

Gestiunea competitiei Esports League of Legends

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1. Utilitatea bazei de date

Baza de date contine informatii cu privire la turneele competitiei Esports League of Legends, meciurile jucate in cadrul acestora, echipele participante, jucatorii si statistici legate de acestia, campionii jucati cat si cei banati.

Scopul crearii acestei baze de date este de a facilita generarea de statistici, ce ulterior vor fi analizate in cadrul evenimentelor de catre casteri in timpul pauzelor.

Aceasta competitie are un numar mare de turnee an de an. Fiecare turneu contine informatii relevante precum numele, data inceperii, data terminarii si locatia unde are loc acesta.

In cadrul fiecarui turneu au loc mai multe meciuri la care participa doua echipe, si se desfasoara intr-o data bine stabilita. In mod evident trebuie sa retinem si rezultatele acestor meciuri pentru generarea viitoarelor statistici.

In cadrul jocului League of Legends serverele sunt distribuite in urmatoarele regiuni: "NA" – North America, "EU" – Europe, "KR" – Korea, "AS" – Asia, "TUR" – Turkey. Aceste regiuni sunt date specifice atat jucatorilor cat si echipelor, aratand zona de provenienta a acestora.

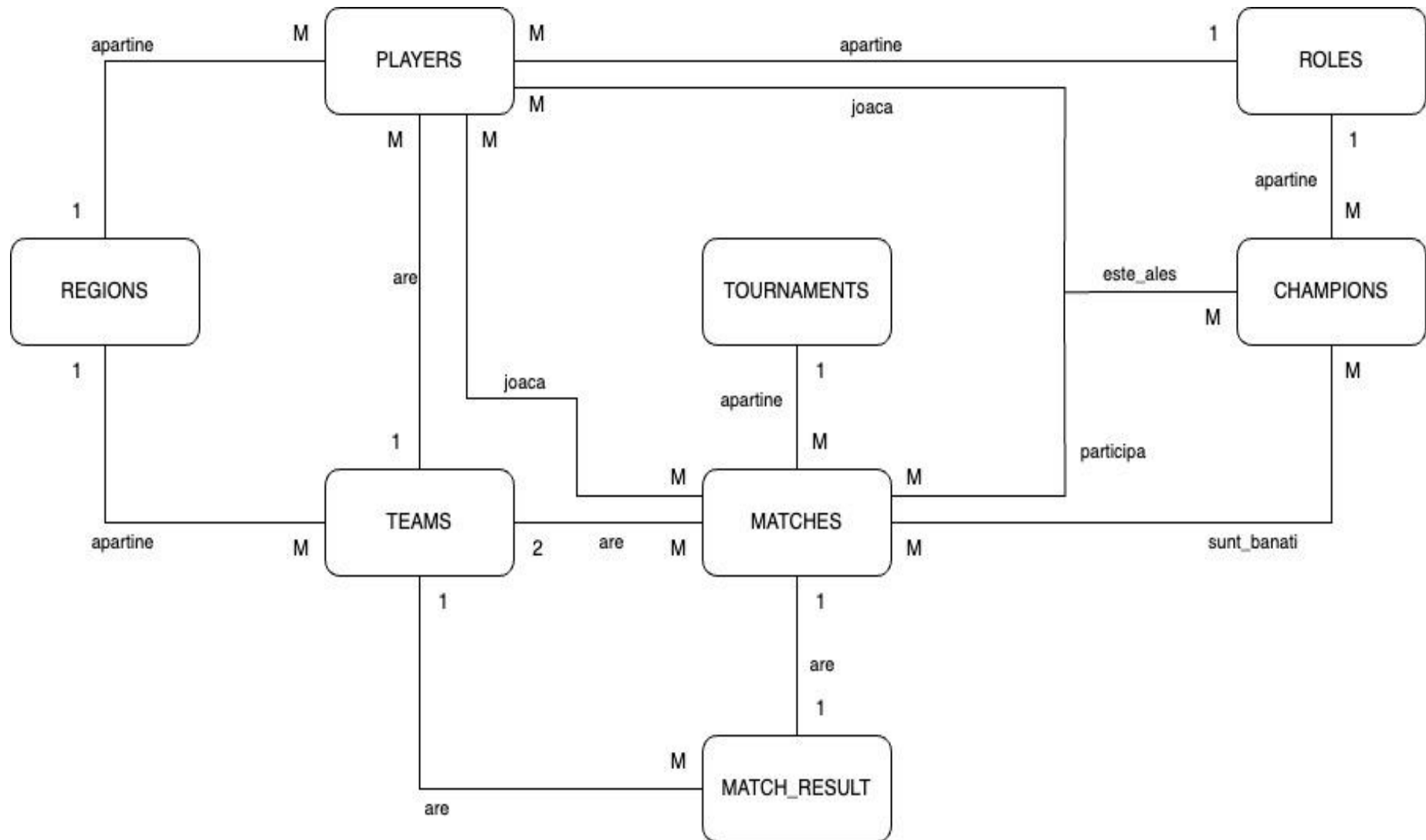
Fiecare echipa are un nume si apartine unei regiuni, iar in cadrul fiecarei echipe avem 5 jucatori ce au un nume, un prenume, un nume de joc cat si un rol.

Rolurile bine cunoscute ale acestui joc sunt in numar de 5 si sunt urmatoarele: "Top", "Jungle", "Mid", "ADC", "Support".

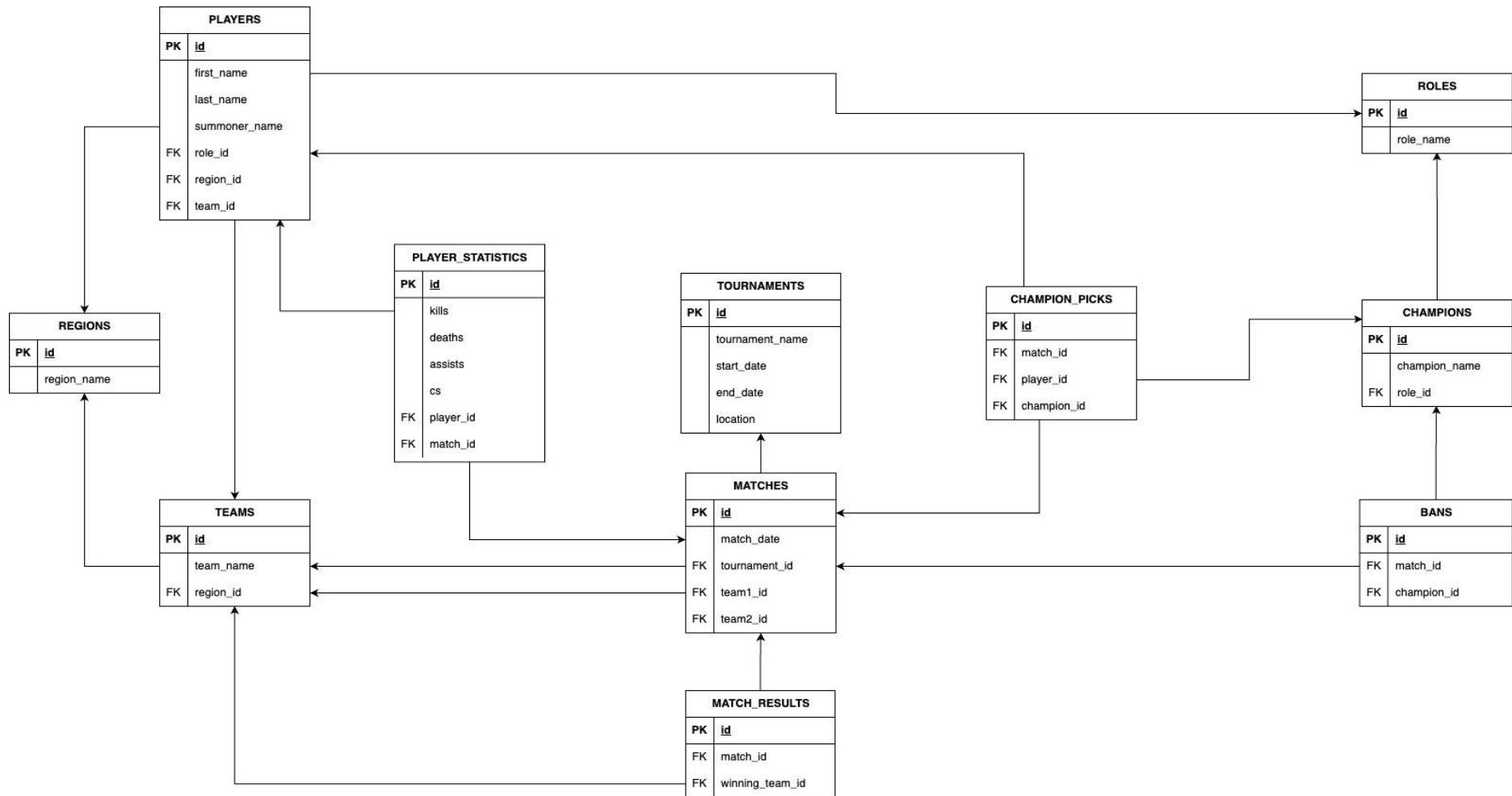
Pentru fiecare meci jucat de catre o echipa, pentru toti jucatorii acesteia vom salva date despre cate kill-uri, death-uri, assist-uri si creep score au acestia in respectivul meci.

Fiecare jucator trebuie sa joace cate un campion in cadrul fiecarui meci, iar despre campioni stim numele acestora, cat si rolul specific al acestora (un jucator cu rolul x nu trebuie neaparat sa joace un campion cu rolul x, dar este incurajat de catre sensul jocului). De asemenea in cadrul fiecarui meci exista si sectiunea de ban-uri in care unii campioni sunt blocati din a fi alesi de catre jucatorii celor doua echipe participante.

