Import Packages

In [20]:

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from pandas.plotting import scatter_matrix
from sklearn.impute import SimpleImputer
from sklearn.preprocessing import LabelEncoder
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn.linear_model import LinearRegression
from sklearn.tree import DecisionTreeRegressor
from sklearn.ensemble import RandomForestRegressor

from sklearn import metrics

#%matplotlib notebook
%matplotlib inline
```

Introduction : League of Legends

League of Legends has become one of the most popular video games in the world, with millions of players from around the globe competing in the game's various modes and events. The game has a rich esports scene, with multiple professional leagues and annual world championships, where the best teams and players compete for huge prize pools and the title of world champion.

Since its release, League of Legends has undergone multiple updates, introducing new champions, skins, game modes, and gameplay changes. The game has also developed a rich lore and backstory, with each champion having their own unique backstory and connection to the game's world of Runeterra.

League of Legends has had a significant impact on the video game industry, influencing the development of other games and spawning a multitude of merchandise, including clothing, toys, and books. The game has also had an impact on popular culture, with multiple references to the game appearing in movies, TV shows, and music videos.

World Championship Event

The League of Legends World Championship is the pinnacle of professional League of Legends play, where the best teams from around the world compete for the championship title and a multi-million-dollar prize pool. The tournament features 24 teams from 11 regions, with the top teams from each region competing in the main event and the rest competing in a play-in stage. The tournament typically spans over several weeks and consists of several stages, including the play-in stage, group stage, quarterfinals, semifinals, and the grand finals, with teams battling it out in best-of-five matches until one team is crowned the champion. The event attracts millions of viewers from around the world and is one of the most-watched esports events each year.

The World Championship is known for its high level of competition, with the best teams and players from around the world competing to prove their skills and earn the title of world champion. The event has seen multiple champions over the years, including SK Telecom T1, Invictus Gaming, and FunPlus Phoenix, with each year's tournament bringing new surprises and upsets.

The event is not only important for the participating teams and players but also for the esports industry as a whole. It serves as a showcase of the growth and potential of esports as a legitimate form of entertainment and competition, attracting sponsors, investors, and new fans to the scene.

Key Teams and Players

1. T1

In League of Legends, T1 is one of the most successful teams in history, having won three World Championships (in 2013, 2015, and 2016) and numerous domestic titles in Korea's LCK league. The team has a rich history of producing some of the best players in the world, including Lee "Faker" Sang-hyeok, who is widely regarded as one of the greatest players of all time. They are known for their strategic play and disciplined approach to the game.

Key Players:

- **Faker** : Lee "Faker" Sang-hyeok is one of the most famous and successful League of Legends players of all time. He has spent his entire professional career playing for T1 (formerly known as SK Telecom T1), a South Korean team that has won multiple World Championships. Faker is known for his exceptional skill as a mid laner, with his precise mechanical ability and game sense allowing him to make game-winning plays. He has won numerous individual awards, including three World Championship titles, two Mid-Season Invitationals (2016, 2017), and has 10 combined LCK and Champions Korea titles, and has been widely recognized as one of the best players in the game's history. Despite his success, Faker is also known for his humble attitude and dedication to improvement, and has been an inspiration to many aspiring players in the League of Legends community.

- **Zeus** : Choi "Zeus" Woo-je is known for his strong laning and mechanical skills, as well as his aggressive playstyle. He is a versatile player who can play a variety of champions, including carry top laners such as Camille and Irelia, as well as tanky champions like Ornn and Sion. Despite his relatively short professional career, Zeus has already established himself as one of the top players in the LCK, and he is widely considered to have a lot of potential for growth in the coming years.

2. RNG

Royal Never Give Up (RNG) In League of Legends, RNG is one of the top teams in the world, having won three times MSI champion title, as well as multiple domestic titles in China's LPL league. The team has a strong roster of players, including some of the best players in the world in their respective roles. They are known for their aggressive playstyle and their ability to make plays and take control of games early.

Key Players:

- **Xiaohu** : Li "Xiaohu" Yuanhao started his professional career as a mid laner and has been a key player for RNG. Xiaohu helped the team win multiple domestic and international titles, including the Mid-Season Invitational (MSI) in 2021 as a top laner. Xiaohu is the only player that won multiple international titles with different roles. His transition to top lane at MSI 2021 helped solidify his reputation as one of the best players in the world. At World Championship 2022, Xiaohu role swap back as a mid laner for RNG, he will likely be a key player to watch for this and future international competitions.

- **Ming** : Shi "Ming" Sen-Ming is considered one of the best support players in the world, known for his excellent mechanics and game sense. Ming has been an integral part of RNG's success, helping the team win numerous regional and international tournaments. Ming has been with RNG since 2016 and has been a key member of the team's success. He has helped RNG win multiple domestic titles.

3. TES

Top Esports (TES) is a professional esports organization based in China that competes in League of Legends. TES has a strong roster of players, including some of the best individual players in the world, and they are known for their aggressive playstyle and ability to dominate opponents. With their combination of individual skill and team play, TES will be a formidable opponent for any team at the World Championship, and they will likely be one of the favorites to win the tournament.

Key Players:

- **JackeyLove** : Yu "JackeyLove" Wen-Bo first gained widespread attention in the League of Legends community during the 2018 World Championship, where he played AD Carry for Invictus Gaming and helped the team win the championship. JackeyLove is known for his ability to dominate games from the bottom lane, and is particularly skilled at playing champions that rely on strong laning and aggressive plays. JackeyLove is considered one of the best AD carries in the world.

- **Knight** : Zhuo "Knight" Ding is considered one of the best mid laners in the world, known for his exceptional mechanical skill and ability to make game-changing plays. Knight has a wide champion pool and is known for his ability to play both aggressive and defensive styles, depending on what the team needs. With his combination of individual skill and team play, Knight will be a key player to watch at the League of Legends World Championship 2022, and he will likely be one of the top mid laners in the tournament.

