ONLINE MULTIPLAYER GAME DATABASE

A PROJECT REPORT

Submitted by

BL.EN.U4ECE17008	ALAN ARIMPUR RAJU
BL.EN.U4ECE17015	ASWIN A
BL.EN.U4ECE17019	SARAGADAM ROSHNI
BL.EN.U4ECE17045	G ASHWIN

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Guided and Evaluated by

Ms. D. Radha

Asst. Prof (SG),

Dept. of CSE,

AMRITA SCHOOL OF ENGINEERING, BANGALORE

AMRITA VISHWA VIDHYAPEETHAM

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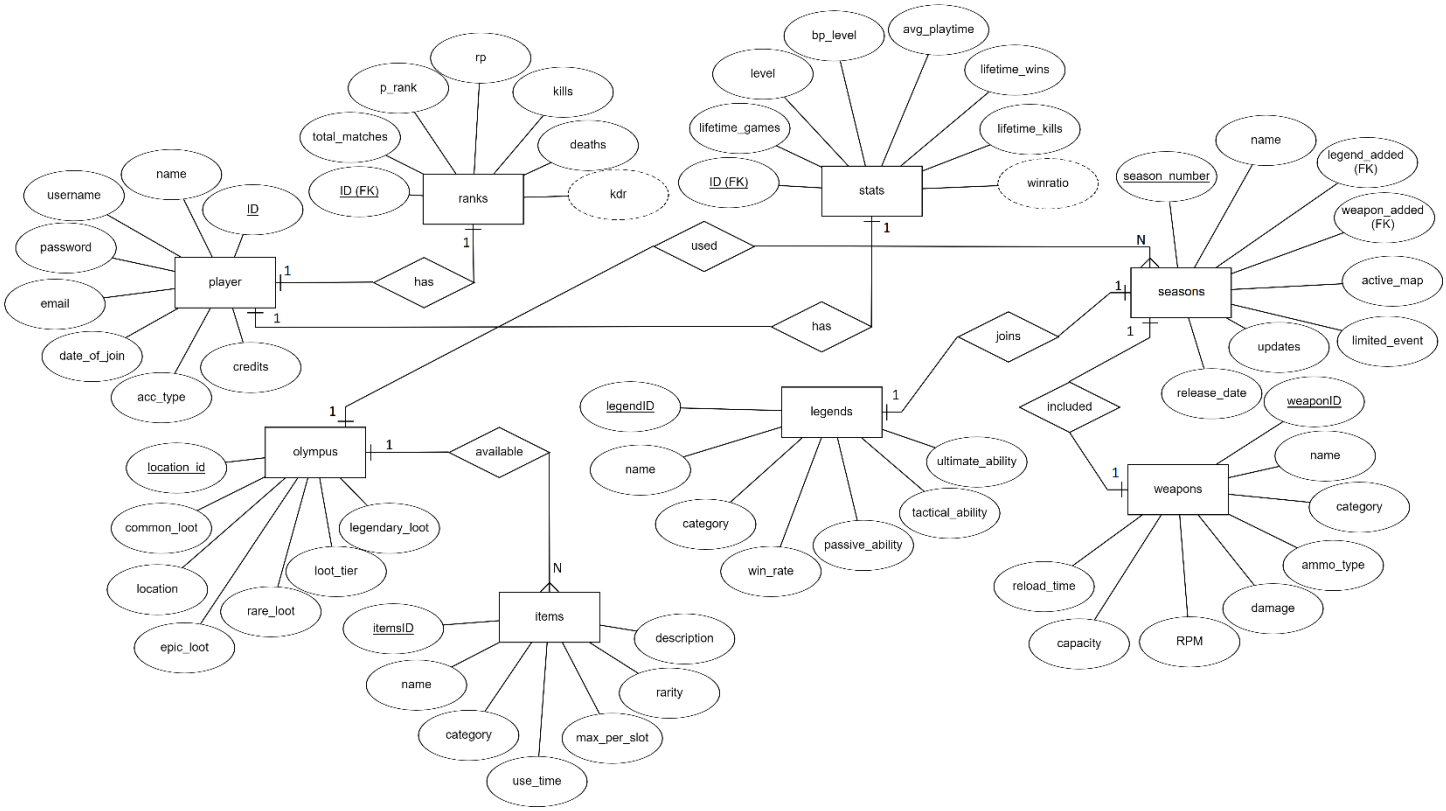
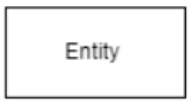
ABSTRACT

A database management system (DBMS) is a software package designed to define, manipulate, retrieve and manage data in a database. A DBMS generally manipulates the data itself, the data format, field names, record structure and file structure. It also defines rules to validate and manipulate this data.

In this project we have designed a database for an online multiplayer game. The game goes by the name as Apex Legends. Typically, game assets have some unique id, these can be the characters, models, players, levels and so on. The use of a database can enable the game to refer the tables within the database to function in a stable manner. It brings flexibility to data management and analysis and allows units to respond calmly in a rapidly changing environment, so as to gain a competitive advantage. This enables us to analyse the data for making the game balanced and better in the future. In the database that we have made, the player data shares relations with the stats and the rank. This will contain all the data that is released out of the player during the course of his gameplay over time. Another part of the database contains the data required for the game to keep track of all the assets that are being used in the game. On observing the ER diagram below, we can see that we have made entities related to weapons, legends, locations, seasons which are have relations within each of them in some way or the other. On programming the database along with the tables and added data into the tables in the form of rows for the respective attributes defined by the table. Once the database was implemented, we executed complex SQL queries that pull out useful information such as analysing the strongest weapons, best players, to find recommended locations or legends for the newer player that join the game.

ER DIAGRAM



Entities -> 

Attributes -> 

One-One Relationship -> 

One-Many Relationship -> 

Many-Many Relationship -> 

TABLES AND ATTRIBUTES

The tables used for the online multiplayer game database is displayed below in Figure1. The command used here was "**show tables;"** This command can be used to display all the tables that are present in the database that is named as "**Apex**" as the name of the game is Apex Legends in this scenario.

```
+---------------+
| Tables_in_apex |
+---------------+
| items          |
| legends        |
| olympus        |
| player         |
| ranks          |
| seasons        |
| stats          |
| weapons        |
+---------------+
8 rows in set (0.00 sec)
```

Figure 1: List of every table used in "**Apex**" database

TABLE 1: ITEMS

The "**items**" table describes all the information related to all the items that is present in the game. The description of the attributes in the table is retrieved using the "**desc items;**" command.

This includes data like the name of the item that are present in the game on observing, we can see that the key is set to unique which means that there can be only one item in the game with a particular name and repeated names are not allowed according to this table. There is also a other fields like category; that tells us what type of item it is , use_time; the amount of time it takes to use an item, max _per_slot; every player in the game can carry a bag with a certain number of slots in them so this fields tells that amount of space an item takes when in a bag, rarity defines the ease of finding the particular item in the map and a description field is added so that anyone else that is working with the database can understand or have an idea what an item does when used or carried. Also note that each legend comes with a "**itemsID**" which is set to primary key so that it can be referenced by other tables.

