# **Final Project Deliverable**

League of Legends: Champions database

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IST 659 Data Admin Concepts & Database Management

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# Lol Logo PNG images, Free Download L.O.L Pictures - Free Transparent PNG Logos

***Image 1: League of Legends Logo (***[***https://na.leagueoflegends.com/en-us/***](https://na.leagueoflegends.com/en-us/)***)***



***Image 2: Map of League of Legends (***[***https://www.riotgames.com/en***](https://www.riotgames.com/en)***)***

## **PART 1**

## 1.Summary

Multiplayer Online Battle Arena (MOBA) game is a strategy video game in which two teams of players play against each other on a predefined map. League of Legends is a MOBA video game developed and published by Riot games. In this game, two teams of five players exist, and each player controls one champion (game character) of their choice. Champions become more stronger by purchasing items with collected gold as well as levelling up by collecting experience points. The objective of this game is to defeat the opponent by destroying the enemy nexus (tower) by pushing through the enemy base.

Map

Description automatically generated

***Image 3: Map of League of Legends (***[***https://www.esportstalk.com/blog/eli5-league-of-legends-guide-23576/***](https://www.esportstalk.com/blog/eli5-league-of-legends-guide-23576/)***)***

One of the most important rules of this game is playing your specific role in each given lane on the map. There are total of 3 lanes and 1 jungle as shown in **Image 1**. As a result, each champion is usually preferred (by a player) to a lane. Simply, there are top, mid, bot lane champions and jungle champions. Two champions go to bot lane indicated as bottom and support champions.

This game has been one of the most popular games the past seven years; therefore, it has been producing massive amount of data. The company wants to provide overall well-balanced game by analyzing:

* Similar win, play, and ban rate between the champions.

This analysis will be used to find the difference between weaker and stronger champions. Champion is referred to as too strong if their win, play, and ban rate are much higher than others (lower for weaker champions). Therefore, the company has formed a database team to design a database that provides each champion’s win, pick and ban rate.

## 2.Data Questions:

1. What was the play amount of each champion today?
2. What was the win amount of each champion today?
3. Most assigned roles for each champion?

## 3.Stakeholders

The stakeholders included in this project are the company owner, the employees, and the players. From this new database design, the employees will be able to use this database to accurately analyze champion data that changes frequently day to day. Players will be able to see which champion has been affected by each balance patch provided by the company. In turn, this will increase the overall profit of the company due to increase in players’ satisfaction.

## 4. Glossary

1. A **player** is a person who plays the game.
2. A **match** is a in-game data produced buy a player.
3. A **champion** is a in-game character that a player plays in the game.
4. A **role** is an indicator of a lane that a player has been assigned to.

## 5. Business rules

1. Each player plays **0 to many matches**; Each match is played by **1 to many** players. (Must have at least one player for the match to start.)
2. Each champion can have **1 to many roles** (a player must pick a role to play the game); each champion is applied to **0 to many** roles. (Abnormally, a role can be selected by 0 players)
3. Each player can play **0 to many** champions (a player does not need to play every single champion); Each champion is played by 0 to many players. (Abnormally, a champion can be selected by 0 players)