4. DK

DAMWON KIA (DK) is a professional esports organization based in South Korea that is best known for its success in League of Legends. The organization was founded in 2019 and has quickly become one of the dominant forces in the esports world by winning the World Championship in 2020. In World Championship 2022, DK will be looking to reclaim their title and cement their status as one of the best teams in the world. They are known for their strong laning and teamfighting abilities, as well as their ability to adapt to the meta.

Key Players:

- **ShowMaker** : In 2020, Heo "ShowMaker" Su and DAMWON KIA had a dominant season, winning the LCK Summer Split and the League of Legends World Championship. ShowMaker was instrumental in many of Damwon KIA's victories, with his ability to control the mid lane and make key plays in teamfights. ShowMaker is talented for positioning himself well and making clutch plays that can turn the tide of a game. At the League of Legends World Championship 2022, ShowMaker will once again be a player to watch. With his experience and leadership, he will be a key part of Damwon KIA's efforts to reclaim the World Championship title.

- **Canyon** : Kim "Canyon" Geon-bu is widely regarded as one of the best junglers in the world and has been a key part of Damwon KIA's success in recent years. In 2020, he helped lead Damwon KIA to victory in the LCK Summer Split and the League of Legends World Championship, earning the tournament MVP award for his outstanding performance. Canyon is known for his aggressive playstyle and his ability to make plays happen in the early game. He is skilled at controlling the jungle and putting pressure on the enemy team, which allows his laners to gain an advantage.

5. EDG

EDward Gaming (EDG) is a Chinese team that has had consistent performances in past World Championships. They have a reputation for being a disciplined and well-organized team, with a strong focus on objective control and map pressure. EDG has won multiple LPL titles and has also had success on the international stage. The team won the 2015 Mid-Season Invitational and World Championships 2021. At the League of Legends World Championship 2022, EDG will be looking to continue their success and defending for their championship title. With their combination of talent and experience, they will be a tough opponent for any team at the World Championship.

Key Players:

- **Scout** : Lee "Scout" Ye-chan is one of the most well-known mid laners in the LPL (League of Legends Pro League) and has been a key part of EDG's success in recent years. Scout is known for his versatility and ability to play a wide variety of champions at a high level. He is skilled at controlling the mid lane and roaming to other parts of the map to make plays happen, which will be a key part of EDG's success.

- **Viper** : Jang "Viper" Min-chul is known for his exceptional mechanics and aggressive playstyle in the bot lane. He is skilled at playing a wide variety of champions and is particularly effective on champions that can make plays happen and exert pressure on the map. He is also known for his ability to perform well under pressure and in high-stakes situations. His exceptional mechanics and aggressive playstyle will help to secure victory for the team.

6. GEN.G

Gen.G is a League of Legends team competes in the LCK (League of Legends Champions Korea), the top-level professional league in South Korea. The team has a strong track record of success in the LCK, with several top finishes in the regular season and playoffs. They are known for their focus on team play and objective control.

Key Players:

- **Chovy** : Jeong "Chovy" Ji-hoon is considered one of the best mid laners in the world and is known for his ability to carry games and make game-changing plays. He has been praised by many analysts and players for his impressive skill and game sense. Chovy's presence on the Gen.G roster is expected to make them a strong contender in the League of Legends World Championship 2022.

- **Ruler** : Park "Ruler" Jae-hyuk is the AD Carry for Gen.G and is known for his strong mechanical skills and ability to carry games. He has been with Gen.G since 2017 and has consistently been one of the top players in his role. He is also known for his teamwork and leadership, often serving as a shot-caller for his team. Ruler's performance at the League of Legends World Championship 2022 will be crucial for Gen.G's success in the tournament.

7. G2

G2 Esports is a professional esports organization based in Europe, and their League of Legends team has been one of the top teams in the world for several years. The team has aggressive and unpredictable playstyle, often catching opponents off guard with unexpected strategies and team compositions. They have a strong and dedicated fan base and are known for their innovative strategies and willingness to experiment with unorthodox strategies.

Key Players:

- **Jankos** : Marcin "Jankos" Jankowski is known for his aggressive playstyle and his ability to make game-changing plays, often earning him the nickname "The First Blood King." He is a talented and experienced player, with a deep understanding of the game and an ability to out-jungle many of his opponents. Jankos is also known for his personality and sense of humor, often making jokes and engaging with fans on social media. He is a popular player both within the League of Legends community and among his fellow players.

- **Caps** : Rasmus "Caps" Winther first burst onto the competitive scene as a mid laner for Fnatic, where he quickly established himself as a talented player with a unique playstyle. He helped Fnatic reach the finals of the 2018 World Championship, where they were ultimately defeated by Invictus Gaming. He has been recognized for his exceptional skills with numerous awards and accolades, including being named the MVP of the 2019 LEC Summer Split.

8. C9

Cloud9 (C9) has been a dominant force in the North American region, winning multiple region titles and representing the region at international events like the World Championship. The team has also undergone significant changes over the years, with a rotating roster of talented players and coaches. The team is often willing to take risks and make bold moves in order to secure a victory, which has made them a fan favorite among League of Legends viewers.

Key Players:

- **Blaber** : Robert "Blaber" Huang has helped lead C9 to multiple LCS titles and has represented North America at international events like the Mid-Season Invitational and the World Championship. In 2021, Blaber was named the LCS Summer Split MVP and helped lead C9 to a second-place finish in the Summer Playoffs. He is considered one of the best junglers in the North American region and is known for his strong mechanical skill and ability to create early game advantages for his team.

- **Fudge** : Ibrahim "Fudge" Allami is considered one of the best young players in the region and is known for his strong laning and ability to create pressure on the map. He has shown great potential and is expected to be a key player for C9 in the future. Fudge joined C9's academy team in 2019 and quickly rose through the ranks to become the starting top laner for the main roster in 2021. Since then, he has been a key member of the team, helping lead them to a second-place finish in the LCS Summer Playoffs and representing North America at the World Championship.

Prediction Model

In [66]:

```
# read csv
team = pd.read_csv("wc_teams_main.csv")
team.head(5)
```

Out[66]:

	team	games_played	wins	loses	average_game_duration	kills	deaths	kd	combined_kills_per_minute	gold_percent_rating	...	first_dragon_rate	dragon_control_rate	elder_dragon_rate	first_baron_rate
0	100 Thieves	6	1	5	30.7	53	83	0.64	0.74	-1.05	...	33%	33%	NaN	33%
1	Cloud9	6	1	5	27.2	40	88	0.45	0.78	-1.92	...	50%	33%	NaN	17%
2	CTBC Flying Oyster	6	1	5	31.7	48	118	0.41	0.87	-1.31	...	50%	24%	NaN	33%
3	DRX	21	14	7	34.5	276	200	1.38	0.66	0.68	...	48%	53%	67%	67%
4	DWG KIA	12	7	5	31.6	174	133	1.31	0.81	1.53	...	58%	70%	NaN	75%

5 rows × 29 columns

In [67]:

```
team['winrate'] = round(team['wins'] / team['games_played'], 2)
team = team.drop(columns=['wins', 'loses','kills','deaths','average_game_duration','combined_kills_per_minute','gold_spent_difference',
                    'first_tower_rate','first_blood_rate','first_to_three_towers_rate','elder_dragon_rate',
                    'control_wards_per_minute','wards_cleared_per_minute','wards_per_minute'])
```

In [68]:

```
team.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 16 entries, 0 to 15
Data columns (total 16 columns):
 #   Column                    Non-Null Count  Dtype
---  ------                    --------------  -----
 0   team                      16 non-null     object
 1   games_played              16 non-null     int64
 2   kd                        16 non-null     float64
 3   gold_percent_rating       16 non-null     float64
 4   early_game_rating         16 non-null     float64
 5   mid_late_rating           16 non-null     float64
 6   gold_diff_15              16 non-null     int64
 7   turrent_plates_destroyed  16 non-null     float64
 8   rift_herald_rate          16 non-null     object
 9   first_dragon_rate         16 non-null     object
 10  dragon_control_rate       16 non-null     object
 11  first_baron_rate          16 non-null     object
 12  baron_control_rate        16 non-null     object
 13  lane_control              16 non-null     object
 14  jungle_control            16 non-null     object
 15  winrate                   16 non-null     float64
dtypes: float64(6), int64(2), object(8)
memory usage: 2.1+ KB
```

In [69]:

