LW-03EN. Creation MySQL Database on a XAMPP Stack or a DBMS Hosting.

1. Lab Target.

- Get practical skills with XAMPP Stack, Free DBMS Hosting, MySQL/MariaDB Database and phpMyAdmin Tool.
- Learn to create a relational database, normalize database and populate it with test data.
- Learn to backup and restore database.

2. Lab Assignment.

2.0. Read the topic about web development stacks, free hosting of DBMS and management tools.

2.1. Select Your Individual Variant of the Assignment and, if need, then make correction of the:

- Filled Data Dictionary Table;
- Complete RDM Scheme;
- Formed Create.sql Script.

2.2.a. Install XAMPP Stack and import RDM width phpMyAdmin.

2.2.b. Register on DBMS Hosting server and import RDM width phpMyAdmin.

2.3. Normalize MySQL database width phpMyAdmin.

2.4. Populate MySQL database.

2.5. Backup, Drop and Restore MySQL database.

3. Lab Report.

The report is provided electronic form with Report Blank.

The report includes:

3.1. Individual variant of the assignment formation (from your surname name).

- Correct Filled Data Dictionary Table;
- Correct Completed RDM Scheme Image;
- Correct Create.sql Script.

3.2. Correct Database scheme from phpMyAdmin Designer after normalization check.

3.3. Conclusion about Check of Normalization (1NF, 2NF, 3NF) with phpMyAdmin.

3.4. Data populating script (insert.sql).

3.5. Database backup script (backup.sql).

Grade.

Grade on 10 points: correctly formed individual task variant and correctly made of assignments 2.1, 2.2, 2.3, 2.4, 2.5.

4. Lab Guidelines

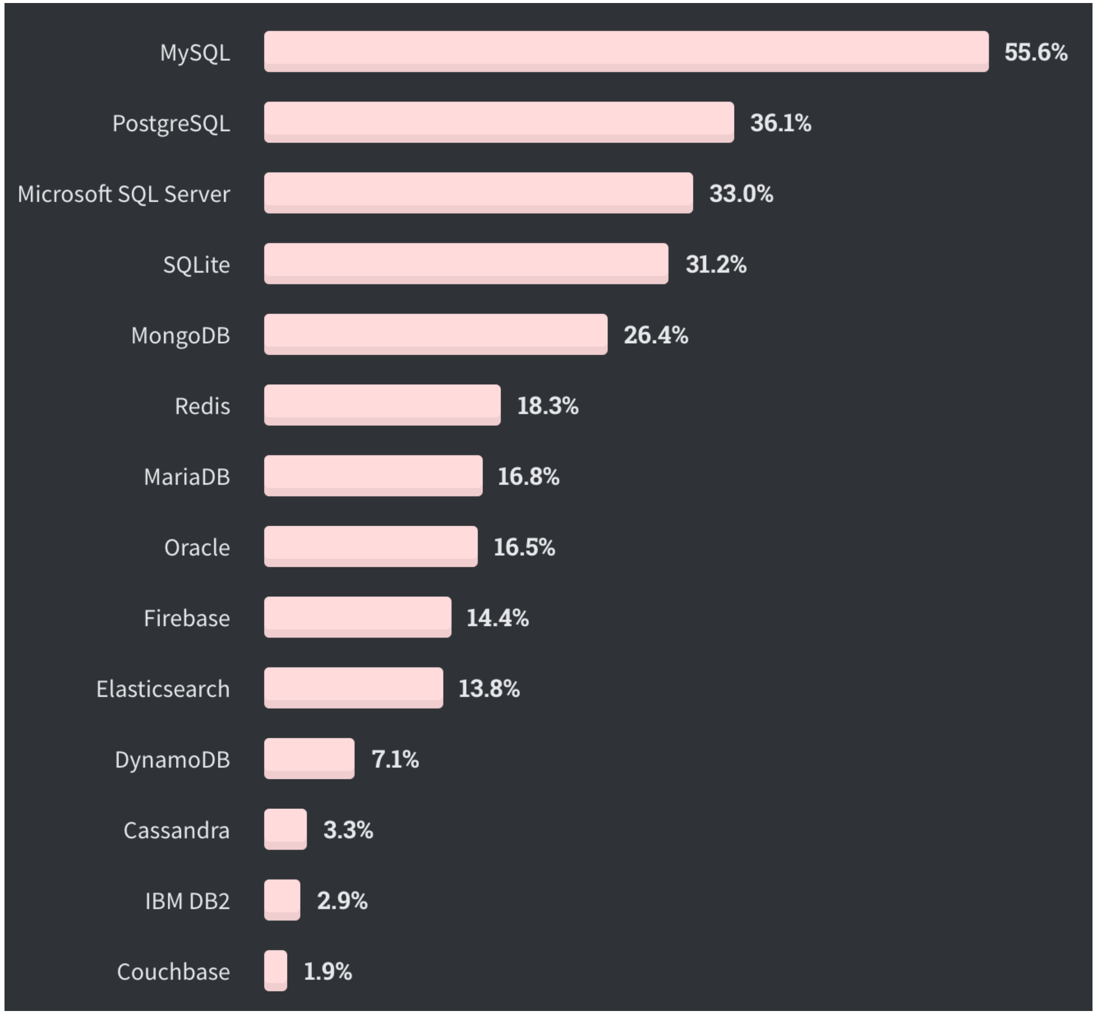
4.0. Databases and Management Tools on Web Development Stacks and DBMS Hosting Servers.

4.0.1. Popular databases statistic.

There are a number of relational database management systems on the market. Examples of relational databases include Microsoft SQL Server, Microsoft Access, Oracle, DB2 etc.