Field	Type	Null	Key	Default	Extra
itemsID	int(11)	NO	PRI	NULL	
name	varchar(20)	NO	UNI	NULL	
category	varchar(20)	NO		NULL	
use_time	int(11)	YES		0	
max_per_slot	int(11)	NO		1	
rarity	varchar(20)	YES		c	
description	varchar(100)	YES		NULL	

Figure 2: Description of "items" table

TABLE 2: LEGENDS

The next table is the "**legends**" table that tells contains all sorts of data that are related to the legends in the game. These legends are the playable characters that the players can select when entering into a game. Each legends are completely independent of each other; which contains names with the keys unique and not null to avoid any later issues with the database when adding new legends. The other information's are related to the category; talks about how the legends can be mainly used, win rate attribute is added as a means of making a legend balance so that there is a balance between; to prevent overpowered chanteclers in the game. The rest of the attributes are related to description of the abilities that a legend has. In this game each legend has strictly 3 abilities that goes with names passive, tactical and ultimate. Using the "**desc legends;**" command we can see the table description.

Also note that each legend comes with a "**legendID**" which is set to primary key so that it can be referenced by other tables;

Field	Type	Null	Key	Default	Extra
legendID	int(11)	NO	PRI	NULL	
name	varchar(20)	NO	UNI	NULL	
category	varchar(20)	NO		NULL	
win_rate	float	YES		0	
passive	varchar(50)	YES		NULL	
tactical	varchar(50)	YES		NULL	
ultimate	varchar(50)	YES		NULL	

Figure 3: Description of "**legends**" table

TABLE 3: OLYMPUS

As every game has a map to play on, we also made a table with all the map data. Here we named the table "**olympus**" as this is the name of the map we have given and we only plan to use a single map during the whole run of the game hence a single table for map. Using the command "**desc olympus;**" we can see there are 7 attributes. Starting with the "**location_id**" which gives the other tables an opportunity to refer this data as it is set to primary key, "location" that contains the name of landmarks that are present in the map, the rest of the attributes tells the statistics of the number of loot and its type based on the location. These set of data can be analyzed to make the map more balanced for the players; to prevent players from going to a specific location all the time.

Field	Type	Null	Key	Default	Extra
location_id	int(11)	NO	PRI	NULL	
location	varchar(50)	NO		NULL	
common_loot	int(11)	YES		0	
epic_loot	int(11)	YES		0	
rare_loot	int(11)	YES		0	
legendary_loot	int(11)	YES		0	
loot_tier	varchar(20)	YES		NONE	

Figure 4: Description of "**olympus**" table

TABLE 4: PLAYER

The next table is the "**player**" table, the description output is achieved by using the "**desc player;**" command. Here, every player is given a unique ID that is sent to primary key, the real "name" of the player, the "username" that the player decides to use; this field is also set to unique as multiple same user names can cause unwanted data retrieving uses later in the future as the database grows bigger when more players join. This table also contains other information like the "**email**", "**date_of_join**", "**acc_type**" which tells if the player is a FREE or PREMIUM player and the "credits" that represent the in-game currency that a player has.

Field	Type	Null	Key	Default	Extra
ID	int(11)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
username	varchar(20)	YES	UNI	NULL	
password	varchar(20)	YES		NULL	
email	varchar(20)	YES	UNI	NULL	
date_of_join	date	YES		NULL	
acc_type	varchar(20)	YES		NULL	
credits	int(11)	YES		0	

Figure 5: Description of "**player**" table

TABLE 5: RANKS

This table contains the rank related data on the players that play ranked in the game. The table is called "**ranks**" and the table attribute data is seen by using the "**desc ranks;**" this specific table is intended on the more official ranked gameplay which is not considered as a casual game by the players. The purpose of this table is to see the which players are eligible for rewards. In this case a player that reaches of rank PREADATOR gets the maximum rewards as it is the hardest and the highest achievable rank in the game. Also, not that here the player_ID is both a primary key and a foreign key which enables us to refer this tables as well as this table refereeing another.

Field	Type	Null	Key	Default	Extra
player_id	int(11)	NO	PRI	NULL	
total_matches	int(11)	YES		NULL	
p_rank	varchar(20)	YES		NULL	
rp	int(11)	YES		0	
kills	int(11)	YES		0	
deaths	int(11)	YES		0	

Figure 6: Description of "**rank**" table

TABLE 6: SEASONS

The purpose of this table "**seasons**" is to have all the data related to the season. The table description is achieved using "**desc seasons;**" here the season number is the primary key and this can be used for the other table to refer. Also, if we observe we can see that the legend added and the weapons added is set as "**MUL**" this means that those particular attributes are foreign keys that refer to the table "legends" and "**weapons**". It also contains data like the number of updates that was pushed during each season to have an idea on the performance of the staff every season. Here, ever season is like a refresher with new game mores along with legends and weapons so that the players will feel refreshed to keep playing the game.

Field	Type	Null	Key	Default	Extra
season_number	int(11)	NO	PRI	NULL	
name	varchar(20)	YES		firefight	
legend_added	int(11)	YES	MUL	NULL	
weapon_added	int(11)	YES	MUL	NULL	
active_map	varchar(20)	YES		NULL	
limited_event	varchar(20)	YES		NULL	
updates	int(11)	YES		0	
release_date	date	YES		NULL	

Figure 7: Description of "**seasons**" table

TABLE 7: STATS

This table is called "**stats**" which contains all the player in-game information. The table description is known using "**desc stats;**" command and not to be confused with the above table that is related to ranks. Here, the table is related to the casual gaming information of the players. This type of data is for the players to evaluate their statistics. We also use this table to signify if a player is banned or not, this will be shown in the queries section of the report. Here the player_id is a primary key as well as a foreign key so that it can be used as references to the other table as well as refer to the player table to retrieve player data.

Field	Type	Null	Key	Default	Extra
player_id	int(11)	NO	PRI	NULL	
lifetime_games	int(11)	YES		0	
level	int(11)	YES		1	
bp_level	int(11)	YES		1	
avg_playtime	float	YES		0	
lifetime_wins	int(11)	YES		0	
lifetime_kills	int(11)	YES		0	

Figure 8: Description of "**stats**" table

TABLE 8: WEAPONS

This table is called the "**weapons**" table that contains the information of all the data related to the weapons in the game. It contains information like "**weaponID**" which is a primary key that can be used by other tables as a reference, "**name**", "**category**" which tells what class gun is it to suit the players playstyle, "**ammo_type**" and the rest of the attributes are related to statistics of the particular gun as a means of balancing the weapon meta in the game; to prevent any sort of unfair gameplay. The description of the table can be seen by using the "**desc weapons;**" command.