```
#change object types to float
team['rift_herald_rate'] = team['rift_herald_rate'].str.rstrip('%').astype('float') / 100.0
team['first_dragon_rate'] = team['first_dragon_rate'].str.rstrip('%').astype('float') / 100.0
team['dragon_control_rate'] = team['dragon_control_rate'].str.rstrip('%').astype('float') / 100.0
team['first_baron_rate'] = team['first_baron_rate'].str.rstrip('%').astype('float') / 100.0
team['baron_control_rate'] = team['baron_control_rate'].str.rstrip('%').astype('float') / 100.0
team['lane_control'] = team['lane_control'].str.rstrip('%').astype('float') / 100.0
team['jungle_control'] = team['jungle_control'].str.rstrip('%').astype('float') / 100.0
team.head(5)
```

Out[69]:

	team	games_played	kd	gold_percent_rating	early_game_rating	mid_late_rating	gold_diff_15	turrent_plates_destroyed	rift_herald_rate	first_dragon_rate	dragon_control_rate	first_baron_rate
0	100 Thieves	6	0.64	-1.05	43.6	-27.0	-732	4.3	0.67	0.33	0.33	0.33
1	Cloud9	6	0.45	-1.92	33.0	-16.4	-1957	2.5	0.33	0.50	0.33	0.17
2	CTBC Flying Oyster	6	0.41	-1.31	32.4	-15.7	-1300	4.3	0.17	0.50	0.24	0.33
3	DRX	21	1.38	0.68	57.0	9.6	678	4.5	0.62	0.48	0.53	0.67
4	DWG KIA	12	1.31	1.53	74.4	-16.1	2262	7.5	0.78	0.58	0.70	0.75

In [77]:

```
## Label encode for categorical feature (team)
labelEncoder = LabelEncoder()
team["team"] = labelEncoder.fit_transform(team["team"])
team.head(5)
```

Out[77]:

	team	games_played	kd	gold_percent_rating	early_game_rating	mid_late_rating	gold_diff_15	turrent_plates_destroyed	rift_herald_rate	first_dragon_rate	dragon_control_rate	first_baron_rate
0	0	6	0.64	-1.05	43.6	-27.0	-732	4.3	0.67	0.33	0.33	0.33
1	1	6	0.45	-1.92	33.0	-16.4	-1957	2.5	0.33	0.50	0.33	0.17
2	2	6	0.41	-1.31	32.4	-15.7	-1300	4.3	0.17	0.50	0.24	0.33
3	3	21	1.38	0.68	57.0	9.6	678	4.5	0.62	0.48	0.53	0.67
4	4	12	1.31	1.53	74.4	-16.1	2262	7.5	0.78	0.58	0.70	0.75

In [78]:

```
team.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 16 entries, 0 to 15
Data columns (total 16 columns):
 #   Column                    Non-Null Count  Dtype
---  ------                    --------------  -----
 0   team                      16 non-null     int64
 1   games_played              16 non-null     int64
 2   kd                        16 non-null     float64
 3   gold_percent_rating       16 non-null     float64
 4   early_game_rating         16 non-null     float64
 5   mid_late_rating           16 non-null     float64
 6   gold_diff_15              16 non-null     int64
 7   turrent_plates_destroyed  16 non-null     float64
 8   rift_herald_rate          16 non-null     float64
 9   first_dragon_rate         16 non-null     float64
 10  dragon_control_rate       16 non-null     float64
 11  first_baron_rate          16 non-null     float64
 12  baron_control_rate        16 non-null     float64
 13  lane_control              16 non-null     float64
 14  jungle_control            16 non-null     float64
 15  winrate                   16 non-null     float64
dtypes: float64(13), int64(3)
memory usage: 2.1 KB
```

In [79]:

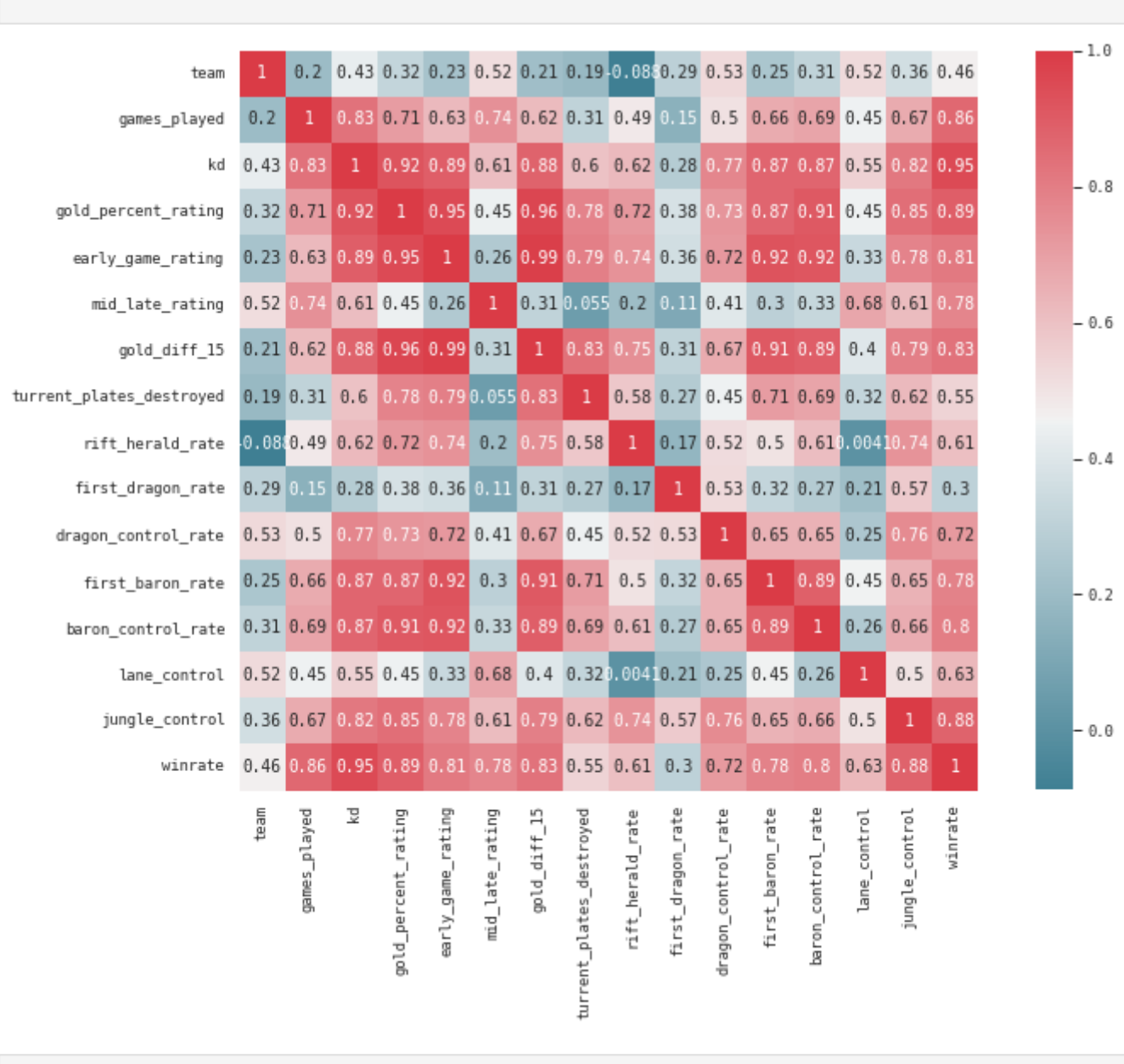
```
#correlation
hcorr = team.corr()
hcorr.style.background_gradient()
```

Out[79]:

	team	games_played	kd	gold_percent_rating	early_game_rating	mid_late_rating	gold_diff_15	turrent_plates_destroyed	rift_herald_rate	first_dragon_rate	dragon_control_rate
team	1.000000	0.197359	0.431900	0.317680	0.233605	0.517975	0.211540	0.186675	-0.087682	0.294709	0.530475
games_played	0.197359	1.000000	0.832178	0.707269	0.625913	0.744798	0.621133	0.307809	0.485180	0.147957	0.503821
