

Game Analysis

Mentorless Internship Project [SQL]



Agenda

- Introduction
- Analysis
- Summary

```
select * from player_details
```

136 %

Results Messages

	Column 0	P_ID	PName	L1_Status	L2_Status	L1_Code	L2_Code
1	0	656	sloppy-denim-wolfhound	1	0	war_zone	
2	1	358	skinny-grey-quetzal	0	0		
3	2	296	silly-taupe-ray	1	0	war_zone	
4	3	644	randy-turquoise-scorpion	1	1	speed_blitz	cosmic_vision
5	4	320	chewy-harlequin-gharial	0	0		
6	5	632	dorky-heliotrope-barracuda	1	1	speed_blitz	slippery_slope
7	6	428	leaky-magnolia-iguana	1	0	leap_of_faith	
8	7	429	flabby-firebrick-bee	1	1	speed_blitz	cosmic_vision
9	8	310	gloppy-tomato-wasp	1	1	war_zone	slippery_slope
10	9	211	breezy-indigo-starfish	1	1	war_zone	slippery_slope
11	10	319	chummy-flax-crab	1	0	speed_blitz	
12	11	547	scanty-beige-ray	1	0	bulls_eye	
13	12	376	pretty-champagne-spaniel	0	0		
14	13	300	lanky-asparagus-gar	1	1	speed_blitz	cosmic_vision
15	14	224	nippy-peach-neanderthal	1	1	war_zone	slippery_slope
16	15	641	homey-alizarin-gar	0	0		
17	16	430	messy-wisteria-termite	1	1	leap_of_faith	resurgence
18	17	558	woozy-crimson-hound	0	0		
19	18	463	messy-magnolia-woodpecker	1	0	war_zone	
20	19	603	smelly-linen-leopard	1	1	war_zone	slippery_slope
21	20	242	slaphappy-cinnamon-squirrel	1	0	bulls_eye	
22	21	292	ugly-goldenrod-numbat	1	0	bulls_eye	
23	22	590	stealthy-xanthic-cattle	1	1	war_zone	slippery_slope
24	23	483	tasty-peach-fly	1	1	bulls_eye	cosmic_vision
25	24	368	homely-vermilion-toad	1	1	war_zone	resurgence
26	25	653	breezy-buff-tarantula	1	0	leap_of_faith	
27	26	441	woozy-magenta-birman	1	0	speed_blitz	
28	27	663	fuzzy-cornflower-whippet	1	1	bulls_eye	resurgence
29	28	422	pasty-silver-raccoon	1	1	bulls_eye	slippery_slope
30	29	683	craggy-ivory-dragonfly	1	1	speed_blitz	slippery_slope

Player Table

Player Details Table:

- `P_ID`: Player ID
- `PName`: Player Name
- `L1_status`: Level 1 Status
- `L2_status`: Level 2 Status
- `L1_code`: Systemgenerated Level 1 Code
- `L2_code`: Systemgenerated Level 2 Code


```
select Top 30 * from level_details2
```