Field	Type	Null	Key	Default	Extra
weaponID	int(11)	NO	PRI	NULL	
name	varchar(20)	NO		NULL	
category	varchar(20)	YES		NULL	
ammo_type	varchar(20)	YES		NULL	
damage	int(11)	YES		NULL	
RPM	int(11)	YES		NULL	
capacity	int(11)	NO		NULL	
reload_time	float	NO		NULL	

Figure 9: Description of "**weapons**" table

ROWS OF ALL TABLES

TABLE 1: ITEMS

```
SELECT * FROM items;
```

```
mysql> select * from items;
+---------+--------------------+--------------+----------+--------------+--------+-----------------------------------------------------------+
| itemsID | name               | category     | use_time | max_per_slot | rarity | description                                               |
+---------+--------------------+--------------+----------+--------------+--------+-----------------------------------------------------------+
|       1 | shield_cells       | Heals        |        1 |            4 | c      | shield_cell heals a part of your shield                   |
|       2 | pheonix            | Heals        |        4 |            1 | e      | pheonix_kit will heals both shield as will as health together |
|       3 | shield_battery     | Heals        |        2 |            2 | r      | shield_battery heals your shield fully                    |
|       4 | syringe            | Heals        |        1 |            4 | c      | syringes heals portion of Health                          |
|       5 | med_kit            | Heals        |        2 |            2 | r      | med_kit heals your health fully                           |
|       6 | frag_grenade       | Attack       |        3 |            2 | r      | It will damage your enemies                               |
|       7 | arc_star           | Attack       |        3 |            2 | r      | It will stick to your enemies and damage them             |
|       8 | thermite           | Attack       |        1 |            2 | r      | It will burn your enemies when they get hit by this       |
|       9 | heavy_extended_mag | Mags         |        1 |            1 | c,r,e  | this will increase your heavy guns bullet capacity        |
|      10 | light_extended_mag | Mags         |        1 |            1 | c,r,e  | this will increase your light guns bullet capacity        |
|      11 | sniper_extended_mag | Mags        |        1 |            1 | c,r,e  | this will increase your sniper guns bullet capacity       |
|      12 | barrel_mod         | Mod          |        1 |            1 | c,r,e  | this will increase the stabilty of the gun                |
|      13 | 1x_scopes          | Scopes       |        1 |            1 | c      | this for ADS                                              |
|      14 | 2x_scopes          | Scopes       |        1 |            1 | r      | this for ADS                                              |
|      15 | 1x_2x_scopes       | Scopes       |        1 |            1 | r      | this for ADS                                              |
|      16 | 3x_scopes          | Scopes       |        1 |            1 | r      | this for ADS                                              |
|      17 | 2x:4x_scopes       | Scopes       |        1 |            1 | r      | this for ADS                                              |
|      18 | 4x:8x_scopes       | Scopes       |        1 |            1 | e      | this for ADS                                              |
|      19 | 10x_scopes         | Scopes       |        1 |            1 | l      | this for ADS                                              |
|      20 | stocks             | Stocks       |        1 |            1 | c,r,e  | to stabilize the gun                                      |
|      21 | heavy_ammo         | Ammo         |        1 |           20 | c      | ammo for the heavy gun                                    |
|      22 | light_ammo         | Ammo         |        1 |           20 | c      | ammo for the light gun                                    |
|      23 | sniper_ammo        | Ammo         |        1 |           16 | c      | ammo for the sniper gun                                   |
|      24 | shotgun_ammo       | Ammo         |        1 |            8 | c      | ammo for the shotgun                                      |
|      25 | ultimate_accelerant | Ability_boost |       7 |            1 | r      | user to fasten their ultimate ability by 20%              |
|      26 | knockdown_sheild   | Sheild       |        1 |            1 | c,r,e,l | usable sheild after getting knocked                      |
+---------+--------------------+--------------+----------+--------------+--------+-----------------------------------------------------------+
26 rows in set (0.00 sec)
```

Figure 10: Rows in "**items**" table

TABLE 2: LEGENDS

```
SELECT * FROM legends;
```

```
mysql> select * from legends;
+----------+------------+----------+----------+----------------------+-------------------------+--------------------------+
| legendID | name       | category | win_rate | passive              | tactical                | ultimate                 |
+----------+------------+----------+----------+----------------------+-------------------------+--------------------------+
|        1 | BLOODHOUND | tactical |     0.75 | Tracker              | Eye of the Allfather    | Beast of Hunt            |
|        2 | CRYPTO     | tactical |      0.5 | Neurolink            | Surveillance Drone      | Drone EMP                |
|        3 | PATHFINDER | tactical |      0.5 | Insider Knowledge    | Grappling Hook          | Zipline Gun              |
|        4 | GIBRALTER  | defence  |      0.5 | gun shield           | Dome of Protection      |  Defensive Bombardment   |
|        5 | CAUSTIC    | defence  |      0.5 | Nox Vision           | Nox gas trap            |  Nox Gas Grenade         |
|        6 | RAMPART    | defence  |      0.5 | Amped Cover          | Modded Loader           |  Emplaced Minigun Sheila |
|        7 | WATTSON    | defence  |      0.5 | Spark of Genius      | Perimeter Security      |  Interception Pylon      |
|        8 | WRAITH     | attack   |     0.75 | Voices from the Void | Into the Void           |  Dimensional Rift        |
|        9 | REVENANT   | attack   |     0.75 | Stalker              | Silence                 |  Death Totem             |
|       10 | OCTANE     | attack   |     0.75 | Swift Mend           | Stim                    |   Launch Pad             |
|       11 | MIRAGE     | attack   |     0.75 | Encore!              |  Psyche Out             | Vanishing Act            |
|       12 | BANGALORE  | attack   |     0.75 | Double Time          |  Smoke Launcher         | Rolling Thunder          |
|       13 | HORIZON    | attack   |     0.75 | Spacewalk            | Gravity Lift            | Black Hole               |
|       14 | LIFELINE   | med      |     0.75 | Combat Medic         | D.O.C. Heal Drone       | Care Package             |
|       15 | LOBA       | attack   |      0.5 | Eye for Quality      | BurglarΓÇÖs Best Friend | Black Market Boutique    |
+----------+------------+----------+----------+----------------------+-------------------------+--------------------------+
15 rows in set (0.00 sec)
```

Figure 11: Rows in "**legends**" table

TABLE 3: WEAPONS

```
SELECT * FROM weapons;
```

```
mysql> select * from weapons;
+----------+----------------+----------------+-----------+--------+------+----------+-------------+
| weaponID | name           | category       | ammo_type | damage | RPM  | capacity | reload_time |
+----------+----------------+----------------+-----------+--------+------+----------+-------------+
|        1 | R-301 Carbine  | Assault Rifles | Light     |     14 |  816 |       18 |         2.4 |
|        2 | VK-47 Flatline | Assault Rifles | Heavy     |     19 |  600 |       20 |         2.4 |
|        3 | G7 Scout       | Assault Rifles | Light     |     34 |  240 |       10 |         2.4 |
|        4 | Hemlok         | Assault Rifles | Heavy     |     22 |  643 |       18 |         2.4 |
|        5 | Havoc          | Assault Rifles | Energy    |     18 |  672 |       24 |         3.2 |
|        6 | Alternator     | SMG            | Light     |     15 |  640 |       19 |         1.9 |
|        7 | Prowler        | SMG            | Unique    |     15 |  800 |       35 |           2 |
|        8 | R-99           | SMG            | Light     |     11 | 1080 |       20 |         1.8 |
|        9 | Volt           | SMG            | Energy    |     16 |  783 |       19 |         1.6 |
|       10 | Devotion       | LMG            | Energy    |     16 |  900 |       36 |         2.8 |
|       11 | L-Star         | LMG            | Energy    |     18 |  600 |       23 |        1.15 |
|       12 | Spitfire       | LMG            | Heavy     |     18 |  512 |       35 |         2.8 |
|       13 | Charge Rifle   | Sniper         | Sniper    |     45 |   30 |        8 |         3.6 |
|       14 | Kraber         | Sniper         | Unique    |    145 |   36 |        4 |         3.2 |
|       15 | Longbow        | Sniper         | Sniper    |     55 |   86 |        6 |        2.66 |
|       16 | Sentinel       | Sniper         | Sniper    |     70 |   37 |        4 |         2.5 |
|       17 | Triple Take    | Sniper         | Sniper    |     69 |   72 |        6 |         2.6 |
|       18 | EVA-8          | Shotgun        | Shotgun   |     63 |  128 |        8 |        2.75 |
|       19 | Peacekeeper    | Shotgun        | Unique    |    110 |   58 |        5 |        2.45 |
|       20 | Mastiff        | Shotgun        | Shotgun   |    104 |   60 |        6 |        1.03 |
|       21 | Mozambique     | Shotgun        | Shotgun   |     45 |  180 |        4 |         2.1 |
|       22 | P2020          | Pistol         | Light     |     15 |  430 |       12 |        1.25 |
|       23 | RE-45          | Pistol         | Light     |     12 |  750 |       16 |         1.5 |
|       24 | Wingman        | Pistol         | Heavy     |     45 |  156 |        5 |         2.1 |
+----------+----------------+----------------+-----------+--------+------+----------+-------------+
24 rows in set (0.00 sec)
```