kd	0.431900	0.832178	1.000000	0.920618	0.889782	0.611046	0.879008	0.600196	0.622714	0.276633	0.772868
gold_percent_rating	0.317680	0.707269	0.920618	1.000000	0.951654	0.445719	0.963811	0.782031	0.721118	0.377338	0.730862
early_game_rating	0.233605	0.625913	0.889782	0.951654	1.000000	0.264726	0.985494	0.793025	0.737898	0.361757	0.722851
mid_late_rating	0.517975	0.744798	0.611046	0.445719	0.264726	1.000000	0.309010	0.054582	0.203270	0.110604	0.408028
gold_diff_15	0.211540	0.621133	0.879008	0.963811	0.985494	0.309010	1.000000	0.834926	0.747392	0.309961	0.667050
turrent_plates_destroyed	0.186675	0.307809	0.600196	0.782031	0.793025	0.054582	0.834926	1.000000	0.581160	0.271110	0.451310
rift_herald_rate	-0.087682	0.485180	0.622714	0.721118	0.737898	0.203270	0.747392	0.581160	1.000000	0.172580	0.521248
first_dragon_rate	0.294709	0.147957	0.276633	0.377338	0.361757	0.110604	0.309961	0.271110	0.172580	1.000000	0.527134
dragon_control_rate	0.530475	0.503821	0.772868	0.730862	0.722851	0.408028	0.667050	0.451310	0.521248	0.527134	1.000000
first_baron_rate	0.246009	0.664388	0.871701	0.870316	0.923619	0.297066	0.909836	0.708210	0.501020	0.317440	0.646620
baron_control_rate	0.308498	0.687675	0.870737	0.909953	0.916906	0.328615	0.889933	0.686856	0.612826	0.271030	0.645033
lane_control	0.524945	0.448812	0.552032	0.448974	0.333608	0.680520	0.403754	0.320050	0.004064	0.209189	0.251239
jungle_control	0.362222	0.667567	0.815031	0.845738	0.780189	0.613797	0.793624	0.622417	0.736456	0.572811	0.758119
winrate	0.461947	0.861045	0.950711	0.890197	0.812891	0.776709	0.830116	0.547722	0.605769	0.300483	0.717040

In [80]:

```
#heatmap using seaborn
#set the context for plotting
sns.set(context="paper",font="monospace")
team_corr_matrix = team.corr()
#set the matplotlib figure
fig, axe = plt.subplots(figsize=(12,8))
#Generate color palettes
cmap = sns.diverging_palette(220,10,center = "light", as_cmap=True)
#draw the heatmap
sns.heatmap(team_corr_matrix,vmax=1,square =True, cmap=cmap,annot=True );
```



In [81]:

```
#check wheather there are any missing values or null
team.isnull().sum()
```

Out[81]:

```
team                        0
games_played                0
kd                          0
gold_percent_rating         0
early_game_rating           0
mid_late_rating             0
gold_diff_15                0
turrent_plates_destroyed    0
rift_herald_rate            0
first_dragon_rate           0
dragon_control_rate         0
first_baron_rate            0
baron_control_rate          0
lane_control                0
jungle_control              0
winrate                     0
dtype: int64
```

In [102]:

```
# Split the dataset into 80% train and 20% test dataset
X = team.drop("winrate",axis=1)
y = team["winrate"]
X_train,X_test,y_train,y_test = train_test_split(X,y,test_size=0.2,random_state=42)
```

In [103]:

```
X_train.head()
```

Out[103]:

	team	games_played	kd	gold_percent_rating	early_game_rating	mid_late_rating	gold_diff_15	turrent_plates_destroyed	rift_herald_rate	first_dragon_rate	dragon_control_rate	first_baron_rate
13	13	10	1.10	0.19	51.8	-1.8	-7	4.0	0.60	0.60	0.63	0.40
11	11	14	1.09	0.33	49.9	21.5	485	5.6	0.71	0.43	0.47	0.36
8	8	6	0.65	-2.19	32.4	-15.8	-1714	4.0	0.17	0.17	0.30	0.33
9	9	6	0.50	-2.35	25.3	-8.6	-2729	2.8	0.25	0.67	0.52	0.17
2	1	6	0.41	-1.31	32.4	-15.7	-1300	4.3	0.17	0.50	0.24	0.33

In [104]:

```
#Perform Linear Regression
#initantiate the linear regression
linearRegModel = LinearRegression(n_jobs=-1)
#fit the model to the training data (learn the coefficients)
linearRegModel.fit(X_train,y_train)
#print the intercept and coefficients
print("Intercept is "+str(linearRegModel.intercept_))
print("coefficients  is "+str(linearRegModel.coef_))
```

```
Intercept is 0.09485440258718686
coefficients  is [ 1.38135621e-03  2.21437849e-03 -1.45899539e-03 -5.42669416e-03
  6.69180085e-03  9.04311990e-03  2.77876928e-05 -2.13649177e-03
  1.96776845e-02  1.06164400e-02  1.93790331e-02  2.72886362e-02
  1.32868012e-02 -1.22833827e-03 -4.03290018e-04]
```

In [105]:

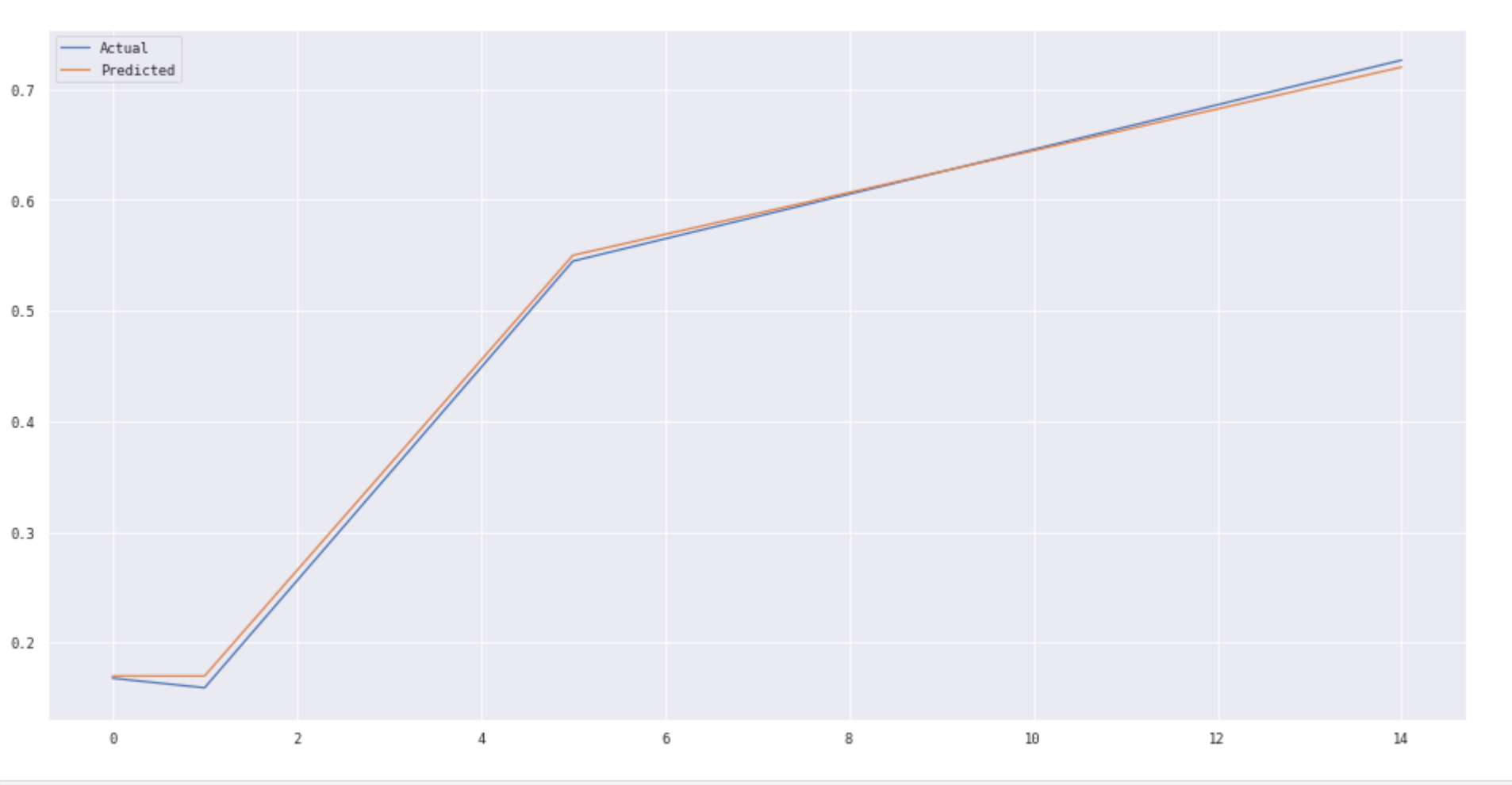
```
#predict on the test data
y_pred = linearRegModel.predict(X_test)
```

In [113]:

```
#plot actual vs predicted
test = pd.DataFrame({'Predicted':y_pred,'Actual':y_test})
fig= plt.figure(figsize=(16,8))
plt.plot(test)
plt.legend(['Actual','Predicted'])
```

Out[113]:

```
<matplotlib.legend.Legend at 0x259bb093fa0>
```



In [112]:

```
print(np.sqrt(metrics.mean_squared_error(y_test,y_pred)))
print(np.sqrt(metrics.mean_squared_error(y_train,linearRegModel.predict(X_train))))
```

```
0.006783974685396964
1.3150830245948768e-14
```

In [224]:

```
teams = pd.read_csv("wc_teams_main.csv")
teams.team
```

Out[224]:

```
0            100 Thieves
1                 Cloud9
2      CTBC Flying Oyster
3                    DRX
4                DWG KIA
5          EDward Gaming
6          Evil Geniuses
7                 Fnatic
8            G2 Esports
9           GAM Esports
10                 Gen.G
11            JD Gaming
12                 Rogue
13   Royal Never Give Up
14                    T1
15           Top Esports
Name: team, dtype: object
```

Final Prediction Model

In [231]:

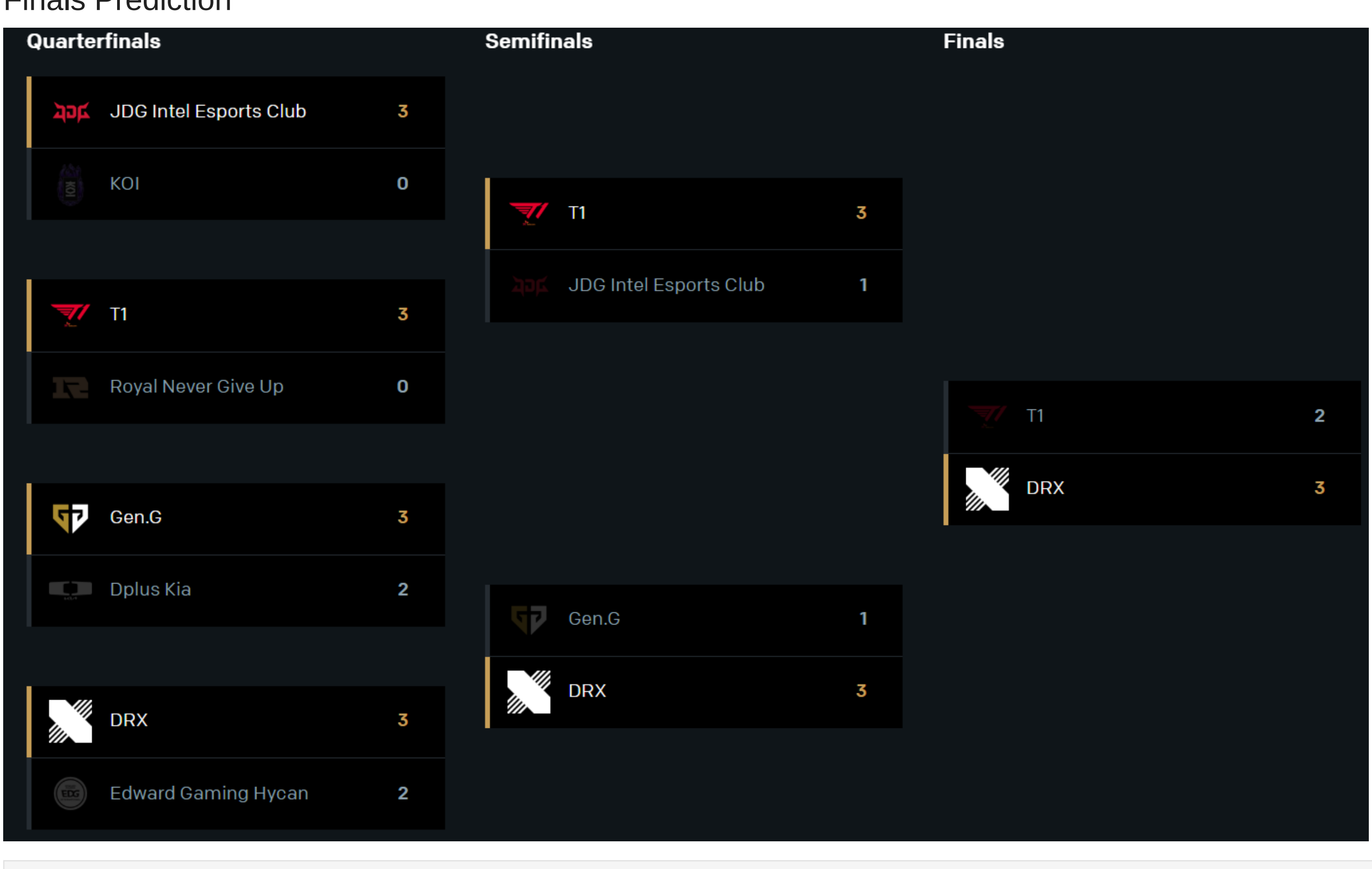
```
# Use the model to predict the winrate for each team
# PLEASE ENTER TEAM INDEX FOR INPUTS T1 AND T2
import random
def prediction(t1,t2):
    team1_winrate = linearRegModel.predict(X[t1:t1+1])
    team2_winrate = linearRegModel.predict(X[t2:t2+1])

    # Compare the predictions to determine which team is more likely to win
    print(teams.team[t1] + " VS " + teams.team[t2])
    if (team1_winrate > team2_winrate):
        print(teams.team[t1] + " is more likely to win.")
    elif (team1_winrate == team2_winrate):
        print("Team " + str(random.randint(1, 2)) + " is more likely to win")
    else:
        print(teams.team[t2] + " is more likely to win.")
```

In [240]:

```
prediction(11,14)
```

```
JD Gaming VS T1
T1 is more likely to win.
```

Finals Prediction



In [261]:

```
print("Quarterfinals Prediction Accuracy:100%")
print("----------------------------------")
prediction(11,12)
print("----------------------------------")
prediction(13,14)
print("----------------------------------")
prediction(10,4)
print("----------------------------------")
prediction(3,5)
print("----------------------------------")
```

```
Quarterfinals Prediction Accuracy:100%
----------------------------------
JD Gaming VS Rogue
JD Gaming is more likely to win.
----------------------------------
Royal Never Give Up VS T1
T1 is more likely to win.
----------------------------------
Gen.G VS DWG KIA
Gen.G is more likely to win.
----------------------------------
DRX VS EDward Gaming
DRX is more likely to win.
----------------------------------
```

In [262]:

```
print("Semifinals Prediction Accuracy:100%")
print("----------------------------------")
prediction(11,14)
print("----------------------------------")
prediction(3,10)
print("----------------------------------")
```

```
Semifinals Prediction Accuracy:100%
----------------------------------
JD Gaming VS T1
T1 is more likely to win.
----------------------------------
DRX VS Gen.G
DRX is more likely to win.
----------------------------------
```

In [264]:

```
print("Final Prediction Failed")
print("----------------------------------")
prediction(3,14)
```

```
Final Prediction Failed
----------------------------------
DRX VS T1
T1 is more likely to win.
```

DRX's Cinderella Run

In a tightly contested final series, DRX emerged victorious over T1 by a score of 3-2 to claim the tournament championship. This historic win not only marked DRX's first international title but also the first ever achieved by a play-in team. Commentators widely regarded DRX's journey to the finals as a Cinderella run, considering the team's underdog status as South Korea's last seed and their matchups against several highly-favored opponents, including the defending world champions Edward Gaming.