Popular databases statistic (source:

https://insights.stackoverflow.com/survey/2020#technology-databases-all-respondents4)



4.0.2. MySQL compared to over relational databases such as SQL Server:

- MySQL supports **multiple storage engines** each with its own specifications while other systems like SQL server only support a single storage engine. In order to appreciate this statement, let's look at two of the storage engines supported by MySQL.
    - **InnoDB**: - its default storage engine provided with MySQL as of version 5.5. InnoDB supports foreign keys for referential integrity and also supports ACID-standard transactions.
    - **MyISAM**: - it was the default storage engine for MySQL prior to version 5.5. MyISAM lacks support for transactions. Its advantages over InnoDB include simplicity and high performance.
- MySQL has **high performance** compared to other relation database systems. This is due to its simplicity in design and support for multiple-storage engines.
- **Cost effective**, it's relatively cheaper in terms of cost when compared to other relational databases. In fact, the community edition is free. The commercial edition has a licensing fee which is also cost effective compared to licensing fees for products such as Microsoft SQL Server.
- **Cross platform** - MySQL works on many platforms which means it can be deployed on most machines. Other systems such as MS SQL Server only run on the windows platform.
- MySQL is an **open source** relational database.

- MySQL supports multiple user connections. In order to interact with MySQL, you will need a **server access tool** that can communicate with MySQL server.
- MySQL server can be administered using a number of server access mysql tools which include both commercial and open source products. Popular examples include;
    - **Adminer** - cross platform, web based, open source, light one-file server access tool
    - **phpMyAdmin** - cross platform, web based, open source server access tool
    - **MySQL workbench** - cross platform, open source server access tool
- MySQL workbench is an integrated development environment for MySQL server. It has utilities for database modeling and designing, SQL development and server administration.

We will use MySQL/MariaDB and phpMyAdmin.

4.0.3. Free DBMS Hosting Servers Search.

a) Read Topic “12 Best Free Database Hosting (2020): MySQL & Cloud Services” (https://www.hostingadvice.com/how-to/best-free-database-hosting/)

12 Best Free Database Hosting (2020): MySQL & Cloud Services

By: Laura Bernheim
Updated: January 24, 2020

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Our team of real web experts, with a combined experience of 50+ years, serve hosting advice to over **12 million users**!

spent annually on web hosting services!

Whether you’re creating your first WordPress website or building a business-critical application, the best free database hosting services will help you scale and process requests with lightning-fast speed and trustworthy reliability.

Simply put, **databases store, organize, and retrieve a website or application’s data**. They are often paired with software programs (like WordPress, Drupal, and Joomla) or code (like PHP, C, and Java) that use databases to add your site’s content, interface, or other user-friendly design.

b) Look list of the free web-hosting servers with mySQL support. (https://hostadvice.com/hosting-services/free-mysql-hosting/)

You are in: HostAdvice › MySQL Hosting

Popular Hosting Categories	
Best Web Hosting Services	4060
VPS Hosting	2342
Cloud Hosting	760
Dedicated Server Hosting	1708
WordPress Hosting	2718
Shared Hosting	3271
CDN Services	51
Resellers Hosting	800
Windows Hosting	1234
Linux Hosting	2402
Drupal Hosting	2318
Joomla Hosting	2425

Best Free MySQL Hosting Services of 2020

41,681 Authentic User Reviews by paying customers on **2,115** Different Free MySQL Services

MySQL Hosting is a worthy choice if you’re looking to build extensive databases or the infrastructure for your organization’s website. Even so, it can be expensive and limit what you can do elsewhere if you’re not careful. MySQL is vital to most websites today, as it makes it possible to communicate and alter their databases without requiring extensive coding.

If you’re looking for the best MySQL hosting that won’t break your budget, then exploring free alternatives may be a great place to start. Instead of spending heavily on servers, start off with free hosting and expand once you’re ready. Explore our user and expert reviews to learn more about the best MySQL hosting options for you and start building your website.

- Examples of free MySQL-phpMyAdmin site https://www.db4free.net/
- Examples of free Full Hosting site https://www.awardspace.com/

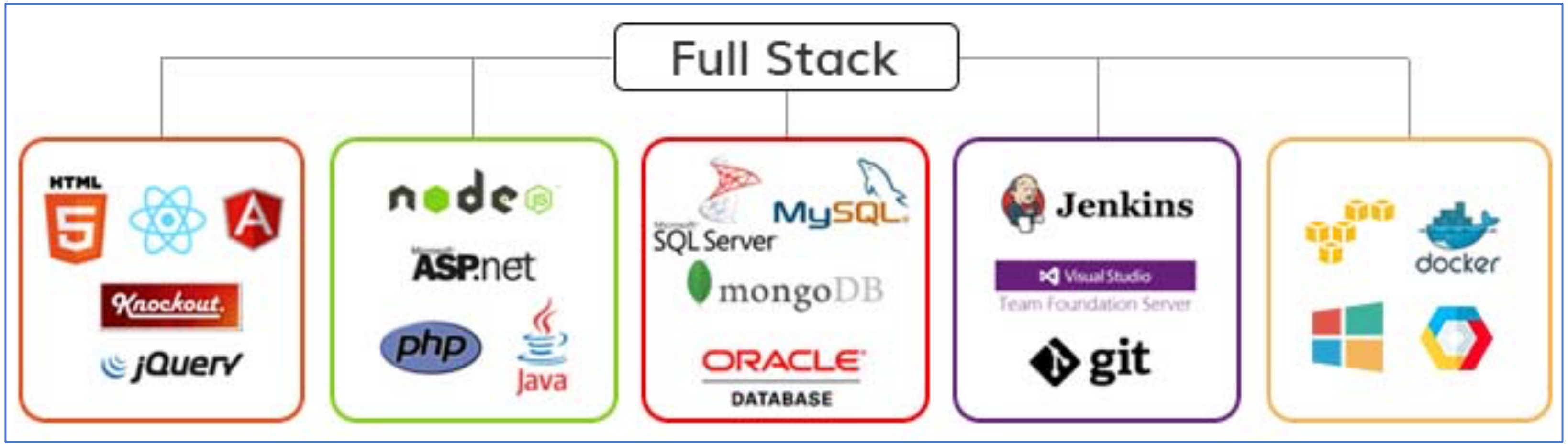
4.0.4. Databases and Web Development Stacks.