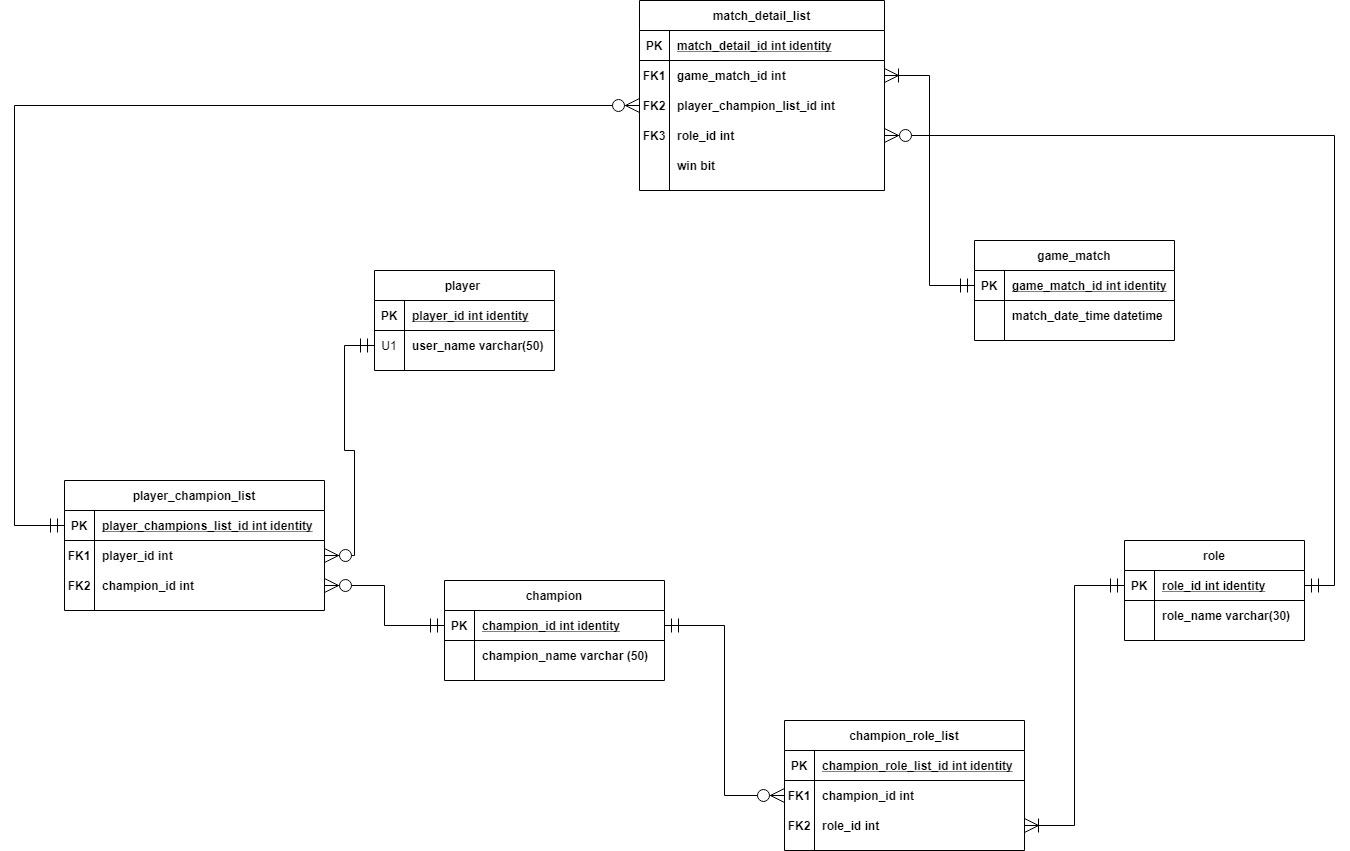
## 6. Conceptual ERD

**Diagram

Description automatically generated**

***Image 4: Conceptual Model.***

## 7. Logical Enhanced ERD

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***Image 5: Logical Enhanced ERD.***

## **PART 1**

### Data Definition Language – Creating Tables and Constraints

DROP TABLE IF exists lol\_match\_detail\_list

DROP TABLE IF exists lol\_champion\_role\_list

DROP TABLE IF exists lol\_player\_champion\_list

DROP TABLE IF exists lol\_game\_match

DROP TABLE IF exists lol\_role

DROP TABLE IF exists lol\_champion

DROP TABLE IF exists lol\_player

--Creating player table

CREATE TABLE lol\_player (

lol\_player\_id int identity primary key,

lol\_user\_name varchar(30) not null,

CONSTRAINT U1\_lol\_player UNIQUE (lol\_user\_name)

)

