

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 , 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 Facebook

Company Overview:

Facebook is a leading social networking platform founded in 2004 by Mark Zuckerberg. It allows users to create profiles, connect with friends, share updates, photos, and videos, join groups, and attend events. With features like the News Feed, Messenger, and privacy settings, Facebook facilitates communication, information sharing, and community building on a global scale. Additionally, businesses can leverage Facebook for advertising and engaging with their audience through Pages.

Product Dissection and Real-World Problems Solved by Facebook:

Facebook, a globally renowned social media platform, has effectively tackled real-world challenges through its innovative product offerings. With a mission to connect people and foster communication, Facebook empowers users to authentically share their experiences and interests, bridging the gap between digital interactions and genuine connections. By providing a platform for users to share updates, photos, videos, and thoughts, accompanied by captions, locations, and reactions, Facebook addresses the need for meaningful expression and engagement. This core feature solves the problem of connecting in an increasingly digital world, enabling users to build and maintain genuine relationships, as well as engage in conversations that transcend geographical boundaries.

Facebook's engagement tools, including likes, comments, and personalized content recommendations, reshape content interaction. Addressing content overload, Facebook curates tailored content, facilitating discovery of relevant accounts and trends. Incorporating hashtags enhances content discovery by categorizing posts. This strategy streamlines navigating through extensive content, enabling users to engage with aligned content and foster meaningful discussions.

In conclusion, Facebook's product design has effectively addressed real-world challenges by establishing a platform that fosters creativity, facilitates connections, and provides a medium for self-expression. Through its diverse array of features, Facebook caters to the demand for genuine engagement, content organization, and valuable exploration, shaping the digital sphere and delivering tangible solutions to the evolving requirements of its extensive user community.

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

Facebook, a leading social media platform, effectively tackles real-world challenges by fostering connections, enabling self-expression, and improving digital interactions. Through the utilization of user feedback and advanced technology, Facebook has transformed content sharing and consumption, offering valuable solutions to the dynamic demands of its worldwide user community.

Problem 1: Disconnect in Digital Relationships

Real-World Challenge: In the digital age, conveying genuine emotions and experiences online is challenging, leading to a disconnect in digital relationships.

Facebook's Solution:

Facebook introduces features like reactions, stickers, and multimedia sharing to enhance communication, allowing users to express emotions beyond text. Emphasis on groups and events facilitates real-time interactions, fostering deeper connections. By providing diverse tools for expression and interaction, Facebook effectively addresses the challenge of disconnect in digital relationships.

Problem 2: Information Overload

Real-World Challenge: Users often face difficulty in navigating through the abundance of online content, leading to information overload and the struggle to find relevant and engaging material.

Facebook's Solution:

Facebook tackles the challenge of information overload by employing advanced algorithms to curate personalized content recommendations in the News Feed. By analyzing user interactions and interests, Facebook ensures that users encounter posts, articles, and events tailored to their preferences. This intelligent content recommendation system streamlines content discovery, helping users find valuable information amidst the vast array of online content, thereby enhancing their overall experience on the platform.

Problem 3: Establishing a Creative Outlet

Real-World Challenge: Numerous individuals aim to pursue creative ventures but encounter difficulties in identifying appropriate platforms to effectively showcase and monetize their talents.

Facebook's Solution:

Facebook facilitates creative expression through features like Facebook Pages, Groups, and Marketplace, offering individuals opportunities to showcase their talents, connect with audiences, and collaborate with brands. This empowers users to transform their creative passions into viable career paths, providing avenues for personal and professional growth.

Problem 4: Limited Personal Branding

Real-World Challenge: Many individuals encounter obstacles in establishing a distinctive online presence due to the constraints of text-based platforms.

Facebook's Solution:

Facebook provides users with robust profile customization options, including profile pictures, cover photos, bio sections, and featured sections. This allows users to express their personalities and interests visually, overcoming the limitations of traditional text-based platforms and fostering stronger personal branding.

Conclusion:

Facebook's evolution from a social networking site to a global platform underscores its capacity to recognize real-world challenges and offer inventive solutions. Through facilitating authentic connections, curating content, empowering creativity, and enhancing personal branding, Facebook has effectively tackled numerous hurdles encountered by users in the digital sphere. This case study illustrates how Facebook's user-focused strategies and ongoing advancements have cemented its position as a frontrunner in the social media landscape, profoundly influencing the dynamics of online engagement and interaction.

