Problem Statement

Product Dissection for top leading Platforms

Welcome to this case study on dissecting and designing products for top leading platforms. In this case study, you will delve into the intriguing world of schema design for a prominent platform of your choice. Your task is to choose a top leading platform, research its features, and meticulously craft a schema design that encapsulates the essence of its functionality. By focusing on key entities, attributes, and relationships, you will gain invaluable insights into how data architecture drives the platform's effectiveness.

Step 1: Choose a Leading Platform
Select a leading platform of your choice, which could span various domains such as social media, e-commerce, finance, or any other industry. This choice will form the foundation of your exploration into its schema design.

Step 2: Research:
Thoroughly research the platform you have selected. Investigate its core features, functionalities, and user interactions. Identify the top features that define its user experience and contribute significantly to its popularity.

Step 3: Product Dissection and Real World Problems solved by the platform
In this step, you will meticulously analyse the platform's standout features and how they provide innovative solutions to real-world challenges. By identifying key functionalities that resonate with users, you'll unravel how the platform effectively addresses problems and enhances user experiences. This dissection will serve as the foundation for understanding how the schema design aligns with the platform's core objectives.

Step 4: Case Study on the real world problems and approach to solving them
In this pivotal step, you will expand on the real-world challenges uncovered in Step 3 through a comprehensive case study. Delve into specific instances where users encountered difficulties and showcase how the platform's unique features provided effective solutions. By dissecting the approach taken by the platform to overcome these challenges, you'll gain a deeper appreciation for the platform's user-centric design philosophy and how it shapes the schema design.

Step 5: Schema Design Based on Top Features
Based on the features you have identified, craft a schema design that reflects the platform's data structure. Focus on the key entities, attributes, and relationships that underpin the chosen features. Your schema should capture the essence of how the platform organises and utilises its data.

Step 6: Rationale Behind the Design
While creating the schema design, consider the rationale behind the platform's choices. Reflect on why certain entities and relationships were chosen and how they align with the platform's goals. This will help you understand the strategic decisions driving the schema's architecture.

Step 7: Create an ER Diagram
Utilise tools like the Miro platform or similar applications to create an illustrative Entity-Relationship (ER) diagram. This diagram should vividly depict the entities, attributes, and relationships present within your schema design. The ER diagram will serve as a visual representation of your insights.

Step 8: Presentation of Findings
Present your findings in a clear and concise manner. Showcase your understanding of how the schema design impacts the platform's functionality and user experience. Explain how your chosen features are integrated into the schema and how the schema's structure supports the platform's objectives.

Task Details:

1. **Answer Submission:** Your submission should include well-structured solutions for all provided questions related to product schema designs.

2. **Video Creation:** Create an informative and engaging video where you thoroughly explain the Case Study.

3. **Depth and Clarity:** Ensure your solutions are detailed and showcase your understanding of product schema design principles. Similarly, in the video, provide clear explanations that are easy to understand for a wide audience.

4. **Creativity Encouraged:** You are welcome to utilise visuals, diagrams, or creative elements to enhance the clarity and impact of your explanations.

Note:

1. Duplicate this document and proceed to write your solutions and prepare your video.
2. Include the video link in this document before final submission.

Best of luck in completing this project and showcasing your prowess in dissecting and designing product schema for leading platforms! **For reference, we have also conducted a case study on Netflix, which you can find below. This case study will provide you with valuable insights into how schema design plays a pivotal role in shaping the functionality and success of a prominent platform.**

Product Dissection for NETFLIX

Company Overview:

Netflix, founded in 1997 by Reed Hastings and Marc Randolph, is a global streaming and entertainment platform which has revolutionised the way people consume digital content. It provides a diverse library of webseries, TV shows, Movies, Documentaries etc.. with over a million subscribers worldwide, Netflix has become a leading player in the streaming industry.

User Experience :

Netflix provides a seamless and user-friendly experience for its subscribers. Users can access content on various devices, like smart TV's, Tablets, smartphones and computers. The platform is mainly designed to be intuitive and easy to navigate, with personalised recommendations prominently displayed.

