FIFA 2022 Analysis Report

12/11/2023

Yaochen Yu
New York University
New York, NY 10036

Overview:

Our project is dedicated to enhancing the FIFA 2022 gaming experience for the wider player community. We specialize in providing insights, statistics and advanced gameplay options based on real-time and historical player data.

Company Description:

FIFA 2022 is the latest installment in the world-renowned FIFA franchise created by EA. As one of the world's leading sports video games, FIFA has been at the forefront of bringing realistic soccer experiences to millions of players around the globe.

The data we have available contains detailed attributes of the soccer players in the FIFA 2022 game. This dataset contains information about football players, including their personal information, value, wage, club affiliations, national team information, team position, physical fitness, potential, soccer league, country, own ability and other information and various attributes related to game play (speed, shooting, passing).

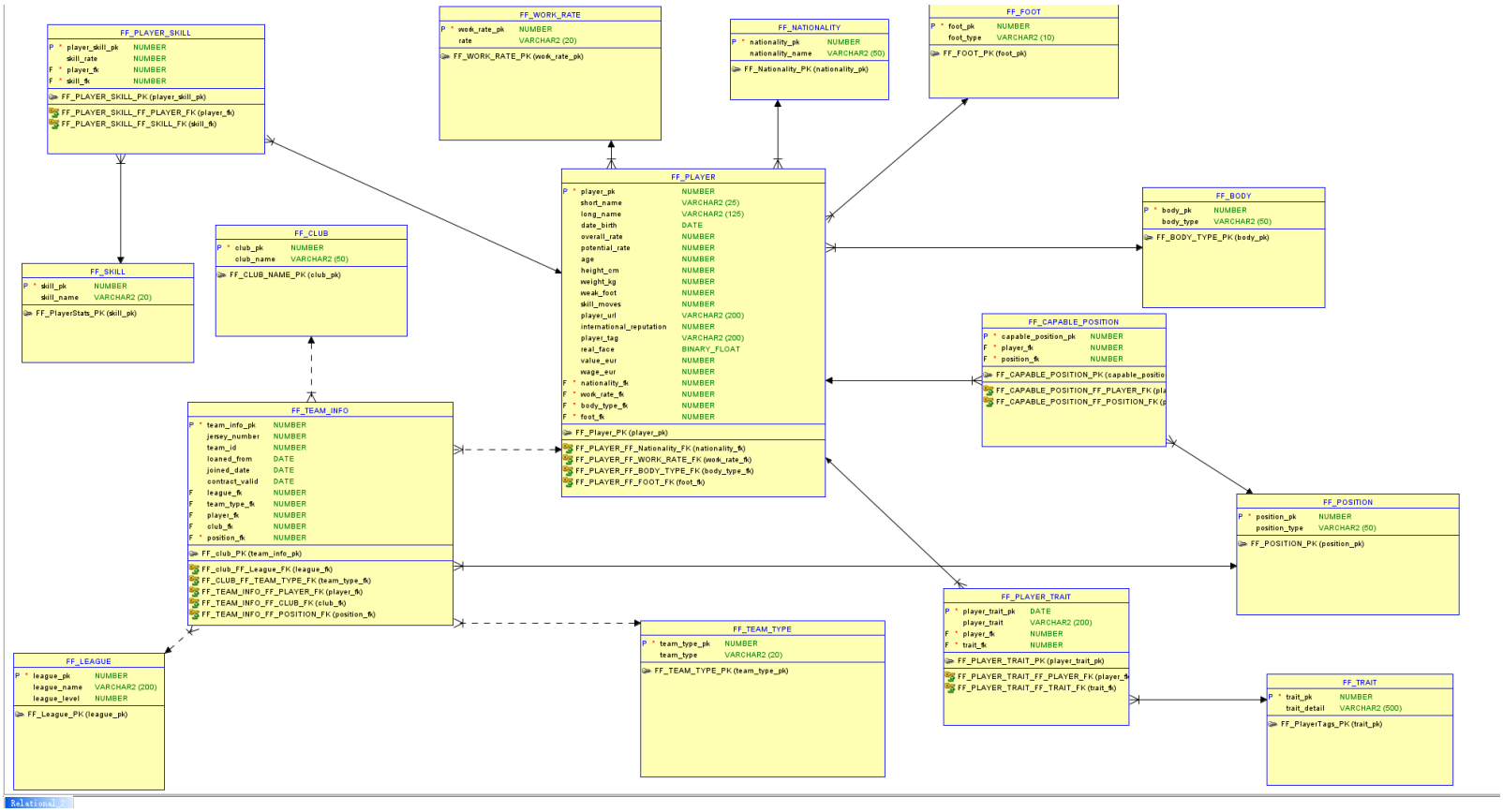
Goal:

- Enhance gameplay: using the data to fine-tune players' abilities and ensure that in-game performance matches real-life performance.
- Provide insights: allow gamers to access detailed statistics on each player to help them make informed decisions during gameplay, especially in modes such as FIFA Ultimate Team.
- Predictive Analytics: Utilize data to predict potential player performance and influence game updates and lineup changes in a dynamic gaming environment.

Deliverables:

1. Introduction of data model
2. Diminishing reports from National to League to Club and finally to Players.
3. Limitations and summaries about the report

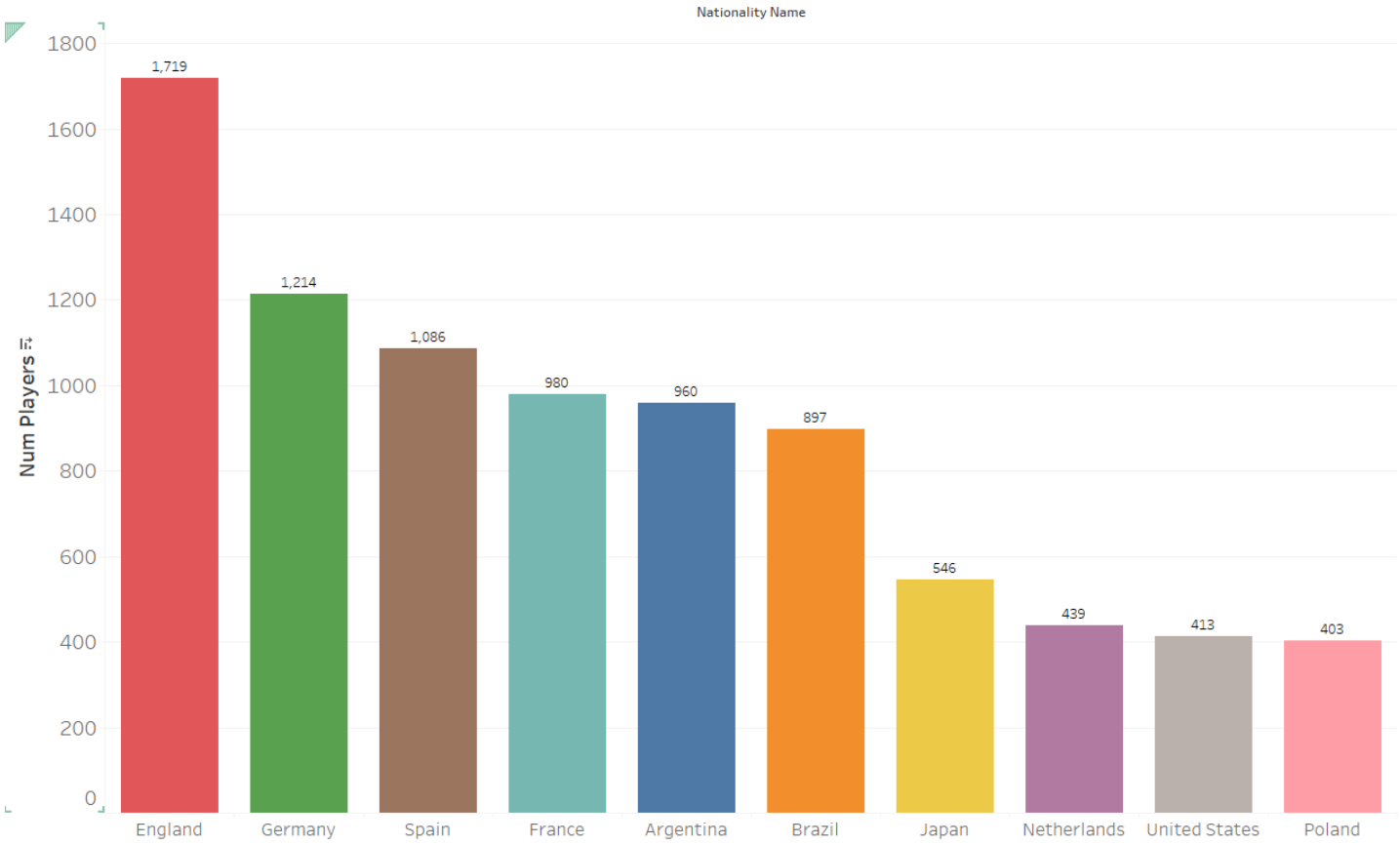
Data Model:


FF_PLAYER_SKILL
player_skill_pk NUMBER
skill_rate NUMBER
player_fk NUMBER
skill_fk NUMBER
FF_PLAYER_SKILL_PK (player_skill_pk)
FF_PLAYER_SKILL_FF_PLAYER_FK (player_fk)
FF_PLAYER_SKILL_FF_SKILL_FK (skill_fk)
FF_WORK_RATE
work_rate_pk NUMBER
rate VARCHAR2 (20)
FF_WORK_RATE_PK (work_rate_pk)
FF_NATIONALITY
nationality_pk NUMBER
nationality_name VARCHAR2 (50)
FF_Nationality_PK (nationality_pk)
FF_FOOT
foot_pk NUMBER
foot_type VARCHAR2 (10)
FF_FOOT_PK (foot_pk)
FF_PLAYER
player_pk NUMBER
short_name VARCHAR2 (25)
long_name VARCHAR2 (125)
date_birth DATE
overall_rate NUMBER
potential_rate NUMBER
age NUMBER
height_cm NUMBER
weight_kg NUMBER
weak_foot NUMBER
skill_moves NUMBER
player_url VARCHAR2 (200)
international_reputation NUMBER
player_tag VARCHAR2 (200)
real_face BINARY_FLOAT
value_eur NUMBER
wage_eur NUMBER
nationality_fk NUMBER
work_rate_fk NUMBER
body_type_fk NUMBER
foot_fk NUMBER
FF_Player_PK (player_pk)
FF_PLAYER_FF_Nationality_FK (nationality_fk)
FF_PLAYER_FF_WORK_RATE_FK (work_rate_fk)
FF_PLAYER_FF_BODY_TYPE_FK (body_type_fk)
FF_PLAYER_FF_FOOT_FK (foot_fk)
FF_BODY
body_pk NUMBER
body_type VARCHAR2 (50)
FF_BODY_TYPE_PK (body_pk)
FF_CLUB
club_pk NUMBER
club_name VARCHAR2 (50)
FF_CLUB_NAME_PK (club_pk)
FF_SKILL
skill_pk NUMBER
skill_name VARCHAR2 (20)
FF_PlayerStats_PK (skill_pk)
FF_CAPABLE_POSITION
capable_position_pk NUMBER
player_fk NUMBER
position_fk NUMBER
FF_CAPABLE_POSITION_PK (capable_positio
FF_CAPABLE_POSITION_FF_PLAYER_FK (pla
FF_CAPABLE_POSITION_FF_POSITION_FK (p
FF_TEAM_INFO
team_info_pk NUMBER
jersey_number NUMBER
team_id NUMBER
loaned_from DATE
joined_date DATE
contract_valid DATE
league_fk NUMBER
team_type_fk NUMBER
player_fk NUMBER
club_fk NUMBER
position_fk NUMBER
FF_club_PK (team_info_pk)
FF_club_FF_League_FK (league_fk)
FF_CLUB_FF_TEAM_TYPE_FK (team_type_fk)
FF_TEAM_INFO_FF_PLAYER_FK (player_fk)
FF_TEAM_INFO_FF_CLUB_FK (club_fk)
FF_TEAM_INFO_FF_POSITION_FK (position_fk)
FF_POSITION
position_pk NUMBER
position_type VARCHAR2 (50)
FF_POSITION_PK (position_pk)
FF_PLAYER_TRAIT
player_trait_pk DATE
player_trait VARCHAR2 (200)
player_fk NUMBER
trait_fk NUMBER
FF_PLAYER_TRAIT_PK (player_trait_pk)
FF_PLAYER_TRAIT_FF_PLAYER_FK (player_fk
FF_PLAYER_TRAIT_FF_TRAIT_FK (trait_fk)
FF_TRAIT
trait_pk NUMBER
trait_detail VARCHAR2 (500)
FF_PlayerTags_PK (trait_pk)
FF_TEAM_TYPE
team_type_pk NUMBER
team_type VARCHAR2 (20)
FF_TEAM_TYPE_PK (team_type_pk)
FF_LEAGUE
league_pk NUMBER
league_name VARCHAR2 (200)
league_level NUMBER
FF_League_PK (league_pk)
Relational_2

