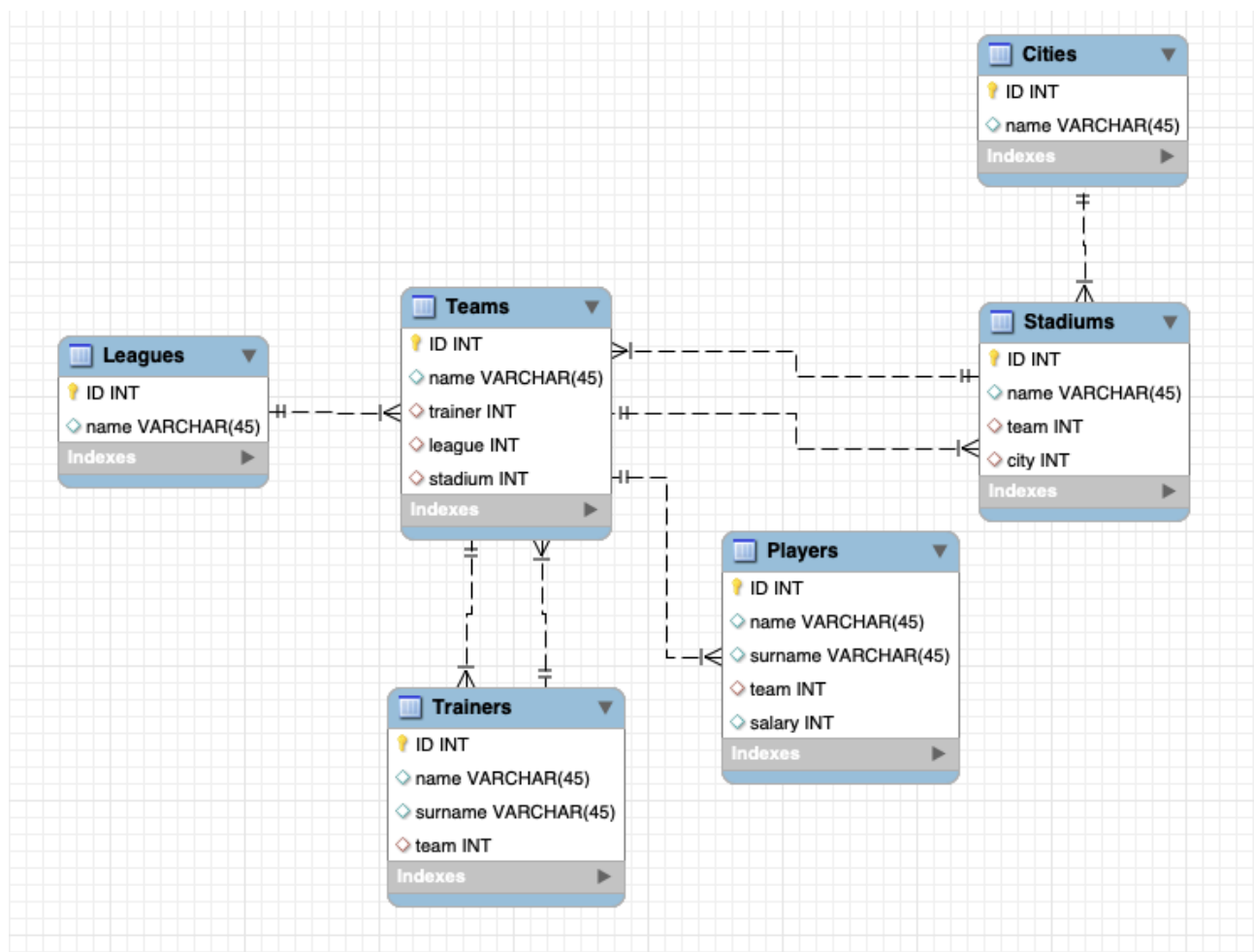


Część projektowa:

Baza danych przechowująca informacje o zespołach piłki nożnej oraz ich zawodnikach, trenerach, stadionach, miastach i ligach.

