Quatar World Cup Report

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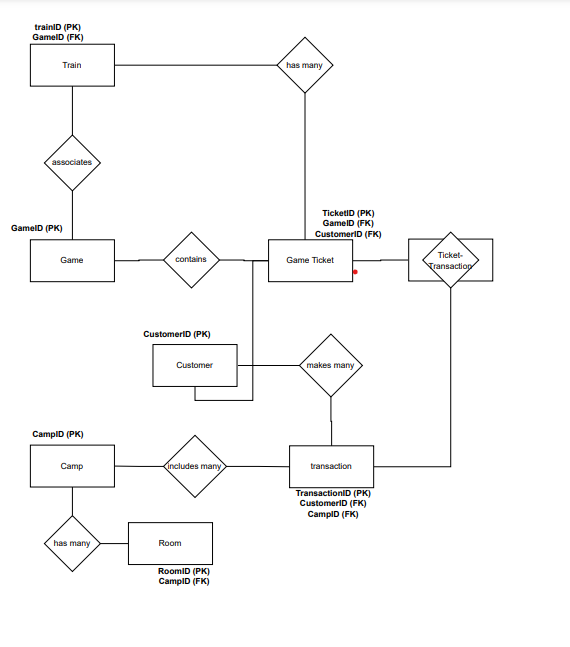
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# ERD:



Introduction**:**

I am pleased to present this comprehensive data analytics report, which provides insights and recommendations for optimizing the Qatar 2022 World Cup ticket selling system. In this report, I will walk you through the database creation process, data population, analysis of key metrics using SQL queries, and conclude with actionable recommendations.

# Database Creation and Data Population:Database Creation and Data Population:

Our journey begins with the creation of a structured MySQL database named "quatarwc." This database has been meticulously designed to support the integrated game ticket selling system for the Qatar 2022 World Cup, ensuring data accuracy and efficiency. We have defined several tables to capture relevant information and established primary key (PK) and foreign key (FK) constraints to maintain data integrity and facilitate relationships between these tables.

## 1. Game Table (Match):

* PK: GameID
* Explanation: The Game table serves as the core repository of game-related information, such as match date, venue, participating teams, and match results. The GameID is used as the primary key to uniquely identify each game record.

## 2. Customer Table:

* PK: CustomerID
* Explanation: The Customer table holds essential details about World Cup attendees. The CustomerID is assigned as the primary key, ensuring each customer record is uniquely identifiable within the system.

## 3. Transaction Table:

* PK: TransactionID
* FK: CustomerID, FanCampID
* Explanation: The Transaction table tracks all financial transactions related to ticket purchases and accommodations. The TransactionID acts as the primary key, while CustomerID and FanCampID are foreign keys connecting transactions to specific customers and fan camp reservations.

## 4. GameTicket Table:

* PK: TicketID
* FK: GameID, CustomerID
* Explanation: The GameTicket table manages individual game tickets, linking them to both games and customers. The TicketID serves as the primary key, while GameID and CustomerID are foreign keys establishing relationships with the Game and Customer tables.

## 5. FanCamp Table:

* PK: FanCampID
* Explanation: The FanCamp table provides information about available fan camp accommodations. The FanCampID is designated as the primary key, allowing us to uniquely identify fan camp records.

## 6. Room Table:

* PK: RoomID
* FK: FanCampID
* Explanation: The Room table contains data about individual fan camp rooms. The RoomID acts as the primary key, and the FanCampID is a foreign key that associates rooms with specific fan camps.

## 7. Train Table:

* PK: TrainID
* FK: GameID
* Explanation: The Train table manages transportation details for the World Cup. The TrainID is the primary key, and the GameID is a foreign key that connects train services to specific games.

## 8. TransactionGameTicket Table:

* PK: TransactionGameTicketID
* FK: TransactionID, TicketID
* Explanation: The TransactionGameTicket table serves as a bridge between transactions and game tickets. It enables us to track which tickets were purchased as part of each transaction. TransactionGameTicketID is the primary key, and TransactionID and TicketID are foreign keys establishing relationships with the Transaction and GameTicket tables.