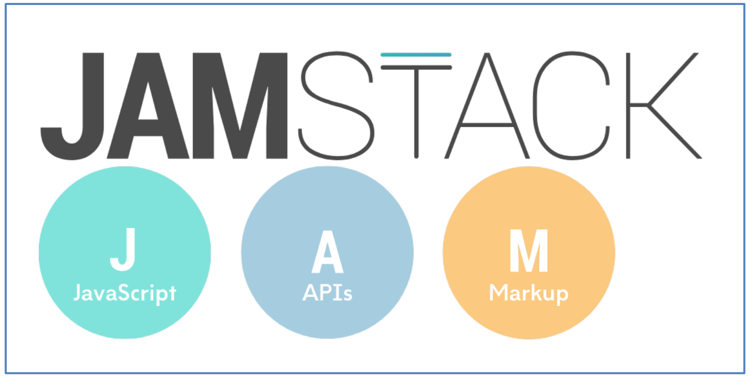
Web Development Stacks are sets of technical tools and technologies that are used for creating a web application. A web stack consists of an operating system, web server, **database software**, programming languages, versioning tool, Integrated Development Environment, apps delivery to the cloud, cloud services and other applications often for both the front and backend.
Full Stack Development – the web development involving both front end, back end, API development, and others.

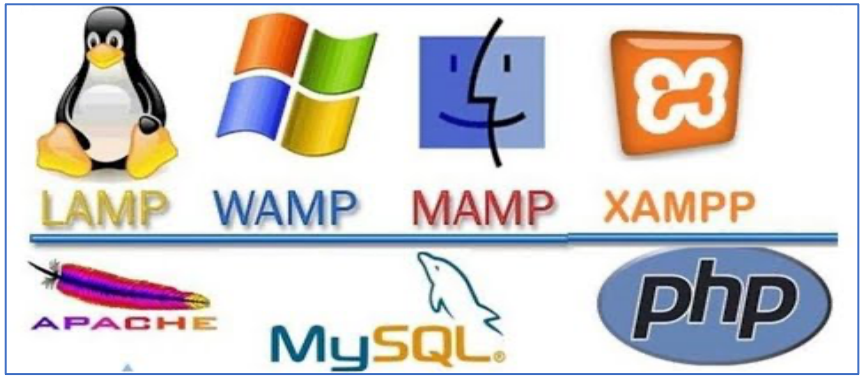
LAMP/WAMP/MAMP/XAMPP or **MEAN/MERN Stack Development** is the development process involves only a party of technologies that comprise a full stack.

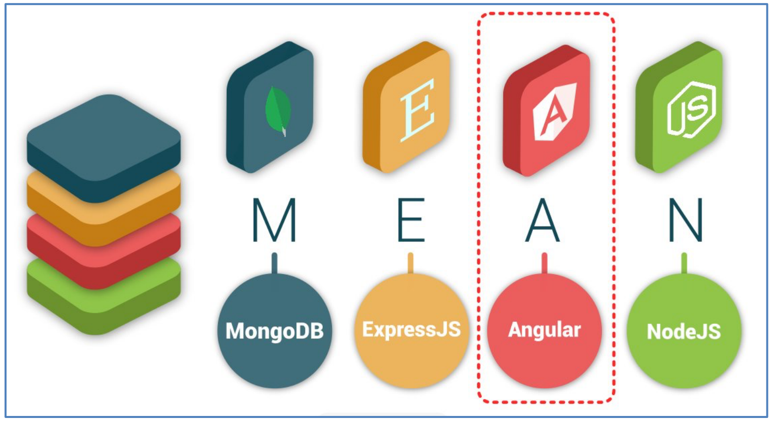
JAM Stack Development is the lightest technical stack as it requires no real interactions with a database and relies on mostly third-party APIs.

- **LAMP/WAMP/MAMP/XAMPP** – [Linux / Windows / MacOS / Cross-platform X], Apache, [**MySQL / MariaDB**], [PHP / Perl / Python]
- **MEAN/MERN/MEVN** – **MongoDB**, Express.js, [Angular / React / Vue], Node.js
- **JAM** – JavaScript, APIs, Markup


Full Stack
HTML 5
Knockout
jQuery
node
ASP.net
php
Java
SQL Server
MySQL
mongoDB
ORACLE DATABASE
Jenkins
Visual Studio
Team Foundation Server
git
docker


