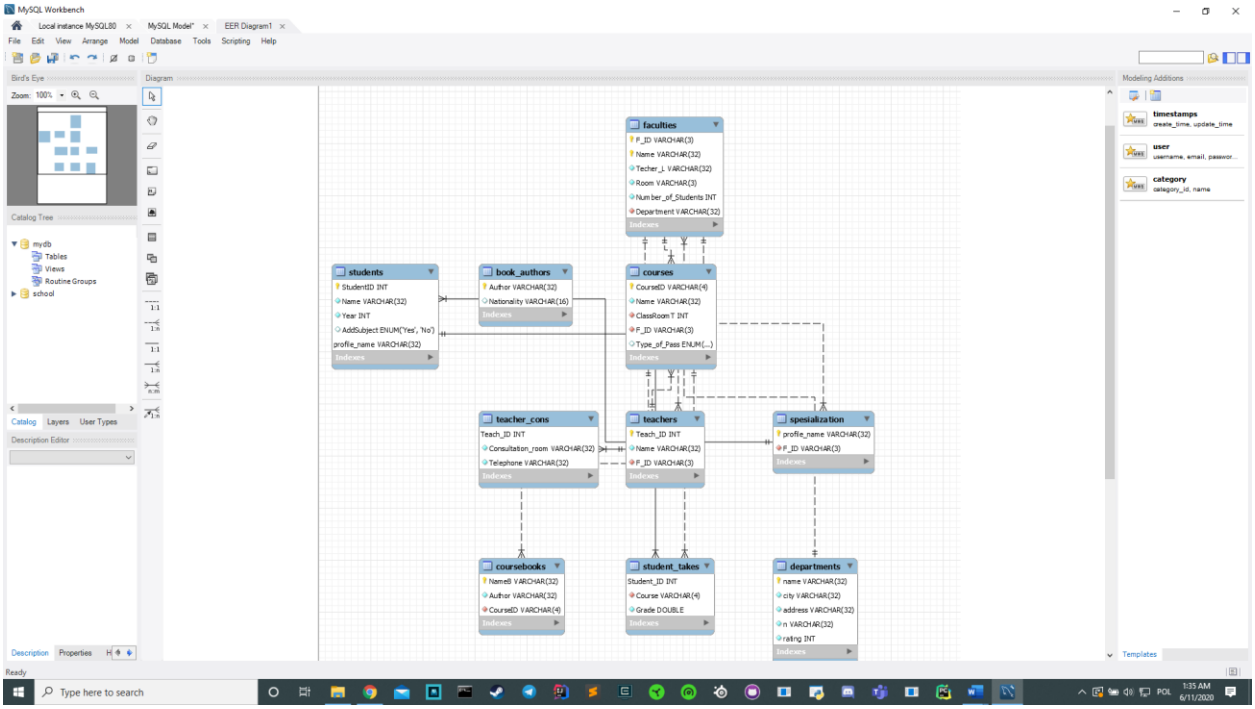
Database lists 6 and 7

Created by Vladyslav Gavryliuk

Topic of the laboratories is the school.

Our final view of table will look like :



But , firstly we have to create them.

So , below the processing.

Tables in UNF looks like :

Name : Primary key

Name	Address	Director	Faculty	Rating
Liceum	Wroclaw, Skladowa 5	Michal Jakubowicz	A Mathematics, B Sociality, C Chemistry, D Languages, E Biology	10
Gymnasium	Warzawa, wittiga 7	Anna Mazurkiewicz	B Sociality C Chemistry	15
Primary	Krakow sliczna 9	Julia Kol	C Chemistry D Languages	19
High	Katowice, kosciuszki 15	Michal Spajder	D Languages E Biology	21

The table above is not normalized to 1NF, because the keyword to 1NF is “atomic”, so we see that address ,faculty , rector contain not atomic values, so it can be divided to another columns.

Name : Primary key

Name	Classroom Teacher	Room_number	Amount of students	Specialization
A, Mathematics	Vlad	101	24	Informatics, Physics
B, Sociality	Michal	102	26	Ethics, Philosophy
C, Chemistry	Andrzej	103	27	Bio Chemistry, Chemistry Science
D, Languages	Adam	104	22	English France
E, Biology	David	105	20	Live biology, Artificial biology

Id , faculty : Candidate keys

Student Id	StudentName	Faculty	Course	Grade	Year	Specialization	Additional course
12123	Maciej	A,Mathematics	Programming	4.2	1	Informatics	F
12124	Kuba	B,Sociality	Communication	3.7	2	Ethics	T
12125	Luca	C,Chemistry	Chemistry in Future	5.1	3	Chemistry Science	F
12126	Marek	D,Languages	History	5.0	4	English	T
12127	Marko	E,Biology	Biology under Microscope	4.2	5	Live Biology	F

Faculty is non-atomic value

Course id is PK.

Course id	Name	Books	Teachers	Students id	Faculty	Exam
10	Mathematics And graphs	Geometry	Mariusz	12123	A,Informatics	Oral
11	Physics	Newton laws	Jakub	12124	A,Informatics	Examination
11	Physics	Newton laws	Jakub	12125	A,informatics	Examination
12	Vocabulary	Easy English	Dominik	12126	D,Languages	Oral
14	Human's body	All about human	Andrian	12127	E,Biology	Examination

Teacher Id is PK

Teacher id	Name	Room	Telephone	Faculty	Course
1001	Mariusz	120	+48799991234	Mathematics	Linear Algebra, Geometry
1010	Jakub	122	+48123456789	Physics	Physics Science
1100	Dominik	123	+48987654321	Chemistry	Chemistry Science
1110	Andrian	109	+48565656565	English	English grammatic
1011	Tyll	111	+48909090123	Biology	Biology Science

Faculties -> Teachers , School -> Faculties , Teacher -> Courses this a one to many relation.

Students -> Courses – many to many relation.

Normalization into 1NF:

To do it we have to create atomic values.

We will use the school , because its one for all of the variables.

Name	City	Address	Director	Rating
Liceum	Wroclaw	Skladowa 5	Michal Jakubowicz	10
Gymnasium	Warszawa	wittiga 7	Michal Jakubowicz	15
Primary	Krakow	sliczna 9	Michal Jakubowicz	19
High	Katowice	kosciuszki 15	Michal Jakubowicz	21

Room number :

To keep one-to-many relation.

F_ID	Name	Classroom Teacher	Room number	Amount of students	Location
A	Mathematics	Vlad	101	24	Wroclaw
B	Sociality	Michal	102	26	Wroclaw
C	Chemistry	Andrzej	103	27	Wroclaw
D	Languages	Adam	104	22	Wroclaw
E	Biology	David	105	20	Wroclaw

Specializations table:

Student Id	***Course***	**Grade**
12123	Programming	4.2
12124	Communication	3.7
12125	Chemistry in Future	5.1
12126	History	5.0
12128	Biology under Microscope	4.2

So now we have 2 keys.

Primary key for Specialization and Foreign key for Faculty.

Specialization	Faculty iD	Faculty name
Informatics	A	Mathematics
Physics	A	Mathematics
Ethics	B	Sociality
Philosophy	B	Sociality
Bio Chemistry	C	Chemistry
Chemistry Science	C	Chemistry
English	D	Languages
France	D	Languages
Live biology,	E	Biology
Artificial biology	E	Biology

StudentId	StudentName	F_ID	Year	Specialization	Additional_course
12123	Maciej	A	1	Informatics	F

12124	Kuba	B	2	Ethics	T
12125	Luca	C	3	Chemistry Science	F
12126	Marek	D	4	English	T
12127	Marek	D	4	English	T
12128	Marko	E	5	Live Biology	F

To keep many-tom

Course id	Name	Teachers	Faculty Id	Exam
10	Mathematics And graphs	Mariusz	A	Oral
11	Physics	Jakub	A	Examination
11	Physics	Jakub	A	Examination
12	Vocabulary	Dominik	D	Oral
14	Human's body	Andrian	E	Examination

Name_book and autor are candidate key.

Name_book	**Author**	**Author nationality**	Course id
Geometry	Albert Kol	Spain	10
Newton laws	Ivan Serko	Ukraine	11
Physics in the galaxy	Ivan Serko	Ukraine	11
Easy English	David Rusel	USA	12
All about human	Mario Lacco	Italy	14

Course_ID	***Student_ID***
10	12123
11	12124
11	12125
12	12126
14	12128

Teach_ID	**Name**	**Room**	**Telephone**	***F_ID***
1001	Mariusz	120	+48799991234	A
1010	Jakub	122	+48123456789	B
1100	Dominik	123	+48987654321	C
1110	Andrian	109	+48565656565	D
1011	Tyll	111	+48909090123	E

So , right now , we have normalized into 1NF.

2NF

Pre-condition : 1nf has to be done.

Name_book	**Author, Nationality**	***CourseID***
Geometry	Albert Kol , Spain	10
Newton laws	Ivan Serko , Ukraine	11
Physics in the galaxy	Adam Krol , Poland	12
Easy English	David Rusel , USA	13
All about human	Mario Lacco , Italy	14

We suggest creating a new table (Book authors).

Author	**Origin**
Albert Kol	Spain
Ivan Serko	Ukraine
Adam Krol	Poland
David Rusel	USA
Mario Lacco	Italy

3NF

Pre-condition : 2NF

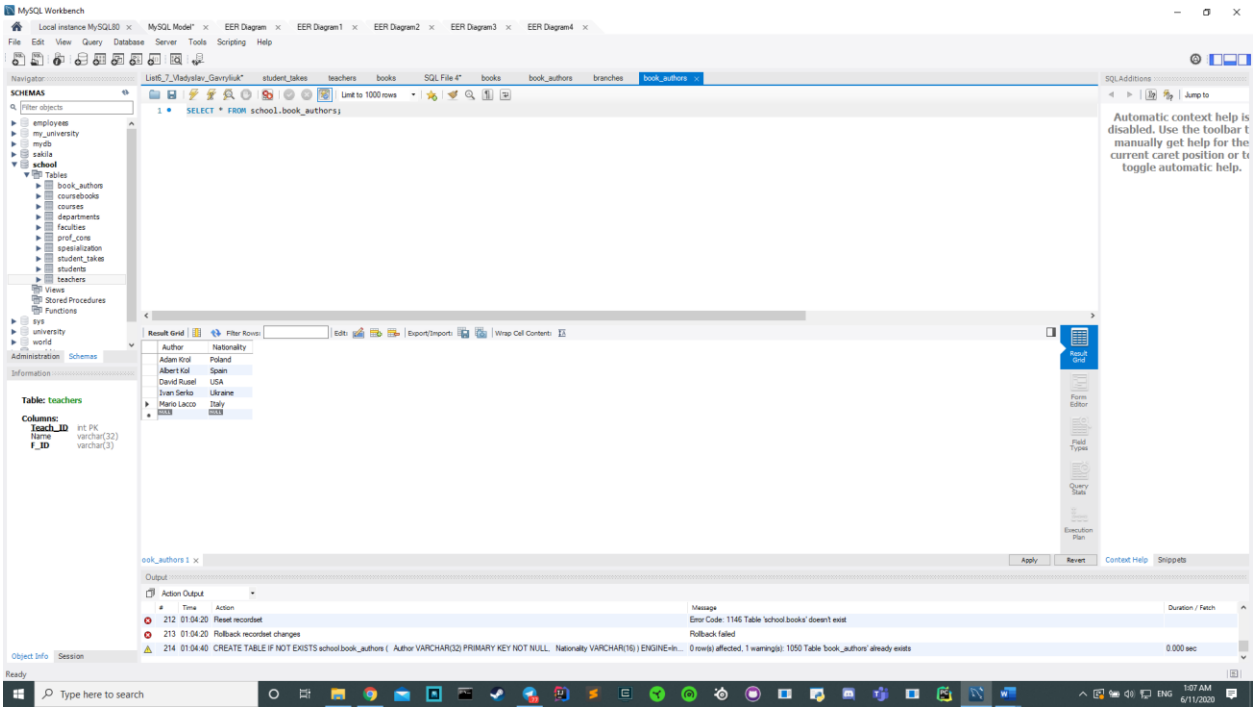
Specialization	Faculty id
Informatics	A
Phyics	A
Ethics	B
philosophy	B
Bio Chemistry	C
Chemistry Science	C
English	D
France	D
Live Biology,	E
Artifice Biology	E

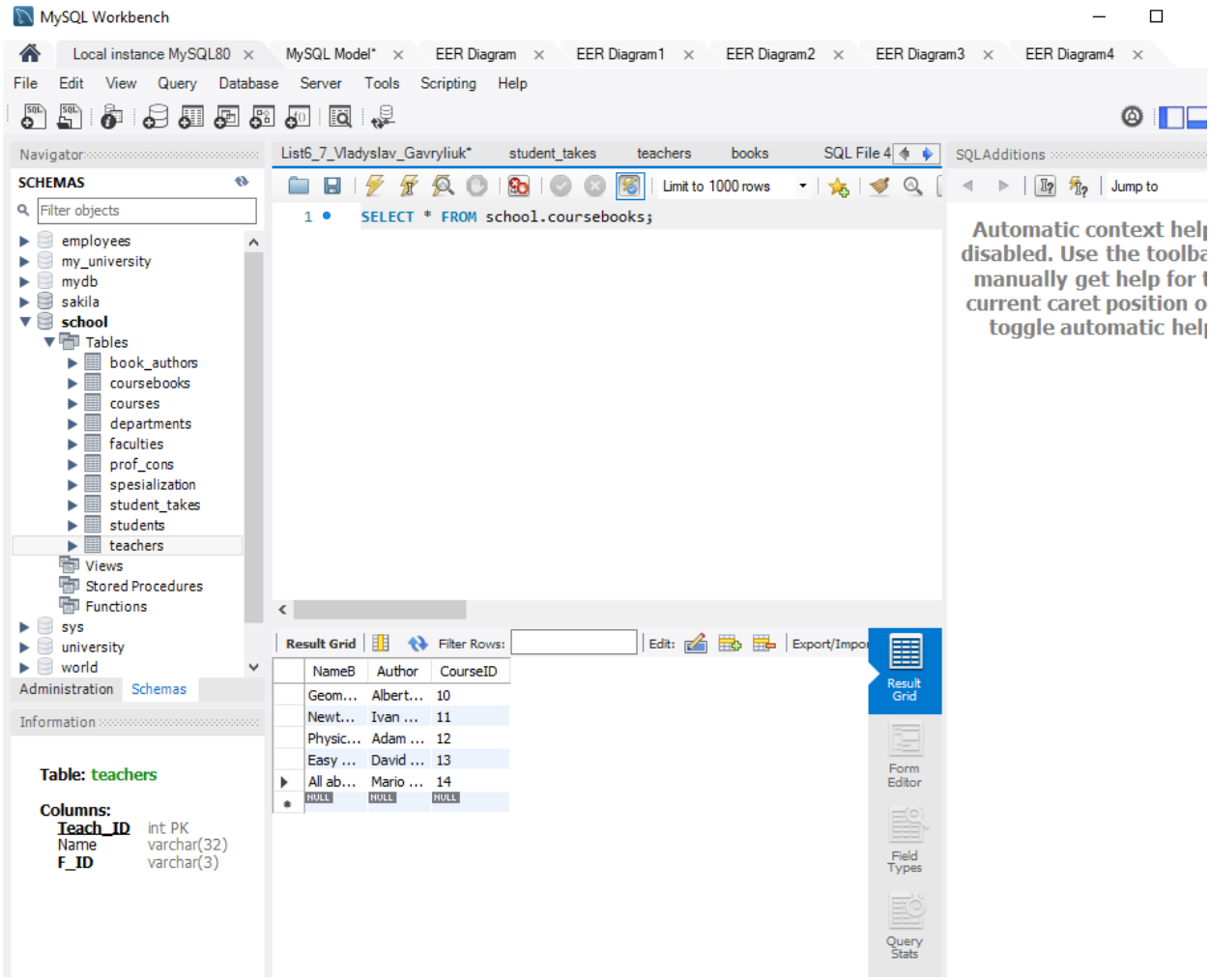
4NF

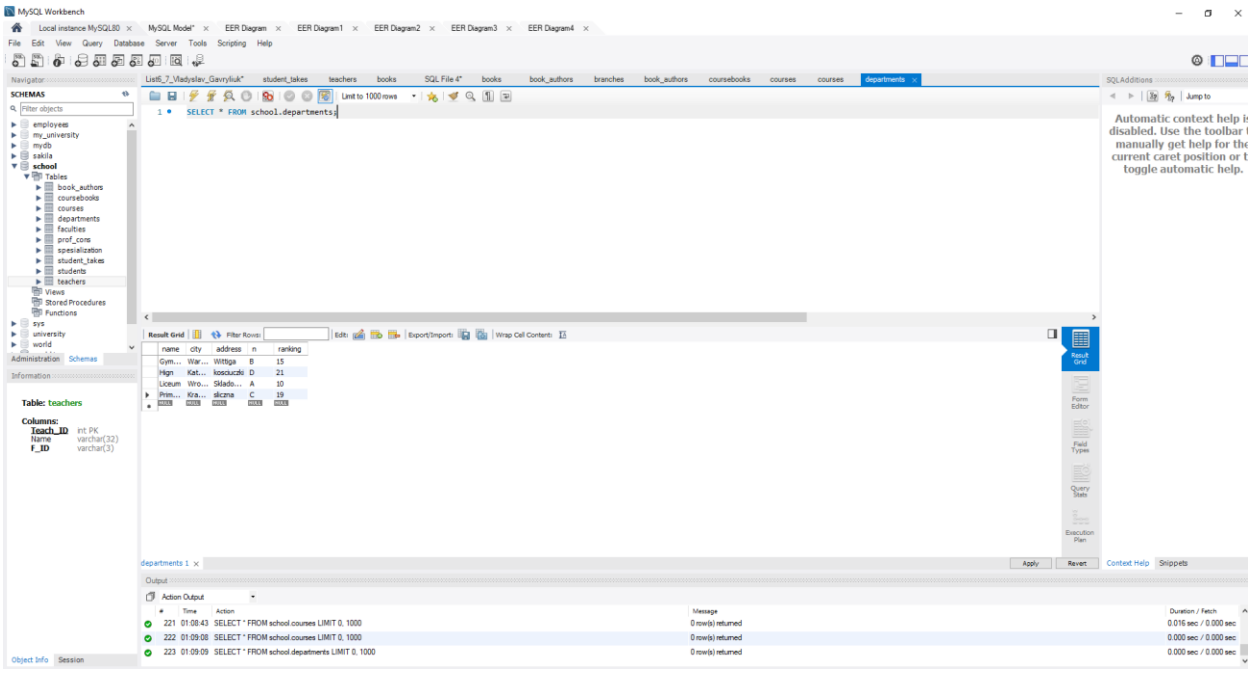
Pre-condition :

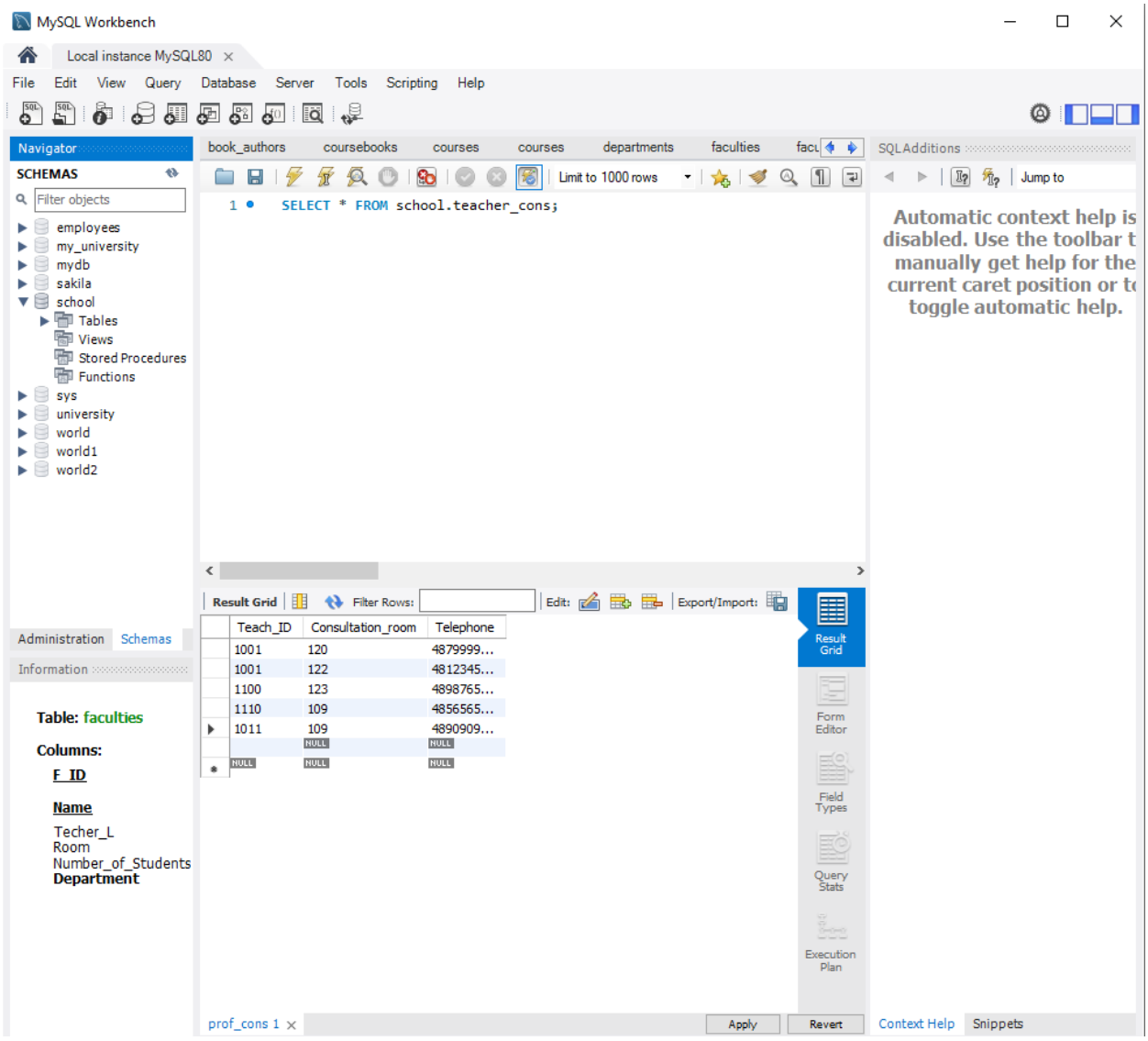
StudentID	**Name**	**Year**	Additional_course	***Profile***
12123	Maciej	1	F	Informatics
12124	Kuba	2	T	Ethics
12125	Luca	3	F	Chemistry Science
12126	Marek	4	T	English
12127	Marko	5	F	Live Biology

I fill data into tables in such way :




MySQL Workbench
Local instance MySQL80
MySQL Model*
EER Diagram
EER Diagram1
EER Diagram2
EER Diagram3
EER Diagram4
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
employees
my_university
mydb
sakila
school
Tables
book_authors
coursebooks
courses
departments
faculties
prof_cons
spesialization
student_takes
students
teachers
Views
Stored Procedures
Functions
sys
university
world
Administration Schemas
Information
Table: teachers
Columns:
Teach_ID int PK
Name varchar(32)
F_ID varchar(3)
List6_7_Vladyslav_Gavryliuk*
student_takes
teachers
books
SQL File 4
SQLAdditions
Limit to 1000 rows
Jump to
1 SELECT * FROM school.coursebooks;
Result Grid
Filter Rows:
Edit:
Export/Impo
NameB
Author
CourseID
Geom... Albert... 10
Newt... Ivan ... 11
Physic... Adam ... 12
Easy ... David ... 13
All ab... Mario ... 14
NULL
Result Grid
Form Editor
Field Types
Query Stats


MySQL Workbench
SELECT * FROM school.departments;
Result Grid
Action Output


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
employees
my_university
mydb
sakila
school
Tables
Views
Stored Procedures
Functions
sys
university
world
world1
world2
Administration Schemas
Information
Table: faculties
Columns:
F_ID
Name
Techer_L
Room
Number_of_Students
Department
book_authors coursebooks courses courses departments faculties
Limit to 1000 rows
1 SELECT * FROM school.teacher_cons;
Result Grid Filter Rows: Edit: Export/Import:
Teach_ID Consultation_room Telephone
1001 120 4879999...
1001 122 4812345...
1100 123 4898765...
1110 109 4856565...
1011 109 4890909...
NULL NULL NULL
Result Grid
Form Editor
Field Types
Query Stats
Execution Plan
prof_cons 1
Apply
Revert
SQLAdditions
Jump to
Automatic context help is disabled. Use the toolbar t manually get help for the current caret position or t toggle automatic help.
Context Help
Snippets