Figure 12: Rows in "**weapons**" table

TABLE 4: SEASONS

```
SELECT * FROM seasons;
```

```
mysql> select * from seasons;
+---------------+----------------+--------------+--------------+------------+-----------------+---------+--------------+
| season_number | name           | legend_added | weapon_added | active_map | limited_event   | updates | release_date |
+---------------+----------------+--------------+--------------+------------+-----------------+---------+--------------+
|             1 | Wild Frontier  |            5 |            6 | Olympus    | Legendary Hunt  |       7 | 2019-03-19   |
|             2 | Battle Charge  |            7 |           20 | Olympus    | Iron Crown      |      11 | 2019-07-02   |
|             3 | Meltdown       |           10 |           24 | Olympus    | Voidwalker      |      23 | 2019-10-01   |
|             4 | Assimilation   |            9 |            1 | Olympus    | Flight or Fright |      15 | 2020-02-04   |
|             5 | Fortunes Favour |            3 |           21 | Olympus    | Lost Treasures  |      14 | 2020-05-13   |
|             6 | Boosted        |            6 |            4 | Olympus    | Aftermarket     |       8 | 2020-08-18   |
|             7 | Ascension      |           13 |           22 | Olympus    | Holo-Day Bash   |      13 | 2020-11-04   |
|             8 | Mayhem         |           14 |           15 | Olympus    | Fight Night     |       9 | 2021-02-02   |
+---------------+----------------+--------------+--------------+------------+-----------------+---------+--------------+
8 rows in set (0.00 sec)
```

Figure 13: Rows in "**seasons**" table

TABLE 5: STATS

```
SELECT * FROM stats;
```

```
mysql> select * from stats;
+-----------+----------------+-------+----------+--------------+--------------+----------------+
| player_id | lifetime_games | level | bp_level | avg_playtime | lifetime_wins | lifetime_kills |
+-----------+----------------+-------+----------+--------------+--------------+----------------+
|         1 |             90 |   250 |       55 |         38.6 |           22 |            860 |
|         2 |            832 |   446 |       35 |         19.6 |            7 |            832 |
|         3 |            955 |   378 |       79 |           34 |            2 |            805 |
|         4 |            781 |   419 |       67 |          123 |           97 |            437 |
|         5 |             74 |   157 |      108 |        155.7 |            6 |            725 |
|         6 |            499 |   215 |      105 |           24 |           99 |            666 |
|         7 |            505 |   247 |       24 |        196.8 |           58 |            309 |
|         8 |             78 |   348 |       87 |         43.5 |           95 |            371 |
|         9 |            779 |   252 |        7 |          3.2 |           87 |            233 |
|        10 |            286 |   326 |       41 |           88 |           18 |             62 |
|        11 |            413 |   421 |       96 |        137.4 |           12 |            493 |
|        12 |            511 |   462 |       34 |         63.5 |           96 |            192 |
|        13 |            104 |   234 |       81 |         73.2 |           41 |            514 |
|        14 |            162 |   169 |       90 |        116.8 |           94 |            648 |
|        15 |            932 |   155 |       18 |         20.9 |           91 |            486 |
|        16 |            909 |   460 |       64 |          138 |           11 |            961 |
|        17 |            728 |   131 |       67 |         79.9 |            7 |            406 |
|        18 |            187 |   323 |      104 |         51.5 |           75 |             23 |
|        19 |            100 |   375 |       62 |         53.8 |           20 |            519 |
|        20 |            174 |   194 |       59 |        127.8 |           18 |            249 |
|        21 |            424 |   181 |       84 |         15.5 |           85 |            254 |
|        22 |            594 |   250 |       -1 |        167.1 |           14 |            899 |
|        23 |            977 |   178 |       14 |          6.2 |           73 |            810 |
|        24 |            635 |   440 |       42 |         53.5 |           48 |            696 |
|        25 |            700 |   324 |       52 |         61.4 |           74 |            200 |
|        26 |            233 |    64 |       79 |         52.3 |           33 |            803 |
|        27 |            527 |    97 |       13 |         58.9 |           53 |            835 |
|        28 |            215 |   272 |       -1 |           25 |            1 |            148 |
|        29 |            444 |    50 |        6 |          1.5 |           66 |            214 |
|        30 |            504 |   434 |        4 |         73.2 |           11 |            403 |
|        31 |            843 |   347 |        8 |         60.2 |           87 |            979 |
|        32 |            650 |   480 |       86 |           86 |           35 |            881 |
|        33 |            403 |   186 |       37 |         27.5 |           73 |            801 |
|        34 |            481 |   256 |       11 |        154.6 |           76 |            172 |
|        35 |            716 |   144 |       33 |         32.5 |           62 |            347 |
|        36 |            368 |    80 |       32 |           14 |           92 |            240 |
|        37 |            920 |   404 |       91 |         69.6 |           26 |            650 |
|        38 |            254 |   312 |       26 |        141.7 |           23 |            936 |
|        39 |            422 |    91 |       36 |          3.1 |           83 |            970 |
|        40 |            243 |   112 |       91 |          3.2 |           27 |            323 |
|        41 |            565 |   399 |       81 |         21.3 |           82 |            196 |
|        42 |            750 |    20 |      105 |         46.6 |           95 |            168 |
|        43 |            868 |   173 |      108 |        196.8 |            2 |            568 |
|        44 |             27 |   149 |       39 |         92.6 |           23 |            137 |
|        45 |            549 |   205 |       20 |         12.4 |           86 |            562 |
|        46 |            477 |   188 |       92 |        111.4 |           42 |            614 |
|        47 |            251 |   346 |       26 |         76.2 |           43 |            363 |
|        48 |            276 |   238 |       18 |         60.9 |           43 |            583 |
|        49 |             11 |    57 |       19 |         69.7 |           49 |            521 |
+-----------+----------------+-------+----------+--------------+--------------+----------------+
49 rows in set (0.00 sec)
```