2. Diagrama Entitate-Relatie



3. Diagrama Conceptuala



4. Definirea tabelelor si a constrangerilor

```
CREATE TABLE regions
(
    id          NUMBER GENERATED BY DEFAULT ON NULL AS IDENTITY,
    region_name VARCHAR2(3) NOT NULL,
    PRIMARY KEY (id)
);

CREATE TABLE teams
(
    id          NUMBER GENERATED BY DEFAULT ON NULL AS IDENTITY,
    team_name   VARCHAR2(100) NOT NULL,
    region_id   NUMBER          NOT NULL,
    PRIMARY KEY (id),
    FOREIGN KEY (region_id) REFERENCES regions (id)
);

CREATE TABLE roles
(
    id          NUMBER GENERATED BY DEFAULT ON NULL AS IDENTITY,
    role_name   VARCHAR2(15) NOT NULL,
    PRIMARY KEY (id)
);

CREATE TABLE players
(
    id          NUMBER GENERATED BY DEFAULT ON NULL AS
IDENTITY,
    first_name   VARCHAR2(50) NOT NULL,
    last_name    VARCHAR2(50) NOT NULL,
    summoner_name VARCHAR2(50) NOT NULL,
    role_id      NUMBER          NOT NULL,
    region_id    NUMBER          NOT NULL,
    team_id      NUMBER          NOT NULL,
    PRIMARY KEY (id),
    FOREIGN KEY (role_id) REFERENCES roles (id),
    FOREIGN KEY (region_id) REFERENCES regions (id),
    FOREIGN KEY (team_id) REFERENCES teams (id)
);

CREATE TABLE tournaments
(
    id          NUMBER GENERATED BY DEFAULT ON NULL AS
IDENTITY,
    tournament_name VARCHAR2(100) NOT NULL,
    start_date    DATE              NOT NULL,
    end_date      DATE              NOT NULL,
    location      VARCHAR2(100) NOT NULL,
    PRIMARY KEY (id)
);
```

```

CREATE TABLE matches
(
    id          NUMBER GENERATED BY DEFAULT ON NULL AS
IDENTITY,
    tournament_id NUMBER NOT NULL,
    team1_id     NUMBER NOT NULL,
    team2_id     NUMBER NOT NULL,
    match_date   DATE NOT NULL,
    PRIMARY KEY (id),
    FOREIGN KEY (tournament_id) REFERENCES tournaments (id),
    FOREIGN KEY (team1_id) REFERENCES teams (id),
    FOREIGN KEY (team2_id) REFERENCES teams (id)
);

CREATE TABLE match_results
(
    id          NUMBER GENERATED BY DEFAULT ON NULL AS
IDENTITY,
    match_id     NUMBER NOT NULL,
    winning_team_id NUMBER NOT NULL,
    PRIMARY KEY (id),
    FOREIGN KEY (match_id) REFERENCES matches (id),
    FOREIGN KEY (winning_team_id) REFERENCES teams (id),
    UNIQUE (match_id)
);

CREATE TABLE player_statistics
(
    id          NUMBER GENERATED BY DEFAULT ON NULL AS IDENTITY,
    player_id   NUMBER NOT NULL,
    match_id    NUMBER NOT NULL,
    kills       NUMBER NOT NULL,
    deaths      NUMBER NOT NULL,
    assists     NUMBER NOT NULL,
    cs          NUMBER NOT NULL,
    PRIMARY KEY (id),
    FOREIGN KEY (player_id) REFERENCES players (id),
    FOREIGN KEY (match_id) REFERENCES matches (id),
    UNIQUE (player_id, match_id)
);

CREATE TABLE champions
(
    id          NUMBER GENERATED BY DEFAULT ON NULL AS
IDENTITY,
    champion_name VARCHAR2(50) NOT NULL,
    role_id     NUMBER NOT NULL,
    PRIMARY KEY (id),
    FOREIGN KEY (role_id) REFERENCES roles (id)
);

CREATE TABLE champion_picks

```

```
(
    id            NUMBER GENERATED BY DEFAULT ON NULL AS IDENTITY,
    match_id      NUMBER NOT NULL,
    player_id     NUMBER NOT NULL,
    champion_id   NUMBER NOT NULL,
    PRIMARY KEY (id),
    FOREIGN KEY (match_id) REFERENCES matches (id),
    FOREIGN KEY (player_id) REFERENCES players (id),
    FOREIGN KEY (champion_id) REFERENCES champions (id),
    UNIQUE (match_id, player_id)
);

CREATE TABLE bans
(
    id            NUMBER GENERATED BY DEFAULT ON NULL AS IDENTITY,
    match_id      NUMBER NOT NULL,
    champion_id   NUMBER NOT NULL,
    PRIMARY KEY (id),
    FOREIGN KEY (match_id) REFERENCES matches (id),
    FOREIGN KEY (champion_id) REFERENCES champions (id),
    UNIQUE (match_id, champion_id)
);
```

5. Inserarea datelor

```
-- Regions
INSERT INTO regions (region_name)
VALUES ('NA');
INSERT INTO regions (region_name)
VALUES ('EU');
INSERT INTO regions (region_name)
VALUES ('KR');
INSERT INTO regions (region_name)
VALUES ('AS');
INSERT INTO regions (region_name)
VALUES ('TUR');
COMMIT;

-- Teams
INSERT INTO teams (team_name, region_id)
VALUES ('TSM', 1);
INSERT INTO teams (team_name, region_id)
VALUES ('Fnatic', 2);
INSERT INTO teams (team_name, region_id)
VALUES ('SK Telecom T1', 3);
INSERT INTO teams (team_name, region_id)
VALUES ('EDward Gaming', 4);
INSERT INTO teams (team_name, region_id)
VALUES ('Royal Never Give Up', 4);
```



```

COMMIT;

-- Roles
INSERT INTO roles (role_name)
VALUES ('Top');
INSERT INTO roles (role_name)
VALUES ('Jungle');
INSERT INTO roles (role_name)
VALUES ('Mid');
INSERT INTO roles (role_name)
VALUES ('ADC');
INSERT INTO roles (role_name)
VALUES ('Support');
COMMIT;

-- Players
-- Players for TSM (Team SoloMid)
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Søren', 'Bjerg', 'Bjergsen', 3, 1, 1);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Mingyi', 'Shen', 'Spica', 2, 1, 1);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Heo', 'Seung-hoon', 'Huni', 1, 1, 1);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Yiliang', 'Peng', 'Doublelift', 4, 1, 1);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Vincent', 'Wang', 'Biofrost', 5, 1, 1);
COMMIT;

-- Players for Fnatic
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Gabriël', 'Rau', 'Bwipo', 1, 2, 2);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Oskar', 'Boderek', 'Selfmade', 2, 2, 2);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Tim', 'Lipovšek', 'Nemesis', 3, 2, 2);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Martin', 'Larsson', 'Rekkles', 4, 2, 2);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Zdravets', 'Galabov', 'Hylissang', 5, 2, 2);
COMMIT;

-- Players for SK Telecom T1

```

```

INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Kim', 'Dong-ha', 'Khan', 1, 3, 3);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Moon', 'Woo-chan', 'Cuzz', 2, 3, 3);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Lee', 'Sang-hyeok', 'Faker', 3, 3, 3);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Park', 'Jong-ik', 'Teddy', 4, 3, 3);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Lee', 'Jae-wan', 'Effort', 5, 3, 3);
COMMIT;

-- Players for EDward Gaming
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Li', 'Jian', 'Flandre', 1, 4, 4);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Ming', 'Kai', 'Clearlove', 2, 4, 4);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Lee', 'Yeon-jae', 'Scout', 3, 4, 4);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Hu', 'Xian-zhao', 'iBoy', 4, 4, 4);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Tian', 'Xin', 'Meiko', 5, 4, 4);
COMMIT;

-- Players for Royal Never Give Up
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Yan', 'Jun-ze', 'Letme', 1, 4, 5);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Hung', 'Hau-Hsuan', 'Karsa', 2, 4, 5);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Li', 'Yuan-Hao', 'Xiaohu', 3, 4, 5);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Jian', 'Zi-Hao', 'Uzi', 4, 4, 5);
INSERT INTO players (first_name, last_name, summoner_name,
role_id, region_id, team_id)
VALUES ('Shi', 'Sen-Ming', 'Ming', 5, 4, 5);
COMMIT;

```

```

-- Tournaments
INSERT INTO tournaments (tournament_name, start_date, end_date,
location)
VALUES ('Worlds 2022', TO_DATE('2022-09-29', 'YYYY-MM-DD'),
TO_DATE('2022-11-06', 'YYYY-MM-DD'), 'Tokyo');
INSERT INTO tournaments (tournament_name, start_date, end_date,
location)
VALUES ('Worlds 2021', TO_DATE('2021-09-29', 'YYYY-MM-DD'),
TO_DATE('2021-11-06', 'YYYY-MM-DD'), 'Berlin');
INSERT INTO tournaments (tournament_name, start_date, end_date,
location)
VALUES ('Worlds 2020', TO_DATE('2020-09-29', 'YYYY-MM-DD'),
TO_DATE('2020-11-06', 'YYYY-MM-DD'), 'London');
INSERT INTO tournaments (tournament_name, start_date, end_date,
location)
VALUES ('Mid-Season Invitational 2022', TO_DATE('2022-05-09',
'YYYY-MM-DD'), TO_DATE('2022-05-22', 'YYYY-MM-DD'),
'Reykjavik');
INSERT INTO tournaments (tournament_name, start_date, end_date,
location)
VALUES ('Mid-Season Invitational 2021', TO_DATE('2021-05-09',
'YYYY-MM-DD'), TO_DATE('2021-05-22', 'YYYY-MM-DD'),
'Stockholm');
COMMIT;

-- Matches
INSERT INTO matches (tournament_id, team1_id, team2_id,
match_date)
VALUES (1, 1, 2, TO_DATE('2022-10-07', 'YYYY-MM-DD'));
INSERT INTO matches (tournament_id, team1_id, team2_id,
match_date)
VALUES (1, 1, 3, TO_DATE('2022-10-08', 'YYYY-MM-DD'));
INSERT INTO matches (tournament_id, team1_id, team2_id,
match_date)
VALUES (1, 1, 4, TO_DATE('2022-10-08', 'YYYY-MM-DD'));
INSERT INTO matches (tournament_id, team1_id, team2_id,
match_date)
VALUES (1, 1, 5, TO_DATE('2022-10-09', 'YYYY-MM-DD'));
INSERT INTO matches (tournament_id, team1_id, team2_id,
match_date)
VALUES (1, 2, 3, TO_DATE('2022-10-10', 'YYYY-MM-DD'));
INSERT INTO matches (tournament_id, team1_id, team2_id,
match_date)
VALUES (1, 2, 4, TO_DATE('2022-10-11', 'YYYY-MM-DD'));
INSERT INTO matches (tournament_id, team1_id, team2_id,
match_date)
VALUES (1, 2, 5, TO_DATE('2022-10-12', 'YYYY-MM-DD'));
INSERT INTO matches (tournament_id, team1_id, team2_id,
match_date)
VALUES (1, 3, 4, TO_DATE('2022-10-13', 'YYYY-MM-DD'));
INSERT INTO matches (tournament_id, team1_id, team2_id,
match_date)
VALUES (1, 3, 5, TO_DATE('2022-10-14', 'YYYY-MM-DD'));

