Bazy Danych Projekt

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Przykładowe zapytanie SELECT:

```sql
1 •  USE royal_family_tree;
2 •  SELECT
3         p.First_Name,
4         p.Regnal_Number,
5         t.Title_Name,
6         r.Relation_Type
7
8     FROM persons p
9     JOIN title_person tp
10        ON p.Person_ID = tp.Person_ID
11    JOIN titles t
12        ON tp.Title_ID = t.Title_ID
13    JOIN primary_person_in_relation ppir
14        ON ppir.PPIR_Person_ID = p.Person_ID
15    JOIN secondary_person_in_relation spir
16        ON spir.SPIR_Person_ID = p.Person_ID
17    JOIN relations r
18        ON ppir.PPIR_Relation_ID = r.Relation_ID
19        OR spir.SPIR_Relation_ID = r.Relation_ID
20    WHERE (tp.Title_ID = 1 OR tp.Title_ID = 2) AND (r.Secondary_Person_ID = 31
21    AND (r.Relation_Type LIKE '%fathe_' OR r.Relation_Type LIKE '%Fathe_'))
22
23    GROUP BY p.First_Name, p.Regnal_Number
24    ORDER BY p.First_Name, p.Regnal_Number
```

First_Name	Regnal_Number	Title_Name	Relation_Type
Charles	III	King of the United Kingdom and other Commonwealth realms	Father
George	V	King of the United Kingdom and other Commonwealth realms	Great-Great-Grandfather
George	VI	King of the United Kingdom and other Commonwealth realms	Great-Grandfather

Wykorzystuję w nim wszystkie tablice. Poszukujemy imienia, numeru porządkowego, nazwy tytułu, typu relacji wszystkich osobób, które są dla Wiliama Windsora ojcem, dziadkiem, pradziadkiem itd., które posiadały tytuł króla Anglii.
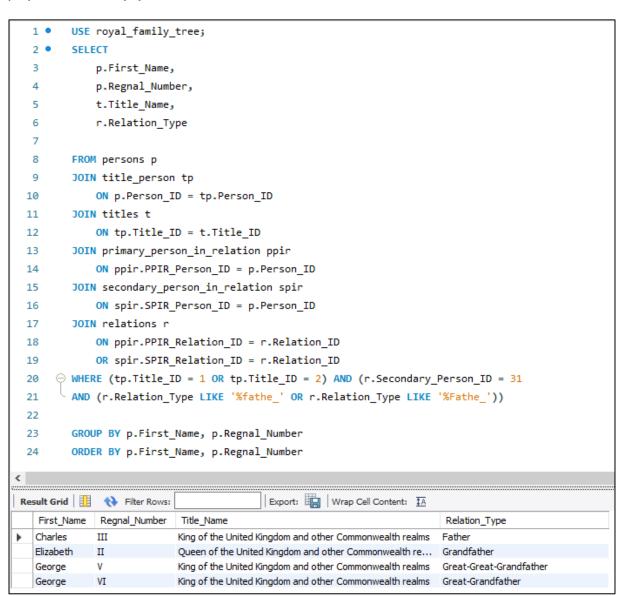
Przykładowy UPDATE:

Zmienimę relację pomiędzy królową Elżbietą II oraz księciem Walii Wiliamem w taki sposób, że Elżbieta zostanie nazwana dziadkiem a nie babcią Wiliama.

```
1 ●   USE royal_family_tree;
2       |
3 ●   UPDATE relations SET Relation_Type = 'Grandfather'
4       WHERE Relation_ID = 851 AND Primary_Person_ID = 12 AND Secondary_Person_ID = 31
```