136 %

Results Messages

	Column 0	P_ID	Dev_ID	TimeStamp	Stages_crossed	Level	Difficulty	Kill_Count	Headshots_Count	Score	Lives_Earned
1	0	644	zm_015	2022-10-11 14:05:08	3	1	Medium	11	5	350	1
2	1	644	rf_015	2022-10-11 19:34:25	1	1	Low	7	2	150	0
3	2	644	bd_017	2022-10-12 23:52:18	6	2	Medium	24	16	1750	2
4	3	656	rf_013	2022-10-15 18:12:50	7	0	Medium	15	8	880	0
5	4	656	bd_015	2022-10-13 22:19:45	4	1	Low	19	13	1450	0
6	5	656	rf_017	2022-10-14 07:32:00	2	1	Difficult	3	1	280	1
7	6	656	bd_013	2022-10-11 17:47:09	10	1	Low	18	16	2210	3
8	7	296	zm_017	2022-10-14 15:15:15	2	1	Difficult	7	3	1040	0
9	8	296	zm_015	2022-10-14 19:35:49	4	1	Medium	4	0	100	0
10	9	632	bd_013	2022-10-12 16:30:30	5	0	Difficult	45	30	100	0
11	10	632	rf_013	2022-10-12 19:36:40	5	1	Medium	28	25	100	1
12	11	632	zm_017	2022-10-13 06:30:20	5	2	Difficult	4	0	100	2
13	12	632	zm_015	2022-10-13 10:56:17	7	2	Medium	23	20	4950	2
14	13	632	zm_017	2022-10-14 23:41:25	8	2	Difficult	30	24	5500	4
15	14	428	bd_015	2022-10-15 18:00:00	3	1	Low	5	3	380	0
16	15	429	rf_017	2022-10-11 09:28:56	2	1	Difficult	30	27	3500	3
17	16	429	zm_017	2022-10-11 21:39:00	10	2	Low	30	18	3210	0
18	17	429	bd_013	2022-10-11 19:28:43	6	0	Medium	14	10	1800	1
19	18	429	zm_013	2022-10-11 13:00:22	7	2	Difficult	25	20	4710	2
20	19	310	rf_017	2022-10-11 15:15:15	7	1	Difficult	20	18	5140	3
21	20	310	bd_015	2022-10-13 19:18:20	5	0	Difficult	34	30	5300	3
22	21	310	bd_013	2022-10-15 23:30:50	7	2	Difficult	14	11	3370	2
23	22	211	bd_017	2022-10-12 13:23:45	4	0	Low	20	15	390	2
24	23	211	bd_013	2022-10-12 18:30:30	5	1	Difficult	25	15	3200	2
25	24	211	rf_013	2022-10-13 05:36:15	5	1	Medium	30	11	2700	1
26	25	211	zm_015	2022-10-13 22:30:18	5	2	Low	14	8	2800	0
27	26	211	zm_017	2022-10-14 08:56:24	7	2	Medium	9	3	750	2
28	27	211	rf_017	2022-10-15 11:41:19	8	2	Difficult	15	11	1100	1
29	28	319	zm_017	2022-10-12 14:20:40	7	1	Low	5	3	50	0
30	29	547	rf_013	2022-10-15 07:15:15	2	1	Low	17	11	750	0

Level_details Table

Level Details Table:

- `P_ID`: Player ID
- `Dev_ID`: Device ID
- `start_time`: Start Time
- `stages_crossed`: Stages Crossed
- `level`: Game Level
- `difficulty`: Difficulty Level
- `kill_count`: Kill Count
- `headshots_count`: Headshots Count
- `score`: Player Score
- `lives_earned`: Extra Lives Earned

Introduction

- 1) Players play a game divided into 3-levels (L0,L1 and L2)**
- 2) Each level has 3 difficulty levels (Low, Medium, High)**
- 3) At each level, players have to kill the opponents using guns/physical fight**
- 4) Each level has multiple stages at each difficulty level.**
- 5) A player can only play L1 using its system generated L1_code.**
- 6) Only players who have played Level1 can possibly play Level2.**
 - using its system generated L2_code.**
- 7) By default a player can play L0.**
- 8) Each player can login to the game using a Dev_ID.**
- 9) Players can earn extra lives at each stage in a level.**

Analysis

Q1- Extract P_ID, Dev_ID, PName and Difficulty_level of all players at level 0

```
Select player_details.P_ID, Dev_ID, PName , Difficulty
From player_details
Join level_details2
on player_details.P_ID = level_details2.P_ID
where Level = 0;
```



output

Results		Messages		
	P_ID	Dev_ID	PName	Difficulty
1	656	rf_013	sloppy-denim-wolfhound	Medium
2	358	zm_017	skinny-grey-quetzal	Low
3	358	zm_013	skinny-grey-quetzal	Medium
4	632	bd_013	dorky-heliotrope-barracuda	Difficult
5	429	bd_013	flabby-firebrick-bee	Medium
6	310	bd_015	gloppy-tomato-wasp	Difficult
7	211	bd_017	breezy-indigo-starfish	Low
8	300	zm_015	lanky-asparagus-gar	Difficult
9	641	rf_013	homey-alizarin-gar	Low
10	641	rf_015	homey-alizarin-gar	Medium
11	641	rf_013	homey-alizarin-gar	Difficult
12	558	wd_019	woozy-crimson-hound	Difficult

Q2) Find Level1_code wise Avg_Kill_Count where lives_earned is 2 and atleast 3 stages are crossed.

```
SELECT L1_Code,  
       AVG(CAST(Kill_Count AS DECIMAL)) AS Avg_Kill_Count  
FROM player_details  
JOIN level_details2 ON player_details.P_ID = level_details2.P_ID  
WHERE lives_earned = 2 AND Stages_crossed > 2  
Group By L1_Code  
Order by Avg_kill_Count Desc;
```