Content Catalogue :

Netflix content catalogue is diverse and extensive which spans over various genres and languages. The platform categories content into genres, making it easy for users to discover new titles. Netflix also produces its own original content, including acclaimed series like "Mission Majnu" and "*A Vampire in the Family*."

User profiles:

Netflix allows multiple user profiles within a single account. Each profile can have its own viewing history, recommendations, and settings. This feature caters to households with multiple users, ensuring a personalised experience for each member.

Viewing History:

Netflix keeps track of users 'viewing history, allowing them to easily resume watching where they left off. This feature enhances the user experience by enabling seamless content consumption

Recommendation Algorithm:

One of Netflix's standout features is its recommendation algorithm. The platform uses data from users' viewing history, ratings, and interactions to suggest content tailored to individual

preferences. This personalised recommendation system plays a crucial role in user engagement and content discovery.

Content Streaming:

Netflix employs advanced streaming technology to deliver high quality content. It adapts to users internet speeds and device capabilities to ensure quality playback. It offers multiple quality settings to accommodate varying internet connections.

User Interactions:

Users can interact with content by rating, reviewing, and adding titles to their watch list. These interactions help Netflix further refine its recommendations and engage users in the content discovery process.

Payment and Subscription:

Netflix offers different subscription plans with varying levels of access and quality. Users can sign up for monthly subscriptions and make payments through various methods. Managing subscriptions and billing is made straightforward for users.

Content Creation:

Netflix has ventured into creation of content with its exclusive and original movies and webseries. The platform invests heavily in producing content exclusively, collaborating with renowned filmmakers and actors. Original content is integrated into the overall catalogue and promoted to users.

Conclusion:

Netflix's success lies in its ability to provide a user-centric streaming experience with a vast content library, personalised recommendations, and high-quality streaming technology. This research provides the foundation for understanding Netflix's schema design and how it supports its core features and functionalities.

Product Dissection and Real-World Problems Solved by Netflix:

In this step, we'll delve into Netflix's standout features and how they offer innovative solutions to real-world challenges. By identifying key functionalities that resonate with users, we'll unravel how Netflix effectively addresses problems and enhances user experiences.

Problem 1: Personalised Content Recommendations:

Real world challenge : In a world with an overwhelming amount of content, competitors users often struggle to find movies and shows of their choices and preferences.

Netflix solution : Netflix employs a powerful recommendation algorithm that analyses users' viewing history, ratings, and interactions. This technology provides personalised content recommendations, making it easier for users to discover new titles that match their interests. By addressing the challenge of content discovery, Netflix enhances the user experience and keeps subscribers engaged.

Problem 2 : User Profiles and Multiple Viewing Histories:

Real world challenge: Multiple viewers are common in households hence it can be challenging to maintain customised viewing histories and recommendations on individual basis.

Netflix solution: Netflix allows multiple user profiles within a single account, each with its own viewing history and recommendations.. By solving the problem of shared viewing experiences, Netflix promotes harmony among users and encourages broader adoption.This feature caters to households with diverse tastes, ensuring that family members have a personalised experience.

Problem 3 : Seamless Content Playback:

Real world challenge: Varying internet speeds and device capabilities can lead to buffering and interrupted content playback.

Netflix solution: Netflix utilises adaptive streaming technology that adjusts the quality of content based on users' internet connections and device capabilities. This ensures smooth playback and minimises buffering issues. By addressing the challenge of content delivery, Netflix enhances the overall viewing experience, even in regions with inconsistent internet connectivity.

Problem 4: Original Content production.

Real-World Challenge: Traditional content providers may limit the availability of original and diverse content.

Netflix Solution: Netflix has invested significantly in producing original series and movies. By collaborating with renowned filmmakers and actors, the platform offers a wide range of exclusive content. This solution addresses the challenge of content diversity and provides subscribers with unique and compelling entertainment options.

Problem 5: User Engagement through interactions:

Real-World Challenge: Users often seek ways to engage more deeply with content beyond passive viewing.