Tabele:

1. Teams - zawiera drużyny piłkarskie (ich nazwę, trenera, ligę oraz stadion)
2. Players - zawiera zawodników (ich imię, nazwisko, drużynę i pensję)
3. Leagues - zawiera ligi (ich nazwę)
4. Trainers - zawiera trenerów (ich imię, nazwisko i drużynę)
5. Stadiums - zawiera stadiony (ich nazwę, drużynę oraz miasto)
6. Cities - zawiera miasta (ich nazwę)



Normalizacja bazy:

- osobna tabela (wraz z kluczem podstawowym) dla każdego zestawu powiązanych danych
- dane które dotyczą wielu rekordów są w osobnych tabelach zamiast w jednej i są powiązane za pomocą klucza obcego
- w tabelach są tylko pola zależne od klucza

Prawa dostępu:

Do bazy można zalogować się z 3 poziomów dostępu:

Viewer - aby przeglądać informacje w bazie

Editor - aby móc przeglądać oraz edytować wiersze w bazie

Admin - admin dodatkowo może usuwać oraz dodawać wiersze do bazy i wykonywać procedury

Procedury:

Baza zawiera procedurę `increase_salary`, która przyjmuje liczbę jako argument i podwyższa wszystkim zawodnikom w bazie pensję o tyle.

Aplikacja:

Aplikacja napisana w Javie pozwala zalogować się jako Viewer, Editor lub Admin i w zależności od posiadanych praw dostępu wykonywać takie rzeczy jak przeglądanie tabel, dodawanie/usuwanie/aktualizowanie rekordów w konkretnych tabelach czy podnoszenie pensji zawodnikom (wykonywanie procedur).

Dokumentacja części bazodanowej:

Stworzenie pustej bazy i tabel:

```
CREATE SCHEMA `football`;
```

```
CREATE TABLE `football`.`Teams` (  
  `ID` INT NOT NULL,  
  `name` VARCHAR(45) NULL,  
  `trainer` INT NULL,  
  PRIMARY KEY (`ID`));
```

```
CREATE TABLE `football`.`Leagues` (  
  `ID` INT NOT NULL,  
  `name` VARCHAR(45) NULL,  
  PRIMARY KEY (`ID`));
```

```
CREATE TABLE `football`.`Players` (  
  `ID` INT NOT NULL,  
  `name` VARCHAR(45) NULL,  
  `surname` VARCHAR(45) NULL,  
  `team` INT NULL,  
  PRIMARY KEY (`ID`));
```

```
CREATE TABLE `football`.`Trainers` (  
  `ID` INT NOT NULL,  
  `name` VARCHAR(45) NULL,  
  `surname` VARCHAR(45) NULL,  
  `team` INT NULL,  
  PRIMARY KEY (`ID`));
```

```
CREATE TABLE `football`.`Stadiums` (
  `ID` INT NOT NULL,
  `name` VARCHAR(45) NULL,
  `team` INT NULL,
  `city` INT NULL,
  PRIMARY KEY (`ID`));
```

```
CREATE TABLE `football`.`Cities` (
  `ID` INT NOT NULL,
  `name` VARCHAR(45) NULL,
  PRIMARY KEY (`ID`));
```

