

# 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 Instagram, 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.**



# Zomato

## Product Dissection for Zomato

### Company Overview:

Zomato, founded in 2008 by Deepinder Goyal and Pankaj Chaddah, has transformed the way people discover restaurants and order food online. What started as a restaurant discovery platform has evolved into a comprehensive food delivery and dining ecosystem. With its user-friendly interface and wide network of restaurant partners, Zomato has become a trusted platform for millions of users across multiple countries.

By focusing on convenience, accessibility, and customer experience, Zomato enables users to explore menus, place orders, make digital payments, and share reviews seamlessly. The platform plays a vital role in connecting customers, restaurants, and delivery partners, making it one of the leading platforms in the online food delivery and restaurant services landscape.

### Product Dissection and Real-World Problems Solved by Zomato:

Zomato, a leading online food delivery and restaurant discovery platform, has effectively addressed several real-world challenges related to food accessibility and dining convenience. In today's fast-paced lifestyle, users often face difficulties in finding suitable restaurants, accessing menus, comparing prices, and placing orders efficiently. Zomato bridges this gap by providing a unified digital platform where users can explore nearby restaurants, view detailed menus, and place food orders seamlessly. This core functionality solves the problem of limited food discovery and inconvenience in traditional dining experiences, enabling users to make informed decisions from the comfort of their homes.

Zomato's innovative features, such as online ordering, digital payments, real-time order tracking, and user reviews, have significantly enhanced the overall customer experience. By addressing challenges like long waiting times, lack of transparency in pricing, and uncertainty about food quality, Zomato empowers users with reliable information and smooth transaction processes. The inclusion of ratings and reviews allows users to evaluate

restaurants based on real customer experiences, solving the problem of trust and quality assurance in online food ordering. Additionally, personalised restaurant recommendations help users discover new dining options aligned with their preferences.

In conclusion, Zomato's product design successfully tackles real-world problems by creating a platform that prioritises convenience, accessibility, and informed decision-making. Through its diverse features, Zomato addresses challenges related to food discovery, order management, and customer trust, shaping the online food delivery ecosystem and providing practical solutions to the evolving needs of its users and restaurant partners.

## **Case Study: Real-World Problems and Zomato's Innovative Solutions:**

Zomato, a leading online food delivery and restaurant discovery platform, has significantly transformed the way users explore dining options and order food. Beyond convenience, Zomato has addressed several real-world challenges faced by customers, restaurants, and delivery partners through its technology-driven solutions. By understanding user needs and optimising food discovery and delivery processes, Zomato has positioned itself as a solution-focused platform that enhances the overall dining experience.

### **Problem 1: Difficulty in Discovering Suitable Restaurants**

**Real-World Challenge:** Users often struggle to find restaurants that match their preferences, budget, location, and food quality expectations. Traditional methods such as word-of-mouth recommendations or physical exploration are time-consuming and provide limited information about menus, pricing, and service quality.

#### **Zomato's Solution:**

Zomato addresses this challenge by offering a comprehensive restaurant discovery system that combines detailed menus, pricing, photos, ratings, and customer reviews on a single platform. Users can filter restaurants based on cuisine, price range, location, and popularity, enabling faster and more accurate decision-making. This structured presentation of restaurant data reduces uncertainty and allows users to compare multiple options efficiently. By centralising restaurant information and user feedback, Zomato significantly simplifies the process of finding suitable dining options and enhances overall user satisfaction.

### **Problem 2: Inconvenience in Food Ordering and Payments**

**Real-World Challenge:** Placing food orders through traditional channels often involves phone calls, unclear pricing, cash payments, and order inaccuracies. These factors contribute to delays, confusion, and a poor customer experience.

**Zomato's Solution:**

Zomato streamlines the food ordering process by providing an intuitive digital interface where users can select items directly from restaurant menus and customise their orders. Integrated online payment options, such as UPI, credit and debit cards, and digital wallets, ensure secure and cashless transactions. The platform also provides clear price breakdowns, including taxes and delivery charges, improving transparency. This end-to-end digital workflow reduces human error, speeds up order processing, and delivers a smooth and reliable ordering experience for users.

**Problem 3: Lack of Transparency in Order Status and Delivery**

**Real-World Challenge:** Customers frequently experience uncertainty regarding order preparation times and delivery status, leading to frustration and reduced trust in food delivery services.

**Zomato's Solution:**

Zomato enhances transparency by offering real-time order tracking and status updates at every stage of the delivery process. Users receive notifications when the order is confirmed, prepared, picked up, and delivered. This visibility allows customers to plan accordingly and reduces anxiety related to delays. Additionally, real-time communication between delivery partners and users improves coordination, ensuring timely deliveries and a more dependable service experience.