JAMSTACK
J
JavaScript
A
APIs
M
Markup


LAMP
WAMP
MAMP
XAMPP
APACHE
MySQL
php


M
E
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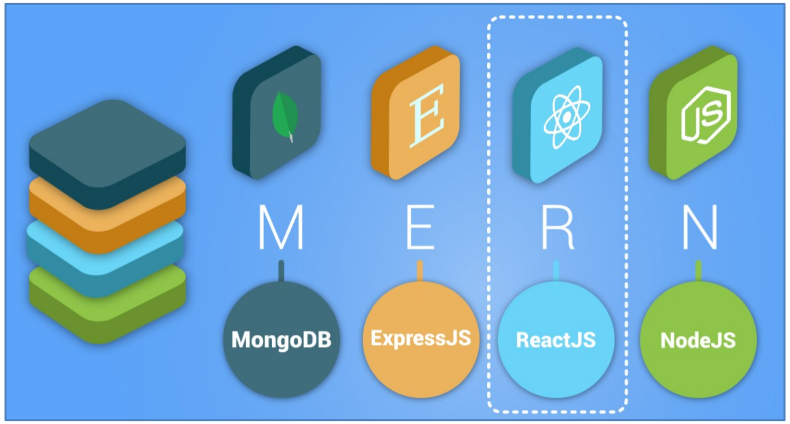
MongoDB
ExpressJS
Angular
NodeJS


M
E
R
N
MongoDB
ExpressJS
ReactJS
NodeJS

4.1. Select Your Individual Variant Nr.

a) Write your surname in English. Must be at least 4 letters, if not enough, then add the required number of letters from the name.

For example, for student Li Yuriy there will be LIYU.

b) Replace the first 4 letters with their ordinal numbers in the alphabet, writing the numbers as two-digit decimal numbers.

For example, 12 09 25 21.

c) Consistently add modulo 10 these 4 numbers and add 1

For example, (12 + 09 + 25 + 21)mod10 + 1 = 67mod10 + 1 = 7 +1 = 8.

d) The resulting will be your variant Nr.

For example, 7.

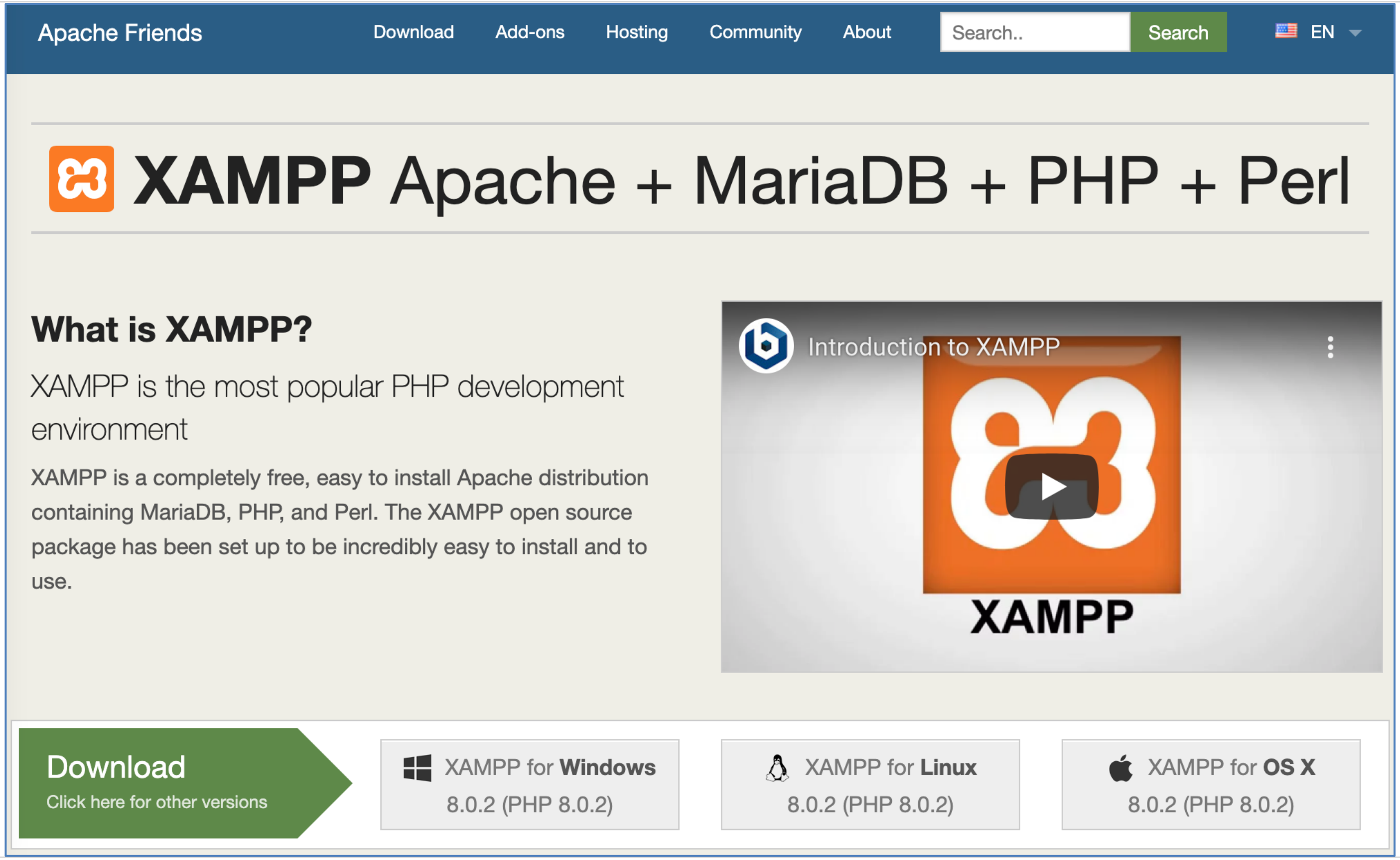
4.2. Install XAMPP Stack or register Database Hosting and import RDM width phpMyAdmin.

4.2.1.a. Install XAMPP Stack on your computer.