--Creating champion table

CREATE TABLE lol\_champion (

lol\_champion\_id int identity primary key,

lol\_champion\_name varchar(30) not null,

CONSTRAINT U1\_lol\_champion UNIQUE (lol\_champion\_name)

)

--Creating role table

CREATE TABLE lol\_role (

lol\_role\_id int identity primary key,

lol\_role\_name varchar(30) not null,

CONSTRAINT U1\_lol\_role UNIQUE (lol\_role\_name)

)

--Creating game match table

CREATE TABLE lol\_game\_match (

lol\_game\_match\_id int identity Primary key,

lol\_match\_date\_time datetime not null default getdate()

)

--Creating player champion list table

CREATE TABLE lol\_player\_champion\_list (

lol\_player\_champion\_list\_id int identity Primary key,

lol\_player\_id int not null FOREIGN KEY REFERENCES lol\_player(lol\_player\_id),

lol\_champion\_id int not null FOREIGN KEY REFERENCES lol\_champion(lol\_champion\_id)

)

--Creating champion\_role\_list table

CREATE TABLE lol\_champion\_role\_list (

lol\_champion\_role\_list\_id int identity Primary key,

lol\_champion\_id int not null FOREIGN KEY REFERENCES lol\_champion(lol\_champion\_id),

lol\_role\_id int not null FOREIGN KEY REFERENCES lol\_role(lol\_role\_id)

)

--Creating match\_detail\_list table

CREATE TABLE lol\_match\_detail\_list (

lol\_match\_detail\_id int identity primary key,

lol\_game\_match\_id int not null foreign key references lol\_game\_match(lol\_game\_match\_id),

lol\_player\_champion\_list\_id int not null foreign key references lol\_player\_champion\_list(lol\_player\_champion\_list\_id),

lol\_role\_id int not null foreign key references lol\_role(lol\_role\_id),

lol\_win bit not null

)

### Data Manipulation Language – Adding Data Using INSERT Statements

INSERT INTO lol\_role (lol\_role\_name)

VALUES ('Top'), ('Jungle'), ('Mid'), ('Bot'), ('Support')

--inserting values into lol\_champion

INSERT INTO lol\_champion (lol\_champion\_name)

VALUES ('Fiora'), ('Sett'), ('Tahm Kench'), ('Camille'), ('Irelia'),

('Lee Sin'), ('Jarvan IV'), ('Xin Zhao'), ('Shaco'), ('Taliyah'),

('LeBlanc'), ('Katarina'), ('Talon'), ('Zed'), ('Akshan'),

('Vayne'), ('Ashe'), ('Ezreal'), ('Ziggs'), ('Samira'),

('Blizcrank'), ('Leona'), ('Amumu'), ('Lulu'), ('Thresh')

--inserting values into lol\_player

INSERT INTO lol\_player(lol\_user\_name)

VALUES

('Overthrower'), ('Flashpoint'), ('BlueWhale'), ('Tsunami'),

('Parabolo'), ('Possessed'), ('Divinity'), ('Steadfast'), ('Smokescreen')

INSERT INTO lol\_player(lol\_user\_name)

VALUES

('AndyKu')

--inserting values into lol\_game\_match

INSERT INTO lol\_game\_match(lol\_match\_date\_time)

VALUES ('3/1/2021 14:00'), ('3/1/2021 14:15'), ('3/1/2021 14:21')

--inserting values into lol\_champion\_role\_list

SELECT \* FROM lol\_champion\_role\_list

INSERT INTO lol\_champion\_role\_list(lol\_champion\_id, lol\_role\_id)

VALUES

(1,1),(6,2),(11,3),(16,4),(21,5),

(2,1),(7,2),(12,3),(17,4),(22,5),

(3,1),(8,2),(13,3),(18,4),(23,5),

(4,1),(9,2),(14,3),(19,4),(24,5),

(5,1),(10,2),(15,3),(20,4),(25,5)