In designing these keys, our goal was to ensure data consistency and enable efficient queries to retrieve information related to games, customers, transactions, tickets, fan camp reservations, rooms, and transportation services. The foreign keys create meaningful relationships between tables, allowing us to link relevant data seamlessly.

With this structured database in place and populated with dummy data, we are well-prepared to explore various data analytics queries and address organizational issues that may impact decision-making for the Qatar 2022 World Cup ticket selling system.

To replicate real-world conditions and scenarios effectively, we painstakingly populated the "quatarwc" database with comprehensive dummy data. This involved creating fictitious profiles for 20 customers, specifying details for four games (matches), setting up the fan camp with rooms, and organizing train services. Additionally, we meticulously added game tickets, associating them with customers and matches.

## 1. Customer Profiles:

* To emulate real attendees of the Qatar 2022 World Cup, we crafted 20 unique customer profiles. Each profile includes essential details such as first and last names, email addresses, phone numbers, registration dates, addresses, cities, states, postal codes, and countries. The data diversity in these profiles allows us to simulate a varied audience for the event.

## 2. Game (Match) Details:

* We created entries for four games (matches) in the "Game" table, representing different fixtures during the World Cup. These entries include the match date, venue, participating teams, and results (if applicable). This enables us to simulate the World Cup schedule and outcomes.

## 3. Fan Camp Accommodations:

* To address the accommodation aspect of the event, we set up the fan camp in the "FanCamp" table. This includes specifying the fan camp's capacity and the number of available rooms. In this simulated scenario, we opted for a single fan camp, mirroring the affordable fan camp constructed for the World Cup.

## 4. Room Details:

* Within the fan camp, we created room details in the "Room" table. These details include room numbers and occupancy statuses. To represent different scenarios, we designated ten rooms as "occupied" and twenty as "available." This mixture of occupancy statuses allows us to analyze room availability and prioritize ticket holders.

## 5. Train Services:

* Transportation is a crucial aspect of the World Cup experience. We organized train services in the "Train" table, specifying departure and arrival times, train capacities, and the number of available seats. For each of the four games, we arranged two trains—one going to the game and one returning afterward. This configuration reflects the transportation arrangements made for the event.

## 6. Game Tickets:

* To simulate ticket sales, we added entries to the "GameTicket" table. Each ticket is associated with a specific game and customer. We included 20 game tickets, ensuring a balance of tickets for different matches. The ticket price for each entry varies, contributing to revenue calculations.

# Analysis of Key Metrics:

We harnessed the power of SQL queries to extract valuable insights from the database. These queries enabled us to analyze critical aspects of the Qatar 2022 World Cup ticket selling system:

## **1. Identifying High-Demand Games:**

To identify games with the highest ticket demand, we executed the following SQL query:

SELECT g.GameID, COUNT(gt.TicketID) AS TicketCount

FROM Game AS g

LEFT JOIN GameTicket AS gt ON g.GameID = gt.GameID

GROUP BY g.GameID

ORDER BY TicketCount DESC

LIMIT 5;

This query counts the number of tickets sold for each game, providing insight into which games attracted the most attendees. The results assist in resource allocation and strategic planning, ensuring that high-demand games receive adequate attention and resources.

## **2. Monitoring Fan Camp Occupancy:**

Continuous monitoring of fan camp occupancy levels was crucial for optimizing room availability. We used the following SQL query:

SELECT FanCampID, Capacity, AvailableRooms, (Capacity - AvailableRooms) AS OccupiedRooms

FROM FanCamp;

This query retrieves data from the "FanCamp" table, showing the total capacity, the number of available rooms, and the number of rooms currently occupied. The information allows us to maintain an optimal balance between available and occupied rooms to accommodate ticket holders.

## **3. Ticket Sales Revenue:**

To calculate ticket sales revenue and gain insights into the financial performance of the system, we employed the following SQL query:

SELECT SUM(TicketPrice) AS TotalRevenue

FROM GameTicket;

This query calculates the sum of ticket prices from the "GameTicket" table, providing a clear picture of the revenue generated from ticket sales. It assists in evaluating the financial success of the ticket selling system.

