Relational Database for Streaming Service

Relations, Candidate Keys, and Functional Dependencies

MOVIE

Movie_ID	Title	Genre	Critics_score	Runtime	Release_year	Censor_rating

Candidate keys: Movie_ID

Functional Dependencies:
- Movie_ID → Title, Genre, Critics_score, Runtime, Release_year, Censor_rating

MOVIE - Audio_Languages

Movie_ID	Audio_Languages

Candidate keys: {Movie_ID, Audio_Languages}

Functional Dependencies:
- {Movie_ID, Audio_Languages} → Movie_ID, Audio_Languages

MOVIE - Subtitle_Languages

Movie_ID	Subtitle_Languages

Candidate keys: {Movie_ID, Subtitle_Languages}

Functional Dependencies:
- {Movie_ID, Subtitle_Languages} → Movie_ID, Subtitle_Languages

ACTOR

Actor_ID	Name	DOB	Nationality

Candidate keys: Actor_ID

Functional Dependencies:
- Actor_ID → Name, DOB, Nationality

Starring

Movie_ID	Actor_ID

Candidate keys: {Movie_ID, Actor_ID}

Functional Dependencies:
- {Movie_ID, Actor_ID} → Movie_ID, Actor_ID

WATCH_SESSION

Session_ID	Start_timestamp	Stop_timestamp	IP_Address	Movie_ID	Device_ID

Profile_ID

Candidate keys: Session_ID

Functional Dependencies:
- Session_ID → Start_timestamp, Stop_timestamp, IP_Address, Movie_ID, Device_ID, Profile_ID

DEVICE

Device_ID	Name	Model	Type	OS	HDR	Screen_resolution	Linked_Account_ID

Device_linked_date

Candidate keys: Device_ID

Functional Dependencies:
- Device_ID → Name, Model, Type, OS, HDR, Screen_resolution, Linked_Account_ID, Device_linked_date

USER_PROFILE

Profile_ID	Name	DOB	Gender	Account_ID

Candidate keys: Profile_ID

Functional Dependencies:
- Profile_ID → Name, DOB, Gender, Account_ID

ACCOUNT

Account_ID	Name	DOB	Email	Phone	Password	Subscription_Tier_ID
Subscription_date	Auto_renew					

Candidate keys: Account_ID

Functional Dependencies:
- Account_ID → Name, DOB, Email, Phone, Password, Subscription_Tier_ID, Subscription_date, Auto_renew

SUBSCRIPTION_TIER

Tier_ID	Tier_name	Tier_price	Currency	Ad_frequency	Video_quality	Audio_quality
N_devices						

Candidate keys: Tier_ID, Tier_name

Functional Dependencies:
- Tier_ID → Tier_name, Tier_price, Currency, Ad_frequency, Video_quality, Audio_quality, N_device
- Tier_name → Tier_ID, Tier_price, Currency, Ad_frequency, Video_quality, Audio_quality, N_devices

PAYMENT

Payment_ID	Type	Method	Tax_Rate	Discount_code	Discount_rate	Currency_used
Account_ID	Timestamp	Subscrition_Tier_ID				