Figure 14: Rows in "**stats**" table

TABLE 6: PLAYER

```
SELECT * FROM player;
```

```
mysql> select * from player;
+----+---------------+-----------------+-------------------+---------------------+-------------+----------+---------+
| ID | name          | username        | password          | email               | date_of_join | acc_type | credits |
+----+---------------+-----------------+-------------------+---------------------+-------------+----------+---------+
|  1 | Alan          | Demoneye        | johncenathebest   | alan@gmail.com      | 2018-01-01  | Premium  |     100 |
|  2 | Ashwin        | Death_Reaper    | ash@*123          | aswhin_g@gmail.com  | 2018-02-11  | Premium  |     100 |
|  3 | Aswin         | Starmansom      | aswin@1999        | aswin@gmail.com     | 2020-03-31  | Premium  |     100 |
|  4 | Aman          | Hitler_Nazi     | g$asa             | aman.1999@gmail.com | 2014-12-14  | Free     |       0 |
|  5 | Manish Reddy  | LoneWolf        | $ansihd@123       | manish@gmail.com    | 2017-07-07  | Free     |       0 |
|  6 | Manoj         | Maxishepherd    | man$$@star        | loneman@gmail.com   | 2014-02-02  | Free     |       0 |
|  7 | Vamsi Krishna | The BB guy      | %%%SAS            | vams@yahoo.com      | 2021-01-22  | Premium  |      12 |
|  8 | Jatin         | POPMAN          | ^^^$$$$           | jat12134@gmail.com  | 2020-12-12  | Free     |       0 |
|  9 | Marvin        | Stormer         | apple1212123      | marv_123@gmail.com  | 2017-07-07  | Free     |       0 |
| 10 | Sam Smith     | Deat_Reaper     | rayman@@@         | sasmsith@gmail.com  | 2015-02-11  | Free     |       0 |
| 11 | John Titor    | Mr Time Machine | }T-f9v9qw@7$<j)   | titor@gmail.com     | 2020-11-05  | Free     |       0 |
| 12 | Dinesh        | All seeing eye  | +jpJNtPcM4/2h_w`  | dinbin@gmail.com    | 2014-10-24  | Premium  |     112 |
| 13 | Liam          | Kill Switch     | KR>gPkQH6}-2#QG   | liamKill@yahoo.com  | 2015-04-01  | Free     |       0 |
| 14 | Noah          | Blade           | {TR$sh4nk{h3rG]K  | noah@gmail.com      | 2017-04-11  | Free     |       0 |
| 15 | Oliver        | Phoenix         | :<U+Lv9~!<Z:s!g6  | oliver@gmail.com    | 2020-12-02  | Free     |       0 |
| 16 | William       | Ghost           | c6:KZw#.UgS[E=q}  | william@gmail.com   | 2016-09-11  | Free     |       0 |
| 17 | Elijah        | Shadow          | 4rWHVfG46>r{uC<-  | elijah@gmail.com    | 2015-03-12  | Free     |       0 |
| 18 | James         | Neo             | MVhsjnC9)WJx9*W/  | james@gmail.com     | 2017-09-19  | Premium  |      35 |
| 19 | Benjamin      | Snake           | {L>szTq>kPF7      | benjamin@gmail.com  | 2010-06-30  | Free     |       0 |
| 20 | Lucas         | Chris           | PB<7@{6dGn`gjh]j  | lucas@gmail.com     | 2020-08-15  | Premium  |     115 |
| 21 | Mason         | Joker           | *`:Y7bVspBSs^y~Q  | mason@gmail.com     | 2021-01-16  | Free     |       0 |
| 22 | Ethan         | Killer          | ,wp#-f@qZWsE4Ttn  | ethan@gmail.com     | 2018-08-01  | Free     |       0 |
| 23 | Alexander     | Nemesis         | rP(R5#@NBrEj:UfU  | alexander@gmail.com | 2019-11-10  | Free     |       0 |
| 24 | Henry         | Psycho          | h!=gY{C=(^N9U9&u  | henry@gmail.com     | 2014-02-28  | Free     |       0 |
| 25 | Jacob         | Virus           | %6F8J&=#SXHt!fp   | jacob@gmail.com     | 2016-05-25  | Free     |       0 |
| 26 | Michael       | Viper           | Msn_R:`qTg7e<!@   | michael@gmail.com   | 2017-07-09  | Free     |       0 |
| 27 | Daniel        | Zero            | Zra@Ur2fcZ`K"BG   | daniel@gmail.com    | 2018-10-10  | Premium  |      93 |
| 28 | Logan         | Dragon          | cH>KwD^"L3R+Q75   | logan@gmail.com     | 2016-06-11  | Premium  |       2 |
| 29 | Jackson       | Raven           | qTJ,W;qY,9XyQbEz  | jackson@gmail.com   | 2016-06-06  | Free     |       0 |
| 30 | Sebastian     | Iceman          | yQZ:ZL2$L*4ZL5    | sebastian@gmail.com | 2018-12-25  | Free     |       0 |
| 31 | Jack          | Devil           | c7{`>4{_"EAL}DEK  | jack@gmail.com      | 2017-05-15  | Free     |       0 |
| 32 | Aiden         | Shorty          | Ykr=@]NAa,z"8LWL  | aiden@gmail.com     | 2013-02-28  | Free     |       0 |
| 33 | Owen          | Kenny           | .Kr{n!;x5-=K=mn#  | owen@gmail.com      | 2018-09-19  | Premium  |    1024 |
| 34 | Samuel        | Nitro           | z5mWeYVbdf        | samuel@gmail.com    | 2017-08-15  | Free     |       0 |
| 35 | Matthew       | Flash           | Y=+:LAAC3g88wG    | matthew@gmail.com   | 2012-03-20  | Premium  |     525 |
| 36 | Joseph        | Silent          | $4s@PfWmAEN9_xhT  | joseph@gmail.com    | 2008-02-24  | Free     |       0 |
| 37 | Levi          | Predator        | yEdD*]TA4L~f98    | levi@gmail.com      | 2018-01-02  | Free     |       0 |
| 38 | Mateo         | Angel           | VH7Khmnr*:L{m#)   | mateo@gmail.com     | 2018-01-03  | Free     |       0 |
| 39 | David         | Sniper          | &Vf5VXs7nu=<#     | david@gmail.com     | 2018-02-15  | Free     |       0 |
| 40 | John          | Striker         | yr=wx>=)4ktVLK(   | john@gmail.com      | 2018-01-26  | Free     |       0 |
| 41 | Wyatt         | Slayer          | u$LX:C$L3F}mA_!   | wyatt@gmail.com     | 2018-05-30  | Free     |       0 |
| 42 | Carter        | Blizzard        | 8GtN9Wb?Hh)w48    | carter@gmail.com    | 2019-05-30  | Free     |       0 |
| 43 | Julian        | Max             | %fsD%7WCK[%42zR]  | julian@gmail.com    | 2020-05-30  | Free     |       0 |
| 44 | Luke          | Maverick        | }E&{7/Yh#w{5tY+   | luke@gmail.com      | 2017-07-17  | Free     |       0 |
| 45 | Grayson       | Freak           | M2hT7WuV9M{u>     | grayson@gmail.com   | 2018-06-16  | Free     |       0 |
| 46 | Isaac         | Storm           | K$c?]}7p$=4C~4[   | issac@gmail.com     | 2018-08-18  | Free     |       0 |
| 47 | Jayden        | Hitman          | >(B=5:<a7:42JK    | jayden@gmail.com    | 2018-04-01  | Free     |       0 |
| 48 | Theodore      | Reaper          | 539>Bv@u6EyFq8    | theodore@gmail.com  | 2020-02-20  | Free     |       0 |
| 49 | Gabriel       | Raptor          | 29#72m=C!E8XF>    | gabriel@gmail.com   | 2019-01-10  | Free     |       0 |
| 50 | Anthony       | Scorpion        | N}M>WUxfMY+3mQ^%  | anthony@gmail.com   | 2018-04-11  | Free     |       0 |
+----+---------------+-----------------+-------------------+---------------------+-------------+----------+---------+
```