```

```

INSERT INTO matches (tournament_id, team1_id, team2_id,
match_date)
VALUES (1, 4, 5, TO_DATE('2022-10-15', 'YYYY-MM-DD'));
COMMIT;

-- Match Results
INSERT INTO match_results (match_id, winning_team_id)
VALUES (1, 1);
INSERT INTO match_results (match_id, winning_team_id)
VALUES (2, 1);
INSERT INTO match_results (match_id, winning_team_id)
VALUES (3, 1);
INSERT INTO match_results (match_id, winning_team_id)
VALUES (4, 1);
INSERT INTO match_results (match_id, winning_team_id)
VALUES (5, 2);
INSERT INTO match_results (match_id, winning_team_id)
VALUES (6, 2);
INSERT INTO match_results (match_id, winning_team_id)
VALUES (7, 2);
INSERT INTO match_results (match_id, winning_team_id)
VALUES (8, 3);
INSERT INTO match_results (match_id, winning_team_id)
VALUES (9, 3);
INSERT INTO match_results (match_id, winning_team_id)
VALUES (10, 4);
COMMIT;

-- Player stats
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (1, 1, 6, 1, 7, 310);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (2, 1, 4, 0, 10, 110);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (3, 1, 8, 2, 5, 350);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (4, 1, 5, 0, 7, 320);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (5, 1, 0, 1, 14, 45);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (6, 1, 1, 6, 0, 260);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (7, 1, 0, 4, 1, 90);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (8, 1, 2, 8, 1, 280);