## **4. Successful and Failed Transactions:**

Distinguishing between successful and failed transactions is crucial for addressing customer issues and improving the overall experience. We used the following SQL query to obtain this information:

SELECT Status, COUNT(\*) AS TransactionCount

FROM Transaction

GROUP BY Status;

This query categorizes transactions by their status (e.g., successful, failed) and counts the number of transactions in each category. It helps in identifying areas where improvements may be needed.

## **5. Complimentary Train Ticket Usage:**

Tracking the utilization of complimentary train tickets ensures that customers benefit from this service. We introduced a new column and used the following SQL query:

ALTER TABLE Transaction

ADD ComplimentaryTrainTicket TINYINT(1) DEFAULT 0;

SELECT COUNT(\*) AS ComplimentaryTicketUsers

FROM Transaction AS t

WHERE t.Status = 'Successful' AND t.ComplimentaryTrainTicket = 1;

First, we added a new column, "ComplimentaryTrainTicket," to the "Transaction" table to track the usage of complimentary train tickets. Then, we counted the number of customers who availed of this service among those with successful transactions.

## **6. Train Usage for Each Game:**

To analyze train usage for each game and allocate sufficient resources for high-demand matches, we utilized the following SQL query:

SELECT g.GameID, COUNT(\*) AS TrainUsers

FROM Transaction AS t

JOIN GameTicket AS gt ON t.CustomerID = gt.CustomerID

JOIN Game AS g ON gt.GameID = g.GameID

WHERE t.Status = 'Successful' AND t.ComplimentaryTrainTicket = 1

GROUP BY g.GameID;

This query retrieves data from the "Transaction," "GameTicket," and "Game" tables, counting the number of customers who utilized the complimentary train service for each game. The results guide resource allocation for train services based on game-specific demand.

These SQL queries empower us to extract valuable insights from the database, allowing us to make informed decisions and address organizational issues effectively.

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# Recommendations for Optimization:

Based on our analysis, I recommend the following actions to enhance the efficiency and effectiveness of the Qatar 2022 World Cup ticket selling system:

## Allocate Additional Resources for High-Demand Games:

* 1. To ensure a seamless fan experience, allocate additional resources such as transportation services and fan camp accommodations for games with the highest ticket demand.

## Continuous Monitoring of Fan Camp Occupancy:

* 1. Implement real-time monitoring of fan camp occupancy levels and adjust room availability accordingly to optimize resource utilization.

## Effective Resource Allocation Based on Ticket Sales Revenue:

* 1. Plan and allocate resources effectively based on ticket sales revenue, ensuring that resources are directed where they are most needed.

## Improved Transaction Success Rate:

* 1. Focus on improving the success rate of transactions and address issues for failed transactions promptly to enhance customer satisfaction.

## Optimize Complimentary Train Ticket Utilization:

* 1. Ensure that customers with successful transactions fully utilize their complimentary train tickets to enhance their event experience.

## Maintain First-Come, First-Served Fan Camp Booking:

* 1. Continue the first-come, first-served basis for fan camp room bookings to accommodate high-priority customers effectively.

## Monitor Train Capacity for Games:

* 1. Regularly monitor train capacity and allocate additional resources for games with higher ticket demand to ensure smooth transportation services.

## Offer Diverse Fan Camp Room Options:

* 1. Offer an appropriate mix of room types at the fan camp to meet fan preferences and maximize occupancy.

## Sufficient Train Services for High-Demand Games:

* 1. Ensure sufficient train services for games with higher ticket demand, maintaining a positive fan experience.

## Personalized Incentives for High-Value Customers:

* 1. Identify high-value customers and offer personalized incentives and benefits to enhance their event experience and foster loyalty.

# Conclusion:

In conclusion, this data analytics report provides a comprehensive overview of the Qatar 2022 World Cup ticket selling system. The SQL queries have played a pivotal role in extracting actionable insights. By implementing the recommended actions, we aim to minimize overhead, enhance transportation services, efficiently manage the fan camp, and ultimately contribute to the event's resounding success.

The SQL queries, database structure, and data population details are included in the separate SQL code file for reference.