Figure 15: Rows in "**player**" table

TABLE 7: RANKS

```
SELECT * FROM ranks;
```

```
mysql> select * from ranks;
+-----------+---------------+----------+------+-------+--------+
| player_id | total_matches | p_rank   | rp   | kills | deaths |
+-----------+---------------+----------+------+-------+--------+
|         1 |           552 | Gold     |  277 |  1277 |   1611 |
|         2 |            27 | Bronze   |  333 |  1109 |     19 |
|         3 |           316 | Platinum |  361 |  1738 |   1260 |
|         4 |           222 | Platinum |  497 |   865 |   1487 |
|         6 |           239 | Platinum |  177 |   473 |   1387 |
|         7 |           191 | Master   |  323 |  1483 |   1762 |
|         8 |           761 | Gold     |  171 |  1835 |   1478 |
|        10 |           624 | Master   |  491 |  1494 |     12 |
|        11 |           238 | Predator |  208 |  1053 |    705 |
|        12 |           376 | Master   |  281 |  1808 |   1440 |
|        15 |            13 | Diamond  |  395 |   409 |   1106 |
|        16 |           762 | Platinum |  409 |   828 |    849 |
|        18 |           508 | Gold     |  390 |   921 |    968 |
|        19 |           404 | Diamond  |  332 |   349 |    346 |
|        22 |           470 | Diamond  |  308 |    58 |   1648 |
|        24 |           584 | Platinum |  284 |   410 |   1928 |
|        25 |           444 | Bronze   |  312 |  1562 |   1572 |
|        26 |           380 | Predator |  251 |  1501 |     61 |
|        27 |           497 | Diamond  |  417 |   731 |    849 |
|        28 |           858 | Bronze   |  470 |  1140 |   1889 |
|        31 |           111 | Master   |  399 |   336 |   1067 |
|        33 |           403 | Platinum |  302 |  1748 |     71 |
|        34 |           228 | Bronze   |  392 |   897 |   1924 |
|        35 |           868 | Silver   |  411 |  1565 |    130 |
|        36 |           211 | Predator |  219 |  1946 |    115 |
|        37 |           362 | Predator |  236 |  1864 |    552 |
|        38 |           968 | Silver   |   53 |  1847 |    651 |
|        39 |           959 | Master   |  496 |   865 |   1040 |
|        41 |           182 | Silver   |  282 |  1197 |    371 |
|        42 |           182 | Silver   |  282 |  1197 |    371 |
|        43 |           195 | Predator |  156 |   582 |   1204 |
|        44 |           756 | Predator |  192 |   178 |    899 |
|        45 |           457 | Bronze   |  137 |  1478 |   1643 |
|        47 |           868 | Silver   |  411 |  1565 |    130 |
|        48 |           525 | Platinum |  415 |   265 |   1063 |
|        49 |           471 | Silver   |  488 |   594 |   1898 |
|        50 |           808 | Master   |  108 |   193 |   1000 |
+-----------+---------------+----------+------+-------+--------+
37 rows in set (0.00 sec)
```

Figure 16: Rows in "**ranks**" table

TABLE 8: OLYMPUS

```
SELECT * FROM olympus;
```

```
mysql> select * from olympus;
+-------------+--------------------------------+-------------+-----------+-----------+----------------+-----------------+
| location_id | location                       | common_loot | epic_loot | rare_loot | legendary_loot | loot_tier       |
+-------------+--------------------------------+-------------+-----------+-----------+----------------+-----------------+
|           1 | Turbine                        |          50 |        20 |        10 |              3 | Mid Tier Loot   |
|           2 | Orbital Cannon                 |          50 |        20 |         2 |              1 | High Tier Loot  |
|           3 | Rift                           |         100 |        40 |        25 |              5 | High Tier Loot  |
|           4 | Docks                          |         110 |        45 |        30 |              6 | High Tier Loott |
|           5 | Hammond Labs                   |          40 |        20 |        10 |              1 | Mid Tier Loot   |
|           6 | Research Basin                 |          10 |         4 |         2 |              1 | High Tier Loot  |
|           7 | Carrier                        |         120 |        84 |        40 |             10 | High Tier Loot  |
|           8 | Power Grid                     |         110 |        74 |        30 |              3 | Mid Tier Loot   |
|           9 | Oasis                          |          81 |        64 |        15 |              5 | Mid Tier Loot   |
|          10 | Velvet Oasis Cafe (Oasis)      |          20 |        14 |         6 |              2 | High Tier Loot  |
|          11 | Elysium                        |         100 |        54 |        20 |              5 | High Tier Loot  |
|          12 | Thydroponics                   |          80 |        34 |        10 |              1 | High Tier Loot  |
|          13 | Bonsai Plaza                   |         150 |       114 |        50 |              5 | Mid Tier Loot   |
|          14 | Reverie Lounge (Bonzai Plaza)  |          25 |        14 |         5 |              0 | High Tier Loot  |
|          15 | Solar Array                    |         108 |        44 |        24 |              4 | Mid Tier Loot   |
|          16 | Grow Towers                    |          91 |        44 |        19 |              2 | Mid Tier Loot   |
|          17 | Golden Gardens (Gardens)       |         130 |        84 |        20 |              5 | Mid Tier Loot   |
|          18 | Energy Depot                   |         140 |        54 |        30 |              5 | High Tier Loot  |
|          19 | Autumn Estates (Estates)       |          71 |        44 |        10 |              1 | High Tier Loot  |
+-------------+--------------------------------+-------------+-----------+-----------+----------------+-----------------+
19 rows in set (0.00 sec)
```

Figure 17: Rows in "**olympus**" table

COMPLEX QUERIES WITH DESCRIPTION AND THEIR O/P

QUERY 1 (TOP 5 PLAYERS):

Command used:

```
SELECT
player.ID,player.name,player.username,stats.lifetime_win
s,stats.lifetime_wins/stats.lifetime_games AS win_ratio
FROM player INNER JOIN stats ON
stats.player_id=player.ID ORDER BY win_ratio DESC LIMIT
5;
```

This command tells us the top 5 players of the game based on their kill to win ratio. To do this we implement the above command that uses simple division and join operations to refer the player table and display the required output. The win ratio is the division between the lifetime wins and the lifetime matches. The purpose of this list is to find the people that are eligible to compete in the E-sports tournaments.