4.2.1.a.1. Read XAMPP FAQs on https://www.apachefriends.org/download_success.html

- Linux FAQs (https://www.apachefriends.org/faq_linux.html)
- Windows FAQs (https://www.apachefriends.org/faq_windows.html)
- OS X FAQs (https://www.apachefriends.org/faq_osx.html)

4.2.1.a.2. Download latest version of XAMPP from https://www.apachefriends.org/index.html



XAMPP Apache + MariaDB + PHP + Perl

What is XAMPP?

XAMPP is the most popular PHP development environment

XAMPP is a completely free, easy to install Apache distribution containing MariaDB, PHP, and Perl. The XAMPP open source package has been set up to be incredibly easy to install and to use.

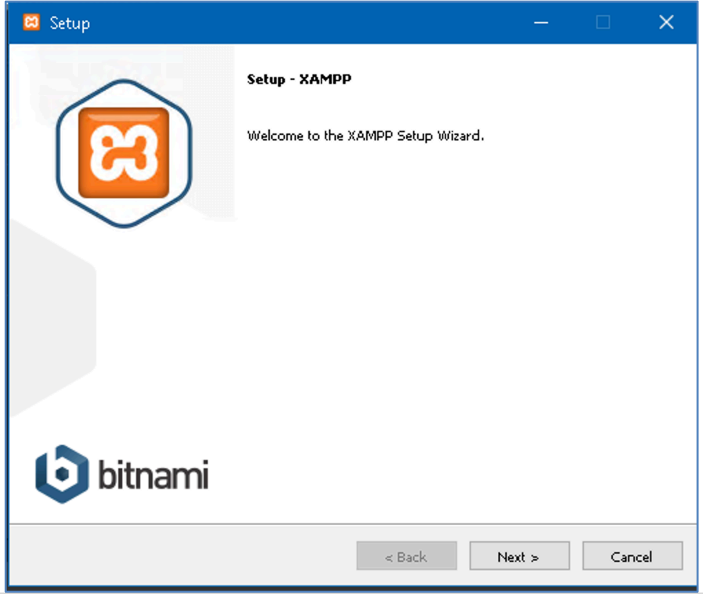
XAMPP 8.0.2 for Windows (exe, 157 MiB)

XAMPP 8.0.2 for OS X (dmg/bz2, 357 MiB)

XAMPP 8.0.2 for Linux (run, 152 MiB)

4.2.1.a.3. Install XAMPP on Windows

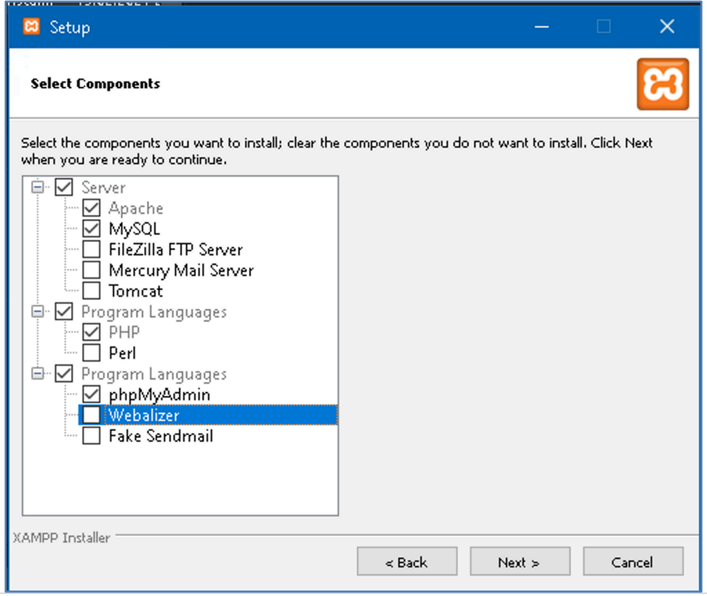
1. Start Setup



Setup - XAMPP

Welcome to the XAMPP Setup Wizard.

2. Select components as on picture

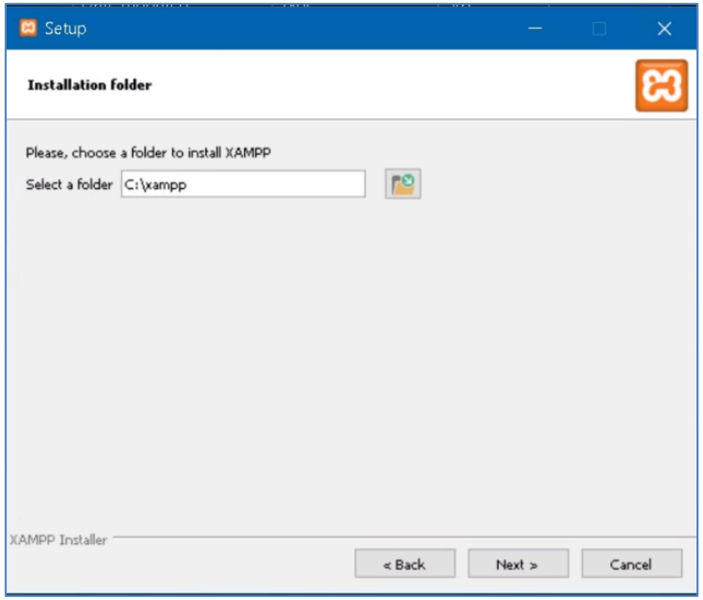


Select Components

Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.