Uzupełnienie tabeli danymi:

```
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('1', 'Kraków');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('2', 'Wrocław');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('3', 'Nowy York');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('4', 'Tokio');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('5', 'Gdańsk');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('6', 'Pekin');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('7', 'Poznań');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('8', 'Szanghaj');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('9', 'Waszyngton');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('10', 'Chicago');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('11', 'Kyoto');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('12', 'Warszawa');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('13', 'Miami');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('14', 'Toronto');
INSERT INTO `football`.`Cities` (`ID`, `name`) VALUES ('15', 'Wuhan');
```

```
INSERT INTO `football`.`Leagues` (`ID`, `name`) VALUES ('1', 'Ekstraklasa');
INSERT INTO `football`.`Leagues` (`ID`, `name`) VALUES ('2', 'American League');
INSERT INTO `football`.`Leagues` (`ID`, `name`) VALUES ('3', 'Asian League');
```

```
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('1', 'Thomas', 'Brown', '6');
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('2', 'Angel', 'Herrera', '8');
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('3', 'Mario', 'Sherone', '10');
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('4', 'Jacek', 'Damiluk', '12');
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('5', 'Fryderyk', 'Buk', '1');
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('6', 'Jerry', 'Duck', '3');
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('7', 'Nicolas', 'Stone', '5');
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('8', 'Maciej', 'Sieroń', '7');
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('9', 'Kamil', 'Kapusta', '2');
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('10', 'Tom', 'Lee', '4');
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('11', 'Gerard', 'Reto', '9');
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('12', 'Damian', 'Kara', '11');
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('13', 'Wojtek', 'Wódz', '20');
INSERT INTO `football`.`Players` (`ID`, `name`, `surname`, `team`) VALUES ('14', 'Sergio', 'DaVinci', '13');
```

```

INSERT INTO `football`.`Players` (ID, `name`, `surname`, `team`) VALUES ('15', 'Harry', 'Potter', '15');
INSERT INTO `football`.`Players` (ID, `name`, `surname`, `team`) VALUES ('16', 'Sebastian', 'Czekaj', '19');
INSERT INTO `football`.`Players` (ID, `name`, `surname`, `team`) VALUES ('17', 'Dorian', 'Rydz', '14');
INSERT INTO `football`.`Players` (ID, `name`, `surname`, `team`) VALUES ('18', 'Lukas', 'Podolski', '18');
INSERT INTO `football`.`Players` (ID, `name`, `surname`, `team`) VALUES ('19', 'Robert', 'Lewandowski', '16');
INSERT INTO `football`.`Players` (ID, `name`, `surname`, `team`) VALUES ('20', 'John', 'Hood', '17');

INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('1', 'Dawid', 'Szynol', '3');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('2', 'Justin', 'Bieber', '20');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('3', 'Dominik', 'Kot', '1');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('4', 'Bartosz', 'Kula', '2');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('5', 'Michał', 'Matczak', '19');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('6', 'Dany', 'Doom', '6');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('7', 'Robert', 'Makłowicz', '16');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('8', 'Sławomir', 'Peszek', '5');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('9', 'Ray', 'Filly', '4');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('10', 'Tommy', 'Cash', '17');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('11', 'Darek', 'Gwóźdź', '18');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('12', 'Johnny', 'Deep', '7');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('13', 'Willy', 'Roy', '10');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('14', 'Billy', 'Boy', '11');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('15', 'Walter', 'White', '13');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('16', 'Kacper', 'Czarny', '14');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('17', 'Emma', 'Watson', '12');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('18', 'Emily', 'Rose', '15');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('19', 'Sebastian', 'Czekaj', '8');
INSERT INTO `football`.`Trainers` (ID, `name`, `surname`, `team`) VALUES ('20', 'Kuba', 'Wojewódzki', '9');

INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('1', 'MagicPlace', '6', '1');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('2', 'Arena3', '9', '2');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('3', 'BigArea', '1', '3');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('4', 'Arena1', '2', '4');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('5', 'DDLSport', '8', '5');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('6', 'Arena2', '4', '20');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('7', 'FootStation', '3', '6');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('8', 'SPZSport', '7', '8');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('9', 'StadionWKS', '19', '7');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('10', 'KRKArena', '5', '10');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('11', 'FootStadium', '10', '9');