Netflix Solution: Netflix encourages user interactions by allowing users to rate, review, and add titles to their watch list. These interactions not only provide feedback to the recommendation algorithm but also engage users in content discovery and discussion. By addressing the challenge of user engagement, Netflix fosters a sense of community among subscribers.

Problem 6: Cross-Device Accessibility:

Real world challenge: Users want the flexibility to access content on various devices seamlessly.

Netflix solution: Netflix offers cross-device compatibility, allowing users to switch between devices while maintaining their viewing progress. This feature addresses the challenge of device versatility, enabling users to enjoy content on their terms, whether at home or on the go.

Problem 7: Billing and subscription Management:

Real-World Challenge: Managing subscription plans and payments can be difficult.

Netflix Solution: Netflix eases billing and subscription management, offering various subscription plans and flexible payment options. Users can easily upgrade or cancel subscriptions, providing transparency and control. This solution streamlines the subscription process, making it user-friendly and convenient

Case Study: Real-World Problems and Netflix's Innovative Solutions

In this pivotal step, we'll expand on the real-world challenges identified in Step 3 through a comprehensive case study. We'll delve into specific instances where Netflix users encountered difficulties and showcase how Netflix's unique features provided effective solutions. This case study will help us dissect the approach taken by Netflix to overcome these challenges and gain a deeper understanding of its user-centric design philosophy.

Case Study 1: Personalised content recommendations.

Real-World Challenge: Tilak, a Netflix subscriber, often found himself spending more time searching for content than actually watching it. He often felt overwhelmed by the diverse content library.

Netflix’s Solution:
Netflix’s recommendation algorithm analysed Tilak’s viewing history and preferences. It started suggesting movies and tv shows based on his past choices, leading to a more tailored content discovery experience. As a result, Tilak spent less time searching and more time on enjoying the content.

Case Study 2: User Profiles and Multiple Viewing Histories

Real-World Challenge: The Nayak family shares a single Netflix account, but each member has different tastes in entertainment. They found it frustrating when their viewing histories and recommendations got mixed up..

Netflix’s Solution:
Netflix addresses the issue of content overload through its innovative "Explore" feature. By leveraging advanced algorithms, the platform curates a personalised feed of content tailored to each user's preferences. This intelligent content recommendation system ensures that users encounter posts, accounts, and trends that resonate with their interests, mitigating the problem of information overload and enhancing the user experience.

Case Study 3: Seamless Content Playback

Real-World Challenge: Nisha, a Netflix subscriber living in an area with inconsistent internet connectivity, often experienced buffering while streaming her favourite shows.
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Netflix’s Solution:

Netflix's adaptive streaming technology recognized Nisha’s varying internet speeds. It automatically adjusted the content quality to ensure smooth playback, even in areas with limited bandwidth. Nisha could now enjoy uninterrupted streaming without the frustration of buffering.

Case Study 4: Original Content Production

Challenge: Vinay, a long-time Netflix user, sought fresh and engaging content beyond what traditional studios offered.

Netflix Solution: Netflix's commitment to producing original series and movies met Vinay’s desire for unique content. The platform's collaborations with talented creators brought fresh stories and diverse perspectives to its catalogue. Now, Vinay had access to a rich library of exclusive content that traditional providers couldn't match.

Case Study 5: User Engagement through interactions

Challenge: Pavani, an avid Netflix user, wanted to share her thoughts and recommendations with friends and fellow subscribers.

Netflix Solution: Netflix allowed Pavani to rate, review, and add titles to her watch list. These interactions not only enhanced her own content discovery but also facilitated discussions with friends and fellow viewers. Pavani felt more connected to the Netflix community, fostering a sense of shared enthusiasm for entertainment.

Case Study 6: Cross-Device Accessibility

Challenge: Arun, a frequent traveller, wanted the flexibility to continue watching his favourite shows seamlessly across different devices.

Netflix Solution: Netflix's cross-device compatibility enabled Arun to pick up where he left off on his smartphone during a layover or resume watching on his smart TV when he returned home. The transition between devices was seamless, aligning with Arun’s dynamic lifestyle

Case Study 7: Billing and Subscription Management

Challenge: Vasantha, a Netflix subscriber, needed an easy way to adjust her subscription plan as her viewing habits changed.