**Problem 4: Trust and Quality Assurance in Online Food Ordering**

**Real-World Challenge:** Users may hesitate to order from unfamiliar restaurants due to concerns about food quality, hygiene, and service reliability.

**Zomato's Solution:**

Zomato builds trust through a transparent rating and review system where users can share detailed feedback about their dining and delivery experiences. Photos, ratings, and written reviews help new customers evaluate restaurants before placing orders. This feedback mechanism encourages restaurants to maintain consistent quality and service standards, as their reputation directly impacts visibility and customer trust. By leveraging community-driven insights, Zomato creates a reliable ecosystem that supports informed decision-making and quality assurance.

**Conclusion:**

Zomato's evolution into a comprehensive food delivery and restaurant discovery platform demonstrates its ability to identify real-world challenges and deliver effective, scalable solutions. By improving restaurant discovery, simplifying ordering and payments, enhancing delivery transparency, and building trust through user feedback, Zomato has successfully addressed key issues in the food service ecosystem. This case study highlights how Zomato's user-centric design and data-driven strategies have positioned it as a leader in the online food delivery domain, shaping the way users interact with restaurants in the digital age.

## Top Features of Zomato:

1. **User Profiles:** Zomato allows users to create personalised profiles that store essential details such as username, contact information, saved addresses, and payment preferences. These profiles also maintain order history, favourite restaurants, and user reviews. This personalised setup enhances user convenience by enabling faster checkouts, tailored recommendations, and a more customised food ordering experience.
2. **Restaurant Listings:** Restaurants are the core entities on Zomato. Each restaurant profile includes information such as name, location, cuisine types, operating hours, pricing, menus, and photos. This structured presentation helps users compare multiple dining options efficiently and choose restaurants based on preferences such as budget, distance, and food type.
3. **Menus and Food Items:** Zomato provides detailed digital menus for each restaurant, including food item names, prices, descriptions, and availability status. This feature allows users to explore dishes before ordering and ensures transparency in pricing. Structured menu data also enables accurate order placement and reduces misunderstandings between users and restaurants.
4. **Online Ordering and Payments:** Zomato offers a seamless online food ordering system that allows users to select items, customise orders, and place them digitally. Integrated payment gateways support multiple payment modes such as UPI, credit/debit cards, and digital wallets. This feature ensures secure transactions, faster processing, and a smooth end-to-end ordering experience.
5. **Order Tracking:** Real-time order tracking is a key feature of Zomato. Users can monitor their order status from confirmation to preparation and delivery. Notifications and live updates improve transparency, reduce uncertainty, and enhance trust in the platform by keeping users informed throughout the delivery process.
6. **Ratings and Reviews:** Zomato enables users to rate restaurants and provide written reviews based on their experiences. These reviews include feedback on food quality, delivery time, and overall service. This feature builds trust within the platform, helps new users make informed decisions, and motivates restaurants to maintain high standards.
7. **Delivery Partners:** Zomato integrates delivery partners into its ecosystem by assigning them orders, tracking their availability, and optimising delivery routes. This feature ensures efficient order fulfillment while supporting real-time coordination between users, restaurants, and delivery personnel.
8. **Search and Filters:** Zomato offers advanced search and filtering options that allow users to find restaurants based on location, cuisine, ratings, price range, and delivery time. This feature enhances usability by helping users quickly discover restaurants that match their specific needs.

9. **Recommendations and Personalisation:** Using user activity and order history, Zomato delivers personalised restaurant and food recommendations. This feature enhances user satisfaction by suggesting options aligned with individual preferences, making food discovery more efficient and enjoyable.

## Schema Description:

The schema for Zomato is designed to represent the core components of an online food delivery and restaurant discovery platform. The schema includes multiple interconnected entities that capture user activities, restaurant operations, food ordering processes, and delivery management. These entities include Users, Restaurants, Menus, Orders, Payments, Reviews, Delivery Partners, and supporting relationship tables. Each entity has clearly defined attributes and relationships to ensure data consistency and efficient operations.

### User Entity:

Users are central to the Zomato platform, as they browse restaurants, place orders, make payments, and leave reviews:

- **UserID (Primary Key):** A unique identifier for each user.
- **Username:** The display name chosen by the user.
- **Email:** The user's registered email address.
- **Phone\_Number:** Contact number used for order communication.
- **Address:** Saved delivery address of the user.
- **Registration\_Date:** The date when the user registered on Zomato.

