



# Decode Gaming Behavior Using SQL

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# INTRODUCTION

- The "Decode Gaming Behavior" project is an exhilarating challenge of exploring and understanding the intricate dynamics of player behavior within the gaming industry.
- We will be leveraging cutting-edge data analysis tools, like –Postgre SQL to deep dive into player actions, preferences, and the factors that influence their gaming experience, all to empower game developers, publishers, and stakeholders to make informed decisions and optimize gaming experiences.




# Database Data

## PLAYER\_DETAILS TABLE

- Contains player information, including player\_id, player\_name, L1\_status, L2\_status, L1\_code, L2\_code.

## LEVEL DETAILS TABLE

- Contains game level information, including product\_id, device\_id, start\_time, stages\_crossed, level, difficulty, kill\_count, headshots\_count, score and lives\_earned.
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# Objectives

To leverage SQL (Structured Query Language) to unlock the secrets hidden in vast volumes of gaming data, shedding light on player preferences, in-game interactions, and driving factors that can shape the future of the gaming industry.

# SQL Queries Used

ALTER Command:

The ALTER TABLE command facilitates the modification of an existing table's structure. It allows for the addition, modification, or deletion of columns, alteration of data types, and application of constraints.

**SQueries:** 1. Adding primary key constraint on a group of columns of a table

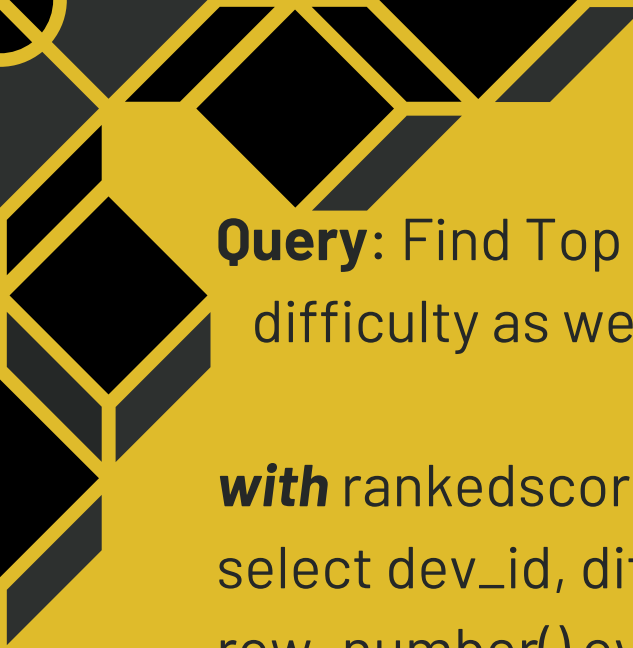
```
alter table level_details add primary key(P_ID,Dev_id,start_datetime);
```

2. changing the datatype of a column and defining it as not null

```
alter table level_details
```

```
alter column dev_id varchar(10) not null;
```

**2.CTE:** A Common Table Expression (CTE) in SQL is a named temporary result set that you can reference within a SELECT, INSERT, UPDATE, or DELETE statement. They can be thought of as a way to create a "subquery" that can be referenced multiple times within a main query.




**Query:** Find Top 3 score based on each dev\_id and rank them in increasing order using Row\_Number. Display difficulty as well.

```
with rankedscores as (  
  select dev_id, difficulty, score,  
         row_number() over (partition by dev_id, difficulty order by score asc) as scorerank  
  from level_details  
 )  
select dev_id, difficulty, score  
from rankedscores  
where scorerank >= 3  
order by scorerank desc;
```

5.**WINDOW function:** Window functions are particularly useful for tasks like ranking, aggregation, and cumulative calculations. They are applied to a "window" of rows defined by an OVER() clause, allowing you to perform calculations on a specific subset of rows without collapsing the result set.

**Sample Query:** For each player and date, how many kill\_count played so far by the player. That is, the total number of games played by the player until that date.

```
select  
p_id, start_datetime, kill_count,  
sum(kill_count) over (partition by p_id order by start_datetime) as total_kill_count  
from  
level_details;
```



**6.PROCEDURES:** In SQL, a procedure is a named collection of SQL statements that are grouped together into a single unit for execution. Procedures are used to perform specific tasks or operations, and they offer several advantages, including code reusability, modularity, and security.

**Sample Query:** Create a stored procedure to find top n headshots\_count based on each dev\_id and Rank them in increasing order using Row\_Number. Display difficulty as well.

-- create the stored procedure

**create procedure** gettopnheadshotscount

@topn int

as

**begin**

-- common table expression (cte) to rank headshots\_count

with rankedheadshots as (

select dev\_id, difficulty, headshots\_count,

row\_number() over (partition by dev\_id, difficulty order by headshots\_count asc) as headshotsrank

from level\_details

)

-- select the top n headshots\_count for each dev\_id and display the difficulty

select dev\_id, difficulty, headshots\_count

from rankedheadshots

where headshotsrank <= @topn

order by dev\_id, difficulty, headshotsrank;

**end;**

# Results

§Number of players at level 1 are greater than number of players at level 2 for medium difficulty level.

§Player with player id 483 has maximum kill count for medium difficulty level.

§For players at level 2 and using zm series device total crossed stages at different difficulties level are - Difficult = 46, Medium = 35, Low = 15.

§There are total 10 devices. About 80% of the devices have started on 12-Oct-22 and rest started on 11-Oct-22.

§Highest score for different difficulty levels are - For difficult = 235, For Low = 380, For Medium = 120.

§9870 is the highest score which is made by player with player id 224 and device id bd\_013.

§There are 22 players who have scored more than 50% of the avg score scored by sum of scores for each player\_id.



# Recommendation

## 1. Personalized Gaming Experience:

- Implement machine learning algorithms to understand individual player preferences.
- Tailor in-game challenges, rewards, and events based on player behavior and preferences.

## 2. Social Integration:

- Explore features that enhance social interactions among players.
- Introduce multiplayer challenges, team-based activities, or in-game chat functionalities to foster community engagement.

## 3. Real-Time Feedback Mechanisms:

- Develop real-time feedback systems to provide immediate responses to player actions.
- Positive reinforcement for achievements and constructive guidance for improvements can enhance player experience.

## 4. Dynamic Content Updates:

- Regularly update in-game content to keep the experience fresh and exciting.
- Introduce new levels, challenges, and storylines to maintain player interest over extended periods.

# Conclusion

In conclusion, the analysis of gaming behavior provides valuable insights into player interactions, preferences, and performance. By leveraging the Player Details and Level Details tables, we uncovered patterns that can inform strategic decisions for enhancing the gaming experience.

**Welcoming Any questions**

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Thank You