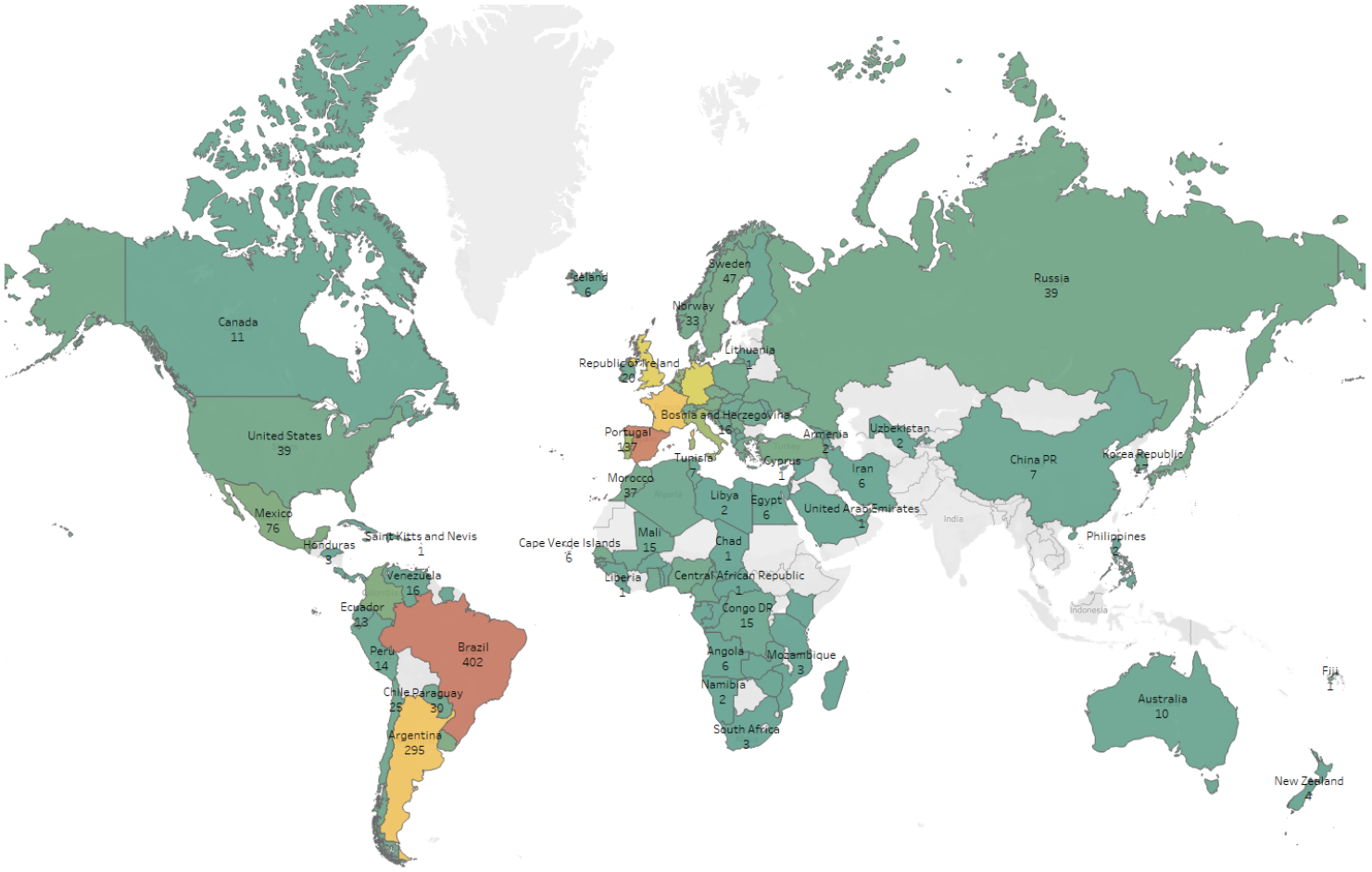
Analysis Part I : National

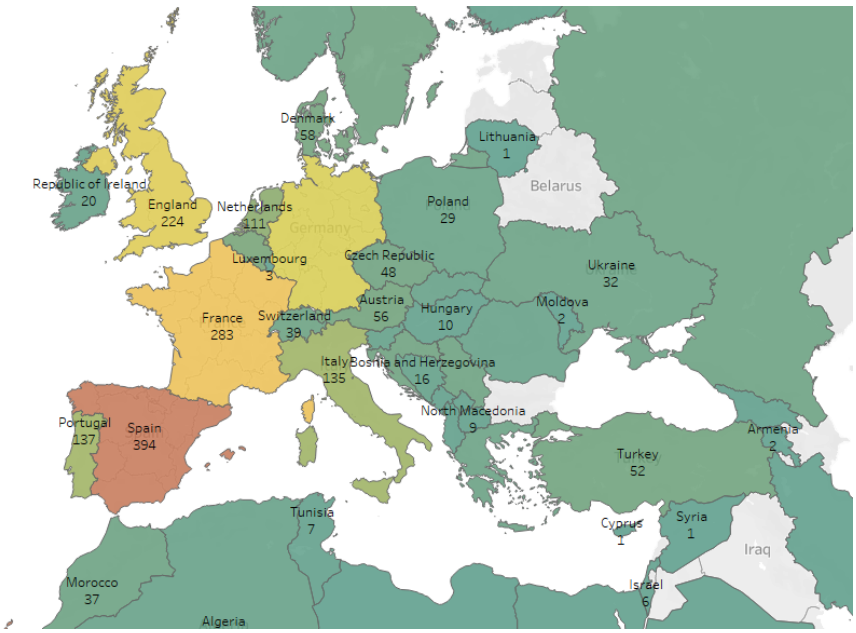
I. Number of Professional Players in every country

Top 10 countries with the most professional players



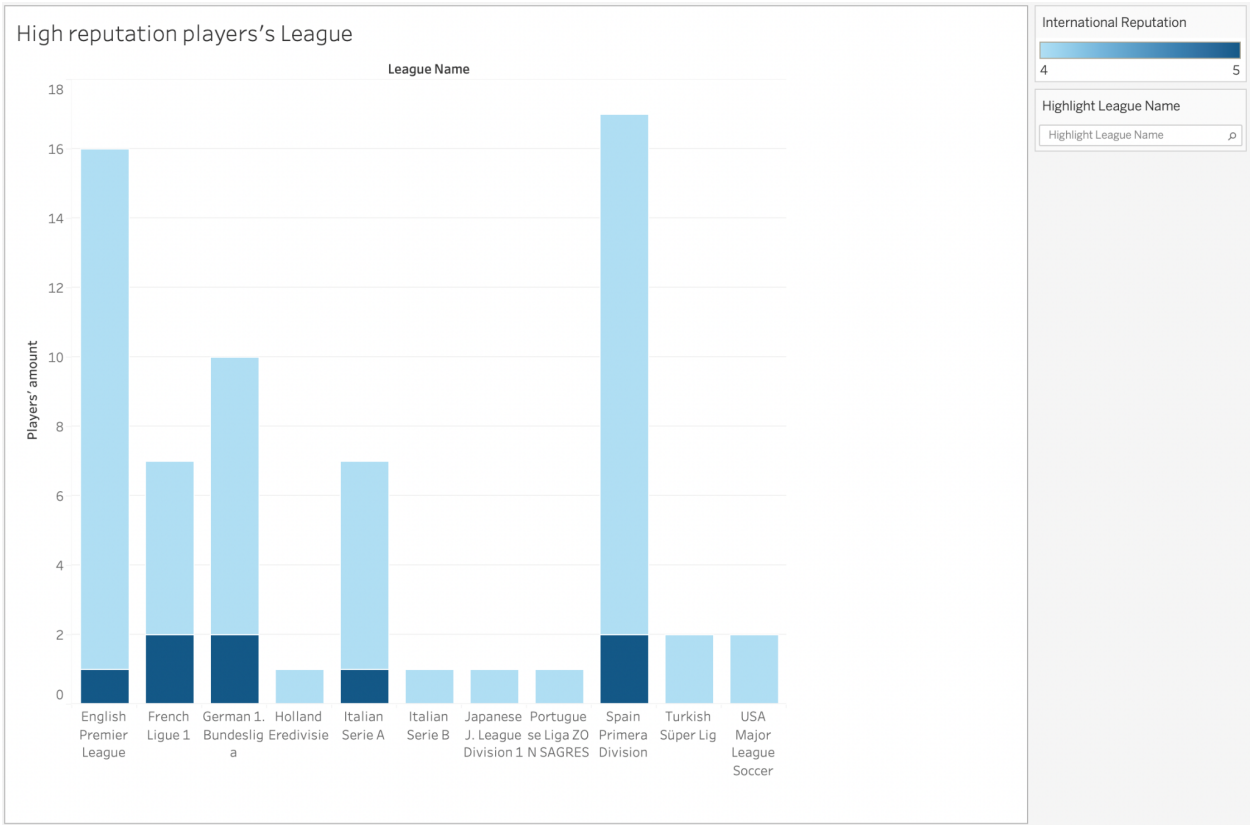
II. Number of TOP 20 Players in Every Country