```

```

INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (9, 1, 0, 5, 2, 300);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (10, 1, 1, 0, 3, 35);
COMMIT;

INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (1, 2, 4, 2, 6, 315);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (2, 2, 5, 1, 8, 130);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (3, 2, 7, 3, 4, 360);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (4, 2, 3, 1, 9, 290);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (5, 2, 0, 1, 12, 50);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (11, 2, 2, 4, 1, 270);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (12, 2, 1, 5, 2, 80);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (13, 2, 3, 7, 1, 285);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (14, 2, 1, 3, 3, 260);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (15, 2, 1, 0, 4, 45);
COMMIT;

INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (1, 3, 5, 2, 8, 320);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (2, 3, 3, 1, 11, 120);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (3, 3, 7, 3, 6, 340);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (4, 3, 4, 1, 8, 300);
INSERT INTO player_statistics (player_id, match_id, kills,

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```

deaths, assists, cs)
VALUES (5, 3, 1, 2, 13, 40);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (16, 3, 2, 5, 1, 280);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (17, 3, 1, 3, 2, 80);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (18, 3, 3, 7, 0, 290);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (19, 3, 1, 4, 3, 270);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (20, 3, 0, 1, 4, 30);
COMMIT;

INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (1, 4, 5, 3, 9, 330);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (2, 4, 6, 1, 7, 110);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (3, 4, 8, 2, 6, 365);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (4, 4, 5, 1, 8, 305);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (5, 4, 0, 2, 15, 55);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (21, 4, 3, 5, 0, 275);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (22, 4, 1, 6, 1, 95);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (23, 4, 2, 8, 2, 295);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (24, 4, 1, 5, 3, 280);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (25, 4, 1, 0, 4, 60);
COMMIT;

INSERT INTO player_statistics (player_id, match_id, kills,

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deaths, assists, cs)
VALUES (6, 5, 4, 2, 6, 310);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (7, 5, 3, 1, 9, 125);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (8, 5, 6, 3, 5, 350);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (9, 5, 3, 1, 7, 295);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (10, 5, 1, 2, 12, 45);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (11, 5, 2, 4, 1, 280);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (12, 5, 1, 3, 2, 90);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (13, 5, 3, 6, 1, 290);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (14, 5, 1, 3, 3, 270);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (15, 5, 0, 1, 4, 30);
COMMIT;

INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (6, 6, 5, 1, 7, 325);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (7, 6, 4, 0, 10, 130);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (8, 6, 7, 2, 5, 375);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (9, 6, 5, 1, 7, 320);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (10, 6, 0, 1, 14, 50);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (16, 6, 1, 5, 0, 290);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (17, 6, 0, 4, 1, 110);
INSERT INTO player_statistics (player_id, match_id, kills,

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deaths, assists, cs)
VALUES (18, 6, 2, 7, 1, 300);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (19, 6, 1, 5, 2, 310);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (20, 6, 1, 0, 3, 40);
COMMIT;

INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (6, 7, 6, 2, 8, 335);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (7, 7, 5, 1, 11, 140);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (8, 7, 8, 3, 6, 390);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (9, 7, 4, 1, 8, 330);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (10, 7, 1, 2, 13, 55);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (21, 7, 2, 6, 1, 285);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (22, 7, 1, 5, 2, 100);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (23, 7, 3, 8, 1, 305);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (24, 7, 1, 4, 3, 300);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (25, 7, 0, 1, 4, 35);
COMMIT;

INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (11, 8, 5, 1, 7, 315);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (12, 8, 3, 0, 9, 135);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (13, 8, 6, 2, 5, 370);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)

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VALUES (14, 8, 4, 1, 7, 295);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (15, 8, 1, 1, 12, 50);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (16, 8, 2, 5, 1, 290);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (17, 8, 1, 3, 2, 90);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (18, 8, 3, 6, 1, 295);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (19, 8, 1, 4, 3, 270);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (20, 8, 0, 1, 4, 30);
COMMIT;

INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (11, 9, 4, 2, 8, 325);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (12, 9, 5, 1, 10, 145);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (13, 9, 7, 3, 6, 380);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (14, 9, 3, 1, 9, 305);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (15, 9, 0, 1, 13, 60);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (21, 9, 2, 4, 1, 300);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (22, 9, 1, 5, 2, 110);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (23, 9, 3, 7, 1, 310);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (24, 9, 1, 3, 3, 290);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (25, 9, 0, 1, 4, 40);
COMMIT;

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INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (16, 10, 2, 5, 1, 290);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (17, 10, 1, 3, 2, 90);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (18, 10, 3, 6, 1, 295);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (19, 10, 1, 4, 3, 270);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (20, 10, 0, 1, 4, 30);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (21, 10, 4, 1, 6, 315);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (22, 10, 3, 0, 9, 120);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (23, 10, 6, 2, 5, 350);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (24, 10, 3, 1, 7, 290);
INSERT INTO player_statistics (player_id, match_id, kills,
deaths, assists, cs)
VALUES (25, 10, 1, 1, 12, 45);
COMMIT;

-- Champions
INSERT INTO champions (champion_name, role_id)
VALUES ('Gnar', 1);
INSERT INTO champions (champion_name, role_id)
VALUES ('Darius', 1);
INSERT INTO champions (champion_name, role_id)
VALUES ('Fiora', 1);
INSERT INTO champions (champion_name, role_id)
VALUES ('Maokai', 1);
INSERT INTO champions (champion_name, role_id)
VALUES ('Camille', 1);
INSERT INTO champions (champion_name, role_id)
VALUES ('Lee Sin', 2);
INSERT INTO champions (champion_name, role_id)
VALUES ('Elise', 2);
INSERT INTO champions (champion_name, role_id)
VALUES ('Vi', 2);
INSERT INTO champions (champion_name, role_id)
VALUES ('Sejuani', 2);
INSERT INTO champions (champion_name, role_id)
VALUES ('Jarvan IV', 2);

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INSERT INTO champions (champion_name, role_id)
VALUES ('Ahri', 3);
INSERT INTO champions (champion_name, role_id)
VALUES ('Orianna', 3);
INSERT INTO champions (champion_name, role_id)
VALUES ('Zed', 3);
INSERT INTO champions (champion_name, role_id)
VALUES ('Syndra', 3);
INSERT INTO champions (champion_name, role_id)
VALUES ('Yasuo', 3);
INSERT INTO champions (champion_name, role_id)
VALUES ('Vayne', 4);
INSERT INTO champions (champion_name, role_id)
VALUES ('Ezreal', 4);
INSERT INTO champions (champion_name, role_id)
VALUES ('Caitlyn', 4);
INSERT INTO champions (champion_name, role_id)
VALUES ('Jhin', 4);
INSERT INTO champions (champion_name, role_id)
VALUES ('KaiSa', 4);
INSERT INTO champions (champion_name, role_id)
VALUES ('Thresh', 5);
INSERT INTO champions (champion_name, role_id)
VALUES ('Braum', 5);
INSERT INTO champions (champion_name, role_id)
VALUES ('Leona', 5);
INSERT INTO champions (champion_name, role_id)
VALUES ('Alistar', 5);
INSERT INTO champions (champion_name, role_id)
VALUES ('Janna', 5);
COMMIT;

-- Champion Picks
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (1, 1, 2);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (1, 2, 7);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (1, 3, 3);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (1, 4, 9);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (1, 5, 15);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (1, 6, 4);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (1, 7, 8);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (1, 8, 5);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (1, 9, 10);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (1, 10, 14);

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INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (2, 1, 1);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (2, 2, 6);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (2, 3, 4);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (2, 4, 9);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (2, 5, 14);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (2, 11, 5);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (2, 12, 10);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (2, 13, 7);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (2, 14, 11);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (2, 15, 16);

INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (3, 1, 2);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (3, 2, 7);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (3, 3, 3);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (3, 4, 8);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (3, 5, 14);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (3, 16, 4);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (3, 17, 9);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (3, 18, 6);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (3, 19, 11);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (3, 20, 16);

INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (4, 1, 2);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (4, 2, 6);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (4, 3, 4);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (4, 4, 9);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (4, 5, 14);

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INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (4, 21, 3);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (4, 22, 10);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (4, 23, 8);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (4, 24, 13);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (4, 25, 18);

INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (5, 6, 1);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (5, 7, 2);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (5, 8, 4);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (5, 9, 9);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (5, 10, 14);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (5, 11, 5);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (5, 12, 10);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (5, 13, 8);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (5, 14, 11);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (5, 15, 16);

INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (6, 6, 1);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (6, 7, 2);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (6, 8, 4);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (6, 9, 9);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (6, 10, 14);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (6, 16, 5);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (6, 17, 10);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (6, 18, 8);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (6, 19, 11);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (6, 20, 16);

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INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (7, 6, 1);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (7, 7, 2);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (7, 8, 4);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (7, 9, 9);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (7, 10, 14);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (7, 21, 5);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (7, 22, 10);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (7, 23, 8);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (7, 24, 11);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (7, 25, 16);

INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (8, 11, 1);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (8, 12, 2);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (8, 13, 4);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (8, 14, 9);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (8, 15, 14);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (8, 16, 5);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (8, 17, 10);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (8, 18, 8);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (8, 19, 11);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (8, 20, 16);

INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (9, 11, 1);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (9, 12, 2);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (9, 13, 4);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (9, 14, 9);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (9, 15, 14);
INSERT INTO champion_picks (match_id, player_id, champion_id)

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VALUES (9, 21, 5);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (9, 22, 10);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (9, 23, 8);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (9, 24, 11);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (9, 25, 16);

INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (10, 16, 1);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (10, 17, 2);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (10, 18, 4);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (10, 19, 9);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (10, 20, 14);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (10, 21, 5);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (10, 22, 10);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (10, 23, 8);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (10, 24, 11);
INSERT INTO champion_picks (match_id, player_id, champion_id)
VALUES (10, 25, 16);

COMMIT;

-- Bans
INSERT INTO bans (match_id, champion_id)
VALUES (1, 1);
INSERT INTO bans (match_id, champion_id)
VALUES (1, 6);

INSERT INTO bans (match_id, champion_id)
VALUES (2, 3);
INSERT INTO bans (match_id, champion_id)
VALUES (2, 8);

INSERT INTO bans (match_id, champion_id)
VALUES (3, 5);
INSERT INTO bans (match_id, champion_id)
VALUES (3, 10);

INSERT INTO bans (match_id, champion_id)
VALUES (4, 7);
INSERT INTO bans (match_id, champion_id)
VALUES (4, 12);

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INSERT INTO bans (match_id, champion_id)
VALUES (5, 9);
INSERT INTO bans (match_id, champion_id)
VALUES (5, 14);

INSERT INTO bans (match_id, champion_id)
VALUES (6, 11);
INSERT INTO bans (match_id, champion_id)
VALUES (6, 16);

INSERT INTO bans (match_id, champion_id)
VALUES (7, 13);
INSERT INTO bans (match_id, champion_id)
VALUES (7, 18);

INSERT INTO bans (match_id, champion_id)
VALUES (8, 15);
INSERT INTO bans (match_id, champion_id)
VALUES (8, 20);

INSERT INTO bans (match_id, champion_id)
VALUES (9, 17);
INSERT INTO bans (match_id, champion_id)
VALUES (9, 22);

INSERT INTO bans (match_id, champion_id)
VALUES (10, 19);
INSERT INTO bans (match_id, champion_id)
VALUES (10, 24);

COMMIT;

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REGIONS

	 ID ↕	 REGION_NAME ↕
1	1	NA
2	2	EU
3	3	KR
4	4	AS
5	5	TUR

TEAMS

	ID	TEAM_NAME	REGION_ID
1	1	TSM	1
2	2	Fnatic	2
3	3	SK Telecom T1	3
4	4	EDward Gaming	4
5	5	Royal Never Give Up	4

ROLES

	ID	ROLE_NAME
1	1	Top
2	2	Jungle
3	3	Mid
4	4	ADC
5	5	Support

PLAYERS

	ID	FIRST_NAME	LAST_NAME	SUMMONER_NAME	ROLE_ID	REGION_ID	TEAM_ID
1	1	Søren	Bjerg	Bjergsen	3	1	1
2	2	Mingyi	Shen	Spica	2	1	1
3	3	Heo	Seung-hoon	Huni	1	1	1
4	4	Yiliang	Peng	Doublelift	4	1	1
5	5	Vincent	Wang	Biofrost	5	1	1
6	6	Gabriel	Rau	Bwipo	1	2	2
7	7	Oskar	Boderek	Selfmade	2	2	2
8	8	Tim	Lipovšek	Nemesis	3	2	2
9	9	Martin	Larsson	Rekkles	4	2	2
10	10	Zdravets	Galabov	Hylissang	5	2	2
11	11	Kim	Dong-ha	Khan	1	3	3
12	12	Moon	Woo-chan	Cuzz	2	3	3
13	13	Lee	Sang-hyeok	Faker	3	3	3
14	14	Park	Jong-ik	Teddy	4	3	3
15	15	Lee	Jae-wan	Effort	5	3	3
16	16	Li	Jian	Flandre	1	4	4
17	17	Ming	Kai	Clearlove	2	4	4
18	18	Lee	Yeon-jae	Scout	3	4	4
19	19	Hu	Xian-zhao	iBoy	4	4	4
20	20	Tian	Xin	Meiko	5	4	4
21	21	Yan	Jun-ze	Letme	1	4	5
22	22	Hung	Hau-Hsuan	Karsa	2	4	5
23	23	Li	Yuan-Hao	Xiaohu	3	4	5
24	24	Jian	Zi-Hao	Uzi	4	4	5
25	25	Shi	Sen-Ming	Ming	5	4	5

TOURNAMENTS

	ID	TOURNAMENT_NAME	START_DATE	END_DATE	LOCATION
1	1	Worlds 2022	2022-09-29	2022-11-06	Tokyo
2	2	Worlds 2021	2021-09-29	2021-11-06	Berlin
3	3	Worlds 2020	2020-09-29	2020-11-06	London
4	4	Mid-Season Invitational 2022	2022-05-09	2022-05-22	Reykjavik
5	5	Mid-Season Invitational 2021	2021-05-09	2021-05-22	Stockholm

MATCHES

	ID	TOURNAMENT_ID	TEAM1_ID	TEAM2_ID	MATCH_DATE
1	1	1	1	2	2022-10-07
2	2	1	1	3	2022-10-08
3	3	1	1	4	2022-10-08
4	4	1	1	5	2022-10-09
5	5	1	2	3	2022-10-10
6	6	1	2	4	2022-10-11
7	7	1	2	5	2022-10-12
8	8	1	3	4	2022-10-13
9	9	1	3	5	2022-10-14
10	10	1	4	5	2022-10-15




MATCH_RESULTS

	ID	MATCH_ID	WINNING_TEAM_ID
1	1	1	1
2	2	2	1
3	3	3	1
4	4	4	1
5	5	5	2
6	6	6	2
7	7	7	2
8	8	8	3
9	9	9	3
10	10	10	4





PLAYER_STATISTICS (nu toate, sunt 100 de date inserate)

	ID	PLAYER_ID	MATCH_ID	KILLS	DEATHS	ASSISTS	CS
1	1	1	1	6	1	7	310
2	2	2	1	4	0	10	110
3	3	3	1	8	2	5	350
4	4	4	1	5	0	7	320
5	5	5	1	0	1	14	45
6	6	6	1	1	6	0	260
7	7	7	1	0	4	1	90
8	8	8	1	2	8	1	280
9	9	9	1	0	5	2	300
10	10	10	1	1	0	3	35
11	11	1	2	4	2	6	315
12	12	2	2	5	1	8	130
13	13	3	2	7	3	4	360
14	14	4	2	3	1	9	290
15	15	5	2	0	1	12	50
16	16	11	2	2	4	1	270
17	17	12	2	1	5	2	80
18	18	13	2	3	7	1	285
19	19	14	2	1	3	3	260
20	20	15	2	1	0	4	45
21	21	1	3	5	2	8	320
22	22	2	3	3	1	11	120
23	23	3	3	7	3	6	340
24	24	4	3	4	1	8	300
25	25	5	3	1	2	13	40
26	26	16	3	2	5	1	280




CHAMPIONS

	 ID	 CHAMPION_NAME	 ROLE_ID
1	1	Gnar	1
2	2	Darius	1
3	3	Fiora	1
4	4	Maokai	1
5	5	Camille	1
6	6	Lee Sin	2
7	7	Elise	2
8	8	Vi	2
9	9	Sejuani	2
10	10	Jarvan IV	2
11	11	Ahri	3
12	12	Orianna	3
13	13	Zed	3
14	14	Syndra	3
15	15	Yasuo	3
16	16	Vayne	4
17	17	Ezreal	4
18	18	Caitlyn	4
19	19	Jhin	4
20	20	KaiSa	4
21	21	Thresh	5
22	22	Braum	5
23	23	Leona	5
24	24	Alistar	5
25	25	Janna	5

CHAMPION_PICKS (nu toate, sunt 100 de date inserate)

	 ID ▾	 MATCH_ID ▾	 PLAYER_ID ▾	 CHAMPION_ID ▾
1	1	1	1	2
2	2	1	2	7
3	3	1	3	3
4	4	1	4	9
5	5	1	5	15
6	6	1	6	4
7	7	1	7	8
8	8	1	8	5
9	9	1	9	10
10	10	1	10	14
11	11	2	1	1
12	12	2	2	6
13	13	2	3	4
14	14	2	4	9
15	15	2	5	14
16	16	2	11	5
17	17	2	12	10
18	18	2	13	7
19	19	2	14	11
20	20	2	15	16
21	21	3	1	2
22	22	3	2	7
23	23	3	3	3
24	24	3	4	8
25	25	3	5	14
26	26	3	16	4

BANS

	 ID ▾	 MATCH_ID ▾	 CHAMPION_ID ▾
1	1	1	1
2	2	1	6
3	3	2	3
4	4	2	8
5	5	3	5
6	6	3	10
7	7	4	7
8	8	4	12
9	9	5	9
10	10	5	14
11	11	6	11
12	12	6	16
13	13	7	13
14	14	7	18
15	15	8	15
16	16	8	20
17	17	9	17
18	18	9	22
19	19	10	19
20	20	10	24

6. Subprogram stocat cu minim doua tipuri de colectii

```
-- Pentru un turneu dat, pentru fiecare rol, sa se afiseze id-ul
jucatorului ce joaca acel rol si are numarul maxim de kill-uri
facute de acesta intr-un singur meci. Afisati si numarul de
killuri.