	L1_Code	Avg_Kill_Count
1	bulls_eye	22.250000
2	speed_blitz	19.333333
3	war_zone	19.285714



output

Q3) Find the total number of stages crossed at each difficulty level where for Level2 with players use zm_series devices. Arrange the result in decreasing order of total number of stages crossed.

```
Select SUM(CAST(Stages_crossed AS DECIMAL)) as 'Total Stages' , Dev_ID ,Difficulty
From player_details
Join level_details2
on player_details.P_ID = level_details2.P_ID
where Dev_ID like 'zm%' and Level = 2
Group By Difficulty , Dev_ID
Order By [Total Stages] Desc;
```



	Total Stages	Dev_ID	Difficulty
1	39	zm_017	Difficult
2	21	zm_017	Medium
3	14	zm_015	Medium
4	10	zm_017	Low
5	7	zm_013	Difficult
6	5	zm_015	Low

Q4- Extract P_ID and the total number of unique dates for those players who have played games on multiple days.

```
Select player_details.P_ID , COUNT(Distinct(level_details2.[TimeStamp])) as Unique_Date  
From player_details  
Join level_details2  
on player_details.P_ID = level_details2.P_ID  
Group BY player_details.P_ID  
Having COUNT(Distinct(level_details2.[TimeStamp])) >1;
```

output

	P_ID	Unique_Date
1	211	6
2	224	4
3	242	2
4	292	2
5	296	2
6	300	5
7	310	3
8	358	2
9	368	4
10	429	4
11	483	5
12	547	3
13	590	5
14	632	5
15	641	3
16	644	3
17	656	4
18	663	5
19	683	7

Q5-Find P_ID and level wise sum of kill_counts where kill_count is greater than avg kill count for the Medium difficulty.

```
Select player_details.P_ID , Sum(CAST(Kill_Count AS DECIMAL)) as Total_Kill , [Level]
From player_details
Join level_details2
on player_details.P_ID = level_details2.P_ID
Where Difficulty = 'Medium'
Group BY player_details.P_ID,[Level]
Having Sum(CAST(Kill_Count AS DECIMAL)) > AVG(CAST(Kill_Count AS DECIMAL));
```



output

	P_ID	Total_Kill	Level
1	483	40	1
2	300	12	2
3	590	24	2

Q6- Find Level and its corresponding Level code wise sum of lives earned excluding level 0. Arrange in ascending order of level.

```
SELECT
    ld.level AS Level,
    CASE ld.level
        WHEN 1 THEN pd.L1_code
        WHEN 2 THEN pd.L2_code
        ELSE NULL
    END AS Level_Code,
    SUM(CAST(ld.lives_earned AS INT)) AS Sum_of_Lives_Earned
FROM
    Level_Details2 ld
JOIN
    Player_Details pd ON ld.P_ID = pd.P_ID
WHERE
    ld.level > 0 -- Exclude Level 0
GROUP BY
    ld.level,
    CASE ld.level
        WHEN 1 THEN pd.L1_code
        WHEN 2 THEN pd.L2_code
        ELSE NULL
    END
ORDER BY
    ld.level ASC;
```

output

	Level	Level_Code	Sum_of_Lives_Earned
1	1	bulls_eye	5
2	1	leap_of_faith	0
3	1	speed_blitz	7
4	1	war_zone	11
5	2	cosmic_vision	12
6	2	resurgence	11
7	2	slippery_slope	28

Q7- 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 , RANK() Over(Partition By Dev_ID Order by Score Desc ) as ScoreRank , Score  
    From player_details  
    Join level_details2  
    on player_details.P_ID = level_details2.P_ID  
)  
Select Dev_ID, ScoreRank, Score, Difficulty  
From RankedScores  
Where ScoreRank <= 3;
```

output

	Dev_ID	ScoreRank	Score	Difficulty
1	bd_013	1	590	Medium
2	bd_013	2	540	Low
3	bd_013	3	5300	Difficult
4	bd_015	1	5300	Difficult
5	bd_015	2	380	Low
6	bd_015	3	3200	Low
7	bd_017	1	390	Low
8	bd_017	2	2400	Low
9	bd_017	3	1750	Medium
10	rf_013	1	880	Medium
11	rf_013	2	750	Low
12	rf_013	3	2970	Difficult
13	rf_015	1	900	Medium
14	rf_015	2	670	Medium
15	rf_015	3	40	Medium
16	rf_017	1	5140	Difficult
17	rf_017	1	5140	Medium
18	rf_017	3	3500	Difficult
19	wd_019	1	635	Difficult
20	wd_019	2	4390	Difficult
21	wd_019	3	1550	Low
22	zm_0...	1	4710	Difficult
23	zm_0...	2	2350	Medium
24	zm_0...	3	120	Medium
25	zm_0...	1	4950	Medium
26	zm_0...	1	4950	Medium
27	zm_0...	3	350	Medium
28	zm_0...	1	750	Medium
29	zm_0...	2	70	Low
30	zm_0...	3	5500	Difficult
31	zm_0...	3	5500	Difficult

Q8) Find first_login datetime for each device id.