Netflix Solution: Netflix's user-friendly subscription management allowed Vasantha to upgrade or downgrade her plan with a few clicks. Billing was straightforward, and she had the flexibility to adjust her subscription to suit her needs without any hassle.

These case studies illustrate how Netflix's innovative solutions effectively address real-world challenges faced by its users. By dissecting these examples, we gain a deeper appreciation for Netflix's commitment to enhancing the user experience.

Schema Description:

Based on the features and functionalities of Netflix, we'll craft a schema design that reflects how Netflix organises and utilises its data. This schema will help us understand how Netflix's data architecture drives the platform's effectiveness.

User Entity:
Users are at the core of Netflix. The user entity contains information about each user:

- **UserID (Primary Key)**: A unique identifier for each user.
- **Username**: The chosen username for the user's account.
- **Password**: Security key for the account Salted and Hashed
- **Email**: The user's email address for account-related communication.
- **Subscription Plan**: The user's choice of plans like Basic, Standard, Premium.
- **Payment Information**: A brief description about the payment.
- **Registration_Date**: The date when the user joined Netflix.

Profile Entity:

- **Profile ID (Primary Key)**: A unique identifier for each user.
- **UserID** : Foreign Key referencing User Entity.
- **Profile Name**: e.g., "John's Profile," "Family Profile".
- **Viewing History**: linked to Content Entity.
- **Recommendation**: generated by Netflix's algorithm, linked to Content Entity.
- **User Interactions**: e.g., ratings, reviews, watchlist.

Content Entity:

- **Content ID(Primary Key):** A unique identifier for each post.
- **Title :** Name of the movie, web series etc..
- **Description :** Plot about the movie or web series.

- **Genre:** Tags and Categories of genre like romance, comedy, action ,Suspense etc..
- **Release year**: Date of Release.
- **Cast and Crew**: Details about Actors and Technicians.
- **Duration**: Length of the movie
- **Viewer_Ratings**: The rating of the movie

Interaction Entity:
Comments enable users to engage in conversations around posts:

- **Interaction ID(Primary Key)**: A unique identifier for each comment.
- **UserID : Foreign Key referencing Post Entity.**
- **ContentID : Foreign Key referencing User Entity.**
- **Interaction_Type**: e.g., watched, rated, reviewed, added to watchlist.
- **Interaction_Date**: The date when the interaction was posted.

Device Entity:
Likes represent user appreciation for posts:

- **Device ID (Primary Key):** A unique identifier for each like.
- **User ID (Foreign Key referencing Post Entity):**
- **Device_Type(Foreign Key referencing User Entity):** (e.g., smartphone, smart TV, laptop).
- **Device_Name:** e.g., "John's Phone," "Living Room TV".
- Device_Preferences: (e.g., streaming quality settings)

Subscription Entity:
Followers establish connections between users:

- **Subscription ID (Primary Key)**: A unique identifier for each follower relationship.
- **UserID (Foreign Key referencing User Entity)**: The user who is being followed.
- **Plan_Type (Foreign Key referencing User Entity)**: (e.g., Basic, Standard, Premium)
- **Subscription_Start**: The date when the following Subscription was initiated.
- **Billing_info**
- **Payment_History**

Relationships are:

- **Users subscribe to Subscription Plans (1:M relationship):**

  Each user can have multiple subscriptions based on different plans and billing cycles. Each subscription is associated with one user.

- **Users can create multiple Profiles within their accounts (1:M relationship):**

  Each user can have multiple profiles within their Netflix account.Each profile is associated with one user.

- **Users interact with Content through various actions (watching, rating, reviewing, adding to watch list) (M:M relationship) :**

  Users can interact with multiple content items, such as movies and TV shows, by watching, rating, and reviewing them.

  Content can be interacted with by multiple users who watch, rate, and review it.