CREATE OR REPLACE PROCEDURE ex6(p_tournament_name IN
tournaments.tournament_name%TYPE) AS
    TYPE t_role_kills IS TABLE OF NUMBER INDEX BY PLS_INTEGER;
    TYPE t_role_players IS TABLE OF NUMBER INDEX BY PLS_INTEGER;
    TYPE t_result IS TABLE OF VARCHAR2(100);
    v_result          t_result := t_result();
    v_role_kills      t_role_kills;
    v_role_players    t_role_players;
    v_max_kills       NUMBER;
    v_player_id       players.id%TYPE;
    v_role_id         roles.id%TYPE;
    v_tournament_id   tournaments.id%TYPE;
BEGIN
    SELECT id INTO v_tournament_id FROM tournaments WHERE
tournament_name = p_tournament_name;

    FOR r IN (SELECT id FROM roles)
    LOOP
        v_role_id := r.id;
        SELECT ps.player_id, MAX(ps.kills)
        INTO v_player_id, v_max_kills
        FROM player_statistics ps
             JOIN matches m ON m.id = ps.match_id
             JOIN players p ON p.id = ps.player_id
        WHERE m.tournament_id = v_tournament_id
              AND p.role_id = v_role_id
        GROUP BY ps.player_id
        ORDER BY MAX(ps.kills) DESC
        FETCH FIRST ROW ONLY;

        IF v_role_kills.EXISTS(v_role_id) THEN
            IF v_max_kills > v_role_kills(v_role_id) THEN
                v_role_kills(v_role_id) := v_max_kills;
                v_role_players(v_role_id) := v_player_id;
            END IF;
        ELSE
            v_role_kills(v_role_id) := v_max_kills;
            v_role_players(v_role_id) := v_player_id;
        END IF;
    END LOOP;

    v_role_id := v_role_kills.first;
    WHILE v_role_id IS NOT NULL
    LOOP
```

```

        v_result.extend;
        v_result(v_result.count) := 'Player with id ' ||
v_role_players(v_role_id) || ' in role ' || v_role_id ||
        ' had the maximum kills:
' || v_role_kills(v_role_id);
        v_role_id := v_role_kills.next(v_role_id);
    END LOOP;

    FOR i IN 1 .. v_result.count
    LOOP
        dbms_output.put_line(v_result(i));
    END LOOP;
END ex6;
/

```

Rulare:

```

BEGIN
    ex6('Worlds 2022');
END;
/

-- EXPECTED
-- Player with id 3 in role 1 had the maximum kills: 8
-- Player with id 2 in role 2 had the maximum kills: 6
-- Player with id 8 in role 3 had the maximum kills: 8
-- Player with id 4 in role 4 had the maximum kills: 5
-- Player with id 15 in role 5 had the maximum kills: 1

```

```

ADMIN> BEGIN
        ex6('Worlds 2022');
    END;

[2023-05-23 15:54:31] completed in 99 ms
Player with id 3 in role 1 had the maximum kills: 8
Player with id 2 in role 2 had the maximum kills: 6
Player with id 8 in role 3 had the maximum kills: 8
Player with id 9 in role 4 had the maximum kills: 5
Player with id 15 in role 5 had the maximum kills: 1

```


7. Subprogram stocat cu doua tipuri de cursoare

```
-- Afișați numele echipelor și numărul de meciuri câștigate de
acestea într-un turneu dat.

CREATE OR REPLACE PROCEDURE ex7(p_tournament_name IN
tournaments.tournament_name%TYPE)
IS
    CURSOR c_teams
    IS
        SELECT id, team_name
        FROM teams;
    TYPE ref_cur_type IS REF CURSOR;
    v_team_wins      ref_cur_type;
    v_team_id        teams.id%TYPE;
    v_team_name      teams.team_name%TYPE;
    v_wins           NUMBER;
    v_tournament_id  tournaments.id%TYPE;
BEGIN
    SELECT id INTO v_tournament_id FROM tournaments WHERE
tournament_name = p_tournament_name;

    OPEN c_teams;
    LOOP
        FETCH c_teams INTO v_team_id, v_team_name;
        EXIT WHEN c_teams%NOTFOUND;

        OPEN v_team_wins FOR
            SELECT COUNT(*) AS wins
            FROM match_results mr
                 JOIN matches m ON m.id = mr.match_id
            WHERE m.tournament_id = v_tournament_id
                  AND mr.winning_team_id = v_team_id;

        FETCH v_team_wins INTO v_wins;
        CLOSE v_team_wins;

        dbms_output.put_line('Team: ' || v_team_name || ' - Wins:
' || v_wins);
    END LOOP;
    CLOSE c_teams;
END ex7;
/
```

Rulare:

```
BEGIN
    ex7('Worlds 2022');
END;
/
```

```
-- EXPECTED
-- Team: TSM - Wins: 4
-- Team: Fnatic - Wins: 3
-- Team: SK Telecom T1 - Wins: 2
-- Team: EDward Gaming - Wins: 1
-- Team: Royal Never Give Up - Wins: 0
```

```
ADMIN> BEGIN
          ex7('Worlds 2022');
        END;
[2023-05-23 15:57:36] completed in 461 ms
Team: TSM - Wins: 4
Team: Fnatic - Wins: 3
Team: SK Telecom T1 - Wins: 2
Team: EDward Gaming - Wins: 1
Team: Royal Never Give Up - Wins: 0
```

8. Subprogram stocat de tip functie cu 3 tabele intr-o singura comanda si minim doua exceptii definite

```
-- Afisati numele jucatorilor care au un KDA mai mare decat media
KDA-urilor tuturor jucatorilor dintr-un turneu dat.
-- KDA = (kills + assists) / deaths, in cazul in care deaths = 0,
KDA = kills + assists

CREATE OR REPLACE TYPE players_table IS TABLE OF VARCHAR2(100);

CREATE OR REPLACE FUNCTION ex8(p_tournament_name IN
tournaments.tournament_name%TYPE)
RETURN players_table IS
    v_kda_avg          NUMBER;
    v_player_name      VARCHAR2(100);
    v_player_kda       NUMBER;
    v_tournament_exists NUMBER;
    e_tournament_not_found EXCEPTION;
    e_no_statistics_found EXCEPTION;
    e_multiple_tournaments_found EXCEPTION;
    v_players_above_avg players_table := players_table();
    CURSOR c_kda_cursor IS
        SELECT p.summoner_name,
               (SUM(ps.kills) + SUM(ps.assists)) /
               (NULLIF(SUM(ps.deaths), 0)) AS player_kda
```

```

        FROM players p
            JOIN player_statistics ps ON ps.player_id = p.id
            JOIN matches m ON m.id = ps.match_id
            JOIN tournaments t ON t.id = m.tournament_id
        WHERE t.tournament_name = p_tournament_name
        GROUP BY p.summoner_name;
BEGIN
    SELECT COUNT(*)
    INTO v_tournament_exists
    FROM tournaments
    WHERE tournament_name = p_tournament_name;

    IF v_tournament_exists = 0 THEN
        RAISE e_tournament_not_found;
    ELSIF v_tournament_exists > 1 THEN
        RAISE e_multiple_tournaments_found;
    END IF;

    SELECT AVG((ps.kills + ps.assists) / NULLIF(ps.deaths, 0))
    INTO v_kda_avg
    FROM players p
        JOIN player_statistics ps ON ps.player_id = p.id
        JOIN matches m ON m.id = ps.match_id
        JOIN tournaments t ON t.id = m.tournament_id
    WHERE t.tournament_name = p_tournament_name;

    IF v_kda_avg IS NULL THEN
        RAISE e_no_statistics_found;
    END IF;

    OPEN c_kda_cursor;
    LOOP
        FETCH c_kda_cursor INTO v_player_name, v_player_kda;
        EXIT WHEN c_kda_cursor%NOTFOUND;
        IF v_player_kda > v_kda_avg THEN
            v_players_above_avg.extend;
            v_players_above_avg(v_players_above_avg.count) :=
v_player_name;
        END IF;
    END LOOP;
    CLOSE c_kda_cursor;

    RETURN v_players_above_avg;
EXCEPTION
    WHEN e_no_statistics_found THEN
        RAISE_APPLICATION_ERROR(-20001, 'No statistics found for
tournament ' || p_tournament_name || '.');
        RETURN NULL;
    WHEN e_multiple_tournaments_found THEN
        RAISE_APPLICATION_ERROR(-20002,
                                'Multiple tournaments found with
name ' || p_tournament_name || '.');

```

```

        RETURN NULL;
    WHEN e_tournament_not_found THEN
        RAISE_APPLICATION_ERROR(-20003, 'Tournament with name '
|| p_tournament_name || ' does not exist.');
```

END ex8;

/

Rulare:

```

DECLARE
    players players_table;
BEGIN
    players := ex8('Worlds 2022');
    FOR i IN 1..players.count
        LOOP
            dbms_output.put_line(players(i));
        END LOOP;
END;
/

-- EXPECTED
-- Spica
-- Doublelift
-- Ming
-- Bjergsen
-- Hylissang
-- Effort
-- Meiko
-- Biofrost
-- Selfmade
```

```
[2023-05-23 15:59:38] completed in 422 ms
Spica
Doublelift
Bjergsen
Hylissang
Meiko
Biofrost
Ming
Effort
Selfmade
```

```
DECLARE
    players players_table;
BEGIN
    players := ex8('Worlds 2021');
    FOR i IN 1..players.count
        LOOP
            dbms_output.put_line(players(i));
        END LOOP;
END;
/

-- EXPECTED
-- No statistics found for tournament Worlds 2021.
```

```
[2023-05-23 16:00:25] [72000][20001]
[2023-05-23 16:00:25]   ORA-20001: No statistics found for tournament Worlds 2021.
[2023-05-23 16:00:25]   ORA-06512: at "ADMIN.EX8", line 61
[2023-05-23 16:00:25]   ORA-06512: at line 4
[2023-05-23 16:00:25] Position: 0
```

```
-- Cream un turneu cu un nume ce este deja prezent in baza de
date
-- pentru a testa exceptia multiple_tournaments_found.

INSERT INTO tournaments (tournament_name, start_date, end_date,
location, id)
VALUES ('Worlds 2020', TO_DATE('2020-09-29', 'YYYY-MM-DD'),
TO_DATE('2020-11-06', 'YYYY-MM-DD'), 'London', 999);
```

```

COMMIT;

DECLARE
    players players_table;
BEGIN
    players := ex8('Worlds 2020');
    FOR i IN 1..players.count
        LOOP
            dbms_output.put_line(players(i));
        END LOOP;
END;
/

-- EXPECTED
-- Multiple tournaments found with name Worlds 2020.

-- Stergem turneul creat anterior.
DELETE
FROM tournaments
WHERE id = 999;

```

```

[2023-05-23 16:01:29] [72000][20002]
[2023-05-23 16:01:29]   ORA-20002: Multiple tournaments found with name Worlds 2020.
[2023-05-23 16:01:29]   ORA-06512: at "ADMIN.EX8", line 64
[2023-05-23 16:01:29]   ORA-06512: at line 4
[2023-05-23 16:01:29] Position: 0

```

```

DECLARE
    players players_table;
BEGIN
    players := ex8('BadName');
    FOR i IN 1..players.count
        LOOP
            dbms_output.put_line(players(i));
        END LOOP;
END;
/

-- EXPECTED
-- Tournament with name BadName does not exist.

```

```

[2023-05-23 16:02:05] [72000][20003]
[2023-05-23 16:02:05]   ORA-20003: Tournament with name BadName does not exist.
[2023-05-23 16:02:05]   ORA-06512: at "ADMIN.EX8", line 68
[2023-05-23 16:02:05]   ORA-06512: at line 4
[2023-05-23 16:02:05] Position: 0

```

9. Subprogram stocat cu 5 tabele intr-o singura comanda si exceptiile no_data_found si too_many_rows tratate

```
-- Afisati numele campionilor si media de cs ce sunt in top 5 in
-- functie de media de cs pe meci
-- pentru un anumit turneu.

CREATE OR REPLACE PROCEDURE ex9(p_tournament_name IN
tournaments.tournament_name%TYPE)
IS
    TYPE r_cs_champions_type IS RECORD
    (
        champion_name
champions.champion_name%TYPE,
        average_cs      NUMBER
    );
    TYPE t_cs_champions_table IS TABLE OF r_cs_champions_type;
    v_cs_champions          t_cs_champions_table;
    v_tournament_exists     NUMBER;
    CURSOR c_top5_avg IS
        SELECT c.champion_name, AVG(ps.cs) AS average_cs
        FROM champions c
            JOIN champion_picks cp ON c.id = cp.champion_id
            JOIN player_statistics ps ON cp.player_id =
ps.player_id AND cp.match_id = ps.match_id
            JOIN matches m ON cp.match_id = m.id
            JOIN tournaments t ON m.tournament_id = t.id
        WHERE t.tournament_name = p_tournament_name
        GROUP BY c.champion_name
        HAVING AVG(ps.cs) > 250
        ORDER BY AVG(ps.cs) DESC;
BEGIN
    SELECT id INTO v_tournament_exists FROM tournaments WHERE
tournament_name = p_tournament_name;

    OPEN c_top5_avg;
    FETCH c_top5_avg BULK COLLECT INTO v_cs_champions;
    CLOSE c_top5_avg;

    FOR i IN 1..LEAST(v_cs_champions.count, 5)
    LOOP
        dbms_output.put_line('Champion ' ||
v_cs_champions(i).champion_name || ' has an average CS of ' ||
ROUND(v_cs_champions(i).average_cs, 0));
    END LOOP;
EXCEPTION
    WHEN no_data_found THEN
        RAISE_APPLICATION_ERROR(-20001, 'Tournament with name '
|| p_tournament_name || ' does not exist.');
```

```
    WHEN too_many_rows THEN
        RAISE_APPLICATION_ERROR(-20002, 'Multiple tournaments
```

```
with name ' || p_tournament_name || ' exist.');
```

```
END ex9;
```

```
/
```

Rulare:

```
BEGIN
    ex9('Worlds 2022');
END;
```

```
/
```

```
-- EXPECTED
-- Champion Maokai has an average CS of 343
-- Champion Fiora has an average CS of 322
-- Champion Gnar has an average CS of 316
-- Champion Camille has an average CS of 289
-- Champion Ahri has an average CS of 283
```

```
ADMIN> BEGIN
        ex9('Worlds 2022');
        END;
```

```
[2023-05-23 16:05:25] completed in 238 ms
Champion Maokai has an average CS of 343
Champion Fiora has an average CS of 322
Champion Gnar has an average CS of 316
Champion Camille has an average CS of 289
Champion Ahri has an average CS of 283
```

```
BEGIN
    ex9('BadName');
```

```
END;
```

```
/
```

```
-- EXPECTED
-- Tournament with name BadName does not exist.
```

```
[2023-05-23 16:05:51] [72000][20001]
[2023-05-23 16:05:51]   ORA-20001: Tournament with name BadName does not exist.
[2023-05-23 16:05:51]   ORA-06512: at "ADMIN.EX9", line 36
[2023-05-23 16:05:51]   ORA-06512: at line 2
[2023-05-23 16:05:51] Position: 0
```



```
-- Cream un turneu cu un nume ce este deja prezent in baza de
date
-- pentru a testa exceptia multiple_tournaments_found.

INSERT INTO tournaments (tournament_name, start_date, end_date,
location, id)
VALUES ('Worlds 2020', TO_DATE('2020-09-29', 'YYYY-MM-DD'),
TO_DATE('2020-11-06', 'YYYY-MM-DD'), 'London', 999);
COMMIT;

BEGIN
    ex9('Worlds 2020');
END;

-- EXPECTED
-- Multiple tournaments with name Worlds 2020 exist.

-- Stergem turneul creat anterior.
DELETE
FROM tournaments
WHERE id = 999;
```

```
[2023-05-23 16:06:43] [72000][20002]
[2023-05-23 16:06:43] ORA-20002: Multiple tournaments with name Worlds 2020 exist.
[2023-05-23 16:06:43] ORA-06512: at "ADMIN.EX9", line 38
[2023-05-23 16:06:43] ORA-06512: at line 2
[2023-05-23 16:06:43] Position: 0
```

10. Trigger de tip LMD la nivel de comanda

```
-- Acest trigger se asigura de faptul ca nu se pot actualiza sau
sterge date din tabela regions.

CREATE OR REPLACE TRIGGER trigger_ex10
    BEFORE UPDATE OR DELETE
    ON regions
BEGIN
    IF UPDATING THEN
        RAISE_APPLICATION_ERROR(-20001, 'Regions cannot be
updated');
    ELSIF DELETING THEN
        RAISE_APPLICATION_ERROR(-20002, 'Regions cannot be
deleted');
    END IF;
END;
/
```

Rulare:

```
UPDATE regions SET region_name = 'Europe' WHERE id = 1;
-- EXPECTED:
-- ORA-20001: Regions cannot be updated
```

```
ADMIN> UPDATE regions SET region_name = 'Europe' WHERE id = 1
[2023-05-23 16:08:22] [72000][20001]
[2023-05-23 16:08:22] ORA-20001: Regions cannot be updated
[2023-05-23 16:08:22] ORA-06512: at "ADMIN.TRIGGER_EX10", line 3
[2023-05-23 16:08:22] ORA-04088: error during execution of trigger 'ADMIN.TRIGGER_EX10'
[2023-05-23 16:08:22] Position: 53
```

```
DELETE FROM regions WHERE id = 1;
-- EXPECTED:
-- ORA-20002: Regions cannot be deleted
```

```
ADMIN> DELETE FROM regions WHERE id = 1
[2023-05-23 16:08:55] [72000][20002]
[2023-05-23 16:08:55] ORA-20002: Regions cannot be deleted
[2023-05-23 16:08:55] ORA-06512: at "ADMIN.TRIGGER_EX10", line 5
[2023-05-23 16:08:55] ORA-04088: error during execution of trigger 'ADMIN.TRIGGER_EX10'
[2023-05-23 16:08:55] Position: 31
```

11. Trigger de tip LMD la nivel de linie

```
-- Acest trigger se asigura de faptul ca la inserarea sau
actualizarea datelor din tabela match_result,
-- echipa castigatoare este una dintre cele doua echipe care au
jucat meciul respectiv.
```

```
CREATE OR REPLACE TRIGGER trigger_ex11
  BEFORE INSERT OR UPDATE
  ON match_results
  FOR EACH ROW
DECLARE
  v_team1_id teams.id%TYPE;
  v_team2_id teams.id%TYPE;
BEGIN
  SELECT team1_id, team2_id INTO v_team1_id, v_team2_id FROM
matches WHERE id = :new.match_id;

  IF (:new.winning_team_id <> v_team1_id AND
:new.winning_team_id <> v_team2_id) THEN
    RAISE_APPLICATION_ERROR(-20001, 'Team ' ||
:new.winning_team_id || ' is not in match ' || :new.match_id);
  END IF;
END;
/
```

Rulare:

```
INSERT INTO match_results (match_id, winning_team_id)
VALUES (1, 6);
-- EXPECTED:
-- ORA-20001: Team 6 is not in match 1
```

```
ADMIN> INSERT INTO match_results (match_id, winning_team_id)
VALUES (1, 6)
[2023-05-23 16:10:02] [72000][20001]
[2023-05-23 16:10:02] ORA-20001: Team 6 is not in match 1
[2023-05-23 16:10:02] ORA-06512: at "ADMIN.TRIGGER_EX11", line 8
[2023-05-23 16:10:02] ORA-04088: error during execution of trigger 'ADMIN.TRIGGER_EX11'
[2023-05-23 16:10:02] Position: 12
```

```
INSERT INTO match_results (match_id, winning_team_id)
VALUES (28, 6);
-- EXPECTED:
-- ORA-01403: no data found
```

```
ADMIN> INSERT INTO match_results (match_id, winning_team_id)
VALUES (28, 6)
[2023-05-23 16:10:11] [02000][1403]
[2023-05-23 16:10:11] ORA-01403: no data found
[2023-05-23 16:10:11] ORA-06512: at "ADMIN.TRIGGER_EX11", line 5
[2023-05-23 16:10:11] ORA-04088: error during execution of trigger 'ADMIN.TRIGGER_EX11'
[2023-05-23 16:10:11] Position: 0
```

12. Trigger de tip LDD

```
-- Acest trigger se asigura de faptul ca doar userul ADMIN poate
crea, sterge sau modifica tabele.
```

```
CREATE OR REPLACE TRIGGER trigger_ex12
BEFORE CREATE OR DROP OR ALTER
ON SCHEMA
BEGIN
    IF (sys.login_user() <> 'ADMIN') THEN
        RAISE_APPLICATION_ERROR(-20001, 'Only ADMIN user can
create, drop or alter tables');
    END IF;
END;
/
```

Rulare:

```
-- Pentru a testa acest trigger, trebuie sa va logati cu un user
care nu este ADMIN.
```

```
-- Pentru simplitate la rulare voi schimba conditia ca userul
logat sa fie ADMIN2 pentru a declansa exceptia.

CREATE TABLE test_table (id NUMBER);
-- DROP TABLE test_table;

-- EXPECTED:
-- ORA-20001: Only ADMIN user can create, drop or alter tables
```

```
ADMIN> CREATE TABLE test_table (id NUMBER)
[2023-05-23 16:12:53] [42000][4088]
[2023-05-23 16:12:53] ORA-04088: error during execution of trigger 'ADMIN.TRIGGER_EX12'
[2023-05-23 16:12:53] ORA-00604: error occurred at recursive SQL level 1
[2023-05-23 16:12:53] ORA-20001: Only ADMIN user can create, drop or alter tables
[2023-05-23 16:12:53] ORA-06512: at line 3
[2023-05-23 16:12:53] Position: 0
```

```
ADMIN> DROP TABLE test_table
[2023-05-23 16:13:25] [42000][4088]
[2023-05-23 16:13:25] ORA-04088: error during execution of trigger 'ADMIN.TRIGGER_EX12'
[2023-05-23 16:13:25] ORA-00604: error occurred at recursive SQL level 1
[2023-05-23 16:13:25] ORA-20001: Only ADMIN user can create, drop or alter tables
[2023-05-23 16:13:25] ORA-06512: at line 3
[2023-05-23 16:13:25] Position: 0
```

13. Pachet cu obiectele realizate in cadrul proiectului

```
CREATE OR REPLACE PACKAGE package_ex13 AS

    TYPE players_table_package IS TABLE OF VARCHAR2(100);
    PROCEDURE ex6(p_tournament_name IN
tournaments.tournament_name%TYPE);
    PROCEDURE ex7(p_tournament_name IN
tournaments.tournament_name%TYPE);
    FUNCTION ex8(p_tournament_name IN
tournaments.tournament_name%TYPE) RETURN players_table_package;
    PROCEDURE ex9(p_tournament_name IN
tournaments.tournament_name%TYPE);

END package_ex13;
/

CREATE OR REPLACE PACKAGE BODY package_ex13 AS
    -- Pentru un turneu dat, pentru fiecare rol, sa se afiseze
id-ul jucatorului ce joaca acel rol
    -- si are numarul maxim de kill-uri facute de acesta intr-un
singur meci. Afisati si numarul de killuri.
    PROCEDURE ex6(p_tournament_name IN
tournaments.tournament_name%TYPE) AS
        TYPE t_role_kills IS TABLE OF NUMBER INDEX BY
PLS_INTEGER;
```

```

        TYPE t_role_players IS TABLE OF NUMBER INDEX BY
        PLS_INTEGER;
        TYPE t_result IS TABLE OF VARCHAR2(100);
        v_result          t_result := t_result();
        v_role_kills       t_role_kills;
        v_role_players     t_role_players;
        v_max_kills        NUMBER;
        v_player_id        players.id%TYPE;
        v_role_id          roles.id%TYPE;
        v_tournament_id    tournaments.id%TYPE;
    BEGIN
        SELECT id INTO v_tournament_id FROM tournaments WHERE
tournament_name = p_tournament_name;

        FOR r IN (SELECT id FROM roles)
        LOOP
            v_role_id := r.id;
            SELECT ps.player_id, MAX(ps.kills)
            INTO v_player_id, v_max_kills
            FROM player_statistics ps
                JOIN matches m ON m.id = ps.match_id
                JOIN players p ON p.id = ps.player_id
            WHERE m.tournament_id = v_tournament_id
                AND p.role_id = v_role_id
            GROUP BY ps.player_id
            ORDER BY MAX(ps.kills) DESC
            FETCH FIRST ROW ONLY;

            IF v_role_kills.EXISTS(v_role_id) THEN
                IF v_max_kills > v_role_kills(v_role_id) THEN
                    v_role_kills(v_role_id) := v_max_kills;
                    v_role_players(v_role_id) := v_player_id;
                END IF;
            ELSE
                v_role_kills(v_role_id) := v_max_kills;
                v_role_players(v_role_id) := v_player_id;
            END IF;
        END LOOP;

        v_role_id := v_role_kills.first;
        WHILE v_role_id IS NOT NULL
        LOOP
            v_result.extend;
            v_result(v_result.count) :=
                'Player with id ' ||
v_role_players(v_role_id) || ' in role ' || v_role_id ||
                ' had the maximum kills: ' ||
v_role_kills(v_role_id);
            v_role_id := v_role_kills.next(v_role_id);
        END LOOP;

        FOR i IN 1 .. v_result.count
        LOOP

```

```

        dbms_output.put_line(v_result(i));
    END LOOP;
END ex6;

-- Afișați numele echipelor și numărul de meciuri câștigate
de acestea într-un turneu dat.
PROCEDURE ex7(p_tournament_name IN
tournaments.tournament_name%TYPE)
IS
    CURSOR c_teams
    IS
        SELECT id, team_name
        FROM teams;
    TYPE ref_cur_type IS REF CURSOR;
    v_team_wins      ref_cur_type;
    v_team_id        teams.id%TYPE;
    v_team_name      teams.team_name%TYPE;
    v_wins           NUMBER;
    v_tournament_id  tournaments.id%TYPE;
BEGIN
    SELECT id INTO v_tournament_id FROM tournaments WHERE
tournament_name = p_tournament_name;

    OPEN c_teams;
    LOOP
        FETCH c_teams INTO v_team_id, v_team_name;
        EXIT WHEN c_teams%NOTFOUND;

        OPEN v_team_wins FOR
            SELECT COUNT(*) AS wins
            FROM match_results mr
                JOIN matches m ON m.id = mr.match_id
            WHERE m.tournament_id = v_tournament_id
                AND mr.winning_team_id = v_team_id;

        FETCH v_team_wins INTO v_wins;
        CLOSE v_team_wins;

        dbms_output.put_line('Team: ' || v_team_name || ' -
Wins: ' || v_wins);
    END LOOP;
    CLOSE c_teams;
END ex7;

-- Afisati numele jucatorilor care au un KDA mai mare decat
media KDA-urilor tuturor jucatorilor dintr-un turneu dat.
-- KDA = (kills + assists) / deaths, in cazul in care deaths
= 0, KDA = kills + assists
FUNCTION ex8(p_tournament_name IN
tournaments.tournament_name%TYPE)
RETURN players_table_package IS
    v_kda_avg      NUMBER;
    v_player_name  VARCHAR2(100);

```

```

        v_player_kda          NUMBER;
        v_tournament_exists   NUMBER;
        e_tournament_not_found EXCEPTION;
        e_no_statistics_found  EXCEPTION;
        e_multiple_tournaments_found EXCEPTION;
        v_players_above_avg   players_table_package :=
players_table_package();
        CURSOR c_kda_cursor IS
            SELECT p.summoner_name,
                   (SUM(ps.kills) + SUM(ps.assists)) /
        (NULLIF(SUM(ps.deaths), 0)) AS player_kda
            FROM players p
                JOIN player_statistics ps ON ps.player_id =
p.id
                JOIN matches m ON m.id = ps.match_id
                JOIN tournaments t ON t.id = m.tournament_id
            WHERE t.tournament_name = p_tournament_name
            GROUP BY p.summoner_name;
BEGIN
    SELECT COUNT(*)
    INTO v_tournament_exists
    FROM tournaments
    WHERE tournament_name = p_tournament_name;

    IF v_tournament_exists = 0 THEN
        RAISE e_tournament_not_found;
    ELSIF v_tournament_exists > 1 THEN
        RAISE e_multiple_tournaments_found;
    END IF;

    SELECT AVG((ps.kills + ps.assists) / NULLIF(ps.deaths,
0))
    INTO v_kda_avg
    FROM players p
        JOIN player_statistics ps ON ps.player_id = p.id
        JOIN matches m ON m.id = ps.match_id
        JOIN tournaments t ON t.id = m.tournament_id
    WHERE t.tournament_name = p_tournament_name;

    IF v_kda_avg IS NULL THEN
        RAISE e_no_statistics_found;
    END IF;

    OPEN c_kda_cursor;
    LOOP
        FETCH c_kda_cursor INTO v_player_name, v_player_kda;
        EXIT WHEN c_kda_cursor%NOTFOUND;
        IF v_player_kda > v_kda_avg THEN
            v_players_above_avg.extend;
            v_players_above_avg(v_players_above_avg.count) :=
v_player_name;
        END IF;
    END LOOP;

```

```

        CLOSE c_kda_cursor;

        RETURN v_players_above_avg;

    EXCEPTION
        WHEN e_no_statistics_found THEN
            RAISE_APPLICATION_ERROR(-20001, 'No statistics found
for tournament ' || p_tournament_name || '.');
            RETURN NULL;
        WHEN e_multiple_tournaments_found THEN
            RAISE_APPLICATION_ERROR(-20002,
            'Multiple tournaments found
with name ' || p_tournament_name || '.');
            RETURN NULL;
        WHEN e_tournament_not_found THEN
            RAISE_APPLICATION_ERROR(-20003, 'Tournament with name
' || p_tournament_name || ' does not exist.');
```

END ex8;

-- Afisati numele campionilor si media de cs ce sunt in top 5
in functie de media de cs pe meci
-- pentru un anumit turneu.

```

    PROCEDURE ex9(p_tournament_name IN
tournaments.tournament_name%TYPE)
    IS
        TYPE r_cs_champions_type IS RECORD
            (
                champion_name
champions.champion_name%TYPE,
                average_cs      NUMBER
            );
        TYPE t_cs_champions_table IS TABLE OF
r_cs_champions_type;
        v_cs_champions      t_cs_champions_table;
        v_tournament_exists NUMBER;
        CURSOR c_top5_avg IS
            SELECT c.champion_name, AVG(ps.cs) AS average_cs
            FROM champions c
                JOIN champion_picks cp ON c.id =
cp.champion_id
                JOIN player_statistics ps ON cp.player_id =
ps.player_id AND cp.match_id = ps.match_id
                JOIN matches m ON cp.match_id = m.id
                JOIN tournaments t ON m.tournament_id = t.id
            WHERE t.tournament_name = p_tournament_name
            GROUP BY c.champion_name
            HAVING AVG(ps.cs) > 250
            ORDER BY AVG(ps.cs) DESC;
    BEGIN
        SELECT id INTO v_tournament_exists FROM tournaments WHERE
tournament_name = p_tournament_name;
```



```

        OPEN c_top5_avg;
        FETCH c_top5_avg BULK COLLECT INTO v_cs_champions;
        CLOSE c_top5_avg;

        FOR i IN 1..LEAST(v_cs_champions.count, 5)
            LOOP
                dbms_output.put_line('Champion ' ||
v_cs_champions(i).champion_name || ' has an average CS of ' ||
ROUND(v_cs_champions(i).average_cs, 0));
            END LOOP;
        EXCEPTION
            WHEN no_data_found THEN
                RAISE_APPLICATION_ERROR(-20001, 'Tournament with name
' || p_tournament_name || ' does not exist.');
```

```

            WHEN too_many_rows THEN
                RAISE_APPLICATION_ERROR(-20002, 'Multiple tournaments
with name ' || p_tournament_name || ' exist.');
```

```

            END ex9;

END package_ex13;
/
```

Rulare:

```

DECLARE
    players package_ex13.players_table_package;
BEGIN
    package_ex13.ex6('Worlds 2022');
    package_ex13.ex7('Worlds 2022');
    players := package_ex13.ex8('Worlds 2022');
    FOR i IN 1..players.count
        LOOP
            dbms_output.put_line(players(i));
        END LOOP;
    package_ex13.ex9('Worlds 2022');
END;
/
```

```

[2023-05-23 17:12:38] completed in 181 ms
Player with id 3 in role 1 had the maximum kills: 8
Player with id 2 in role 2 had the maximum kills: 6
Player with id 8 in role 3 had the maximum kills: 8
Player with id 9 in role 4 had the maximum kills: 5
Player with id 15 in role 5 had the maximum kills: 1
Team: TSM – Wins: 4
Team: Fnatic – Wins: 3
Team: SK Telecom T1 – Wins: 2
Team: EDward Gaming – Wins: 1
Team: Royal Never Give Up – Wins: 0
Spica
Doublelift
Bjergsen
Hylissang
Meiko
Biofrost
Ming
Effort
Selfmade
Champion Maokai has an average CS of 343
Champion Fiora has an average CS of 322
Champion Gnar has an average CS of 316
Champion Camille has an average CS of 289
Champion Ahri has an average CS of 283

```

14. Pachet cu flux de actiuni

```

-- Vrem sa aflam care este cel mai bun campion din meta intr-un
turneu dat.
-- Pentru a afla asta vom lua in considerare urmatoarele:
-- 1. Numarul de banuri pe care il are campionul
-- 2. Performanta campionului (KDA)
-- Vom folosi urmatoarele formule:
-- 1. Pentru numarul de banuri: bans_count * 100 / total_bans
-- 2. Pentru performanta: (kills + assists) / deaths
-- 3. Pentru scorul campionului: bans_score * 10 + performance *
5

CREATE OR REPLACE PACKAGE package_ex14 AS

    TYPE t_champion IS RECORD
    (
        id                champions.id%TYPE,
        champion_name     champions.champion_name%TYPE,
        role_id           champions.role_id%TYPE,

```

```

        bans_count      NUMBER,
        bans_score      NUMBER,
        performance     NUMBER
    );

    PROCEDURE parse_champion(p_champion_id IN NUMBER,
p_tournament_id IN NUMBER, t_champion OUT t_champion);

    PROCEDURE calculate_champion_performance(p_champion IN OUT
t_champion);

    FUNCTION calculate_meta_score(p_champion IN t_champion)
RETURN NUMBER;

    FUNCTION get_meta_champion(p_tournament_id IN NUMBER) RETURN
t_champion;

END package_ex14;
/

CREATE OR REPLACE PACKAGE BODY package_ex14 AS

    PROCEDURE parse_champion(p_champion_id IN NUMBER,
p_tournament_id IN NUMBER, t_champion OUT t_champion) IS
        v_total_bans NUMBER;
        v_bans_count NUMBER;
    BEGIN
        SELECT COUNT(*)
        INTO v_total_bans
        FROM bans b
             INNER JOIN matches m ON b.match_id = m.id
        WHERE m.tournament_id = p_tournament_id;

        SELECT COUNT(*)
        INTO v_bans_count
        FROM bans b
             INNER JOIN matches m ON b.match_id = m.id
        WHERE m.tournament_id = p_tournament_id
              AND champion_id = p_champion_id;
        t_champion.id := p_champion_id;

        SELECT champion_name, role_id
        INTO t_champion.champion_name, t_champion.role_id
        FROM champions
        WHERE id = p_champion_id;

        t_champion.bans_score := (v_bans_count * 100) /
v_total_bans;
        calculate_champion_performance(t_champion);
    END parse_champion;

    PROCEDURE calculate_champion_performance(p_champion IN OUT
t_champion) IS

```

```

BEGIN
    SELECT ROUND(AVG((ps.kills + ps.assists) /
NULLIF(ps.deaths, 0)), 3)
    INTO p_champion.performance
    FROM player_statistics ps
        INNER JOIN champion_picks cp ON ps.match_id =
cp.match_id AND ps.player_id = cp.player_id
    WHERE cp.champion_id = p_champion.id;
END calculate_champion_performance;

FUNCTION calculate_meta_score(p_champion IN t_champion)
RETURN NUMBER IS
BEGIN
    RETURN p_champion.bans_score * 10 +
p_champion.performance * 5;
END calculate_meta_score;

FUNCTION get_meta_champion(p_tournament_id IN NUMBER) RETURN
t_champion IS
    v_best_champion      t_champion;
    v_current_champion    t_champion;
    v_best_score          NUMBER := 0;
    v_current_score       NUMBER;
    e_no_champion_data_found EXCEPTION;
    CURSOR c_champions_with_data IS
        SELECT id
        FROM champions
        WHERE 0 < (SELECT COUNT(*)
                    FROM champion_picks
                    WHERE champion_id = champions.id
                    AND match_id IN (SELECT id FROM matches
WHERE tournament_id = p_tournament_id))
        OR 0 < (SELECT COUNT(*)
                    FROM bans
                    WHERE champion_id = champions.id
                    AND match_id IN (SELECT id FROM matches
WHERE tournament_id = p_tournament_id));
    BEGIN
        FOR r IN c_champions_with_data
        LOOP
            parse_champion(r.id, p_tournament_id,
v_current_champion);
            v_current_score :=
calculate_meta_score(v_current_champion);
            IF v_current_score > v_best_score THEN
                v_best_score := v_current_score;
                v_best_champion := v_current_champion;
            END IF;
        END LOOP;
        IF v_best_champion.id IS NULL THEN
            RAISE e_no_champion_data_found;
        END IF;
        RETURN v_best_champion;
    END;

```

```

        EXCEPTION
            WHEN e_no_champion_data_found THEN
                RAISE_APPLICATION_ERROR(-20001, 'No champion data
found for tournament with id ' || p_tournament_id);
            END get_meta_champion;

END package_ex14;
/

```

Rulare:

```

DECLARE
    v_meta_champion package_ex14.t_champion;
BEGIN
    v_meta_champion := package_ex14.get_meta_champion(1);
    dbms_output.put_line('Meta champion is ' ||
v_meta_champion.champion_name || ' with a score of ' ||
                        v_meta_champion.performance);
END;
/

-- EXPECTED:
-- Meta champion is Yasuo with a score of 14

```

[2023-05-24 01:51:25] completed in 99 ms
Meta champion is Yasuo with a score of 14

```

DECLARE
    v_meta_champion package_ex14.t_champion;
BEGIN
    v_meta_champion := package_ex14.get_meta_champion(3);
    dbms_output.put_line('Meta champion is ' ||
v_meta_champion.champion_name || ' with a score of ' ||
                        v_meta_champion.performance);
END;
/

-- EXPECTED:
-- ORA-20001: No champion data found for tournament with id 3

```

```

[2023-05-24 15:02:05] [72000][20001]
[2023-05-24 15:02:05] ORA-20001: No champion data found for tournament with id 3
[2023-05-24 15:02:05] ORA-06512: at "ADMIN.PACKAGE_EX14", line 77
[2023-05-24 15:02:05] ORA-06512: at line 4
[2023-05-24 15:02:05] Position: 0

```