Candidate keys: Payment_ID, {Account_ID, Timestamp}

Functional Dependencies:
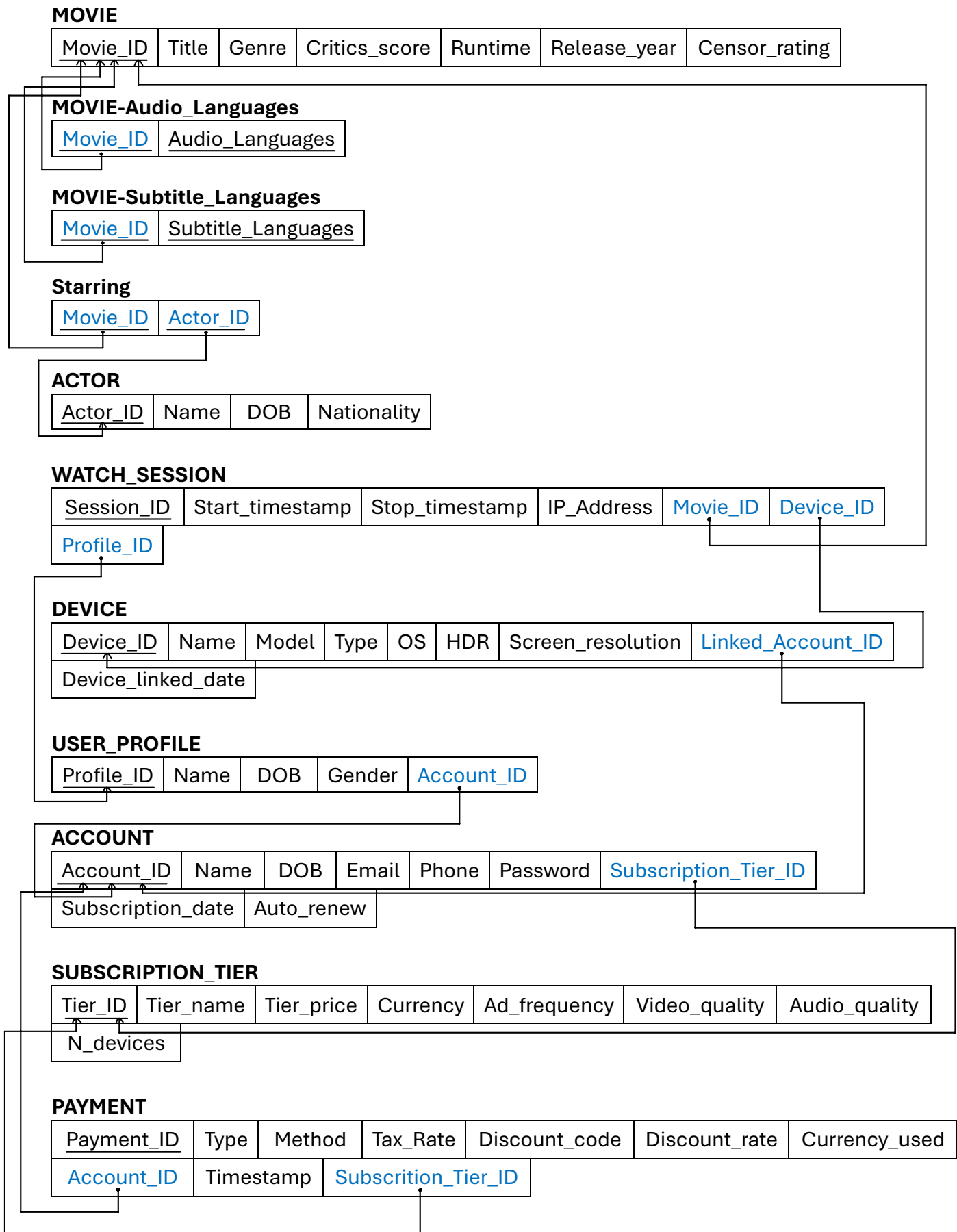- Payment_ID → Type, Method, Tax_rate, Discount_code, Discount_rate, Currency_used, Account_ID, Timestamp, Subscription_Tier_ID
- {Account_ID, Timestamp} → Payment_ID, Type, Method, Tax_rate, Discount_code, Discount_rate, Currency_used, Account_ID, Timestamp, Subscription_Tier_ID

Relational Mapping

MOVIE

Movie_ID	Title	Genre	Critics_score	Runtime	Release_year	Censor_rating

MOVIE-Audio_Languages

Movie_ID	Audio_Languages

MOVIE-Subtitle_Languages

Movie_ID	Subtitle_Languages

Starring

Movie_ID	Actor_ID

ACTOR

Actor_ID	Name	DOB	Nationality

WATCH_SESSION

Session_ID	Start_timestamp	Stop_timestamp	IP_Address	Movie_ID	Device_ID
Profile_ID					

DEVICE

Device_ID	Name	Model	Type	OS	HDR	Screen_resolution	Linked_Account_ID
Device_linked_date							

USER_PROFILE

Profile_ID	Name	DOB	Gender	Account_ID

ACCOUNT

Account_ID	Name	DOB	Email	Phone	Password	Subscription_Tier_ID
Subscription_date	Auto_renew					

SUBSCRIPTION_TIER

Tier_ID	Tier_name	Tier_price	Currency	Ad_frequency	Video_quality	Audio_quality
N_devices						

PAYMENT

Payment_ID	Type	Method	Tax_Rate	Discount_code	Discount_rate	Currency_used
Account_ID	Timestamp	Subscrition_Tier_ID				

Note: Primary keys are underlined and foreign keys are blue.