--inserting values into lol\_player\_champion\_list

SELECT \* FROM lol\_player\_champion\_list

INSERT INTO lol\_player\_champion\_list(lol\_player\_id, lol\_champion\_id)

VALUES

(1,1),(2,6),(3,11),(4,16),(5,21),

(6,2),(7,7),(8,12),(9,17), (10,22),

(1,2),(2,7),(3,12),(4,17),(5,22),

(6,3),(7,8),(8,13),(9,18), (10,23),

(1,3),(2,8),(3,13),(4,18),(5,23),

(6,4),(7,9),(8,14),(9,19), (10,24)

--inserting values

INSERT INTO lol\_match\_detail\_list(lol\_game\_match\_id,lol\_player\_champion\_list\_id,lol\_role\_id,lol\_win)

VALUES

(1,1,1,1), (1,2,2,1), (1,3,3,1), (1,4,4,1), (1,5,5,1),

(1,6,1,0), (1,7,2,0), (1,8,3,0), (1,9,4,0), (1,10,5,0),

(2,11,1,0), (2,12,2,0), (2,13,3,0), (2,14,4,0), (2,15,5,0),

(2,16,1,1), (2,17,2,1), (2,18,3,1), (2,19,4,1), (2,20,5,1),

(3,21,1,1), (3,22,2,1), (3,23,3,1), (3,24,4,1), (3,25,5,1),

(3,26,1,0), (3,27,2,0), (3,28,3,0), (3,29,4,0), (3,30,5,0)

### Answering Data Questions

1. What was the match amount of each champion today?
2. What was the win amount of each champion today?
3. Most assigned roles for each champion?

--Creating Function to calculate total matches per champion

GO

CREATE FUNCTION dbo.lol\_championMatchCount (@championID int)

RETURNS int AS

BEGIN

DECLARE @returnValue int

SELECT @returnValue = COUNT(lol\_player\_id) FROM lol\_player\_champion\_list

WHERE lol\_player\_champion\_list.lol\_champion\_id = @championID

RETURN @returnValue

END

--CREATING VIEW

GO

CREATE or ALTER VIEW championDetails AS

SELECT

lol\_player\_champion\_list.lol\_champion\_id

, lol\_champion.lol\_champion\_name

, SUM(CAST(lol\_win AS int)) as winAmount

, dbo.lol\_championMatchCount(lol\_champion.lol\_champion\_id) AS matchAmount

, lol\_role.lol\_role\_name AS playedRoles

FROM lol\_match\_detail\_list

RIGHT JOIN lol\_player\_champion\_list ON lol\_player\_champion\_list.lol\_player\_champion\_list\_id = lol\_match\_detail\_list.lol\_player\_champion\_list\_id

JOIN lol\_champion ON lol\_champion.lol\_champion\_id = lol\_player\_champion\_list.lol\_champion\_id

JOIN lol\_role ON lol\_role.lol\_role\_id = lol\_match\_detail\_list.lol\_role\_id

GROUP BY

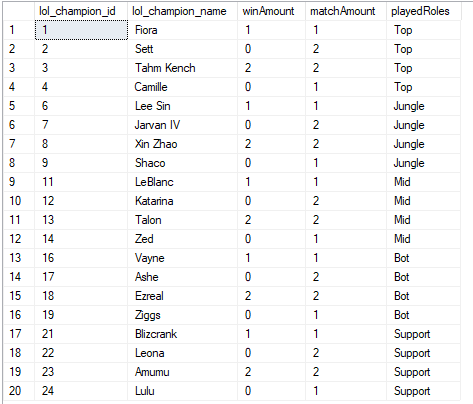
lol\_player\_champion\_list.lol\_champion\_id

, lol\_champion.lol\_champion\_name

, dbo.lol\_championMatchCount(lol\_champion.lol\_champion\_id)

, lol\_role.lol\_role\_name

SELECT \* FROM championDetails



***Result of the championDetails VIEW Table.***

## User Interface