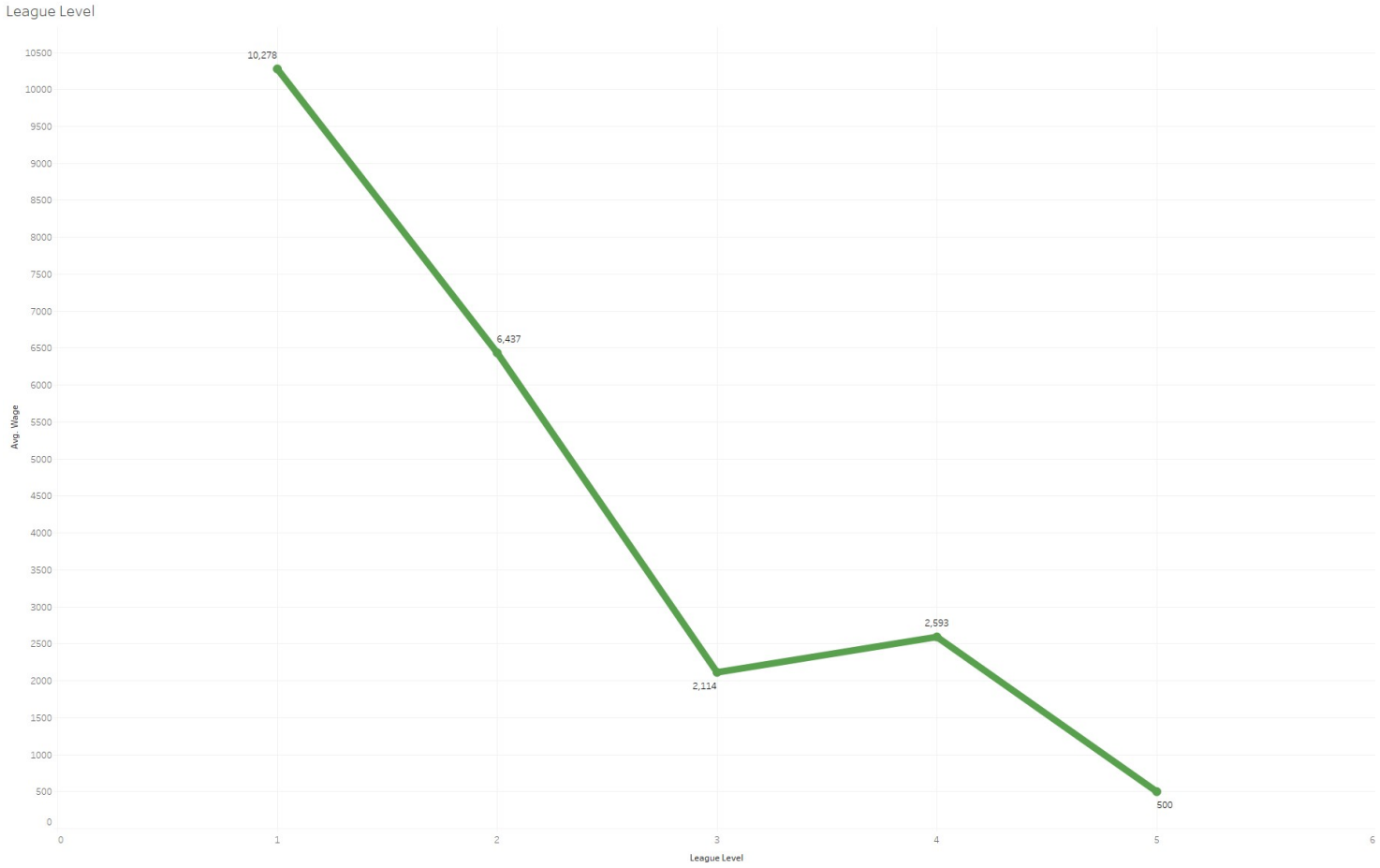


Analysis Part II : League

I. League with the most high international reputation players

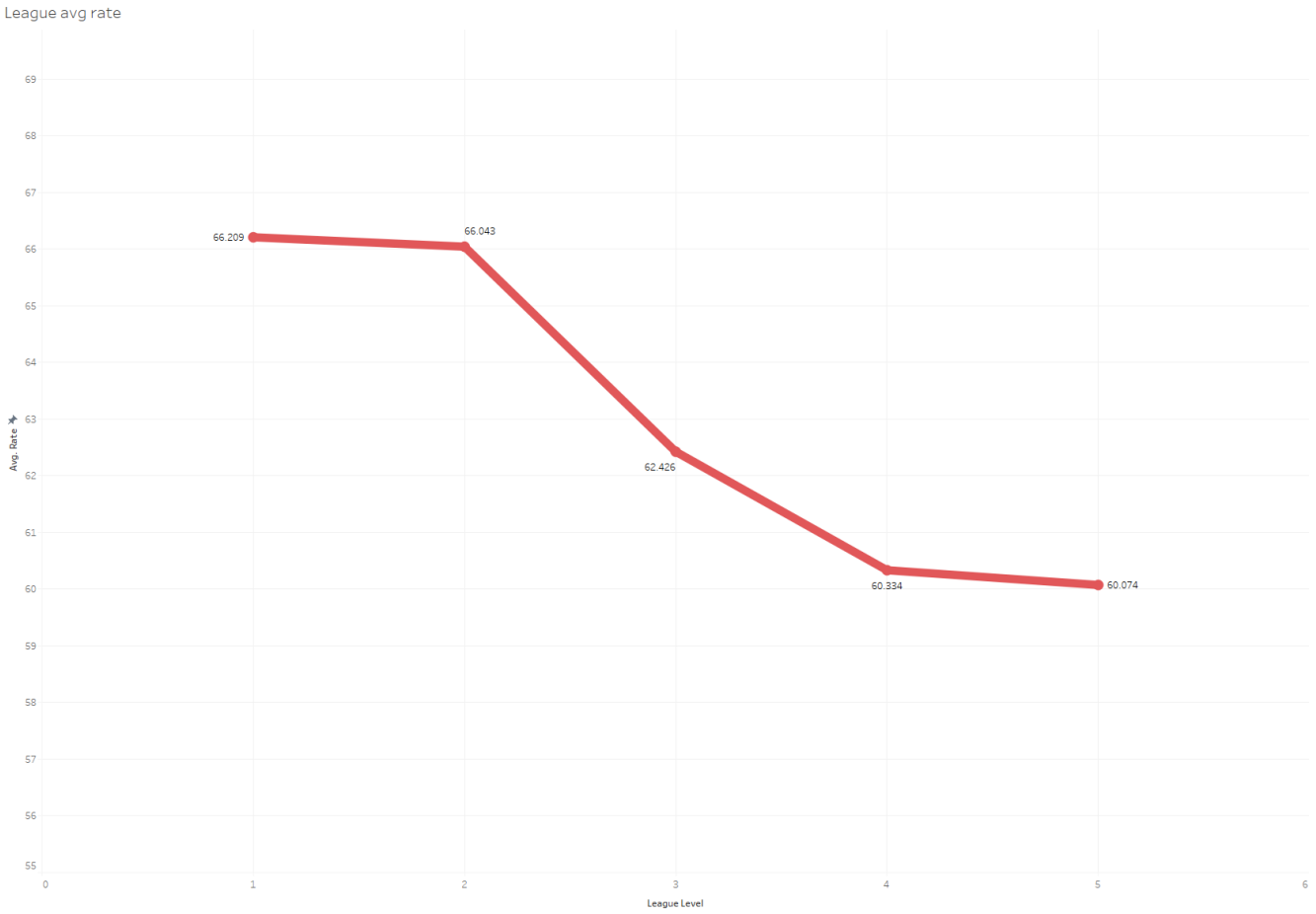


II. League Avg wage trend



League Level 的 Wage 平均值 的趋势。