Top Features of Facebook:

1. **User Profiles:** Facebook allows users to create personal profiles, offering insights into their lives through features such as usernames, full names, bios, and profile pictures. This creates a personalised online presence that reflects each user's identity.
2. **Posts:** A fundamental feature of Facebook is the ability to share photos, videos, and updates. Users can add captions, tag locations, and enhance their content using various creative tools such as filters and stickers..
3. **Status Updates:** Users can share their thoughts, activities, and experiences through status updates. They can include text, photos, videos, and links, allowing them to express themselves and engage with their network.
4. **Friends and Followers:** Facebook facilitates connections through the Friends and Followers features. Users can add friends to their network and follow public figures, organizations, and businesses to stay updated on their activities.
5. **Groups:** Facebook Groups enable users with shared interests, goals, or affiliations to come together and interact. Members can post content, ask questions, organize events, and engage in discussions within a community-oriented space.

6. **Interactions:** Engagement is central to Facebook's experience. Users can express appreciation by liking posts and sharing their thoughts through comments.

Schema Description:

The schema for Facebook involves multiple entities that represent different aspects of the platform. These entities include Users, Posts, Comments, Likes, friends & families, groups, advertisement, and more. Each entity has specific attributes that describe its properties and relationships with other entities.

User Entity:

Users are at the core of Facebook. The user entity contains information about each user:

- **User_Profile(Primary Key):** A unique identifier for each user.
- **Username:** The chosen username for the user's account.
- **Email:** The user's email address for account-related communication.
- **Full_Name:** The user's full name as displayed on their profile.
- **DOB:** Birth date of the user.
- **Bio:** A brief description that users can use to express themselves.
- **Registration_Date:** The date when the user joined Instagram.

Post Entity:

Posts capture the visual content shared on the platform:

- **PostID (Primary Key):** A unique identifier for each post.
- **UserID (Foreign Key referencing User Entity):** The user who created the post.
- **Caption:** Text accompanying the post, providing context.
- **Image_URL:** The URL of the image or video content.
- **Location:** The tagged location associated with the post.
- **Post_Date:** The date when the post was created.

Comment Entity:

Comments enable users to engage in conversations around posts:

- **CommentID (Primary Key):** A unique identifier for each comment.
- **PostID (Foreign Key referencing Post Entity):** The post being commented on.
- **UserID (Foreign Key referencing User Entity):** The user who posted the comment.
- **Text:** The text of the comment.
- **Comment_Date:** The date when the comment was posted.

Like Entity:

Likes represent user appreciation for posts:

- **LikeID (Primary Key):** A unique identifier for each like.
- **PostID (Foreign Key referencing Post Entity):** The post being liked.
- **UserID (Foreign Key referencing User Entity):** The user who liked the post.

- **Like_Date:** The date when the like was registered.

Follower Entity:

Followers establish connections between users:

- **FollowerID (Primary Key):** A unique identifier for each follower relationship.
- **FollowingUserID (Foreign Key referencing User Entity):** The user who is being followed.
- **FollowerUserID (Foreign Key referencing User Entity):** The user who is following.
- **Follow_Date:** The date when the following relationship was initiated.

Hashtag Entity:

Hashtags categorise and group content:

- **HashtagID (Primary Key):** A unique identifier for each hashtag.
- **Tag:** The actual text of the hashtag.

Advertisement Entity:

- **AdID (Primary Key):** Unique identifier for each advertisement.
- **UserID (Foreign Key referencing User Entity):** The user or advertiser who created the advertisement.
- **Ad_Type:** Type of advertisement (e.g., sponsored post, banner ad)
- **Target_Audience:** Specific demographics or interests targeted by the advertisement
- **Ad_Cost:** Cost associated with running the advertisement.
- **Ad_Impressions:** Number of times the advertisement was displayed.
- **Ad_Clicks:** Number of clicks received on the advertisement.
- **Ad_Status:** Current status of the advertisement (e.g., active, paused, completed).

Marketing Entity

- **MarketingUserId (primary key):** Unique identifier for each marketing
- **UserId (Foreign Key referencing User Entity):** The user or marketing who created the advertisement.
- **Marketing_impression:** The number of times an advertisement or piece of content is viewed by potential customers.