```
Select Dev_ID, MIN([TimeStamp]) as First_Login_Time  
From player_details  
Join level_details2  
on player_details.P_ID = level_details2.P_ID  
Group BY Dev_ID ;
```



output

	Dev_ID	First_Login_Time
1	bd_013	2022-10-11 02:23:45
2	bd_015	2022-10-11 18:45:55
3	bd_017	2022-10-12 07:30:18
4	rf_013	2022-10-11 05:20:40
5	rf_015	2022-10-11 19:34:25
6	rf_017	2022-10-11 09:28:56
7	wd_019	2022-10-12 23:19:17
8	zm_013	2022-10-11 13:00:22
9	zm_015	2022-10-11 14:05:08
10	zm_017	2022-10-11 14:33:27

Q9) Find Top 5 score based on each difficulty level and Rank them in increasing order using Rank. Display dev_id as well.

```
WITH RankedScores AS (  
    Select Dev_ID,Difficulty , ROW_NUMBER() Over(Partition By Difficulty Order by Score Desc ) as ScoreRank ,  
    From player_details  
    Join level_details2  
    on player_details.P_ID = level_details2.P_ID  
)  
Select Difficulty , ScoreRank,Score,Dev_ID  
From RankedScores  
Where ScoreRank <= 5;
```

output

	Difficulty	ScoreRank	Score	Dev_ID
1	Difficult	1	635	wd_019
2	Difficult	2	5500	zm_017
3	Difficult	3	5500	zm_017
4	Difficult	4	5300	bd_013
5	Difficult	5	5300	bd_015
6	Low	1	750	rf_013
7	Low	2	70	zm_017
8	Low	3	540	bd_013
9	Low	4	50	zm_017
10	Low	5	390	bd_017
11	Medium	1	900	rf_015
12	Medium	2	880	rf_013
13	Medium	3	750	zm_017
14	Medium	4	670	rf_015
15	Medium	5	590	bd_013

Q10) Find the device ID that is first logged in(based on start_datetime) for each player(p_id). Output should contain player id, device id and first login datetime.

```
SELECT MIN(TimeStamp) as First_Login_Time, player_details.P_ID, Dev_ID
FROM player_details
JOIN level_details2 ON player_details.P_ID = level_details2.P_ID
GROUP BY Dev_ID, player_details.P_ID;
```



output

	First_Login_Time	P_ID	Dev_ID
1	2022-10-12 18:30:30	211	bd_013
2	2022-10-12 13:23:45	211	bd_017
3	2022-10-13 05:36:15	211	rf_013
4	2022-10-15 11:41:19	211	rf_017
5	2022-10-13 22:30:18	211	zm_015
6	2022-10-14 08:56:24	211	zm_017
7	2022-10-15 05:30:28	224	bd_013
8	2022-10-14 08:21:49	224	bd_015
9	2022-10-14 01:15:56	224	rf_017
10	2022-10-13 01:14:29	242	bd_013
11	2022-10-14 04:38:50	242	zm_015
12	2022-10-12 04:29:45	292	rf_013
13	2022-10-15 10:19:30	292	rf_015
14	2022-10-14 19:35:49	296	zm_015
15	2022-10-14 15:15:15	296	zm_017
16	2022-10-11 19:19:19	300	bd_013
17	2022-10-11 05:20:40	300	rf_013
18	2022-10-12 01:45:17	300	zm_015
19	2022-10-15 23:30:50	310	bd_013
20	2022-10-13 19:18:20	310	bd_015

Q11) 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 player_details.P_ID,  
SUM(CAST(Kill_Count AS DECIMAL)) AS Total_Game_Played  
FROM level_details2  
JOIN player_details  
ON player_details.P_ID = level_details2.P_ID  
Group By player_details.P_ID ;
```