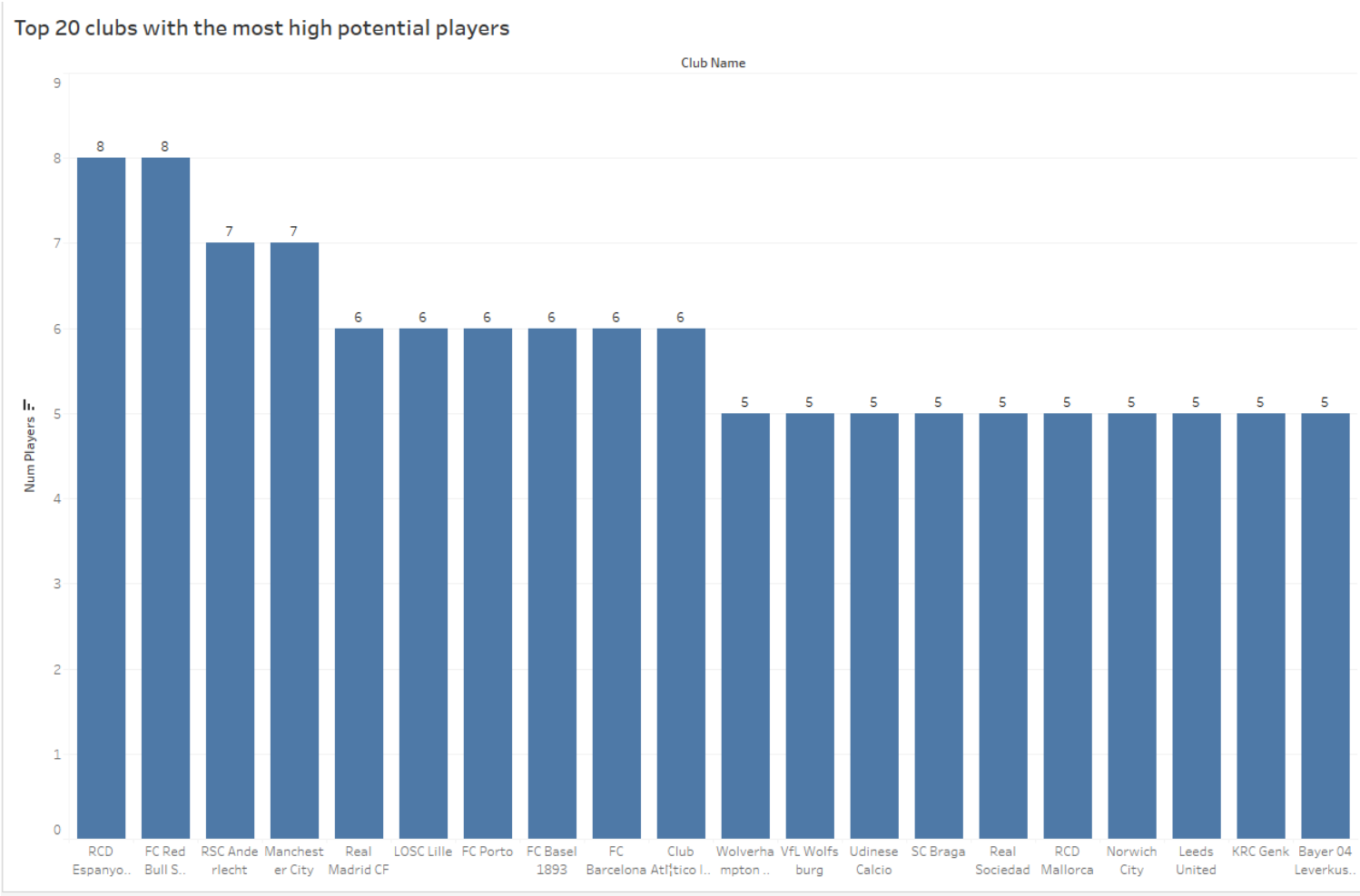
III. League Avg rate trend



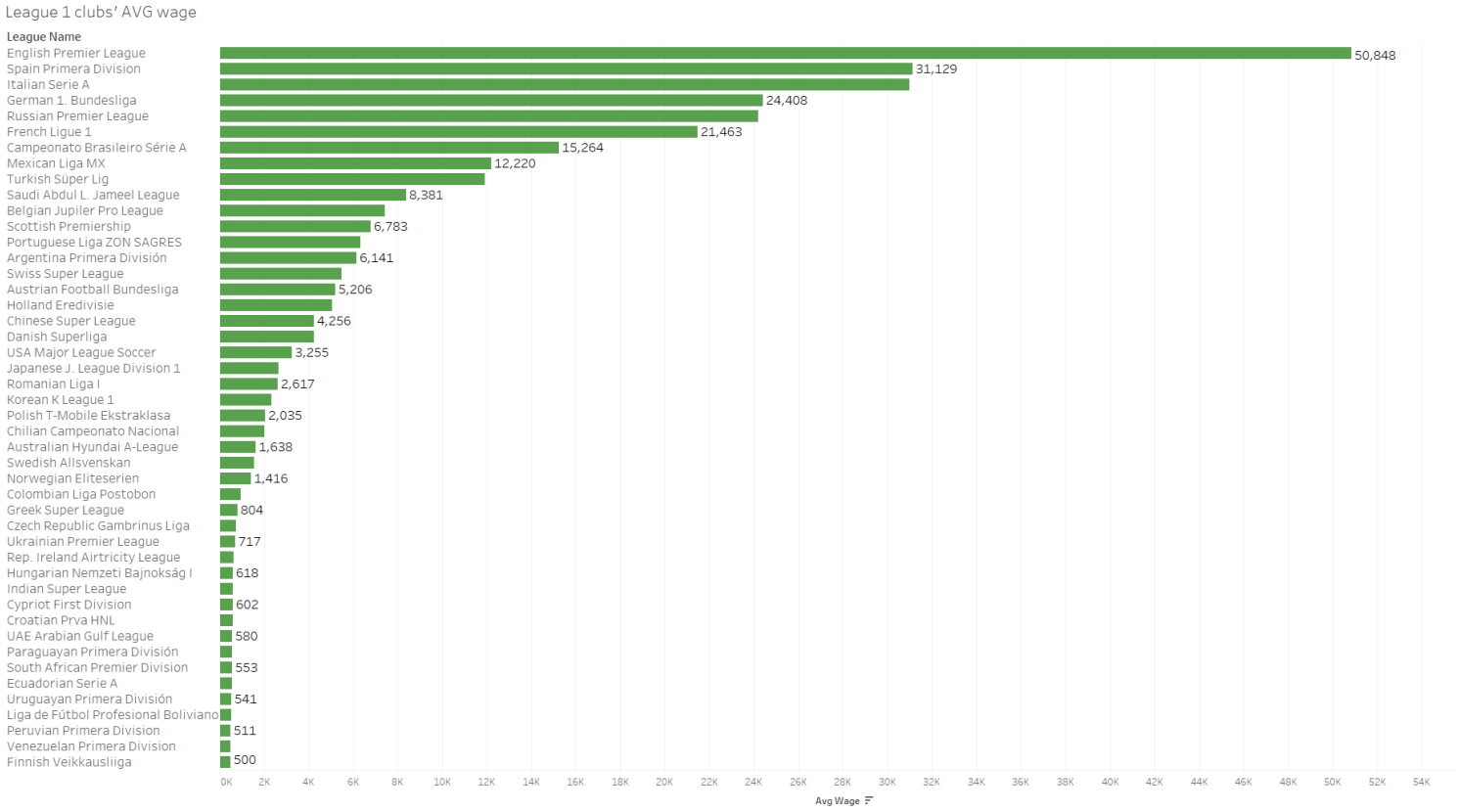
League Level 的 Rate 平均值 的趋势。

Analysis Part III : Club

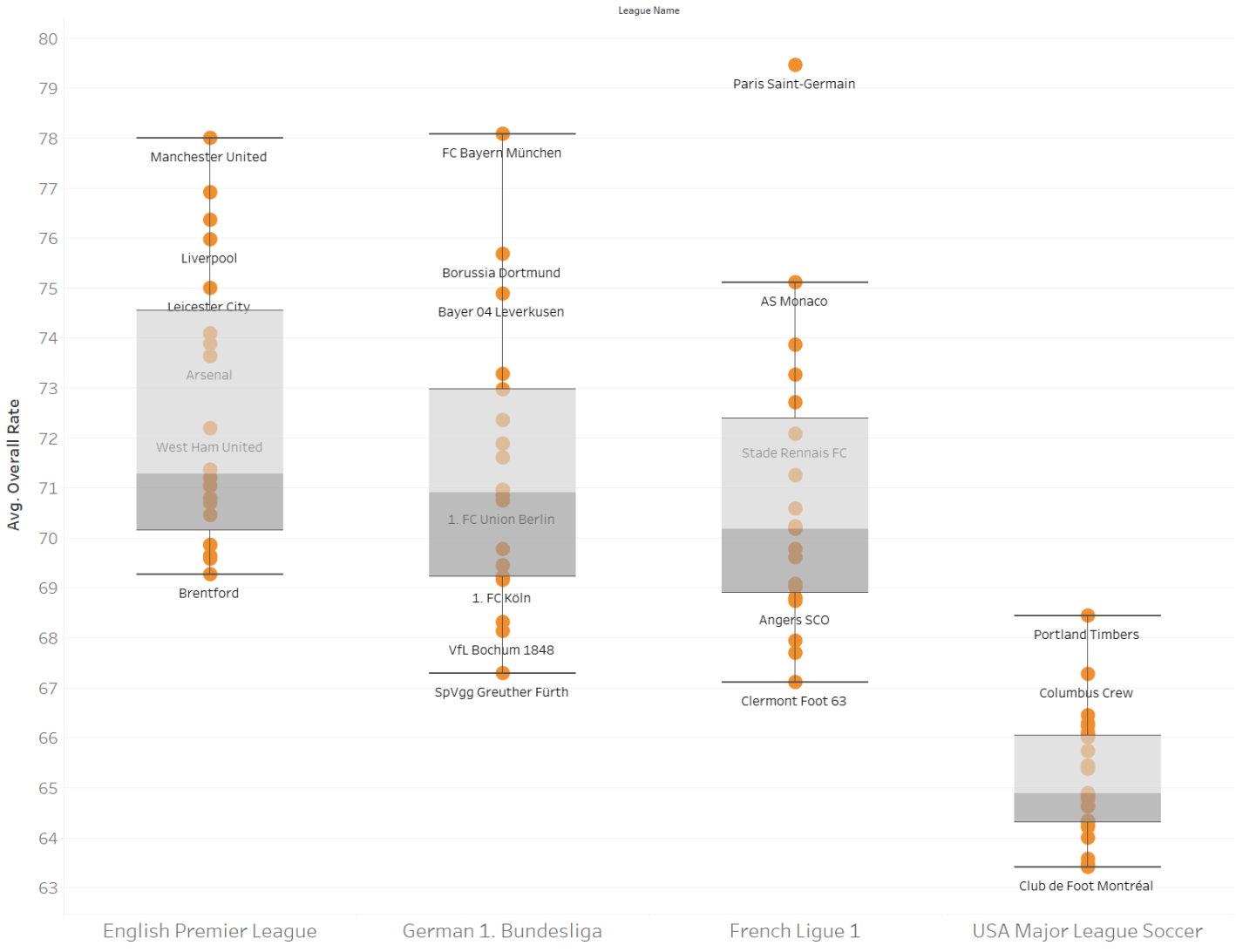
I. Top 20 clubs with the most high potential players



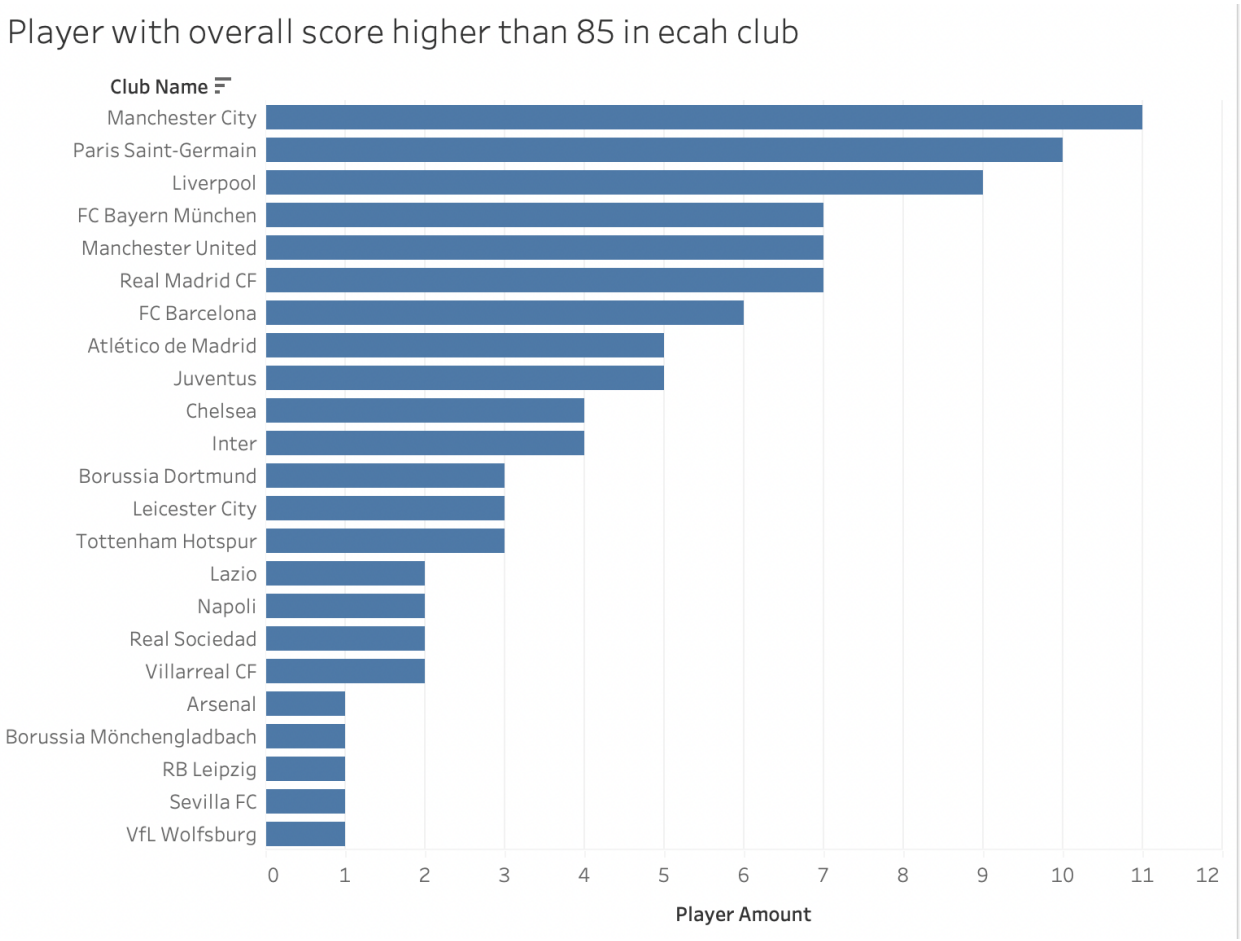
II. Level 1 Clubs' Avg Wage



III. Level 1 Clubs' Avg Rate Comparison

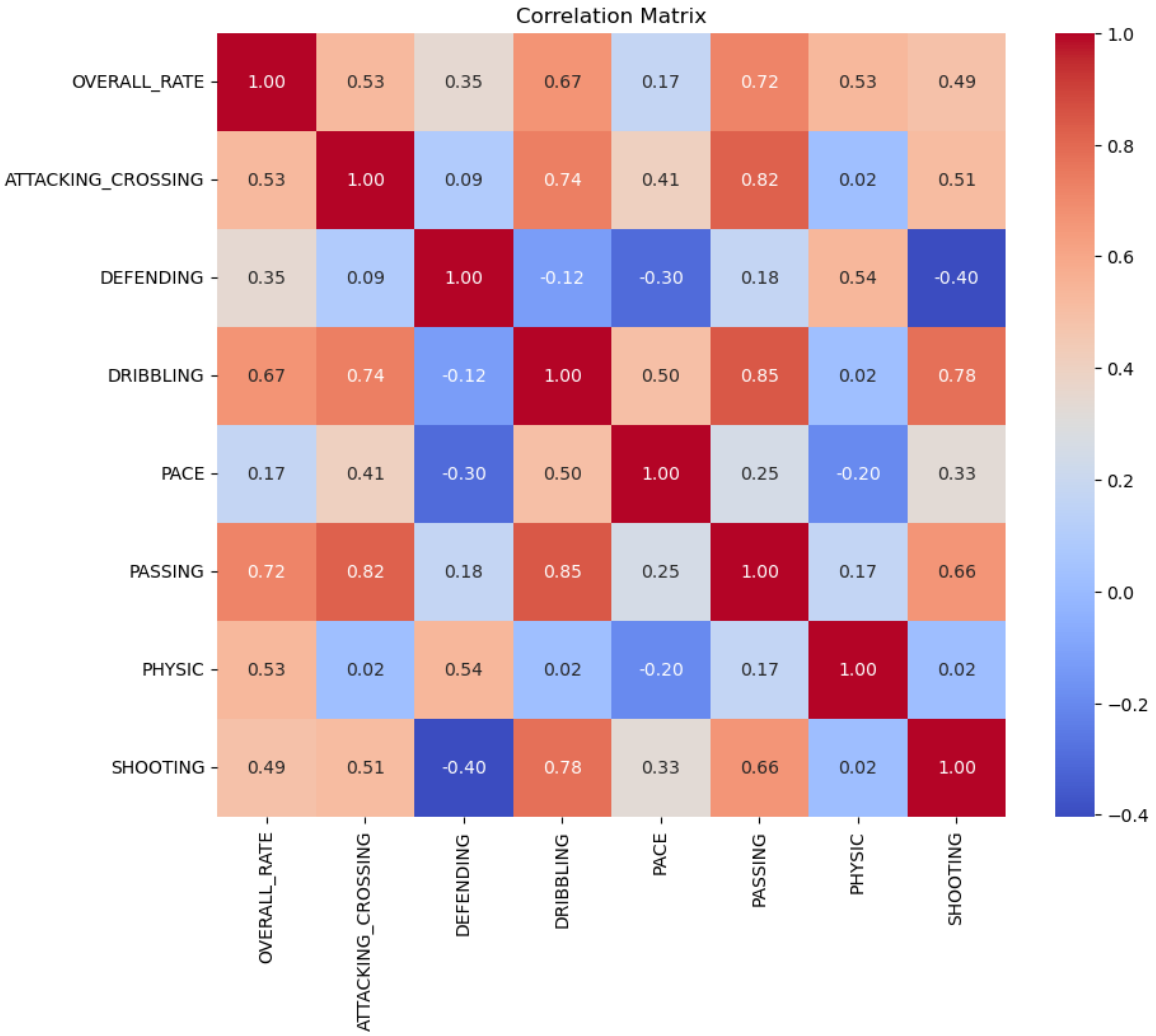


IV. Club Competitiveness

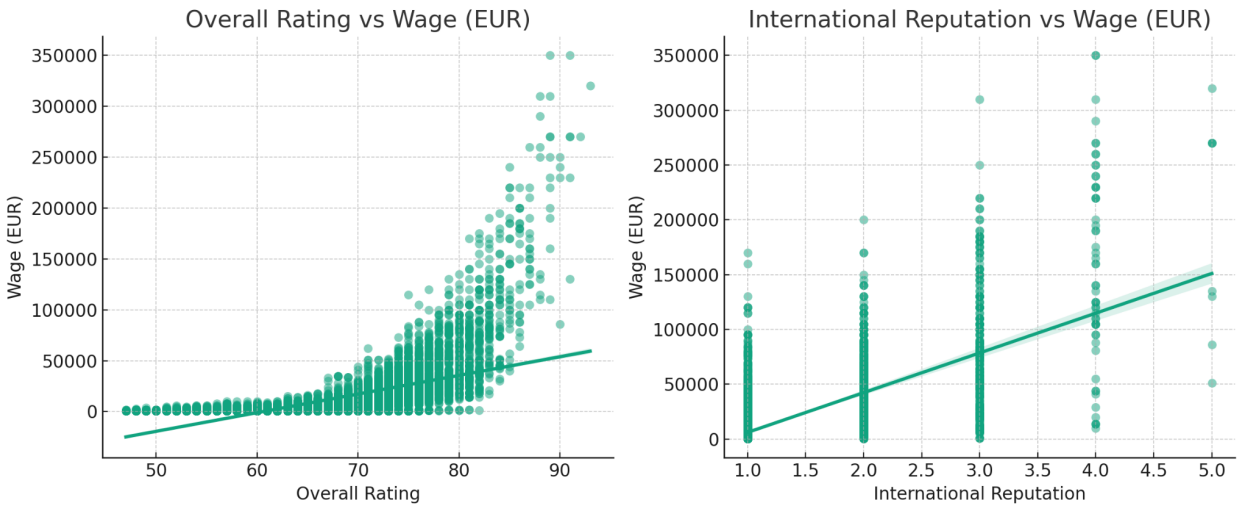


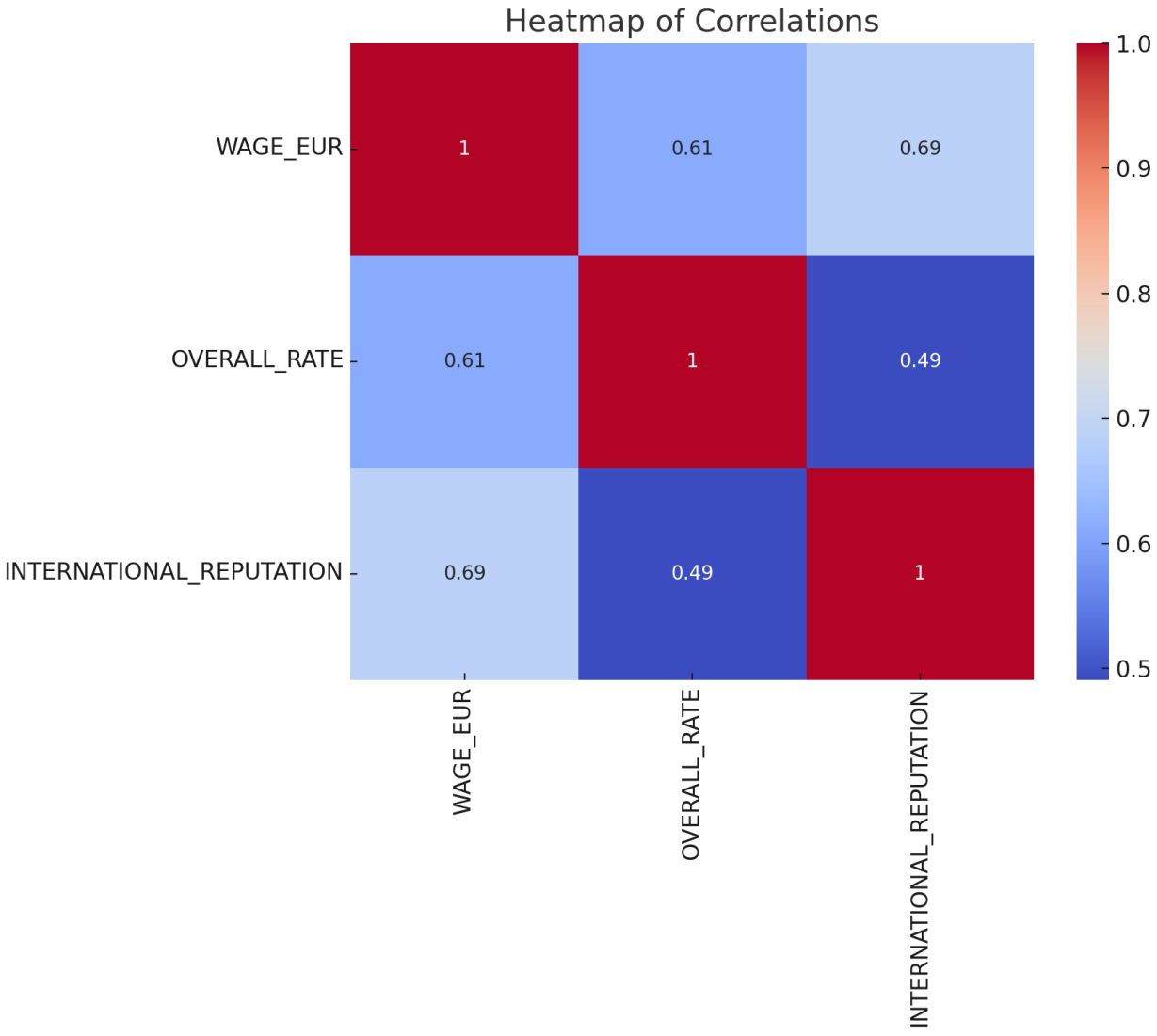
Analysis Part IV : Player

I. Player Overall Rate and Skills' Correlation

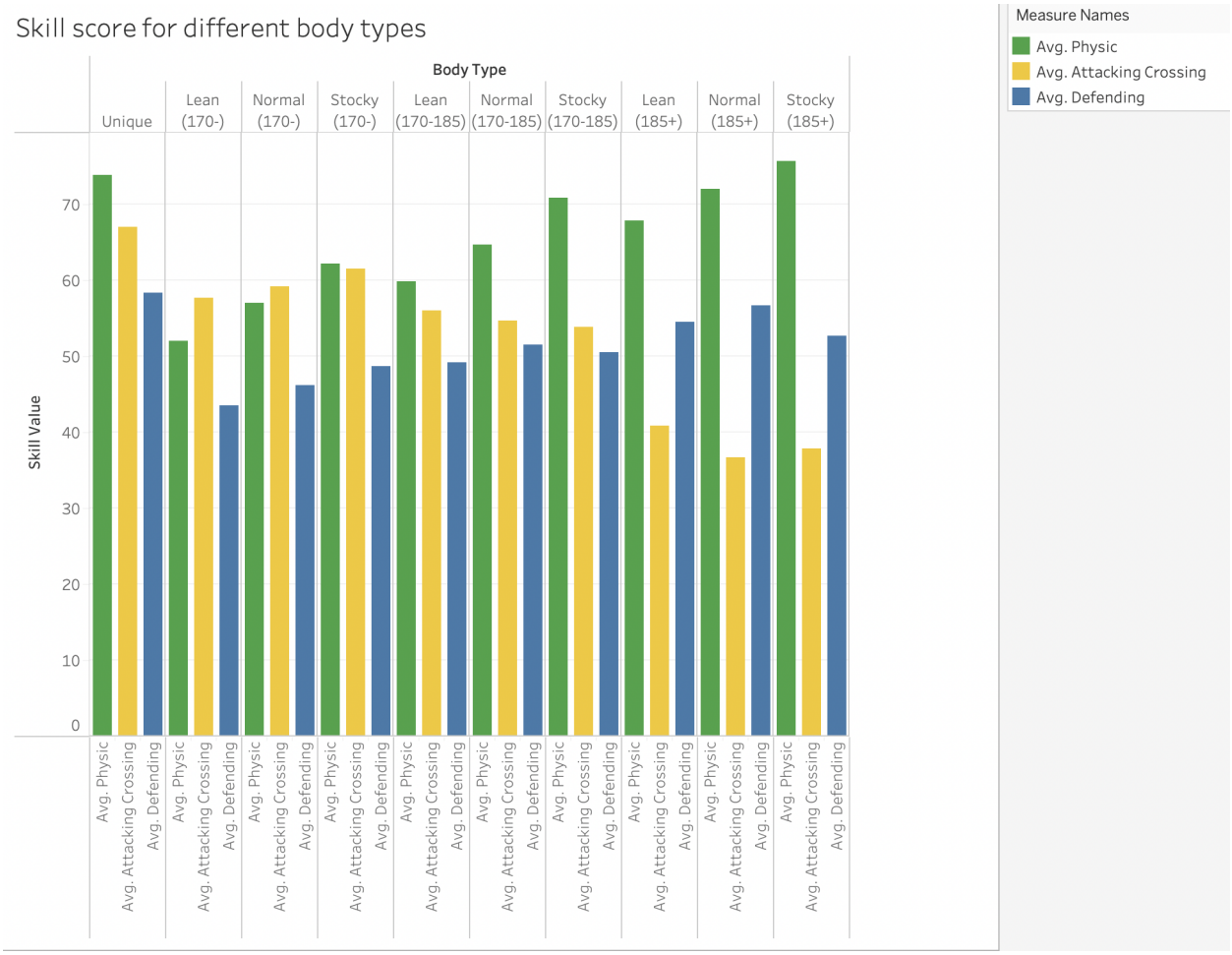


II. Wage vs Other Indicators




Heatmap of Correlations
WAGE_EUR
OVERALL_RATE
INTERNATIONAL_REPUTATION
1
0.61
0.69
0.61
1
0.49
0.69
0.49
1
WAGE_EUR
OVERALL_RATE
INTERNATIONAL_REPUTATION
1.0
0.9
0.8
0.7
0.6
0.5

III. Skill & Body types



Limitation

- The game data may not directly reflect players real world performance
- The game data were adjusted for gaming balance
- Player performances change over time, but the FIFA database may not be updated frequently enough to reflect recent form, injuries, or transfers.
- Comparing players across different leagues or positions can be challenging due to the varied nature of these roles and the level of competition in different leagues.

Appendix -- SQL

```
--Number of Professional Players in every country
CREATE OR REPLACE VIEW ZJ_NATION_NUMBER_PLAYER_TOP_10_V AS
  SELECT
  n.nationality_name,
  COUNT(p.player_pk) AS num_players
FROM
  ff_player p
JOIN ff_nationality n
  ON p.nationality_fk = n.nationality_pk
GROUP BY
  n.nationality_name
ORDER BY
  num_players DESC
FETCH FIRST 10 ROWS ONLY;

--Number of TOP 20 Players in Every Country
  CREATE OR REPLACE VIEW YY_FF_TOP_PLAYER_NATIONALITY_V AS
  WITH nation_player_score as(
SELECT short_name, overall_rate, nationality_name
FROM (
    SELECT pl.short_name, pl.overall_rate, na.nationality_name,
           NTILE(5) OVER (ORDER BY pl.overall_rate DESC) AS
percentile
    FROM ff_player pl
    JOIN ff_nationality na ON pl.nationality_fk = na.nationality_pk
)
WHERE percentile = 1
)
select nationality_name nation, count(short_name) number_of_players
from nation_player_score
group by nationality_name
order by count(short_name) desc;

--League Avg wage trend
  CREATE OR REPLACE  VIEW YY_FF_LEAGUE_WAGE_V AS
  select pl.short_name name, pl.wage_eur wage, le.league_level
league_level, le.league_name league_name
```

```
from ff_player pl
join ff_team_info ti on pl.player_pk = ti.player_fk
join ff_league le on ti.league_fk = le.league_pk;

--League Avg rate trend
  CREATE OR REPLACE  VIEW YY_FF_LEAGUE_RATE_V AS
  select pl.short_name name, pl.overall_rate rate, le.league_level
league_level, le.league_name league_name
from ff_player pl
join ff_team_info ti on pl.player_pk = ti.player_fk
join ff_league le on ti.league_fk = le.league_pk;

--Level 1 Clubs' Avg Wage
  CREATE OR REPLACE  VIEW YY_FF_CLUB_WAGE_V AS
  select club.club_name, sum(pl.wage_eur) total_wage
from ff_player pl
join ff_team_info team
on pl.player_pk = team.player_fk
join ff_club club
on team.club_fk = club.club_pk
group by club.club_name
order by total_wage desc
fetch first 5 rows only;

--Level 1 Clubs' Avg Rate Comparison

  CREATE OR REPLACE  VIEW YY_FF_CLUB_RATE_V AS
  select club_name, avg_rate, dense_rank()over(order by avg_rate
desc) club_rank
    from(
    SELECT club.club_name, round(avg(player.overall_rate),2)
avg_rate
    FROM FF_PLAYER player
    JOIN ff_team_info ti ON player.player_pk = ti.player_fk
    JOIN ff_club club ON ti.club_fk = club.club_pk
    group by club.club_name
    );

--Player Overall Rate and Skills' Correlation
```

```
  CREATE OR REPLACE VIEW YY_FF_SKILL_V AS
  SELECT
"SHORT_NAME","OVERALL_RATE","ATTACKING_CROSSING","DEFENDING","DRIBBL
ING","PACE","PASSING","PHYSIC","SHOOTING"
FROM (
    SELECT pl.short_name,
           sk.skill_name,
           ps.skill_rate,
           pl.overall_rate
    FROM ff_player pl
    JOIN ff_player_skill ps ON pl.player_pk = ps.player_fk
    JOIN ff_skill sk ON ps.skill_fk = sk.skill_pk
)
PIVOT (
    MAX(skill_rate)
    FOR skill_name IN ('attacking_crossing' attacking_crossing,
'defending'defending, 'dribbling'dribbling, 'pace'pace,
'passing'passing, 'physic'physic, 'shooting'shooting)
);

--Top 20 clubs with the most high potential players
 CREATE OR REPLACE  VIEW ZJ_CLUB_POTENTIAL_PLAYER_CLUB_V AS
 SELECT
 a.club_name,
 COUNT(c.player_pk) AS num_players
FROM
  ff_club a
INNER JOIN ff_team_info b
  ON a.club_pk = b.club_fk
INNER JOIN ff_player c
  ON b.player_fk = c.player_pk
WHERE
  c.overall_rate < 75 AND c.potential_rate > 80
GROUP BY
  a.club_name
ORDER BY
  num_players DESC
fetch next 20 rows only;
```

```
--Top 10 clubs with the most high efficiency players
CREATE OR REPLACE  VIEW ZJ_WORK_RATE_MOST_CLUB_V AS
  SELECT
  d.club_name,
  COUNT(a.player_pk) AS num_high_high_players
FROM
  ff_player a
INNER JOIN ff_work_rate b
  ON a.work_rate_fk = b.work_rate_pk
INNER JOIN ff_team_info c
  ON c.player_fk = a.player_pk
INNER JOIN ff_club d
  ON d.club_pk = c.club_fk
WHERE
  b.rate = 'High/High'
GROUP BY
  d.club_name
ORDER BY
  num_high_high_players DESC
FETCH FIRST 10 ROWS ONLY;

-- Club Competitiveness
CREATE VIEW yz_club_players_overall85_v
AS
SELECT club.CLUB_NAME club_with_most_players_above_overall85,
COUNT(player.player_pk) player_count
FROM ff_club club
JOIN ff_team_info teaminfo ON club.club_pk = teaminfo.club_fk
JOIN ff_player player ON player.player_pk = teaminfo.player_fk
WHERE player.OVERALL_RATE > 85
GROUP BY club.CLUB_NAME
HAVING COUNT(player.player_pk) = (
                                  SELECT MAX(player_count)
                                  FROM (
                                        SELECT club.CLUB_NAME,
COUNT(player.player_pk) player_count
                                        FROM ff_club club
                                        JOIN ff_team_info teaminfo ON
club.club_pk = teaminfo.club_fk
```

```
                                        JOIN ff_player player ON
player.player_pk = teaminfo.player_fk
                                        WHERE player.OVERALL_RATE >
85
                                        GROUP BY club.CLUB_NAME))



-- Skill & Body Type
CREATE VIEW yz_high_pace_bodytype_v
AS
SELECT body.body_type, ROUND(AVG(player_skill.skill_rate),2) AS
avg_pace_rate, skill.skill_name
FROM ff_body body
JOIN ff_player player ON body.body_pk = player.body_fk
JOIN ff_player_skill player_skill ON player.player_pk =
player_skill.player_fk
JOIN ff_skill skill ON skill.skill_pk = player_skill.skill_fk
WHERE skill.skill_name = 'pace'
GROUP BY skill.skill_name, body.body_type
ORDER BY avg_pace_rate DESC
FETCH FIRST 3 ROWS ONLY
```