### Restaurant Entity:

Restaurants represent food providers registered on the Zomato platform:

- **RestaurantID (Primary Key):** A unique identifier for each restaurant.
- **Restaurant\_Name:** The official name of the restaurant.
- **Location:** The physical address of the restaurant.
- **Cuisine\_Type:** Types of cuisines offered.
- **Opening\_Hours:** Restaurant operating hours.
- **Rating:** Average customer rating.

### Menu Entity:

Menus store food items offered by restaurants:

- **MenuID (Primary Key):** A unique identifier for each menu item.
- **RestaurantID (Foreign Key referencing Restaurant Entity):** The restaurant offering the item.
- **Item\_Name:** Name of the food item.
- **Price:** Cost of the item.
- **Availability\_Status:** Indicates whether the item is available.

### Order Entity:

Orders represent food orders placed by users from restaurants on the Zomato platform:

- **OrderID (Primary Key):** A unique identifier for each order.
- **UserID (Foreign Key referencing User Entity):** The user who placed the order.
- **RestaurantID (Foreign Key referencing Restaurant Entity):** The restaurant from which the order was placed.
- **Order\_Date:** Date and time when the order was placed.
- **Order\_Status:** Current status of the order (Placed, Preparing, Out for Delivery, Delivered, Cancelled).
- **Total\_Amount:** Total cost of the order.

### Payment Entity:

Payments record transaction details related to orders:

- **PaymentID (Primary Key):** A unique identifier for each payment.
- **OrderID (Foreign Key referencing Order Entity):** The associated order.
- **Payment\_Method:** Mode of payment (UPI, Card, Wallet).
- **Payment\_Status:** Status of the transaction.
- **Payment\_Date:** Date of payment.

### Delivery Partner Entity:

Delivery partners ensure food is delivered to users:

- **DeliveryPartnerID (Primary Key):** A unique identifier for each delivery partner.
- **Name:** Name of the delivery partner.
- **Phone\_Number:** Contact information.
- **Vehicle\_Type:** Type of delivery vehicle.
- **Availability\_Status:** Current availability for delivery.

### Review Entity:

Reviews store feedback provided by users for restaurants.

- **ReviewID (Primary Key):** A unique identifier for each review.
- **UserID (Foreign Key referencing User Entity):** The user giving the review.
- **RestaurantID (Foreign Key referencing Restaurant Entity):** The reviewed restaurant.
- **Rating:** Rating given by the user.
- **Review\_Text:** Written feedback.
- **Review\_Date:** Date when the review was submitted.

### OrderDelivery Entity:

This entity links orders with delivery partners:

- **OrderDeliveryID (Primary Key):** A unique identifier for the delivery record.
- **OrderID (Foreign Key referencing Order Entity):** The order being delivered.