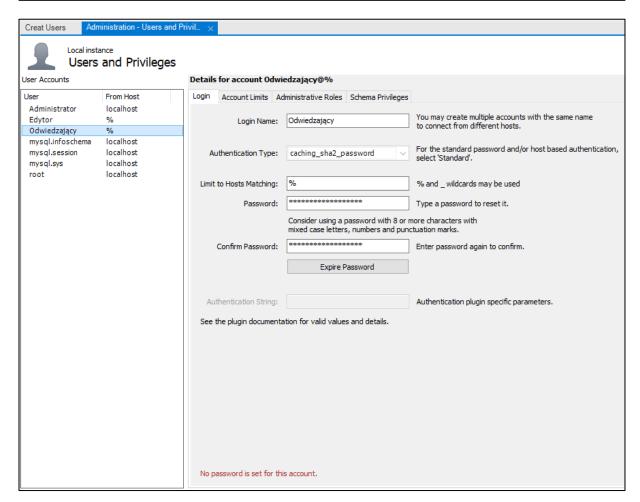Urzywając widodznego powyrzej zapytania UPDATE zmienię wynik jaki pokarze poprzednio urzyty SELECT.

```
1 ●   USE royal_family_tree;
2 ●   SELECT
3         p.First_Name,
4         p.Regnal_Number,
5         t.Title_Name,
6         r.Relation_Type
7
8     FROM persons p
9     JOIN title_person tp
10        ON p.Person_ID = tp.Person_ID
11    JOIN titles t
12        ON tp.Title_ID = t.Title_ID
13    JOIN primary_person_in_relation ppir
14        ON ppir.PPIR_Person_ID = p.Person_ID
15    JOIN secondary_person_in_relation spir
16        ON spir.SPIR_Person_ID = p.Person_ID
17    JOIN relations r
18        ON ppir.PPIR_Relation_ID = r.Relation_ID
19        OR spir.SPIR_Relation_ID = r.Relation_ID
20    WHERE (tp.Title_ID = 1 OR tp.Title_ID = 2) AND (r.Secondary_Person_ID = 31
21    AND (r.Relation_Type LIKE '%fathe_' OR r.Relation_Type LIKE '%Fathe_'))
22
23    GROUP BY p.First_Name, p.Regnal_Number
24    ORDER BY p.First_Name, p.Regnal_Number
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

First_Name	Regnal_Number	Title_Name	Relation_Type
Charles	III	King of the United Kingdom and other Commonwealth realms	Father
Elizabeth	II	Queen of the United Kingdom and other Commonwealth re...	Grandfather
George	V	King of the United Kingdom and other Commonwealth realms	Great-Great-Grandfather
George	VI	King of the United Kingdom and other Commonwealth realms	Great-Grandfather

Jak widać na zdęciu powyrzej Elżbieta pojawiła się w wyniku jako dziadek Wiliama.

Utworzenie użytkownika zapytaniem SQL:

```sql
1   CREATE USER 'Administrator'@'localhost'
2       IDENTIFIED BY 'password';
3   GRANT ALL
4       ON *.*
5       TO 'Administrator'@'localhost';
6
7   CREATE USER 'Edytor'@'%'
8       IDENTIFIED BY 'password';
9   GRANT SELECT,INSERT,UPDATE,DELETE
10      ON royal_family_tree.*
11      TO 'Edytor'@'%';
12
13  CREATE USER 'Odwiedzający'@'%';
14  GRANT SELECT
15      ON royal_family_tree.*
16      TO 'Odwiedzający'@'%';
```

✓	1 19:10:11	CREATE USER 'Administrator'@'localhost' IDENTIFIED BY 'password'	0 row(s) affected
✓	2 19:10:11	GRANT ALL ON *.* TO 'Administrator'@'localhost'	0 row(s) affected
✓	3 19:10:11	CREATE USER 'Edytor'@'%' IDENTIFIED BY 'password'	0 row(s) affected
✓	4 19:10:11	GRANT SELECT,INSERT,UPDATE,DELETE ON royal_family_tree.* TO 'Edytor'@'%'	0 row(s) affected
✓	5 19:10:11	CREATE USER 'Odwiedzający'@'%'	0 row(s) affected
✓	6 19:10:11	GRANT SELECT ON royal_family_tree.* TO 'Odwiedzający'@'%'	0 row(s) affected

Creat Users   Administration - Users and Privil... ✕

Local instance
Users and Privileges

User Accounts

Details for account Odwiedzający@%

Login | Account Limits | Administrative Roles | Schema Privileges

User	From Host
Administrator	localhost
Edytor	%
Odwiedzający	%
mysql.infoschema	localhost
mysql.session	localhost
mysql.sys	localhost
root	localhost

Login Name: Odwiedzający

You may create multiple accounts with the same name to connect from different hosts.

Authentication Type: caching_sha2_password

For the standard password and/or host based authentication, select 'Standard'.

Limit to Hosts Matching: %

% and _ wildcards may be used

Password: *****************

Type a password to reset it.

Consider using a password with 8 or more characters with mixed case letters, numbers and punctuation marks.

Confirm Password: *****************

Enter password again to confirm.

Expire Password

Authentication String:

Authentication plugin specific parameters.

See the plugin documentation for valid values and details.

No password is set for this account.

Baza danych posiada trzech użytkowników:

Administrator

Jego rola polega na zarządzaniu działaniem baz danych. Nie jest on ograniczony do żadnej bazy danych czy konkretnego zapytania. Rola ta jest bardzo ważna i jest przez to chroniona hasłem.

Edytora

Rola ta polega na wprowadzaniu niezbędnych zmian i poprawek do istniejącej bazy danych. Jest on jednak ograniczony tylko do niezbędnych do edycji zapytań wyłącznie wewnątrz bazy royal_family_tree. Rola ta jest chroniona hasłem.

Odwiedzający

Jest to rola, która jest przyznawana każdemu nowemu użytkownikowi. Nie jest ona chroniona hasłem, lecz jest ograniczona ściśle do zapytania SELECT tylko bazy danych royal_family_tree.

Przykładowy plik przywracający tabelę i dane tabeli 'Person':