```

```

INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('12', 'BallPlace', '20', '19');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('13', 'FootPlace', '11', '11');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('14', 'SBMSport', '15', '17');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('15', 'QQSport', '16', '18');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('16', 'BORSport', '17', '12');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('17', 'CapitolDC', '18', '13');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('18', 'WWArea', '12', '14');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('19', 'FootballPalace', '13', '16');
INSERT INTO `football`.`Stadiums` (ID, `name`, `team`, `city`) VALUES ('20', 'JuventusArea', '14', '15');

```

```

INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('1', 'WKS', '4');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('2', 'Juventus', '20');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('3', 'FC Tokyo', '1');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('4', 'AC Kyoto', '19');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('5', 'Cracovia', '2');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('6', 'AC Washington', '17');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('7', 'Real Madrid', '3');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('8', 'FC Pekin', '18');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('9', 'Chicago Bulls', '10');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('10', 'Miami Beach', '11');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('11', 'FC Berlin', '12');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('12', 'AC Wien', '13');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('13', 'AC Szanghaj', '5');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('14', 'Lechia Gdańsk', '6');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('15', 'Lech Poznań', '7');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('16', 'Wuhan Covid', '8');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('17', 'Toronto Club', '14');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('18', 'NYC Club', '15');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('19', 'Wisła Kraków', '9');
INSERT INTO `football`.`Teams` (ID, `name`, `trainer`) VALUES ('20', 'FC Barcelona', '16');

```

Klucze obce:

```

ALTER TABLE `football`.`Teams`
ADD INDEX `trainer_idx` (trainer ASC) VISIBLE,
ADD INDEX `league_idx` (league ASC) VISIBLE,
ADD INDEX `stadium_idx` (stadium ASC) VISIBLE;
;

```

```

ALTER TABLE `football`.`Teams`
ADD CONSTRAINT `trainer`
  FOREIGN KEY (trainer)
    REFERENCES `football`.`Trainers` (ID)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION,
ADD CONSTRAINT `league`
  FOREIGN KEY (league)
    REFERENCES `football`.`Leagues` (ID)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION,
ADD CONSTRAINT `stadium`
  FOREIGN KEY (stadium)
    REFERENCES `football`.`Stadiums` (ID)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION;

```

```

ALTER TABLE `football`.`Trainers`
;

```

```

ALTER TABLE `football`.`Trainers` ALTER INDEX `team_idx` VISIBLE;
ALTER TABLE `football`.`Trainers`
ADD CONSTRAINT `team`
  FOREIGN KEY (`team`)
  REFERENCES `football`.`Teams` (`ID`)
  ON DELETE NO ACTION
  ON UPDATE NO ACTION;
ALTER TABLE `football`.`Stadiums`
DROP INDEX `team2_idx` ,
ADD INDEX `team2_idx` (`team` ASC) VISIBLE;
ALTER TABLE `football`.`Stadiums` ALTER INDEX `city_idx` VISIBLE;
ALTER TABLE `football`.`Stadiums`
ADD CONSTRAINT `team2`
  FOREIGN KEY (`team`)
  REFERENCES `football`.`Teams` (`ID`)
  ON DELETE NO ACTION
  ON UPDATE NO ACTION,
ADD CONSTRAINT `city`
  FOREIGN KEY (`city`)
  REFERENCES `football`.`Cities` (`ID`)
  ON DELETE NO ACTION
  ON UPDATE NO ACTION;

ALTER TABLE `football`.`Players`
ADD INDEX `team3_idx` (`team` ASC) VISIBLE;
;
ALTER TABLE `football`.`Players`
ADD CONSTRAINT `team3`
  FOREIGN KEY (`team`)
  REFERENCES `football`.`Teams` (`ID`)
  ON DELETE NO ACTION
  ON UPDATE NO ACTION;

```

Procedury:

```

DELIMITER $$
CREATE PROCEDURE increase_salary(IN how_much INT)
BEGIN
UPDATE Players
SET salary = salary + how_much;
END$$
DELIMITER ;

```