ID	name	username	lifetime_wins	win_ratio
49	Gabriel	Raptor	49	4.4545
8	Jatin	POPMAN	95	1.2179
44	Luke	Maverick	23	0.8519
14	Noah	Blade	94	0.5802
18	James	Neo	75	0.4011

Figure 18: Output of Query 1

QUERY 2 (RECOMMENDED LEGEND ID'S):

Command used:

```
SELECT legendID,name,category,passive,tactical,ultimate
FROM legends WHERE win_rate = (SELECT max(win_rate) FROM
legends AS f WHERE f.category = legends.category);
```

This command is used to suggest the recommended legends that a player can use. This is done by implementing the above command that uses the select command with a where clause that checks the highest winrate for a particular category; used a subquery select command to get max(win_rate) which is used a s condition data for the main select query. The output can be useful for newer players that would need a form of guidance to decide which legend they wish to play.

legendID	name	category	passive	tactical	ultimate
1	BLOODHOUND	tactical	Tracker	Eye of the Allfather	Beast of Hunt
6	RAMPART	defence	Amped Cover	Modded Loader	Emplaced Minigun Sheila
10	OCTANE	attack	Swift Mend	Stim	Launch Pad
14	LIFELINE	med	Combat Medic	D.O.C. Heal Drone	Care Package

Figure 19: Output of Query 2

QUERY 3 (PLAYERS KILL/DEATH RATIO):

Command used:

```
SELECT player.ID,player.name, ranks.kills/ranks.deaths
AS KDR FROM ranks INNER JOIN player ON player.ID =
ranks.player_id ORDER BY KDR DESC;
```

This table output is a statistic that shows the kill to death ratio that is represented by KDR, calculated by the division between the kills and deaths from the ranked table. The name that is displayed below is from the inner join command used, there the kdr from ranks table and the name from the player table is joined together with reference to the ID giving us the corresponding output. The purpose of this table is to give players the details of the KDR as it is an aspect most players check. Also note that here the KDR is a derived attribute.

ID	name	KDR
10	Sam Smith	124.5000
2	Ashwin	58.3684
33	Owen	24.6197
26	Michael	24.6066
36	Joseph	16.9217
35	Matthew	12.0385
47	Jayden	12.0385
37	Levi	3.3768
41	Wyatt	3.2264
42	Carter	3.2264
38	Mateo	2.8372
11	John Titor	1.4936
3	Aswin	1.3794
12	Dinesh	1.2556
8	Jatin	1.2415
19	Benjamin	1.0087
25	Jacob	0.9936
16	William	0.9753
18	James	0.9514
45	Grayson	0.8996
27	Daniel	0.8610
7	Vamsi Krishna	0.8417
39	David	0.8317
1	Alan	0.7927
28	Logan	0.6035
4	Aman	0.5817
43	Julian	0.4834
34	Samuel	0.4662
15	Oliver	0.3698
6	Manoj	0.3410
31	Jack	0.3149
49	Gabriel	0.3130
48	Theodore	0.2493
24	Henry	0.2127
44	Luke	0.1980
50	Anthony	0.1930
22	Ethan	0.0352

Figure 20: Output of Query 3

QUERY 4 (MAP STATE):

Command Used:

```
SELECT loot_tier,count(loot_tier) AS
num_of_locations,SUM(common_loot) AS
total_common,SUM(rare_loot) as total_rare,SUM(epic_loot)
as total_epic,SUM(legendary_loot) AS total_legendary
FROM olympus GROUP BY loot_tier;
```

In the rare case of adding a new map is required, we can use this table for fixing or balancing the map meta to prevent any form of exploited unfair gameplay. Hence having the data of the loot items present based on the rarity and the tier can help shape better maps. This is done by executing the above-mentioned command; it uses the SUM command to get the sum of particular fields with respect to the tier by using the GROUP BY statement.

loot_tier	num_of_locations	total_common	total_rare	total_epic	total_legendary
High Tier Loot	11	826	180	407	37
Mid Tier Loot	8	760	178	464	28

Figure 21: Output of Query 4

QUERY 5 (EQUIPMENT DATA):

Command Used:

```
SELECT
itemsID,name,category,rarity,IF(right(rarity,1)='c','com
mon',IF(right(rarity,1)='r','rare',IF(right(rarity,1)='e
','epic',IF(right(rarity,1)='l','legendary','unknown
item')))) AS max_rarity FROM items;
```

We know that the likely hood of a single person taking care of the database is very unlikely. Therefore, we must take into consideration that in the case of another person is taking care of the database, he must know what represents what as it is not necessary that he plays the game itself. In the normal display of this table there are short forms used as data along an attribute. Therefore, the above command is used so that the person can understand what it represents. The used commands use the nested-if method to display the required data.

itemsID	name	category	rarity	max_rarity
1	shield_cells	Heals	c	common
2	pheonix	Heals	e	epic
3	shield_battery	Heals	r	rare
4	syringe	Heals	c	common
5	med_kit	Heals	r	rare
6	frag_grenade	Attack	r	rare
7	arc_star	Attack	r	rare
8	thermite	Attack	r	rare
9	heavy_extended_mag	Mags	c,r,e	epic
10	light_extended_mag	Mags	c,r,e	epic
11	sniper_extended_mag	Mags	c,r,e	epic
12	barrel_mod	Mod	c,r,e	epic
13	1x_scopes	Scopes	c	common
14	2x_scopes	Scopes	r	rare
15	1x_2x_scopes	Scopes	r	rare
16	3x_scopes	Scopes	r	rare
17	2x:4x_scopes	Scopes	r	rare
18	4x:8x_scopes	Scopes	e	epic
19	10x_scopes	Scopes	l	legendary
20	stocks	Stocks	c,r,e	epic
21	heavy_ammo	Ammo	c	common
22	light_ammo	Ammo	c	common
23	sniper_ammo	Ammo	c	common
24	shotgun_ammo	Ammo	c	common
25	ultimate_accelerant	Ability_boost	r	rare
26	knockdown_sheild	Sheild	c,r,e,l	legendary

Figure 22: Output of Query 5

QUERY 6 (SEASON DETAILS):

Command Details:

```
SELECT seasons.season_number,seasons.name AS
season_name,legends.name AS added_legend,weapons.name AS
added_gun FROM seasons INNER JOIN legends ON
legend_added=legends.legendID INNER JOIN weapons ON
weapon_added=weapons.weaponID;
```

Here the seasons table has been normalized, which would lead to certain fields being form of IDs which are reference keys; the data details are stored in a dedicated table. Normalization is done to maintain integrity in the database. Therefore, when using the select statement directly, we will only see numbers, this will not make sense for the person evaluating the table. Hence, we will use the above statement to get outputs which has details in the form of readable text. This command makes use of join command for 2 separate tables that don't depend on each other.

season_number	season_name	added_legend	added_gun
1	Wild Frontier	CAUSTIC	Alternator
2	Battle Charge	WATTSON	Mastiff
3	Meltdown	OCTANE	Wingman
4	Assimilation	REVENANT	R-301 Carbine
5	Fortunes Favour	PATHFINDER	Mozambique
6	Boosted	RAMPART	Hemlok
7	Ascension	HORIZON	P2020
8	Mayhem	LIFELINE	Longbow

Figure 23: Output of Query 6

QUERY 7 (LEGEND META):

Command Used:

```
SELECT
category,AVG(damage),AVG(RPM),AVG(capacity),AVG(reload_t
ime) FROM weapons GROUP BY category;
```

In games, especially the first-person shooter type, we need to make sure that the weapon meta is balanced, so that there are no guns that is better than the other by a huge margin. Otherwise, all players will use that one particular gun only which would ruin the experience and the very purpose of having other guns in the game. The way we plan to fix this is by looking at the averages of all the data of the guns based on the weapon type (category). This way we can inspect by comparing the values with the particular gun of that category. The used command here uses the AVG operation command such that it groups by the category of the weapon.