- ☑ Server
  - ☑ Apache
  - ☑ MySQL
  - □ FileZilla FTP Server
  - □ Mercury Mail Server
  - □ Tomcat
- ☑ Program Languages
  - ☑ PHP
  - □ Perl
- ☑ Program Languages
  - ☑ phpMyAdmin
  - □ Webalizer
  - □ Fake Sendmail

3. Select install folder

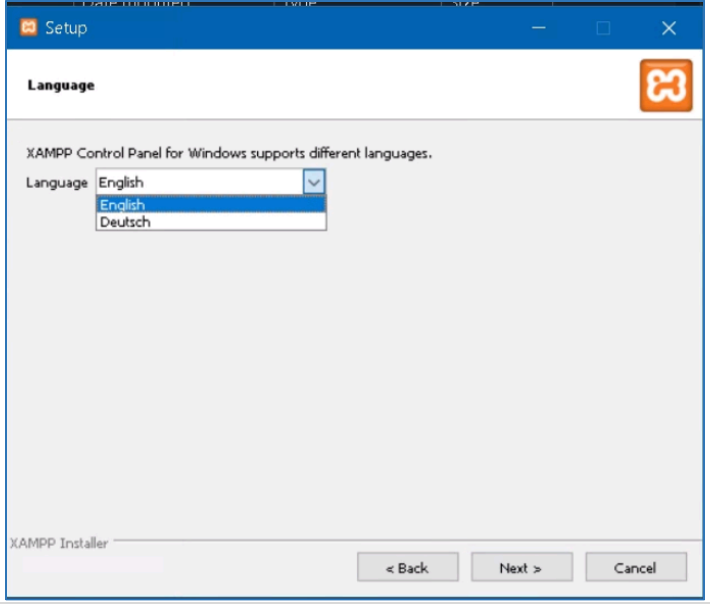


Installation folder

Please, choose a folder to install XAMPP

Select a folder C:\xampp

4. Select Language



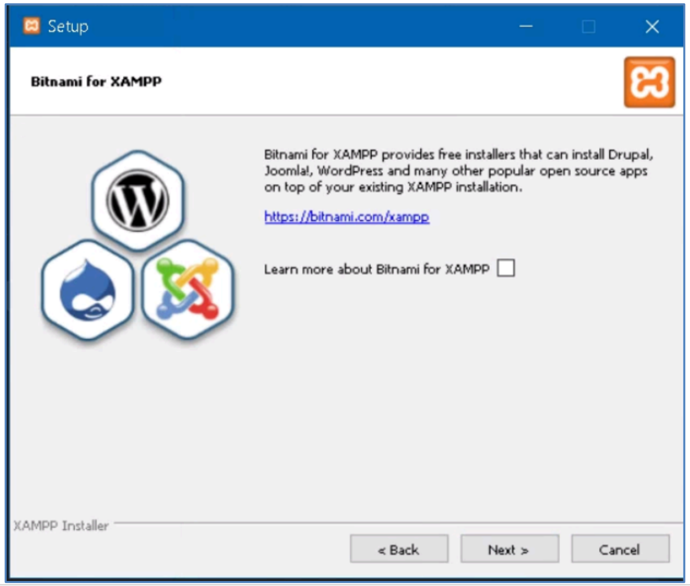
Language

XAMPP Control Panel for Windows supports different languages.

Language English

English
Deutsch

5. Remove “Learn more …”



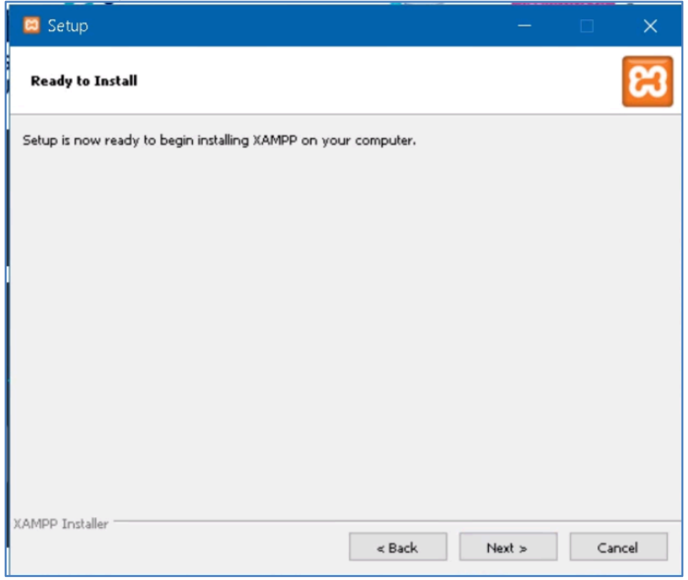
Bitnami for XAMPP

Bitnami for XAMPP provides free installers that can install Drupal, Joomla!, WordPress and many other popular open source apps on top of your existing XAMPP installation.

https://bitnami.com/xampp

Learn more about Bitnami for XAMPP □

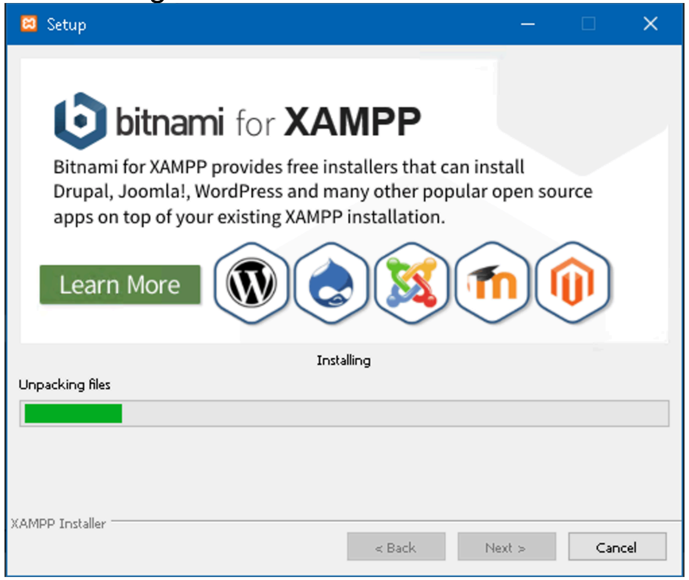
6. Ready to Install



Ready to Install

Setup is now ready to begin installing XAMPP on your computer.

