

ΠΑΝΕΠΙΣΤΗΜΙΟ ΙΩΑΝΝΙΝΩΝ
ΤΜΗΜΑ ΜΗΧ. Η/Υ & ΠΛΗΡΟΦΟΡΙΚΗΣ

ΠΡΟΧΩΡΗΜΕΝΑ ΘΕΜΑΤΑ
ΤΕΧΝΟΛΟΓΙΑΣ ΚΑΙ ΕΦΑΡΜΟΓΩΝ
ΒΑΣΕΩΝ ΔΕΔΟΜΕΝΩΝ

ΠΡΟΓΡΑΜΜΑΤΙΣΤΙΚΗ ΕΡΓΑΣΙΑ ΓΙΑ ΤΟ
ΑΚΑΔΗΜΑΪΚΟ ΕΤΟΣ 2024 - 2025

ΟΜΑΔΑ STATISTIC STRIKERS

ΠΗΤΤΑΣ ΝΙΚΟΛΑΟΣ, 5007

ΑΠΟΛΛΩΝ ΠΕΤΡΟΣ ΚΑΛΛΙΠΟΛΙΤΗΣ, 4963

ΙΩΑΝΝΗΣ ΓΙΑΝΝΑΚΟΣ, 4970

ΤΕΛΙΚΗ ΑΝΑΦΟΡΑ

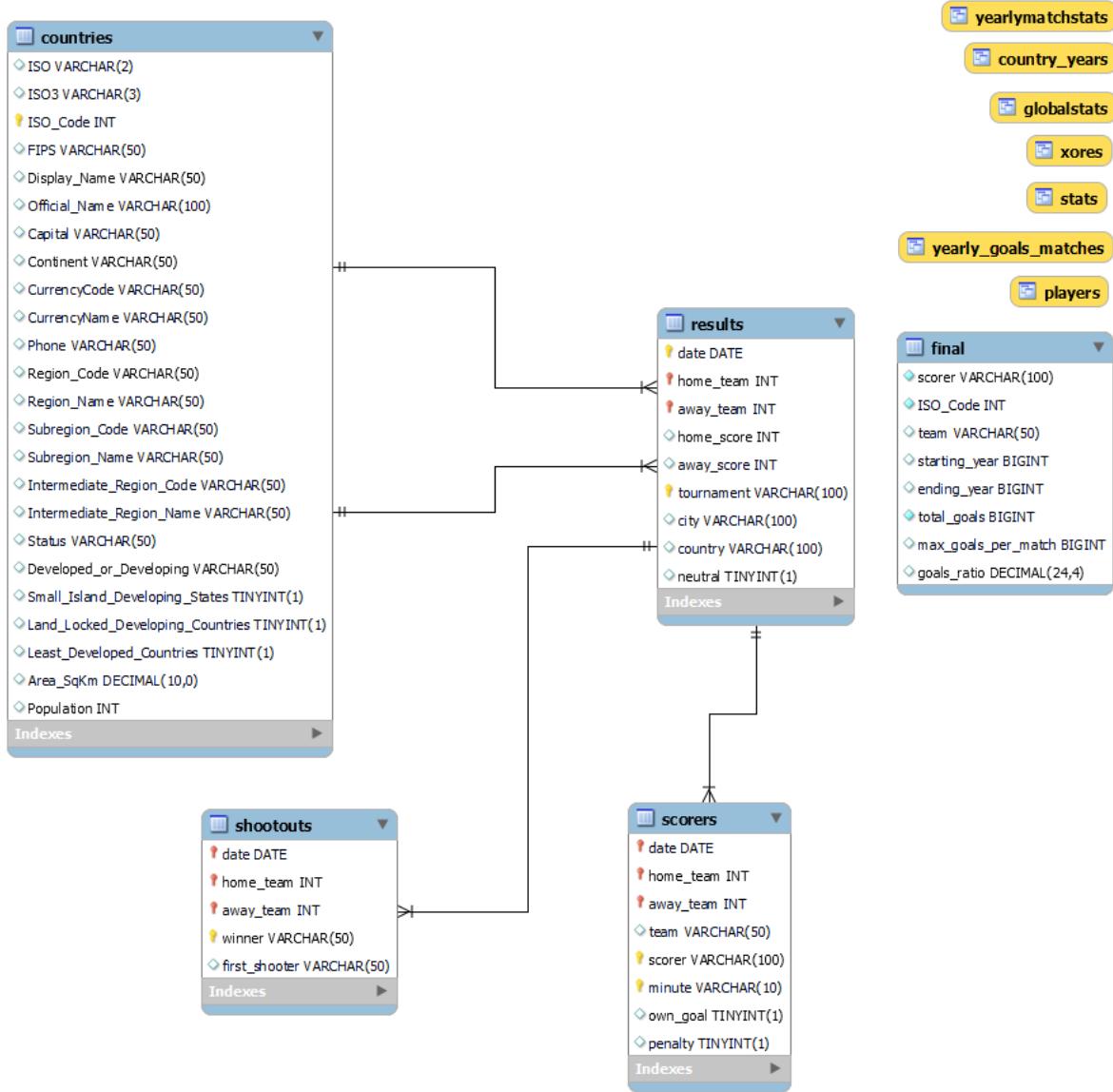
ΜΑΪΟΣ 2025

ΙΣΤΟΡΙΚΟ ΠΡΟΗΓΟΥΜΕΝΩΝ ΕΚΔΟΣΕΩΝ

Ημερομηνία	Έκδοση	Περιγραφή	Συγγραφέας
25/05/2025	0.1	Βάση δεδομένων και λοιπές ρυθμίσεις	Πήττας Νικόλαος
26/05/2025	1.0	Ολοκλήρωση αναφοράς	Πήττας Νικόλαος Γιαννακός Ιωάννης Καλλιπολίτης Απόλλωνας

1 ΒΑΣΗ ΔΕΔΟΜΕΝΩΝ

1.1 ΣΧΕΣΙΑΚΟ ΣΧΗΜΑ ΣΕ ΛΟΓΙΚΟ ΕΠΙΠΕΔΟ



Σχήμα 1.1 Σχεσιακό σχήμα της βάσης δεδομένων του συστήματος

```
-- MySQL Workbench Forward Engineering

SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS,
UNIQUE_CHECKS=0;
SET
@OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECK
S,
FOREIGN_KEY_CHECKS=0;
SET @OLD_SQL_MODE=@@SQL_MODE,
SQL_MODE='ONLY_FULL_GROUP_BY,STRICT_TRANS_T
ABLES,NO_ZERO_IN_DATE,NO_ZERO_DATE,ERROR_FO
R_DIVISION_BY_ZERO,NO_ENGINE_SUBSTITUTION';
```

```
-- -----
-- Schema mydb
-- -----
-- -----
-- Schema mye030
-- -----
-- -----
-- Schema mye030
-- -----
```

```

CREATE SCHEMA IF NOT EXISTS `mye030`
DEFAULT CHARACTER SET utf8mb4 COLLATE
utf8mb4_unicode_ci ;
USE `mye030` ;

-- -----
-- Table `mye030`.`countries`
-- -----
CREATE TABLE IF NOT EXISTS
`mye030`.`countries` (
  `ISO` VARCHAR(2) NULL DEFAULT NULL,
  `ISO3` VARCHAR(3) NULL DEFAULT NULL,
  `ISO_Code` INT NOT NULL,
  `FIPS` VARCHAR(50) NULL DEFAULT NULL,
  `Display_Name` VARCHAR(50) NULL DEFAULT
NULL,
  `Official_Name` VARCHAR(100) NULL DEFAULT
NULL,
  `Capital` VARCHAR(50) NULL DEFAULT NULL,
  `Continent` VARCHAR(50) NULL DEFAULT
NULL,
  `CurrencyCode` VARCHAR(50) NULL DEFAULT
NULL,
  `CurrencyName` VARCHAR(50) NULL DEFAULT
NULL,
  `Phone` VARCHAR(50) NULL DEFAULT NULL,
  `Region_Code` VARCHAR(50) NULL DEFAULT
NULL,
  `Region_Name` VARCHAR(50) NULL DEFAULT
NULL,
  `Subregion_Code` VARCHAR(50) NULL DEFAULT
NULL,
  `Subregion_Name` VARCHAR(50) NULL DEFAULT
NULL,
  `Intermediate_Region_Code` VARCHAR(50)
NULL DEFAULT NULL,
  `Intermediate_Region_Name` VARCHAR(50)
NULL DEFAULT NULL,
  `Status` VARCHAR(50) NULL DEFAULT NULL,
  `Developed_or_Developing` VARCHAR(50)
NULL DEFAULT NULL,
  `Small_Island_Developing_States` TINYINT(1)
NULL DEFAULT NULL,
  `Land_Locked_Developing_Countries` TINYINT(1)
NULL DEFAULT NULL,
  `Least_Developed_Countries` TINYINT(1)
NULL DEFAULT NULL,
  `Area_SqKm` DECIMAL(10,0) NULL DEFAULT
NULL,
  `Population` INT NULL DEFAULT NULL,
  PRIMARY KEY (`ISO_Code`)
ENGINE = InnoDB
DEFAULT CHARACTER SET = utf8mb4
COLLATE = utf8mb4_unicode_ci;

-- -----
-- Table `mye030`.`final`
-- -----
CREATE TABLE IF NOT EXISTS `mye030`.`final`(
  `scorer` VARCHAR(100) NOT NULL,
  `ISO_Code` INT NOT NULL,
  `team` VARCHAR(50) NULL DEFAULT NULL,
  `starting_year` BIGINT NULL DEFAULT NULL,
  `ending_year` BIGINT NULL DEFAULT NULL,
  `total_goals` BIGINT NOT NULL DEFAULT
'0',
  `max_goals_per_match` BIGINT NULL DEFAULT
NULL,
  `goals_ratio` DECIMAL(24,4) NULL DEFAULT
NULL)
ENGINE = InnoDB
DEFAULT CHARACTER SET = utf8mb4
COLLATE = utf8mb4_unicode_ci;

-- -----
-- Table `mye030`.`results`
-- -----
CREATE TABLE IF NOT EXISTS
`mye030`.`results` (
  `date` DATE NOT NULL,
  `home_team` INT NOT NULL,
  `away_team` INT NOT NULL,
  `home_score` INT NULL DEFAULT NULL,
  `away_score` INT NULL DEFAULT NULL,
  `tournament` VARCHAR(100) NOT NULL,
  `city` VARCHAR(100) NULL DEFAULT NULL,
  `country` VARCHAR(100) NULL DEFAULT NULL,
  `neutral` TINYINT(1) NULL DEFAULT NULL,
  PRIMARY KEY (`date`, `home_team`),
  `away_team`, `tournament`),
  INDEX `home_team`(`home_team` ASC)
VISIBLE,
  INDEX `away_team`(`away_team` ASC)
VISIBLE,
  CONSTRAINT `results_ibfk_1`
    FOREIGN KEY (`home_team`)
    REFERENCES `mye030`.`countries`(`ISO_Code`),
  CONSTRAINT `results_ibfk_2`
    FOREIGN KEY (`away_team`)
    REFERENCES `mye030`.`countries`(`ISO_Code`)
ENGINE = InnoDB
DEFAULT CHARACTER SET = utf8mb4
COLLATE = utf8mb4_unicode_ci;

-- -----
-- Table `mye030`.`scorers`
-- -----
CREATE TABLE IF NOT EXISTS
`mye030`.`scorers` (
  `date` DATE NOT NULL,
  `home_team` INT NOT NULL,
  `away_team` INT NOT NULL,
  `team` VARCHAR(50) NULL DEFAULT NULL,
  `scorer` VARCHAR(100) NOT NULL,
  `minute` VARCHAR(10) NOT NULL,
  `own_goal` TINYINT(1) NULL DEFAULT NULL,
  `penalty` TINYINT(1) NULL DEFAULT NULL,
  PRIMARY KEY (`date`, `home_team`,
  `away_team`, `scorer`, `minute`),
  CONSTRAINT `scorers_ibfk_1`
    FOREIGN KEY (`date`, `home_team`,
    `away_team`)
    REFERENCES `mye030`.`results`(`date`,
    `home_team`, `away_team`))
ENGINE = InnoDB

```

```

DEFAULT CHARACTER SET = utf8mb4
COLLATE = utf8mb4_unicode_ci;

-----
-- Table `mye030`.`shootouts`
-----
CREATE TABLE IF NOT EXISTS
`mye030`.`shootouts` (
  `date` DATE NOT NULL,
  `home_team` INT NOT NULL,
  `away_team` INT NOT NULL,
  `winner` VARCHAR(50) NOT NULL,
  `first_shooter` VARCHAR(50) NULL DEFAULT
NULL,
  PRIMARY KEY (`date`, `home_team`,
`away_team`, `winner`),
  CONSTRAINT `shootouts_ibfk_1`
    FOREIGN KEY (`date` , `home_team` ,
`away_team`)
      REFERENCES `mye030`.`results` (`date` ,
`home_team` , `away_team`))
ENGINE = InnoDB
DEFAULT CHARACTER SET = utf8mb4
COLLATE = utf8mb4_unicode_ci;

USE `mye030` ;

-----
-- Placeholder table for view
`mye030`.`country_years`
-----
CREATE TABLE IF NOT EXISTS
`mye030`.`country_years`(`ISO_Code` INT,
`Display_Name` INT, `Official_Name` INT,
`start_year` INT, `end_year` INT);

-----
-- Placeholder table for view
`mye030`.`globalstats`
-----
CREATE TABLE IF NOT EXISTS
`mye030`.`globalstats`(`ISO_Code` INT,
`Display_Name` INT, `total_wins` INT,
`score` INT, `years_playing` INT);

-----
-- Placeholder table for view
`mye030`.`players`
-----
CREATE TABLE IF NOT EXISTS
`mye030`.`players`(`scorer` INT, `team` INT,
`starting_year` INT, `ending_year` INT,
`total_goals` INT,
`max_goals_per_match` INT);

-----
-- Placeholder table for view
`mye030`.`stats`
-----
CREATE TABLE IF NOT EXISTS `mye030`.`stats`(
`ISO_Code` INT, `home_wins` INT,
`away_wins` INT, `total_wins` INT,
`home_losses` INT, `away_losses` INT,
`total_losses` INT, `home_ties` INT,
`away_ties` INT, `total_ties` INT,
`home_matches` INT, `away_matches` INT,
`total_matches` INT);

-----
-- Placeholder table for view
`mye030`.`xores`
-----
CREATE TABLE IF NOT EXISTS `mye030`.`xores`(
`Display_Name` INT, `Official_Name` INT,
`start_year` INT, `end_year` INT,
`ISO_Code` INT, `home_wins` INT,
`away_wins` INT, `total_wins` INT,
`home_losses` INT, `away_losses` INT,
`total_losses` INT, `home_ties` INT,
`away_ties` INT, `total_ties` INT,
`home_matches` INT, `away_matches` INT,
`total_matches` INT);

-----
-- Placeholder table for view
`mye030`.`yearly_goals_matches`
-----
CREATE TABLE IF NOT EXISTS
`mye030`.`yearly_goals_matches`(`scorer` INT,
`ISO_Code` INT, `year` INT,
`total_year_matches` INT,
`total_year_goals` INT);

-----
-- Placeholder table for view
`mye030`.`yearlymatchstats`
-----
CREATE TABLE IF NOT EXISTS
`mye030`.`yearlymatchstats`(`ISO_Code` INT,
`year` INT, `total_year_matches` INT,
`total_year_draws` INT, `total_year_wins` INT,
`total_year_losses` INT,
`had_shootouts` INT);

-----
-- View `mye030`.`country_years`
-----
DROP TABLE IF EXISTS
`mye030`.`country_years`;
USE `mye030`;
CREATE OR REPLACE ALGORITHM=UNDEFINED
DEFINER='root'@'localhost' SQL SECURITY
DEFINER VIEW `mye030`.`country_years` AS
select `c`.`ISO_Code` AS
`ISO_Code`, `c`.`Display_Name` AS
`Display_Name`, `c`.`Official_Name` AS
`Official_Name`, min(`m`.`date`) AS
`start_year`, max(`m`.`date`) AS `end_year`
from (`mye030`.`countries` `c` join
`mye030`.`results` `m` on(((`m`.`home_team` =
`c`.`ISO_Code`) or (`m`.`away_team` =
`c`.`ISO_Code`)))) group by `c`.`ISO_Code`;

-----
-- View `mye030`.`globalstats`
-----
DROP TABLE IF EXISTS
`mye030`.`globalstats`;

```

```

USE `mye030`;
CREATE OR REPLACE ALGORITHM=UNDEFINED
DEFINER=`root`@`localhost` SQL SECURITY
DEFINER VIEW `mye030`.`globalstats` AS
select `mye030`.`x`.`ISO_Code` AS
`ISO_Code`, `mye030`.`x`.`Display_Name` AS
`Display_Name`, `mye030`.`x`.`total_wins` AS
`total_wins`, ((`mye030`.`x`.`total_wins` *
3) + `mye030`.`x`.`total_ties`) AS
`scores`, (year(`mye030`.`x`.`end_year`) -
year(`mye030`.`x`.`start_year`)) AS
`years_playing` from `mye030`.`xores` `x`;

-- -----
-- View `mye030`.`players`
-- -----
DROP TABLE IF EXISTS `mye030`.`players`;
USE `mye030`;
CREATE OR REPLACE ALGORITHM=UNDEFINED
DEFINER=`root`@`localhost` SQL SECURITY
DEFINER VIEW `mye030`.`players` AS select
`s`.`scorer` AS `scorer`, `s`.`team` AS
`team`, min(year(`s`.`date`)) AS
`starting_year`, max(year(`s`.`date`)) AS
`ending_year`, count(0) AS
`total_goals`, max(`match_goals`.`max_goals`)
AS `max_goals_per_match` from
(`mye030`.`scorers` `s` join (select
`mye030`.`scorers`.`date` AS
`date`, `mye030`.`scorers`.`home_team` AS
`home_team`, `mye030`.`scorers`.`away_team` AS
`away_team`, `mye030`.`scorers`.`scorer` AS
`scorer`, count(0) AS `max_goals` from
`mye030`.`scorers` group by
`mye030`.`scorers`.`date`, `mye030`.`scorers`
`.home_team`, `mye030`.`scorers`.`away_team`,
`mye030`.`scorers`.`scorer`)
`match_goals` on(((`s`.`date` =
`match_goals`.`date`) and (`s`.`home_team` =
`match_goals`.`home_team`) and
(`s`.`away_team` =
`match_goals`.`away_team`) and
(`s`.`scorer` = `match_goals`.`scorer`)))
group by `s`.`team`, `s`.`scorer`;

-- -----
-- View `mye030`.`stats`
-- -----
DROP TABLE IF EXISTS `mye030`.`stats`;
USE `mye030`;
CREATE OR REPLACE ALGORITHM=UNDEFINED
DEFINER=`root`@`localhost` SQL SECURITY
DEFINER VIEW `mye030`.`stats` AS select
`c`.`ISO_Code` AS `ISO_Code`, sum((case when
(`m`.`home_team` = `c`.`ISO_Code`) and
(`m`.`home_score` > `m`.`away_score`) then
1 else 0 end)) AS `home_wins`, sum((case
when (`m`.`away_team` = `c`.`ISO_Code`) and
(`m`.`away_score` > `m`.`home_score`) then
1 else 0 end)) AS
`away_wins`, sum((case when
(`m`.`away_team` = `c`.`ISO_Code`) and
(`m`.`away_score` > `m`.`home_score`) then
1 when ((`m`.`home_team` = `c`.`ISO_Code`))
and (`m`.`away_score` < `m`.`home_score`) then
1 else 0 end)) AS
`home_losses`, sum((case when
(`m`.`home_team` = `c`.`ISO_Code`) and
(`m`.`home_score` < `m`.`away_score`) then
1 when ((`m`.`away_team` = `c`.`ISO_Code`))
and (`m`.`home_score` < `m`.`away_score`) then
1 else 0 end)) AS
`away_losses`, sum((case when
(`m`.`away_team` = `c`.`ISO_Code`) and
(`m`.`away_score` < `m`.`home_score`) then
1 when ((`m`.`home_team` = `c`.`ISO_Code`))
and (`m`.`home_score` < `m`.`away_score`) then
1 else 0 end)) AS
`total_losses`, sum((case when
(`m`.`home_team` = `c`.`ISO_Code`) and
(`m`.`home_score` = `m`.`away_score`) then
1 else 0 end)) AS `home_ties`, sum((case
when ((`m`.`away_team` = `c`.`ISO_Code`) and
(`m`.`away_score` = `m`.`home_score`) then
1 when ((`m`.`home_team` = `c`.`ISO_Code`))
and (`m`.`home_score` = `m`.`away_score`) then
1 else 0 end)) AS
`away_ties`, sum((case when
(`m`.`away_team` = `c`.`ISO_Code`) and
(`m`.`away_score` = `m`.`home_score`) then
1 when ((`m`.`home_team` = `c`.`ISO_Code`))
and (`m`.`home_score` = `m`.`away_score`) then
1 else 0 end)) AS
`total_ties` from `mye030`.`xores` `x`;

-- -----
-- View `mye030`.`xores`
-- -----

```

```

`away_ties`, `mye030`.`s`.`total_ties` AS
`total_ties`, `mye030`.`s`.`home_matches` AS
`home_matches`, `mye030`.`s`.`away_matches` AS
`away_matches`, `mye030`.`s`.`total_matches` AS `total_matches` from
(`mye030`.`country_years` `c` join
`mye030`.`stats` `s`
on(`mye030`.`c`.`ISO_Code` =
`mye030`.`s`.`ISO_Code`))) group by
`mye030`.`c`.`ISO_Code`;

-----  

-- View `mye030`.`yearly_goals_matches`  

-----  

DROP TABLE IF EXISTS
`mye030`.`yearly_goals_matches`;
USE `mye030`;
CREATE OR REPLACE ALGORITHM=UNDEFINED
DEFINER=`root`@`localhost` SQL SECURITY
DEFINER VIEW
`mye030`.`yearly_goals_matches` AS select
`s`.`scorer` AS
`scorer`, `mye030`.`y`.`ISO_Code` AS
`ISO_Code`, `mye030`.`y`.`year` AS
`year`, `mye030`.`y`.`total_year_matches` AS
`total_year_matches`, count(0) AS
`total_year_goals` from
(`mye030`.`scorers` `s` join
`mye030`.`countries` `c`
on(`(`c`.`Official_Name` = `s`.`team`) or
(`c`.`Display_Name` = `s`.`team`))) join
`mye030`.`yearlymatchstats` `y`
on(((year(`s`.`date` =
`mye030`.`y`.`year`) and (`c`.`ISO_Code` =
`mye030`.`y`.`ISO_Code`))) group by
`s`.`scorer`, `mye030`.`y`.`ISO_Code`, `mye030`.`y`.`year`,
`mye030`.`y`.`total_year_matches`);

-----  

-- View `mye030`.`yearlymatchstats`  

-----  

DROP TABLE IF EXISTS
`mye030`.`yearlymatchstats`;
USE `mye030`;
CREATE OR REPLACE ALGORITHM=UNDEFINED
DEFINER=`root`@`localhost` SQL SECURITY

```

```

DEFINER VIEW `mye030`.`yearlymatchstats` AS
select `c`.`ISO_Code` AS
`ISO_Code`, year(`r`.`date`) AS
`year`, sum((case when ((`r`.`away_team` =
`c`.`ISO_Code`) or (`r`.`home_team` =
`c`.`ISO_Code`)) then 1 else 0 end)) AS
`total_year_matches`, sum((case when
(`r`.`away_team` = `c`.`ISO_Code`) and
(`r`.`away_score` = `r`.`home_score`)) then
1 when ((`r`.`home_team` = `c`.`ISO_Code`)
and (`r`.`home_score` = `r`.`away_score`))
then 1 else 0 end)) AS
`total_year_draws`, sum((case when
(`r`.`away_team` = `c`.`ISO_Code`) and
(`r`.`away_score` > `r`.`home_score`)) then
1 when ((`r`.`home_team` = `c`.`ISO_Code`)
and (`r`.`away_score` < `r`.`home_score`))
then 1 else 0 end)) AS
`total_year_wins`, sum((case when
(`r`.`away_team` = `c`.`ISO_Code`) and
(`r`.`away_score` < `r`.`home_score`)) then
1 when ((`r`.`home_team` = `c`.`ISO_Code`)
and (`r`.`away_score` > `r`.`home_score`))
then 1 else 0 end)) AS
`total_year_losses`, sum((case when
(`r`.`date` = `s`.`date`) and
(`r`.`away_team` = `s`.`away_team`) and
(`r`.`home_team` = `s`.`home_team`) and
(`r`.`away_team` = `c`.`ISO_Code`) or
(`r`.`home_team` = `c`.`ISO_Code`))) then 1
else 0 end)) AS `had_shootouts` from
(`mye030`.`countries` `c` join
`mye030`.`results` `r` on((`r`.`home_team` =
`c`.`ISO_Code`) or (`r`.`away_team` =
`c`.`ISO_Code`))) left join
`mye030`.`shootouts` `s` on((`s`.`date` =
`r`.`date`) and (`s`.`home_team` =
`r`.`home_team`) and (`s`.`away_team` =
`s`.`away_team`))) group by
`c`.`ISO_Code`, `year`;

SET SQL_MODE=@OLD_SQL_MODE;
SET
FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS;
SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS;
```

1.2 ΣΧΕΣΙΑΚΟ ΣΧΗΜΑ ΣΕ ΦΥΣΙΚΟ ΕΠΙΠΕΔΟ

1.2.1 ΡΥΘΜΙΣΗ ΤΩΝ ΠΑΡΑΜΕΤΡΩΝ ΤΟΥ DBMS

Δεν έχει γίνει καμία αλλαγή στις παραμέτρους του DBMS καθώς οι default τιμές είναι αρκετές για την αποθήκευση της βάσης μας

1.2.2 ΡΥΘΜΙΣΗ ΤΟΥ ΦΥΣΙΚΟΥ ΣΧΗΜΑΤΟΣ ΤΗΣ ΒΑΣΗΣ ΔΕΔΟΜΕΝΩΝ

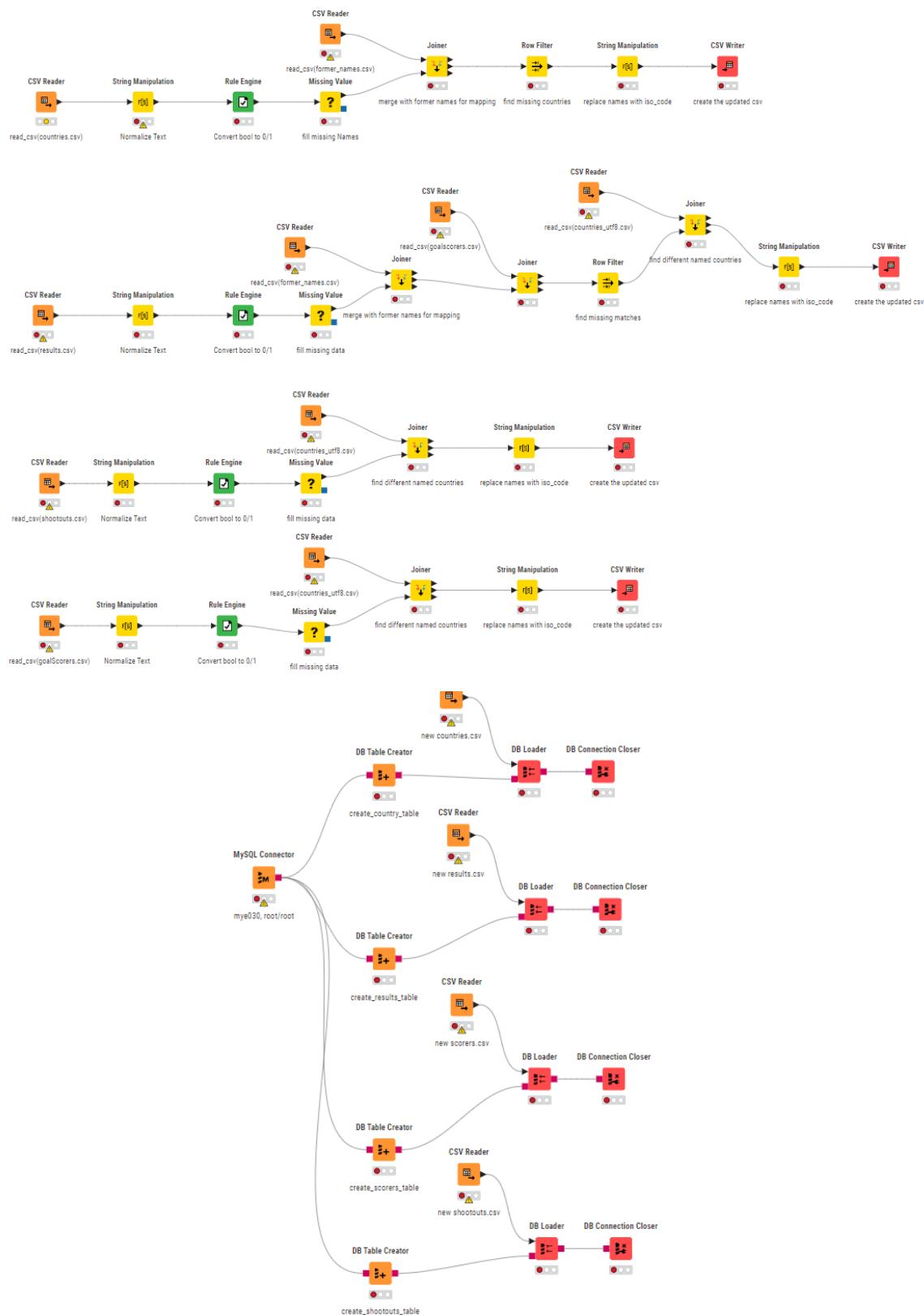
Για την πιο εύκολη υλοποίηση των custom queries στην java έχουν δημιουργηθεί μερικά views τα οποια καθιστούν πολύ ευκολότερη την επιστροφή δεδομένων από την βάση και κρένουν την πολυπλοκότητα των queries. Πιο συγκεκριμένα αυτά είναι τα country_years, globalstats, players, stats, xores, yearly_goals_matches, yearly_match_stats. Επιπλέον έχει υλοποιηθεί και ένα materialized view που ονομάζεται final το οποίο για λογούς απόδοσης (πολύ μεγάλη καθυστέρηση εμφάνισης αποτελεσμάτων και πιθανό timeout) αποφασίσαμε ότι θα είναι καλύτερο να υπάρχει ως ένα materialized view.

1.2.3 ΡΥΘΜΙΣΗ ΑΣΦΑΛΕΙΑΣ

Δεν υπάρχει δυνατότητα επεξεργασίας της βάσης μέσω της εφαρμογής. Πλήρη ασφάλεια 😊

2 ΑΡΧΙΤΕΚΤΟΝΙΚΗ ΛΟΓΙΣΜΙΚΟΥ

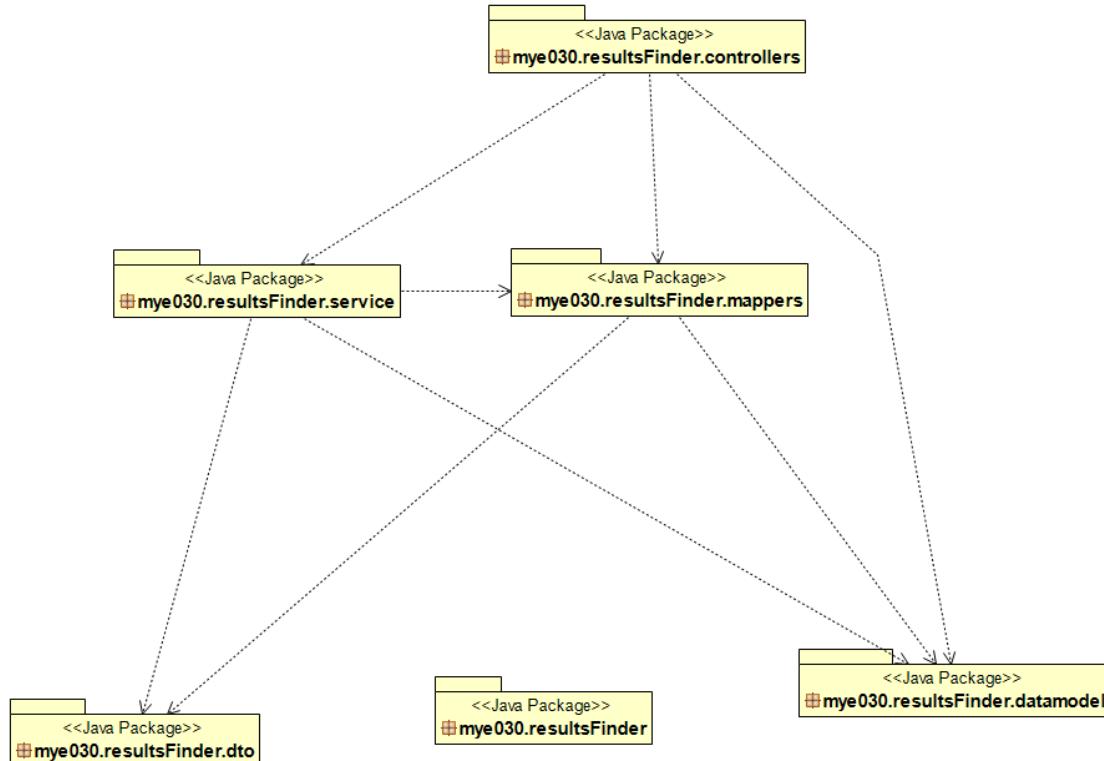
2.1 APXITEKTONIKH KAI ΔOMH ETL



Auto generated ETL Diagram through python script

2.2 ΔΙΑΓΡΑΜΜΑΤΑ ΠΑΚΕΤΩΝ / ΥΠΟΣΥΣΤΗΜΑΤΩΝ ΚΕΝΤΡΙΚΗΣ ΕΦΑΡΜΟΓΗΣ

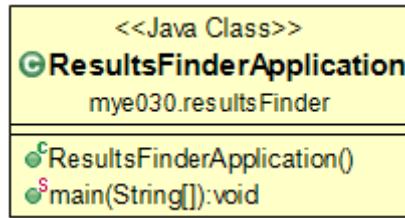
Το παραπάνω διάγραμμα απεικονίζει την δομή των πακέτων του συστήματος και τις μεταξύ τους εξαρτήσεις. Έχουμε διακριτά πακέτα για τους **controllers**, τα **services**, τα



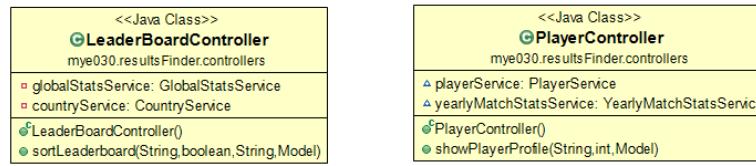
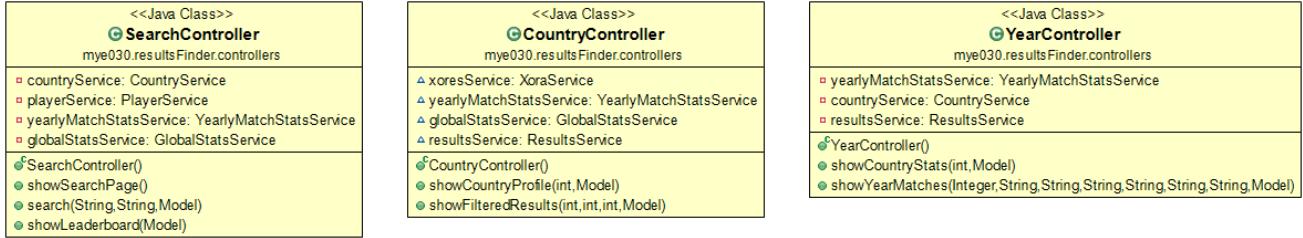
data transfer objects (dto), τα datamodels, αλλά και τους mappers.

Το πακέτο Controllers εξαρτάται από τα Services, τα DataModels, αλλά και τα Mappers, ενώ η επιχειρησιακή λογική υλοποιείται στο Service, το οποίο διαχειρίζεται τα δεδομένα μέσω των mappers και DataModels και DTOs. Με αυτή την δομή ο κώδικας καθίσταται επεκτάσιμος και ευκολότερος στη συντήρηση.

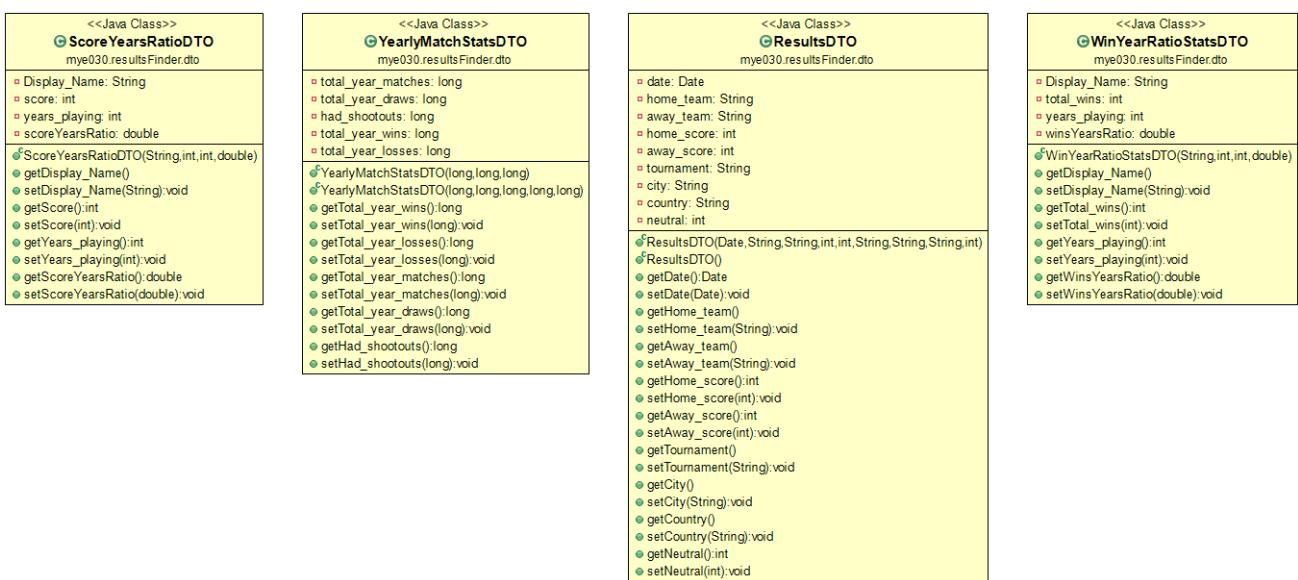
2.3 ΔΙΑΓΡΑΜΜΑ(ΤΑ) ΚΛΑΣΕΩΝ ΚΕΝΤΡΙΚΗΣ ΕΦΑΡΜΟΓΗΣ



2.3.1 Διάγραμμα κλάσης main εφαρμογής

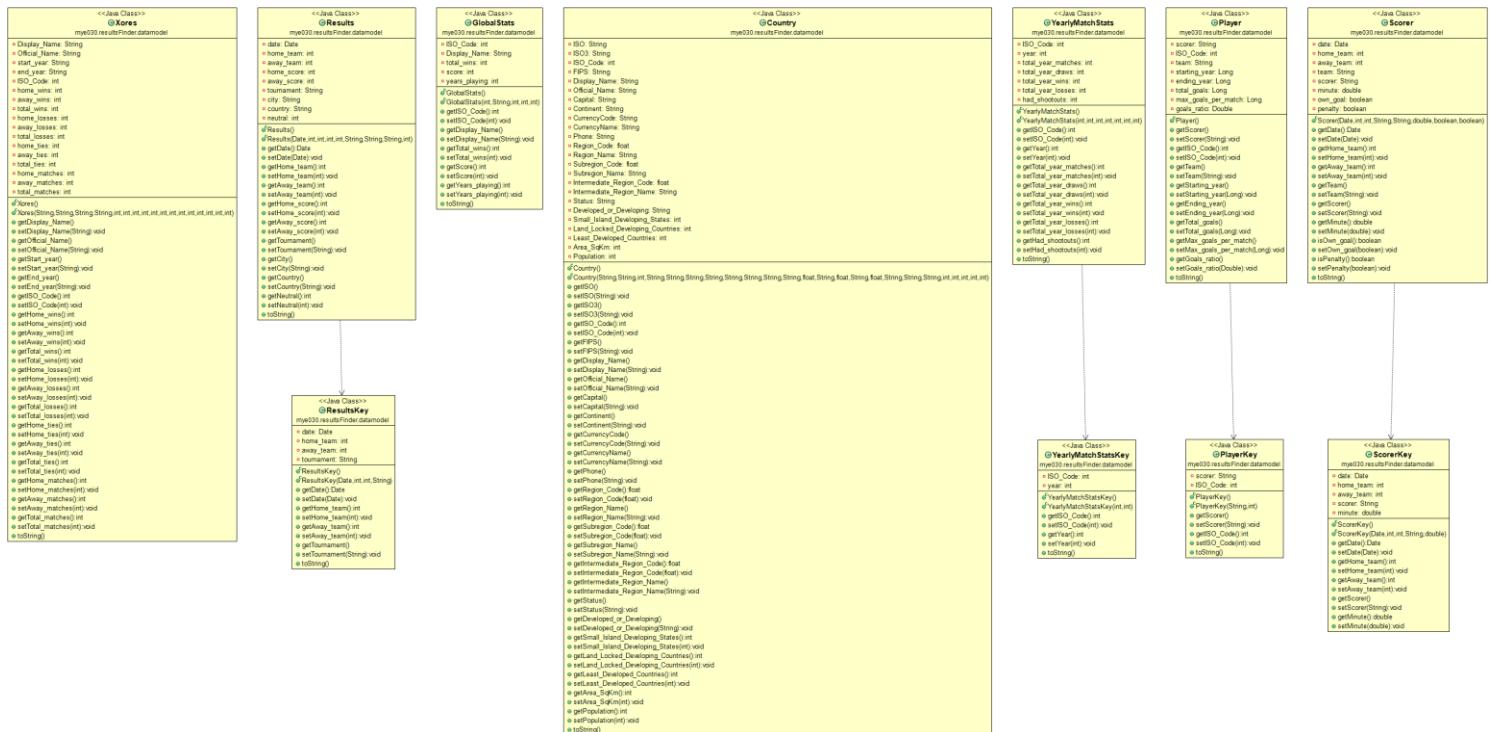


2.3.2 Διάγραμμα κλάσης Controllers

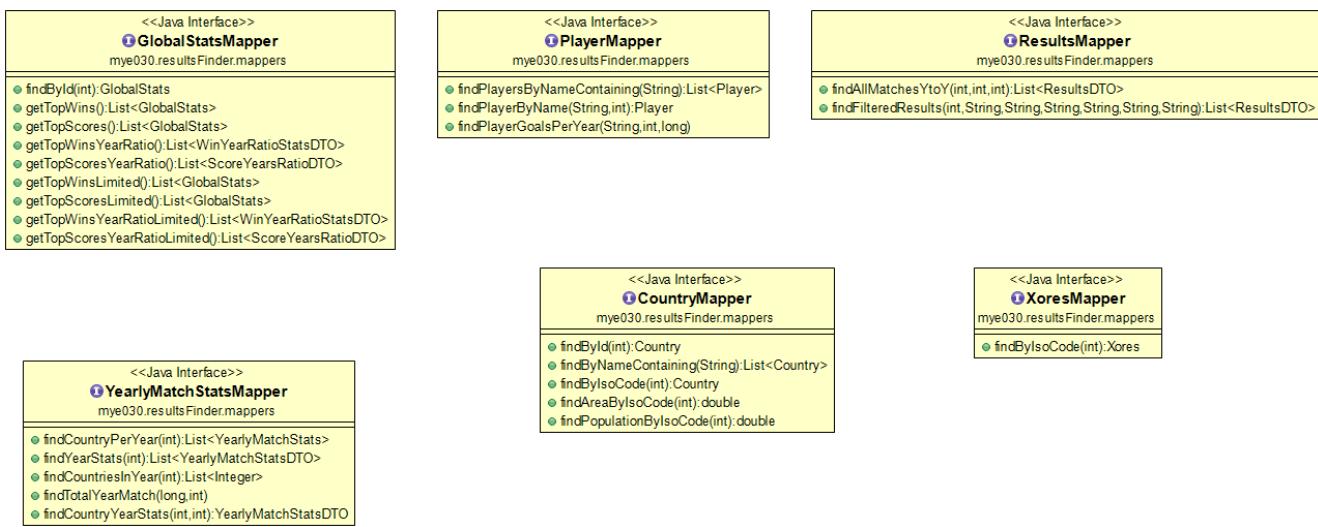


2.3.3 Διάγραμμα κλάσης DTOs

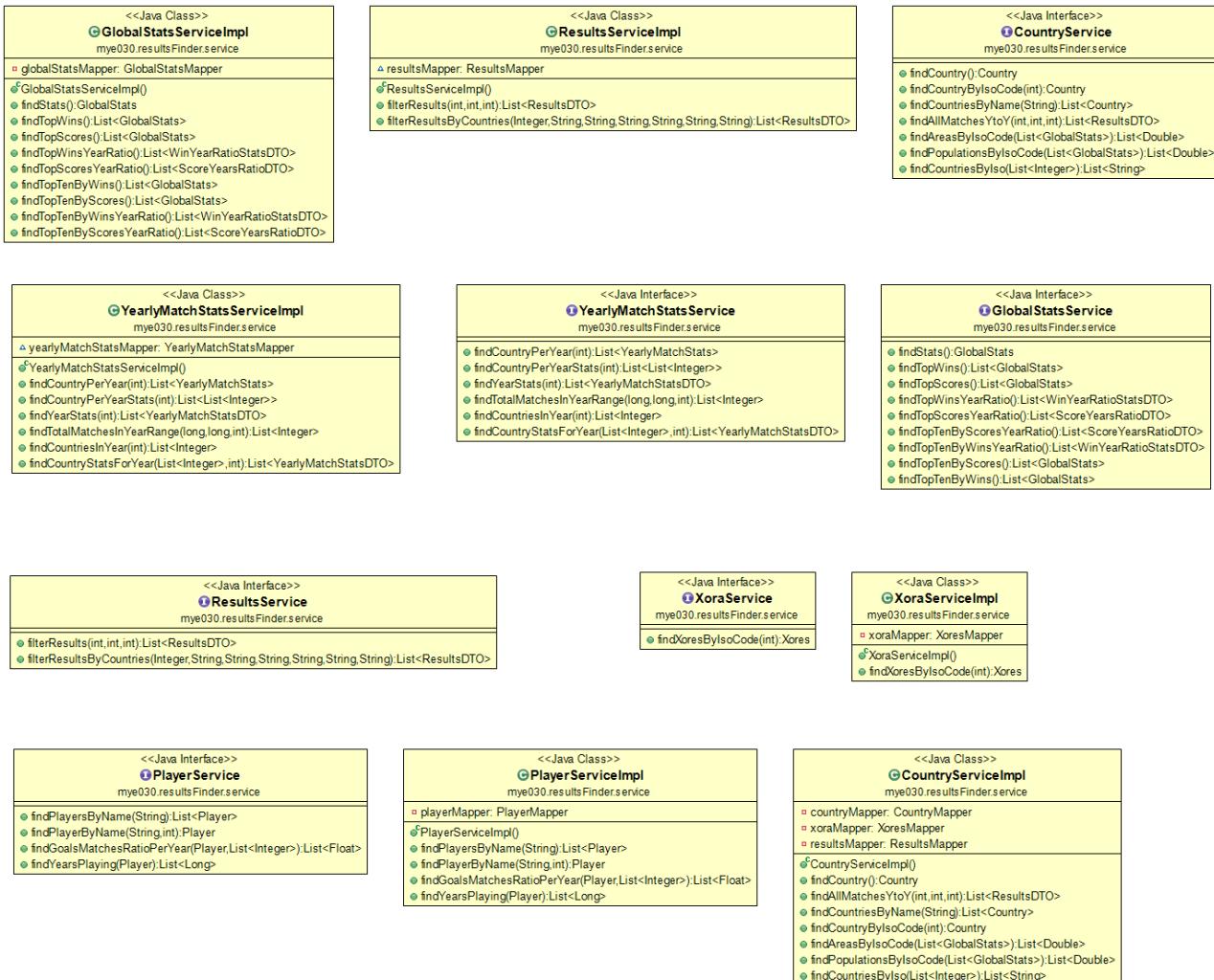
2.3.4 Διάγραμμα κλάσης DataModels



2.3.5 Διάγραμμα κλάσης Mappers



2.3.6 Διάγραμμα κλάσης Services



3 ΥΠΟΔΕΙΓΜΑΤΑ ΕΡΩΤΗΣΕΩΝ ΚΑΙ ΑΠΑΝΤΗΣΕΩΝ

- Αναζήτηση scorer και προβολή καθολικών στατιστικών:

Αρχική σελίδα:

Προβολή παίκτων που μοιάζουν με τον όρο αναζήτησης:

Boogle

tony

● Player ● Year ● Country

Search Leaderboard

Boogle Results

Antony Ewing Guatemala	Tony Dunne Austria	Tony Dunne Turkey	Tony Greish Republic of Ireland
Tony Woodcock England	Tony Henderson Australia	Tony Persson Sweden	Tony Galvin Republic of Ireland
Tony Adams England	Tony Cascarino Republic of Ireland	Antony de Ávila Colombia	Tony Yeboah Ghana

Προφίλ επιλεγμένου παίκτη:

Tony Woodcock Profile

Team: England
Starting Year: 1984
Ending Year: 1984
Total Goals: 11
Max Goals per Match: 2
Goals Ratio: 0.1594

← Go Back

Year	Goals Ratio
1979	0.20
1980	0.22
1981	0.15
1982	0.21
1983	0.16
1984	0.25

Match Stats for the year 2000

Total Matches: 1040

Total Draws: 238

Matches With Shootouts: 21

Filters for match results in the year 2000

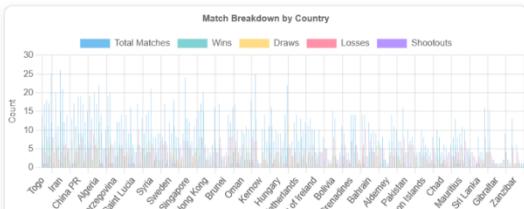
Europe Africa

Home Status Away Status

Home Dev Level Away Dev Level

[Apply Filters](#)

[Show Country Chart](#)



Match Stats for the year 2000

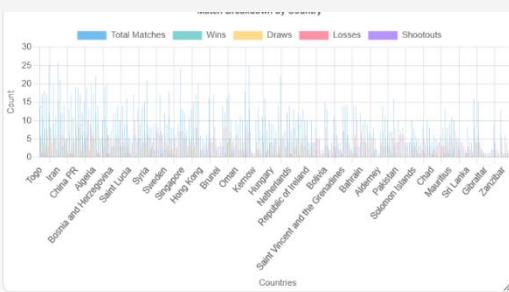
Total Matches: 1040

Filters for match results in the year 2000

Filtered Match Results for Year 2000

Date	Home Team	Score	Away Team	Tournament	City	Country	Neutral Ground
2000-10-04	France	1 - 1	Cameroon	Friendly	Saint-Denis	France	No
2000-05-28	Malta	0 - 1	South Africa	Friendly	Attard	Malta	No

[← Go Back](#)



[← Back to Google](#)

3.2 Year search

Boogle

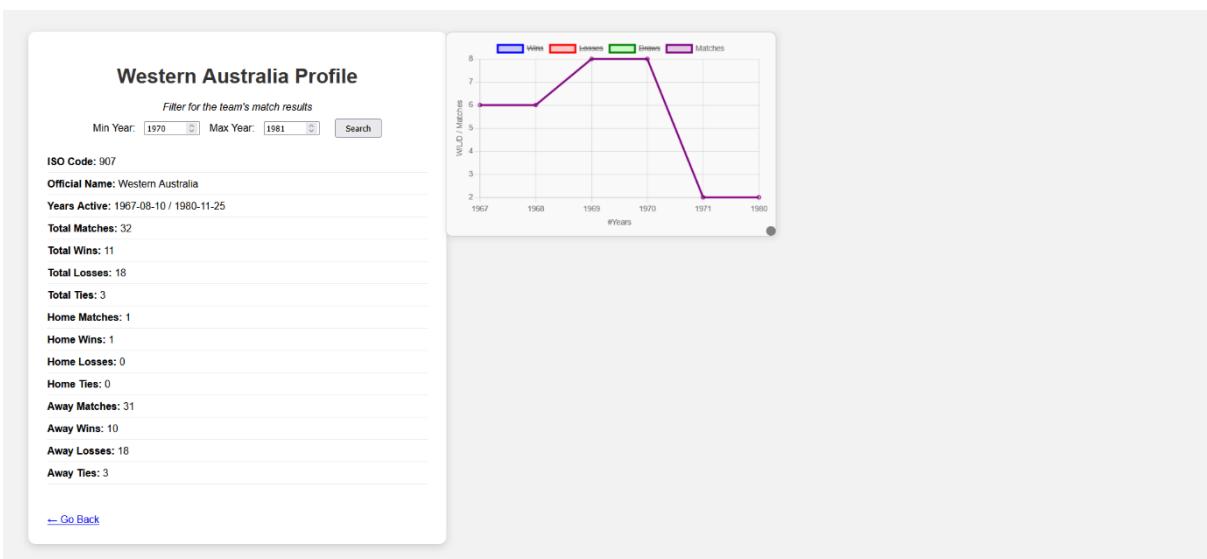
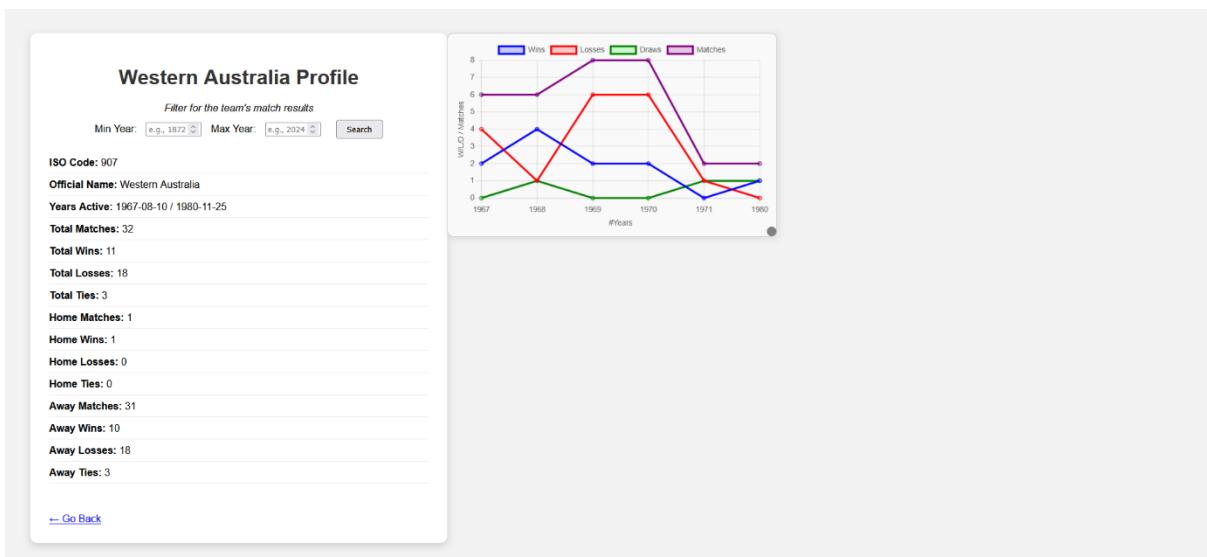
Australia

 Player Year Country[Search](#) | [Leaderboard](#)

Boogle Results

[Australia](#)[Western Australia](#)[← Back to Boogle](#)

3.3 Country search



3.4 Leaderboard

Leaderboard

Select Sorting Method:

- Wins Score Area / Population
- Wins / Years Score / Years

Country

Brazil
England
Germany
Argentina
Sweden
South Korea
Mexico
France
Hungary
Italy
Spain
Netherlands

A scatter plot titled "Top 10" showing the relationship between Area (Y-axis, 0 to 1.0) and Wins (X-axis, 0 to 700). The data points are represented by small blue dots. A horizontal grid is present at each 0.1 interval on the Y-axis.

Leaderboard

Select Sorting Method:

- Wins Score Area / Population
- Wins / Years Score / Years

Country

Country	Wins
Brazil	664
England	614
Germany	588
Argentina	579
Sweden	535
South Korea	531
Mexico	501
France	466
Hungary	465
Italy	465
Spain	449
Netherlands	440

A bar chart titled "Top 10" showing Wins (Y-axis, 0 to 700) for the top 10 countries (X-axis). The bars are blue and show the following approximate values: Brazil (664), England (614), Germany (588), Argentina (579), Sweden (535), South Korea (531), Mexico (501), France (466), Italy (465), Hungary (465).

A scatter plot titled "Scatter Data" showing the relationship between Area (Y-axis, 0 to 18,000,000) and Wins (X-axis, 0 to 700). The data points are represented by small red dots. A horizontal grid is present at each 2,000,000 interval on the Y-axis.

1980-11-25
Singapore
1 - 1
Western Australia
King's Cup
Bangkok
Thailand
Yes

[← Go Back](#)

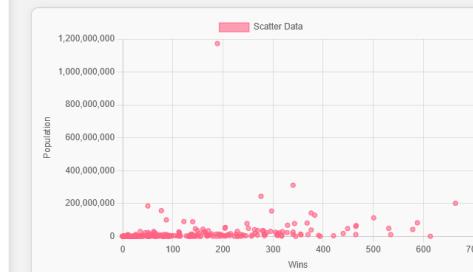
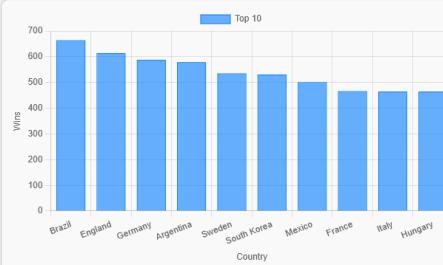
Leaderboard

Select Sorting Method:

Wins Score Area / Population
 Wins / Years Score / Years

Confirm

Country	Wins
Brazil	664
England	614
Germany	588
Argentina	579
Sweden	535
South Korea	531
Mexico	501
France	466
Hungary	465
Italy	465
Spain	449
Netherlands	440



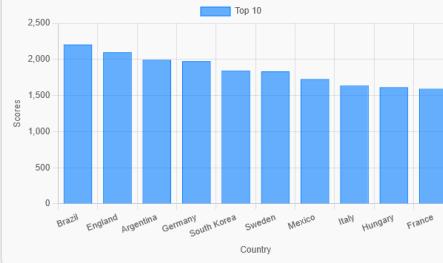
Leaderboard

Select Sorting Method:

Wins Score Area / Population
 Wins / Years Score / Years

Confirm

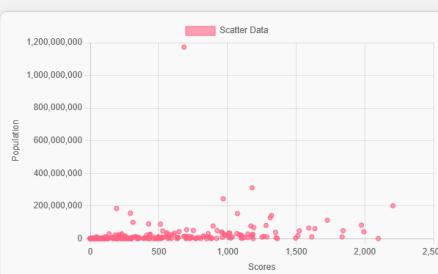
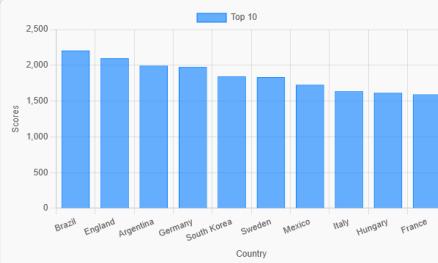
Country	Score
Brazil	2206
England	2099
Argentina	1993
Germany	1976
South Korea	1843
Sweden	1835
Mexico	1727
Italy	1636
Hungary	1614
France	1592
Spain	1523
Netherlands	1513



Leaderboard
 Select Sorting Method:
 Wins Score Area / Population
 Wins / Years Score / Years

Confirm

Country	Score
Brazil	2206
England	2099
Argentina	1993
Germany	1976
South Korea	1843
Sweden	1835
Mexico	1727
Italy	1636
Hungary	1614
France	1592
Spain	1523
Netherlands	1513



Leaderboard
 Select Sorting Method:
 Wins Score Area / Population
 Wins / Years Score / Years

Confirm

Country	Wins	Years	Wins / Year
South Korea	531	75	7.08
Brazil	664	110	6.0364
Czech Republic	187	31	6.0323
County of Nice	6	1	6.0
Saudi Arabia	340	61	5.5738
Uzbekistan	164	32	5.125
Germany	588	116	5.069
Yorkshire	5	1	5.0
Mexico	501	101	4.9604
Ivory Coast	313	64	4.8906
Qatar	257	54	4.7593
Argentina	579	122	4.7459