	P_ID	Total_Game_Played
1	211	113
2	224	112
3	242	58
4	292	25
5	296	11
6	300	74
7	310	68
8	319	5
9	358	7
10	368	73
11	428	5
12	429	99
13	483	134
14	547	52
15	558	21
16	590	75
17	632	130
18	641	14
19	644	42

Q12) Find the cumulative sum of stages crossed over a start_datetime.

```
SELECT [TimeStamp] , SUM(CAST(Stages_crossed AS decimal)) OVER (ORDER BY [TimeStamp]) AS cumulative_sum
FROM player_details
JOIN level_details2 ON player_details.P_ID = level_details2.P_ID
GROUP BY [TimeStamp],Stages_crossed;
```



output

	TimeStamp	cumulative_sum
1	2022-10-11 02:23:45	4
2	2022-10-11 05:20:40	11
3	2022-10-11 09:28:56	13
4	2022-10-11 13:00:22	20
5	2022-10-11 14:05:08	23
6	2022-10-11 14:33:27	33
7	2022-10-11 15:15:15	40
8	2022-10-11 17:47:09	50
9	2022-10-11 18:45:55	53
10	2022-10-11 19:19:19	58
11	2022-10-11 19:28:43	64
12	2022-10-11 19:34:25	65
13	2022-10-11 21:39:00	75
14	2022-10-11 22:20:10	80
15	2022-10-12 01:14:34	87
16	2022-10-12 01:45:17	89
17	2022-10-12 02:40:20	96
18	2022-10-12 04:20:30	101
19	2022-10-12 04:29:45	105
20	2022-10-12 07:20:18	108

Q13) Find the cumulative sum of an stages crossed over a start_datetime for each player id but exclude the most recent start_datetime.

```
SELECT [TimeStamp] ,player_details.P_ID,  
SUM(CAST(Stages_crossed AS decimal)) OVER  
(ORDER BY [TimeStamp]) AS cumulative_sum  
FROM player_details  
JOIN level_details2 ON player_details.P_ID =  
level_details2.P_ID  
GRoup By  
[TimeStamp],Stages_crossed,player_details.P_ID  
Having [TimeStamp] < Max([TimeStamp]);
```

There is no such value. Output is empty.

Q14) Extract top 3 highest sum of score for each device id and the corresponding player_id.

```
WITH RankedScores AS (  
    Select Dev_ID , ROW_NUMBER() Over(Partition By Dev_Id Order by Score Desc ) as ScoreRank , Score  
    From player_details  
    Join level_details2  
    on player_details.P_ID = level_details2.P_ID  
)  
Select Score,Dev_ID,ScoreRank  
From RankedScores  
Where ScoreRank <= 3;
```

We will get 30 rows showing score and their top 3 ranks for each Dev_ID.

output

	Score	Dev_ID	ScoreRank
1	590	bd_013	1
2	540	bd_013	2
3	5300	bd_013	3
4	5300	bd_015	1
5	380	bd_015	2
6	3200	bd_015	3
7	390	bd_017	1
8	2400	bd_017	2
9	1750	bd_017	3
10	880	rf_013	1
11	750	rf_013	2
12	2970	rf_013	3
13	900	rf_015	1
14	670	rf_015	2
15	40	rf_015	3
16	5140	rf_017	1
17	5140	rf_017	2
18	3500	rf_017	3
19	635	wd_0...	1
20	4390	wd_0...	2

Q15) Find players who scored more than 50% of the avg score scored by sum of scores for each.

```
Select player_details.P_ID , Score
From player_details
Join level_details2
on player_details.P_ID = level_details2.P_ID
Where score >
(Select AVG(Cast(Score as Decimal)) as Avg_Score
From player_details
Join level_details2
on player_details.P_ID = level_details2.P_ID )/2;
```

We will get 50 rows in output that means there are 50 P_ID that have scored more than 50% of the AVG_SCORE.

output

	P_ID	Score
1	656	1450
2	656	2210
3	296	1040
4	644	1750
5	632	4950
6	632	5500
7	429	3500
8	429	3210
9	429	1800
10	429	4710
11	310	5140
12	310	5300
13	310	3370
14	211	3200
15	211	2700
16	211	2800
17	211	1100
18	547	1600
19	547	1100
20	300	2300
21	300	1200
22	224	5140

THANK

YOU