7. Installing

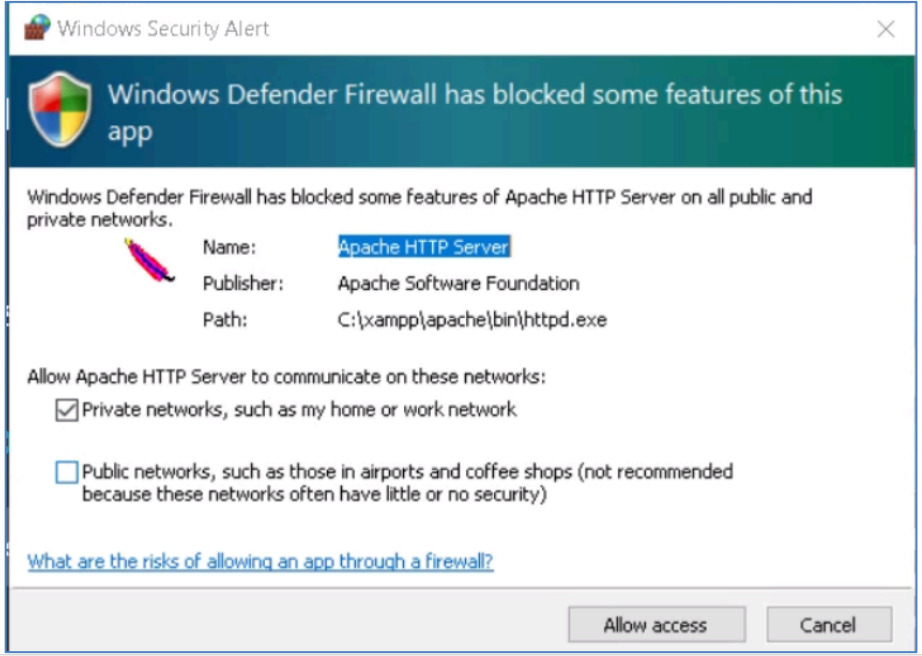


Bitnami for XAMPP provides free installers that can install Drupal, Joomla!, WordPress and many other popular open source apps on top of your existing XAMPP installation.

Installing

Unpacking files

8. Allow access for Apache



Windows Defender Firewall has blocked some features of this app

Windows Defender Firewall has blocked some features of Apache HTTP Server on all public and private networks.

Name: Apache HTTP Server

Publisher: Apache Software Foundation

Path: C:\xampp\apache\bin\httpd.exe

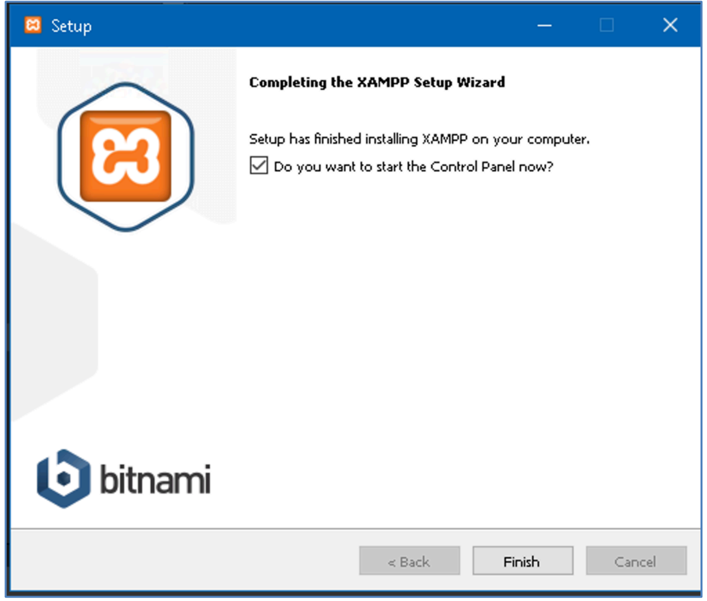
Allow Apache HTTP Server to communicate on these networks:

☑ Private networks, such as my home or work network

□ Public networks, such as those in airports and coffee shops (not recommended because these networks often have little or no security)

What are the risks of allowing an app through a firewall?