```
1     -- MySQL dump 10.13  Distrib 8.0.31, for Win64 (x86_64)
2     --
3     -- Host: 127.0.0.1    Database: royal_family_tree
4     -- ------------------------------------------------------
5     -- Server version    8.0.31
6
7     /*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
8     /*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
9     /*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
10    /*!50503 SET NAMES utf8 */;
11    /*!40103 SET @OLD_TIME_ZONE=@@TIME_ZONE */;
12    /*!40103 SET TIME_ZONE='+00:00' */;
13    /*!40014 SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS, UNIQUE_CHECKS=0 */;
14    /*!40014 SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS, FOREIGN_KEY_CHECKS=0 */;
15    /*!40101 SET @OLD_SQL_MODE=@@SQL_MODE, SQL_MODE='NO_AUTO_VALUE_ON_ZERO' */;
16    /*!40111 SET @OLD_SQL_NOTES=@@SQL_NOTES, SQL_NOTES=0 */;
17
18    --
19    -- Table structure for table `persons`
20    --
21
22    DROP TABLE IF EXISTS `persons`;
23    /*!40101 SET @saved_cs_client     = @@character_set_client */;
24    /*!50503 SET character_set_client = utf8mb4 */;
25    CREATE TABLE `persons` (
26      `Person_ID` int NOT NULL AUTO_INCREMENT,
27      `First_Name` varchar(50) NOT NULL,
28      `Regnal_Number` varchar(25) DEFAULT NULL,
29      `All_Names` varchar(100) DEFAULT NULL,
30      `Current_House` varchar(50) NOT NULL,
31      `Previous_House` varchar(50) DEFAULT NULL,
32      `Gender` varchar(6) NOT NULL,
33      `Date_of_Birth` date NOT NULL,
34      `Date_of_Death` date DEFAULT NULL,
35      PRIMARY KEY (`Person_ID`),
36      UNIQUE KEY `Person_ID` (`Person_ID`)
37    ) ENGINE=InnoDB AUTO_INCREMENT=44 DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
38    /*!40101 SET character_set_client = @saved_cs_client */;
39
40    --
41    -- Dumping data for table `persons`
```

```sql
41    -- Dumping data for table `persons`
42    --
43
44    LOCK TABLES `persons` WRITE;
45    /*!40000 ALTER TABLE `persons` DISABLE KEYS */;
46    INSERT INTO `persons` VALUES (1,'George','V','George Frederick Ernest Albert','Windsor','Saxe-Coburg and Gotha','Male','1865-06-03','1936-01-20'),
47      (2,'Mary',NULL,'Victoria Mary Augusta Louise Olga Pauline Claudine Agnes','Teck',NULL,'Female','1867-05-26','1953-03-24'),
48      (3,'Edward','VIII','Edward Albert Christian George Andrew Patrick David','Windsor','Saxe-Coburg and Gotha','Male','1894-06-23','1972-03-28'),
49      (4,'George','VI','Albert Frederick Arthur George','Windsor','Saxe-Coburg and Gotha','Male','1895-12-14','1952-02-06'),
50      (5,'Elizabeth','I','Elizabeth Angela Marguerite Bowes-Lyon','Windsor','Bowes-Lyon','Female','1900-08-04','2002-03-30'),
51      (6,'Mary',NULL,'Victoria Alexandra Alice Mary','Windsor','Saxe-Coburg and Gotha','Female','1897-04-25','1965-03-28'),
52      (7,'Henry',NULL,'Henry William Frederick Albert','Windsor','Saxe-Coburg and Gotha','Male','1900-03-31','1974-06-10'),
53      (8,'Alice',NULL,'Alice Christabel','Montagu Douglas Scott',NULL,'Female','1901-12-25','2004-10-29'),
54      (9,'George',NULL,'George Edward Alexander Edmund','Windsor','Saxe-Coburg and Gotha','Male','1902-12-20','1942-08-25'),
55      (10,'Marina',NULL,'Marina','Glücksburg',NULL,'Female','1906-12-13','1968-08-30'),
56      (11,'John',NULL,'John Charles Francis','Windsor',NULL,'Male','1905-07-12','1919-01-18'),
57      (12,'Elizabeth','II','Elizabeth Alexandra Mary','Windsor',NULL,'Female','1926-04-21','2022-09-08'),
58      (13,'Philip',NULL,'Philip','Mountbatten','Glücksburg','Male','1921-06-10','2021-04-09'),
59      (14,'Margaret',NULL,'Margaret Rose','Windsor',NULL,'Female','1930-08-21','2002-02-09'),
60      (15,'William',NULL,'William Henry Andrew Frederick','Windsor',NULL,'Male','1941-12-18','1972-08-28'),
61      (16,'Richard',NULL,'Richard Alexander Walter George','Windsor',NULL,'Male','1944-08-26',NULL),
62      (17,'Birgitte',NULL,'Birgitte Eva','Windsor',NULL,'Female','1946-06-20',NULL),
63      (18,'Edward',NULL,'Edward George Nicholas Paul Patrick','Windsor',NULL,'Male','1935-10-09',NULL),
64      (19,'Katharine',NULL,'Katharine Lucy Mary','Windsor',NULL,'Female','1933-02-22',NULL),
65      (20,'Alexandra',NULL,'Alexandra Helen Elizabeth Olga Christabel','Windsor',NULL,'Female','1936-12-25',NULL),
66      (21,'Michael',NULL,'Michael George Charles Franklin','Windsor',NULL,'Male','1942-07-04',NULL),
67      (22,'Michael',NULL,'Marie-Christine Anna Agnes Hedwig Ida','Windsor','Reibnitz','Female','1945-01-15',NULL),
68      (23,'Charles','III','Charles Philip Arthur George','Windsor',NULL,'Male','1948-11-14',NULL),
69      (24,'Diana',NULL,'Diana Frances','Windsor','Spencer','Female','1961-07-01','1997-08-31'),
70      (25,'Camilla',NULL,'Camilla Rosemary','Windsor',NULL,'Female','1947-07-17',NULL),
71      (26,'Anne',NULL,'Anne Elizabeth Alice Louise','Windsor',NULL,'Female','1950-08-15',NULL),
72      (27,'Andrew',NULL,'Andrew Albert Christian Edward','Windsor',NULL,'Male','1960-02-19',NULL),
73      (28,'Sarah',NULL,'Sarah Margaret','Windsor',NULL,'Female','1959-10-15',NULL),
74      (29,'Edward',NULL,'Edward Antony Richard Louis','Windsor',NULL,'Male','1964-03-10',NULL),
75      (30,'Sophie',NULL,' Sophie Helen','Windsor',NULL,'Female','1965-01-20',NULL),
76      (31,'William',NULL,'William Arthur Philip Louis','Windsor',NULL,'Male','1982-06-21',NULL),
77      (32,'Catherine',NULL,'Catherine Elizabeth','Middleton',NULL,'Female','1982-01-09',NULL),
78      (33,'Harry',NULL,'Henry Charles Albert David','Windsor',NULL,'Male','1984-09-15',NULL),
79      (34,'Meghan',NULL,'Rachel Meghan','Windsor',NULL,'Female','1981-08-04',NULL),
80      (35,'Beatrice',NULL,'Beatrice Elizabeth Mary','Windsor',NULL,'Female','1988-08-08',NULL),
81      (36,'Eugenie',NULL,'Eugenie Victoria Helena','Windsor',NULL,'Female','1990-03-23',NULL),
```

```sql
62      (17,'Birgitte',NULL,'Birgitte Eva','Windsor',NULL,'Female','1946-06-20',NULL),
63      (18,'Edward',NULL,'Edward George Nicholas Paul Patrick','Windsor',NULL,'Male','1935-10-09',NULL),
64      (19,'Katharine',NULL,'Katharine Lucy Mary','Windsor',NULL,'Female','1933-02-22',NULL),
65      (20,'Alexandra',NULL,'Alexandra Helen Elizabeth Olga Christabel','Windsor',NULL,'Female','1936-12-25',NULL),
66      (21,'Michael',NULL,'Michael George Charles Franklin','Windsor',NULL,'Male','1942-07-04',NULL),
67      (22,'Michael',NULL,'Marie-Christine Anna Agnes Hedwig Ida','Windsor','Reibnitz','Female','1945-01-15',NULL),
68      (23,'Charles','III','Charles Philip Arthur George','Windsor',NULL,'Male','1948-11-14',NULL),
69      (24,'Diana',NULL,'Diana Frances','Windsor','Spencer','Female','1961-07-01','1997-08-31'),
70      (25,'Camilla',NULL,'Camilla Rosemary','Windsor',NULL,'Female','1947-07-17',NULL),
71      (26,'Anne',NULL,'Anne Elizabeth Alice Louise','Windsor',NULL,'Female','1950-08-15',NULL),
72      (27,'Andrew',NULL,'Andrew Albert Christian Edward','Windsor',NULL,'Male','1960-02-19',NULL),
73      (28,'Sarah',NULL,'Sarah Margaret','Windsor',NULL,'Female','1959-10-15',NULL),
74      (29,'Edward',NULL,'Edward Antony Richard Louis','Windsor',NULL,'Male','1964-03-10',NULL),
75      (30,'Sophie',NULL,' Sophie Helen','Windsor',NULL,'Female','1965-01-20',NULL),
76      (31,'William',NULL,'William Arthur Philip Louis','Windsor',NULL,'Male','1982-06-21',NULL),
77      (32,'Catherine',NULL,'Catherine Elizabeth','Middleton',NULL,'Female','1982-01-09',NULL),
78      (33,'Harry',NULL,'Henry Charles Albert David','Windsor',NULL,'Male','1984-09-15',NULL),
79      (34,'Meghan',NULL,'Rachel Meghan','Windsor',NULL,'Female','1981-08-04',NULL),
80      (35,'Beatrice',NULL,'Beatrice Elizabeth Mary','Windsor',NULL,'Female','1988-08-08',NULL),
81      (36,'Eugenie',NULL,'Eugenie Victoria Helena','Windsor',NULL,'Female','1990-03-23',NULL),
82      (37,'Louise ',NULL,'Louise Alice Elizabeth Mary','Windsor',NULL,'Female','2003-11-08',NULL),
83      (38,'James',NULL,'James Alexander Philip Theo','Windsor',NULL,'Male','2007-12-17',NULL),
84      (39,'George',NULL,'George Alexander Louis','Windsor',NULL,'Male','2013-07-22',NULL),
85      (40,'Charlotte',NULL,'Charlotte Elizabeth Diana','Windsor',NULL,'Female','2015-05-02',NULL),
86      (41,'Louis',NULL,'Louis Arthur Charles','Windsor',NULL,'Male','2018-04-23',NULL),
87      (42,'Archie',NULL,'Archie Harrison','Windsor',NULL,'Male','2019-03-06',NULL),
88      (43,'Lilibet',NULL,'Lilibet Diana','Windsor',NULL,'Female','2021-06-04',NULL);
89    /*!40000 ALTER TABLE `persons` ENABLE KEYS */;
90    UNLOCK TABLES;
91    /*!40103 SET TIME_ZONE=@OLD_TIME_ZONE */;
92
93    /*!40101 SET SQL_MODE=@OLD_SQL_MODE */;
94    /*!40014 SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS */;
95    /*!40014 SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS */;
96    /*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;
97    /*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
98    /*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
99    /*!40111 SET SQL_NOTES=@OLD_SQL_NOTES */;
```

Funkcja duplikująca:

```
1   CREATE SCHEMA `new_royal_family_tree`;
2   USE new_royal_family_tree;
3
4   CREATE TABLE New_Persons LIKE royal_family_tree.persons;
5   INSERT New_Persons SELECT * FROM royal_family_tree.persons;
6
7   CREATE TABLE New_Relations LIKE royal_family_tree.relations;
8   INSERT New_Relations SELECT * FROM royal_family_tree.relations;
9
10  CREATE TABLE New_Primary_Person_in_Relation LIKE royal_family_tree.primary_person_in_relation;
11  INSERT New_Primary_Person_in_Relation SELECT * FROM royal_family_tree.primary_person_in_relation;
12
13  CREATE TABLE New_Secondary_Person_in_Relation LIKE royal_family_tree.secondary_person_in_relation;
14  INSERT New_Secondary_Person_in_Relation SELECT * FROM royal_family_tree.secondary_person_in_relation;
15
16  CREATE TABLE New_Title_Person LIKE royal_family_tree.title_person;
17  INSERT New_Title_Person SELECT * FROM royal_family_tree.title_person;
18
19  CREATE TABLE New_Titles LIKE royal_family_tree.titles;
20  INSERT New_Titles SELECT * FROM royal_family_tree.titles;
```

Powyższe komendy tworzą duplikat bazy danych, który może posłużyć, jako wariant testowy.