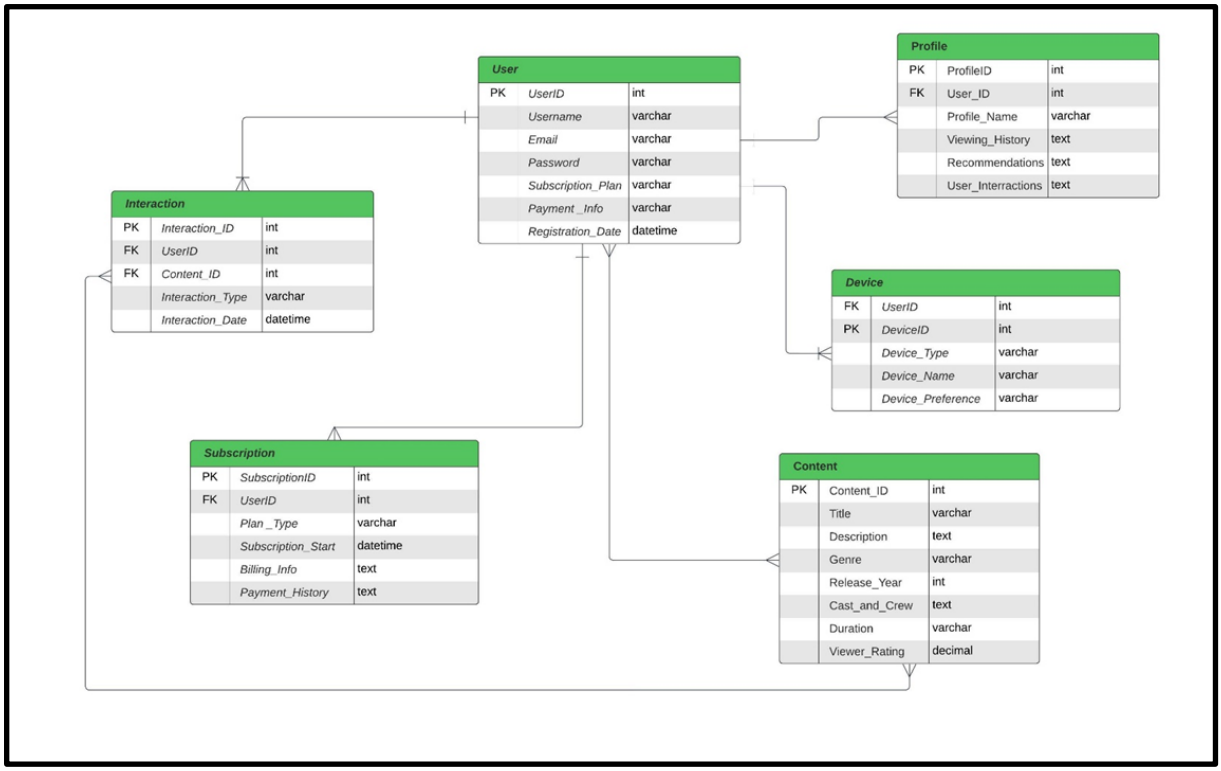
- **Devices are associated with Users and store device-specific preferences (1:M relationship):**

  Each user can use multiple devices to access their Netflix account.

  Each device is used by one user.

ER Diagram:

Let's construct an ER diagram that vividly portrays the relationships and attributes of the entities within the Netflix schema. This ER diagram will serve as a visual representation, shedding light on the pivotal components of Netflix’s data model. By employing this diagram, you'll gain a clearer grasp of the intricate interactions and connections that define the platform's dynamics.



Conclusion

In this case study, we delved into the design of Netflix's schema and Entity-Relationship diagram. Netflix has revolutionised the digital platform by bringing content across all film industries from India and worldwide which gives an exposure to Indians on how filmmaking is carried across the globe . By understanding this schema, we gain insight into how Netflix effectively manages the complexities of user interactions and content sharing, contributing to its widespread popularity and continued growth in the world of digital cinema.

Key parts of this schema include:

User: Your Netflix account info.

Profile: Separate spaces for family members.

Device: Your choice of screens.

Subscription: The plan you pick.

Content: All the movies and shows.

Genre: Categories like action or drama.

Interaction: Your likes, reviews, and watches.

Netflix's design is smart. It understands your needs and keeps things simple, making it the streaming king it is today