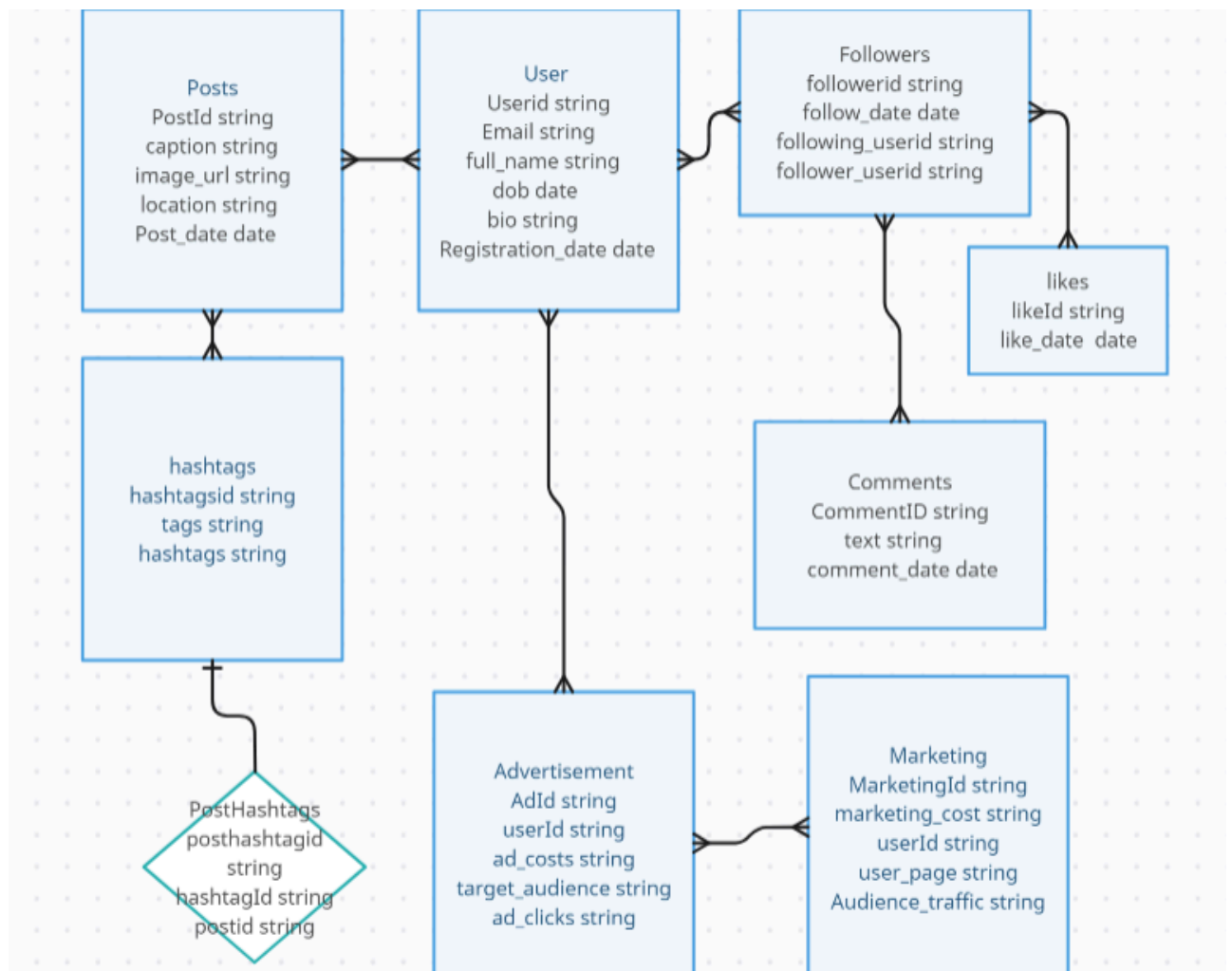
Relationships are:

- **Users post Posts** – Each user can post multiple posts.
- **Users comment on Posts** – Users can comment on multiple posts, and each post can have multiple comments.
- **Users like Posts** – Users can like multiple posts, and each post can have multiple likes.

- **Users follow other Users** – Users can follow multiple users and be followed by multiple users.
- **Posts have Hashtags** – Posts can have multiple hashtags, and each hashtag can be associated with multiple posts.

ER Diagram:

Let's construct an ER diagram that vividly portrays the relationships and attributes of the entities within the Facebook schema. This ER diagram will serve as a visual representation, shedding light on the pivotal components of Facebook'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 explored the intricacies of Facebook's schema and Entity-Relationship diagram, shedding light on its fundamental architecture. Facebook has significantly transformed how individuals communicate and share content, facilitating connections and interactions on a global scale. The platform's sophisticated data model, encompassing entities such as users, posts, comments, likes, friends, groups, and associations, underpins its seamless operation. Understanding this schema offers valuable insights into Facebook's adept management of user interactions and content dissemination, thereby fueling its enduring prominence and sustained expansion within the realm of social media.