category	avg(damage)	avg(RPM)	avg(capacity)	avg(reload_time)
Assault Rifles	21.4000	594.2000	18.0000	2.5600000858306884
LMG	17.3333	670.6667	31.3333	2.2499999602635703
Pistol	24.0000	445.3333	11.0000	1.6166666348775227
Shotgun	80.5000	106.5000	5.7500	2.0824999809265137
SMG	14.2500	825.7500	23.2500	1.824999988079071
Sniper	76.8000	52.2000	5.6000	2.911999988555908

Figure 24: Output of Query 7

QUERY 8 (ID STATUS):

Command Used:

```
SELECT
player.ID,player.name,player.username,IF(bp_level<0,'!__
_BANNED___!','ACTIVE') AS STATUS FROM player INNER JOIN
stats ON stats.player_id=player.ID;
```

This is a command to view the players that were banned from the game by either cheating or any form of toxic activity. The way we implement this is by making the battle pass of cheaters as “-1”, therefore any player which has a battle pass as “-1” will be tagged banned and unable to continue the game. The way we check the players that is banned is by using the above command. The command uses the if statement along with join command that makes the player table refer the stats table so that we can see the player as a name and not as an ID which is represented as a number.

ID	name	username	STATUS
1	Alan	Demoneye	ACTIVE
2	Ashwin	Death_Reaper	ACTIVE
3	Aswin	Starmansom	ACTIVE
4	Aman	Hitler_Nazi	ACTIVE
5	Manish Reddy	LoneWolf	ACTIVE
6	Manoj	Maxishepherd	ACTIVE
7	Vamsi Krishna	The BB guy	ACTIVE
8	Jatin	POPMAN	ACTIVE
9	Marvin	Stormer	ACTIVE
10	Sam Smith	Deat_Reaper	ACTIVE
11	John Titor	Mr Time Machine	ACTIVE
12	Dinesh	All seeing eye	ACTIVE
13	Liam	Kill Switch	ACTIVE
14	Noah	Blade	ACTIVE
15	Oliver	Phoenix	ACTIVE
16	William	Ghost	ACTIVE
17	Elijah	Shadow	ACTIVE
18	James	Neo	ACTIVE
19	Benjamin	Snake	ACTIVE
20	Lucas	Chris	ACTIVE
21	Mason	Joker	ACTIVE
22	Ethan	Killer	!___BANNED___!
23	Alexander	Nemesis	ACTIVE
24	Henry	Psycho	ACTIVE
25	Jacob	Virus	ACTIVE
26	Michael	Viper	ACTIVE
27	Daniel	Zero	ACTIVE
28	Logan	Dragon	!___BANNED___!
29	Jackson	Raven	ACTIVE
30	Sebastian	Iceman	ACTIVE
31	Jack	Devil	ACTIVE
32	Aiden	Shorty	ACTIVE
33	Owen	Kenny	ACTIVE
34	Samuel	Nitro	ACTIVE
35	Matthew	Flash	ACTIVE
36	Joseph	Silent	ACTIVE
37	Levi	Predator	ACTIVE
38	Mateo	Angel	ACTIVE
39	David	Sniper	ACTIVE
40	John	Striker	ACTIVE
41	Wyatt	Slayer	ACTIVE
42	Carter	Blizzard	ACTIVE
43	Julian	Max	ACTIVE
44	Luke	Maverick	ACTIVE
45	Grayson	Freak	ACTIVE
46	Isaac	Storm	ACTIVE
47	Jayden	Hitman	ACTIVE
48	Theodore	Reaper	ACTIVE
49	Gabriel	Raptor	ACTIVE

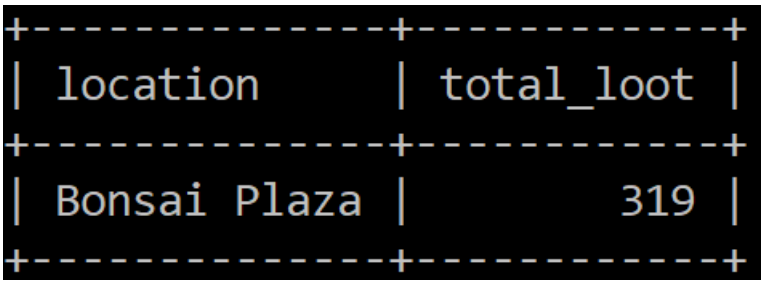
Figure 25: Output of Query 8

QUERY 9 (BEST LOCATION):

Command Used:

```
SELECT
location,common_loot+epic_loot+rare_loot+legendary_loot
AS total_loot FROM olympus ORDER BY total_loot DESC
LIMIT 1;
```

This is a command that can be used as a reference for the players to see which particular location in the map has the greatest number of loots in the game. Such a location must exist to make it is a hot drop; a place where many people will land for the reason of killing other enemies at the immediate start of the game. The command used above uses an expression that adds multiple fields and orders them from high to low and then display only the first row of the output of that data. Hence the command outputs the location with the highest loot number.



location	total_loot
Bonsai Plaza	319

Figure 26: Output of Query 9

QUERY 10 (REWARDS AWARDED):

Command Used:

```
SELECT
player.ID,player.name,player.username,ranks.p_rank,CASE
WHEN ranks.p_rank='Master' THEN "2,000 CREDITS AWARDED"
WHEN ranks.p_rank='Predator' THEN "FREE LIFETIME
MEMBERSHIP" ELSE "" END AS REWARDS FROM player INNER
JOIN ranks ON ranks.player_id=player.ID WHERE
ranks.p_rank='Predator' OR ranks.p_rank='Master';
```

Players are the ones that breath life into the game, therefore we must reward our players so that their interest in the game will not be lost. The rewards are only for the player that have the rank MASTER and PREDATOR as these are the most difficult ranks to get in the game. The above command can be used to filter and see which players are eligible for rewards, by using the case statements and join commands so that we can see the result as readable text and not ID numbers. The players with rank

PREDATOR will be rewarded Free Lifetime Membership which makes all in game purchases free and for the player with the rank MASTER will be rewarded 2000 in-game credits.

ID	name	username	p_rank	REWARDS
7	Vamsi Krishna	The BB guy	Master	2,000 CREDITS AWARDED
10	Sam Smith	Deat_Reaper	Master	2,000 CREDITS AWARDED
11	John Titor	Mr Time Machine	Predator	FREE LIFETIME MEMBERSHIP
12	Dinesh	All seeing eye	Master	2,000 CREDITS AWARDED
26	Michael	Viper	Predator	FREE LIFETIME MEMBERSHIP
31	Jack	Devil	Master	2,000 CREDITS AWARDED
36	Joseph	Silent	Predator	FREE LIFETIME MEMBERSHIP
37	Levi	Predator	Predator	FREE LIFETIME MEMBERSHIP
39	David	Sniper	Master	2,000 CREDITS AWARDED
43	Julian	Max	Predator	FREE LIFETIME MEMBERSHIP
44	Luke	Maverick	Predator	FREE LIFETIME MEMBERSHIP
50	Anthony	Scorpion	Master	2,000 CREDITS AWARDED

Figure 27: Output of Query 10

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