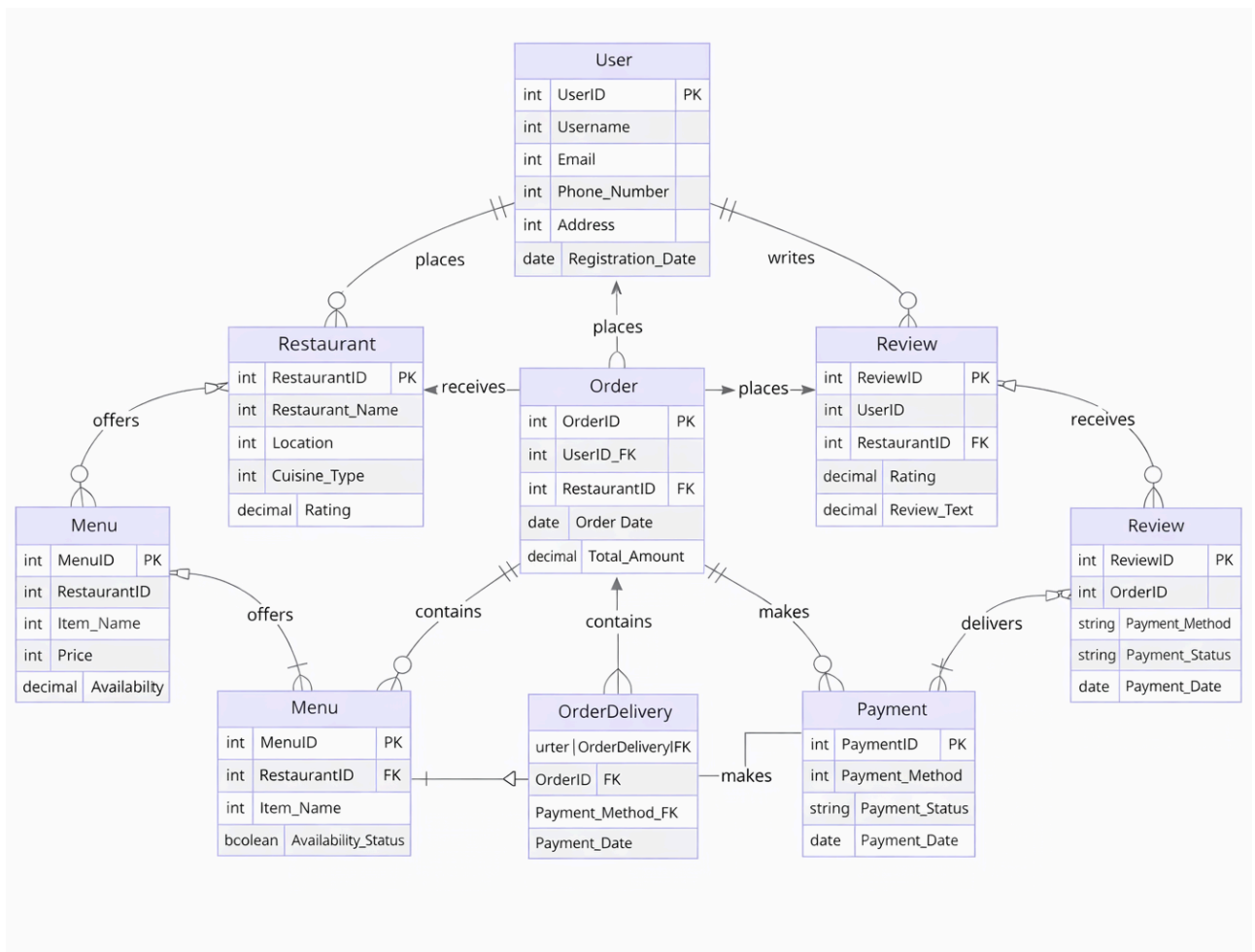
- **DeliveryPartnerID (Foreign Key referencing Delivery Partner Entity):** Assigned delivery partner.
- **Delivery\_Status:** Current delivery status.

### Relationships are:

- **Users place Orders** – One user can place multiple orders.
- **Restaurants receive Orders** – One restaurant can receive multiple orders.
- **Restaurants offer Menu Items** – One restaurant can have multiple menu items.
- **Users make Payments** – Each order is associated with one payment.
- **Users write Reviews** – Users can write multiple reviews for different restaurants.
- **Orders are delivered by Delivery Partners** – Each order is assigned to one delivery partner.
- **Restaurants receive Reviews** – Each restaurant can have multiple reviews.
- **Delivery Partners deliver Orders** – One delivery partner can deliver multiple orders.

### ER Diagram:

Let's construct an ER diagram that vividly portrays the relationships and attributes of the entities within the Zomato platform. This ER diagram serves as a visual representation, highlighting the key components of the platform, including users, restaurants, menu items, orders, payments, reviews, and delivery partners. By examining this diagram, one can easily understand how the core entities interact, ensuring a smooth flow of information across ordering, payment, delivery, and feedback processes, providing a clear overview of Zomato's data model.



## Conclusion:

In this case study, we explored the design of Zomato's relational database schema and Entity-Relationship diagram. Zomato has transformed the way users discover restaurants, place food orders, make payments, and provide feedback, creating a seamless digital food ordering experience. The platform's data model, comprising entities such as users, restaurants, menu items, orders, payments, reviews, and delivery partners, forms the backbone for its efficient operation. By understanding this schema and its interrelationships, we gain insight into how Zomato effectively manages the complexities of user interactions, order processing, payment handling, and delivery logistics. This structured approach enables the platform to provide reliable services, foster trust between customers and restaurants, and support a scalable online food delivery ecosystem, highlighting the critical role of well-designed data architecture in its continued success. This case study demonstrates how thoughtful schema design directly supports Zomato's business objectives and enhances overall user experience.

**Presentation Video Link:**

[https://drive.google.com/file/d/1TcnpJNexL6r-gtG9L5bbpCN1\\_r8ouUtR/view?usp=sharing](https://drive.google.com/file/d/1TcnpJNexL6r-gtG9L5bbpCN1_r8ouUtR/view?usp=sharing)

**Note** - The presentation video explaining the project, schema design, and ER diagram is available at the link below: