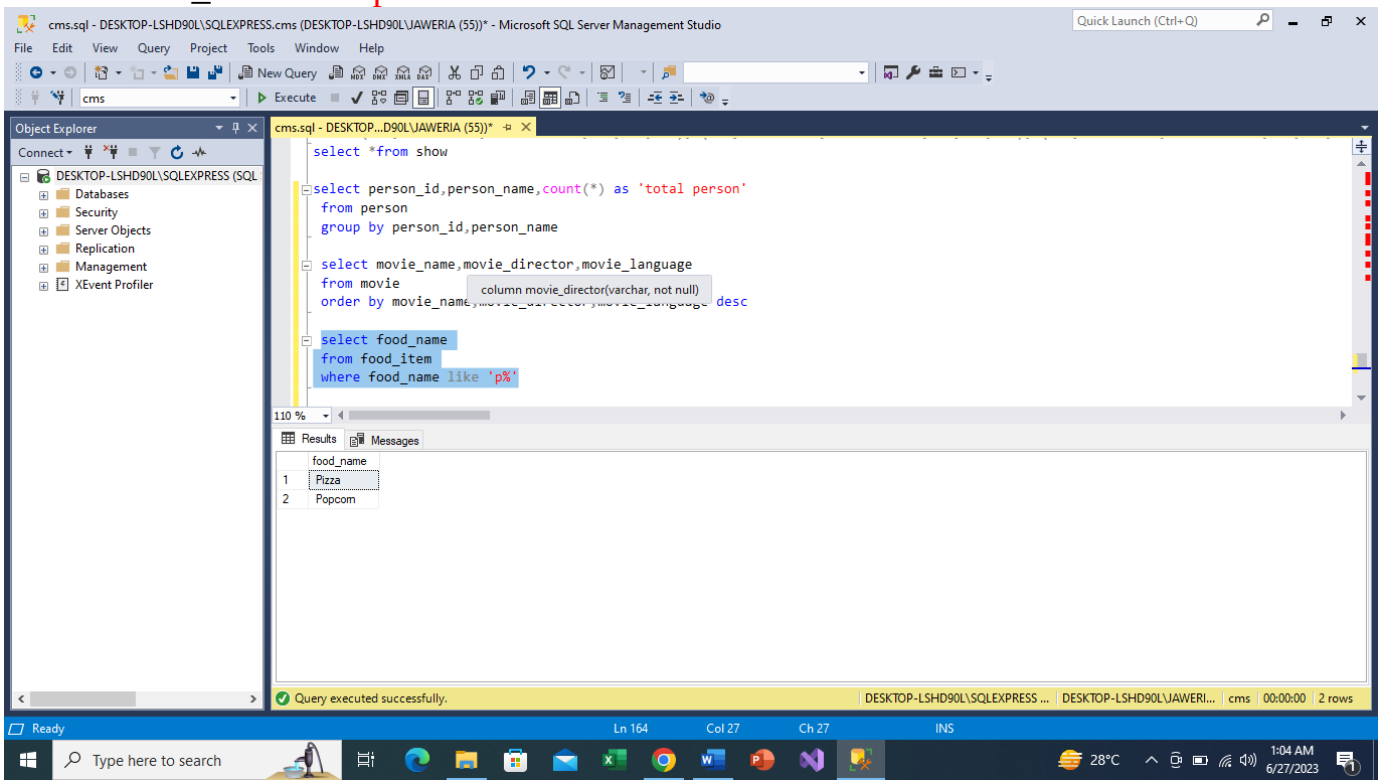


Order by:

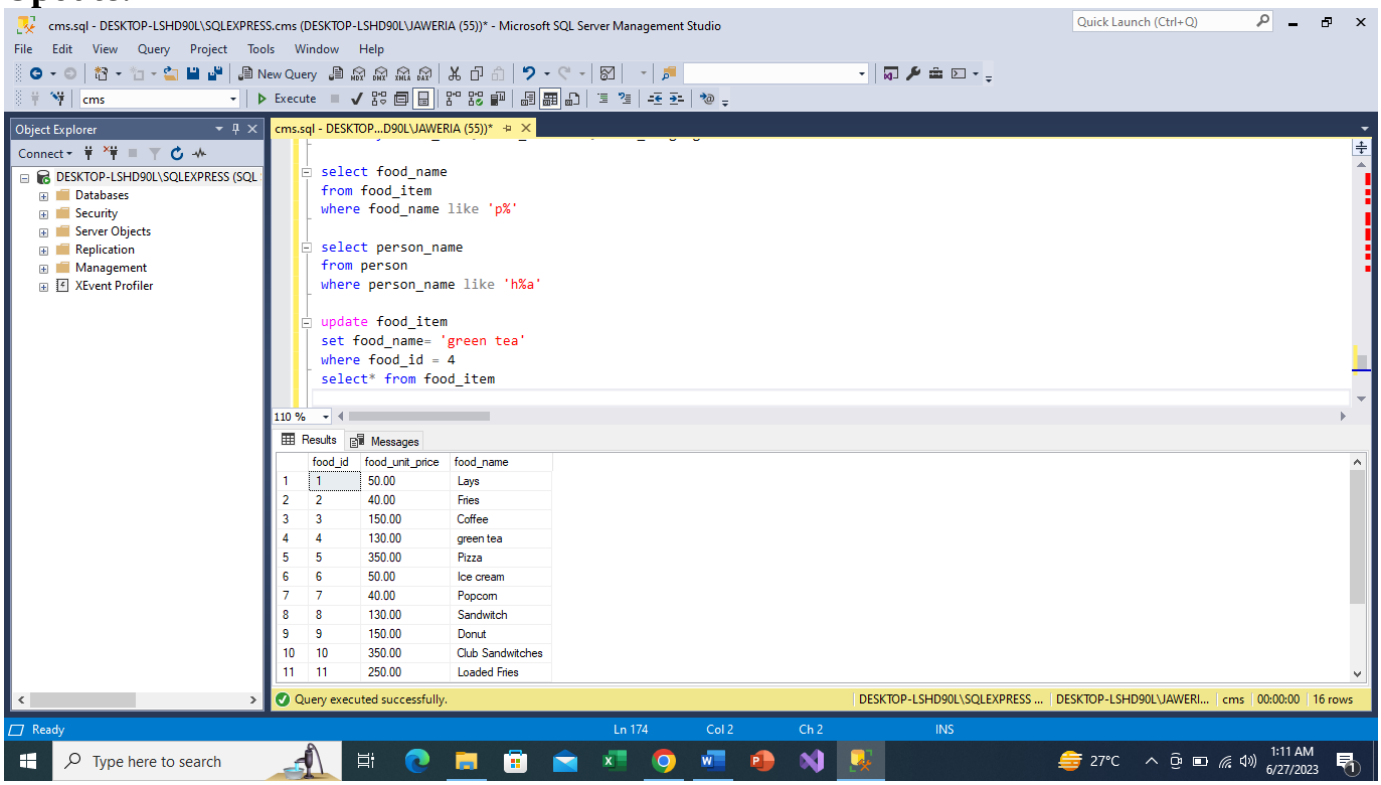


Like:

```
select food_name
from food_item
where food_name like 'p%'
```

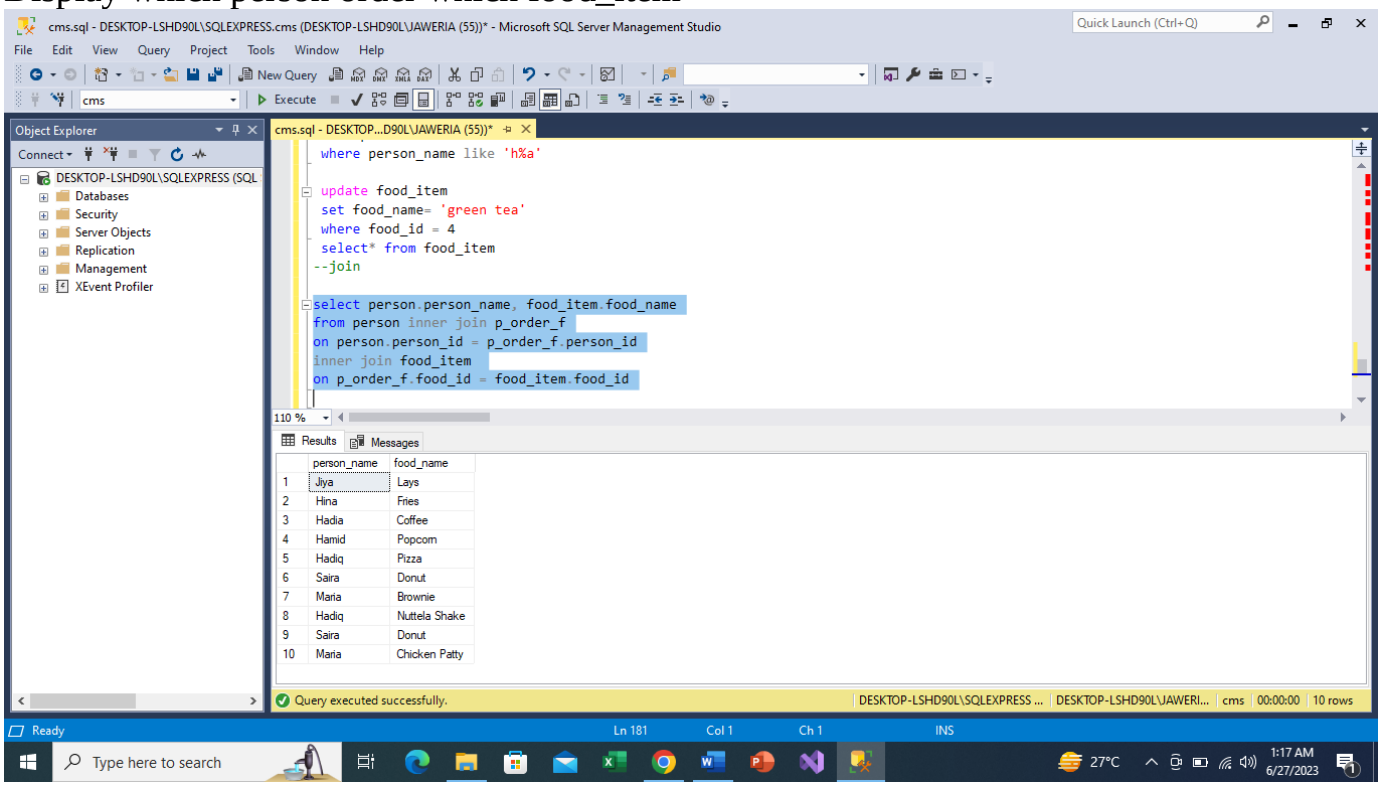


Update:



Join:

Display which person order which food_item



Display which movie belongs to which genre