9. Complete



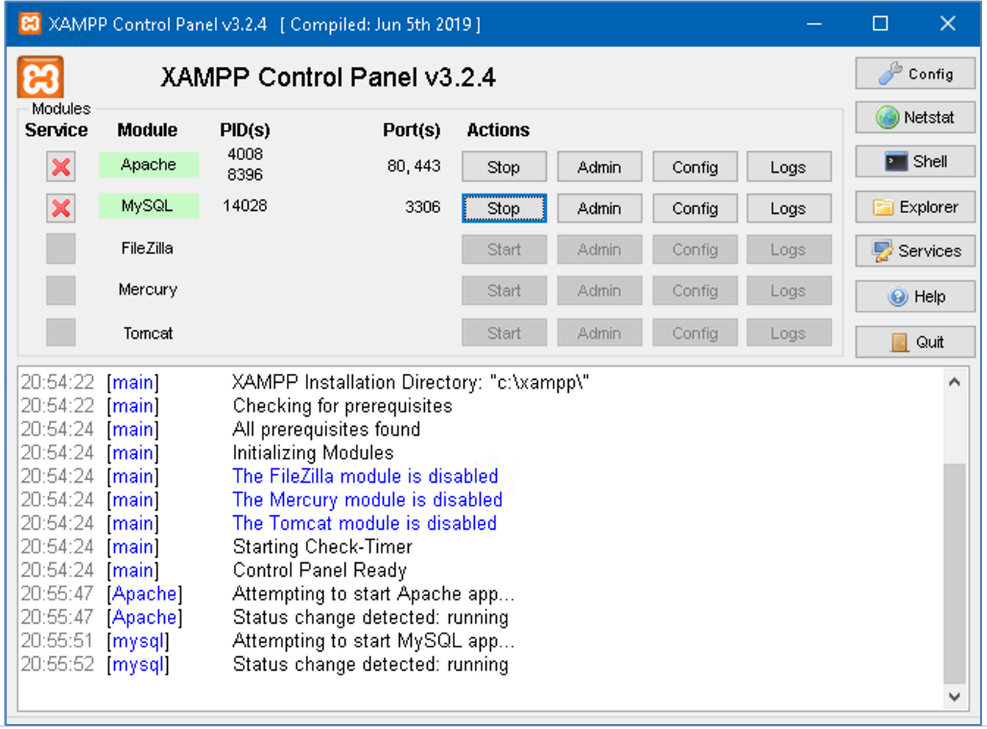
Setup

Completing the XAMPP Setup Wizard

Setup has finished installing XAMPP on your computer.

☑ Do you want to start the Control Panel now?

10. First start XAMPP (press Apache [Start] & MySQL [Start] buttons)



XAMPP Control Panel v3.2.4 [Compiled: Jun 5th 2019]

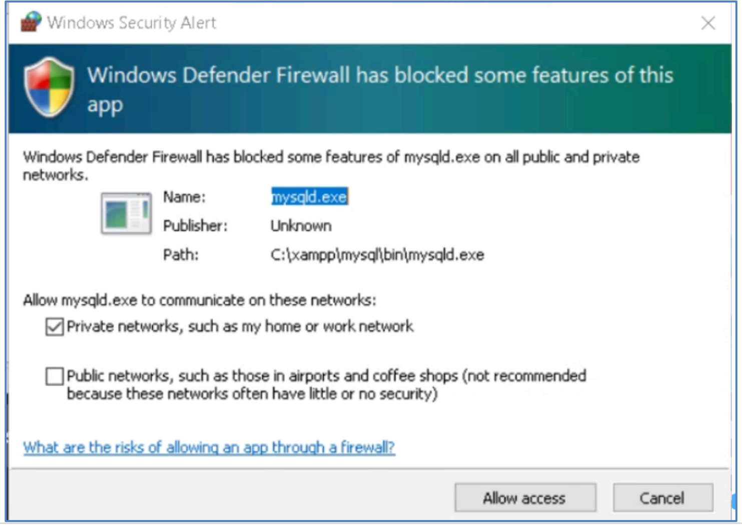
XAMPP Control Panel v3.2.4

Modules

Service	Module	PID(s)	Port(s)	Actions			
☒	Apache	4008 8396	80, 443	Stop	Admin	Config	Logs
☒	MySQL	14028	3306	Stop	Admin	Config	Logs
□	FileZilla			Start	Admin	Config	Logs
□	Mercury			Start	Admin	Config	Logs
□	Tomcat			Start	Admin	Config	Logs

```
20:54:22  [main]     XAMPP Installation Directory: "c:\xampp\"
20:54:22  [main]     Checking for prerequisites
20:54:24  [main]     All prerequisites found
20:54:24  [main]     Initializing Modules
20:54:24  [main]     The FileZilla module is disabled
20:54:24  [main]     The Mercury module is disabled
20:54:24  [main]     The Tomcat module is disabled
20:54:24  [main]     Starting Check-Timer
20:54:24  [main]     Control Panel Ready
20:55:47  [Apache]   Attempting to start Apache app...
20:55:47  [Apache]   Status change detected: running
20:55:51  [mysql]    Attempting to start MySQL app...
20:55:52  [mysql]    Status change detected: running
```

11. Allow Access for MySQL



Windows Security Alert

Windows Defender Firewall has blocked some features of this app

Windows Defender Firewall has blocked some features of mysqld.exe on all public and private networks.

Name: mysqld.exe
Publisher: Unknown
Path: C:\xampp\mysql\bin\mysqld.exe

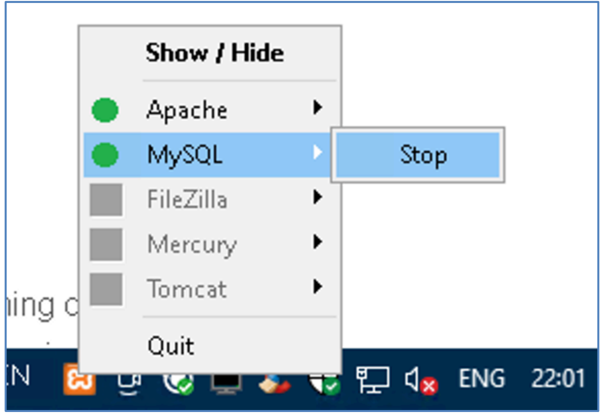
Allow mysqld.exe to communicate on these networks:

☑ Private networks, such as my home or work network

□ Public networks, such as those in airports and coffee shops (not recommended because these networks often have little or no security)

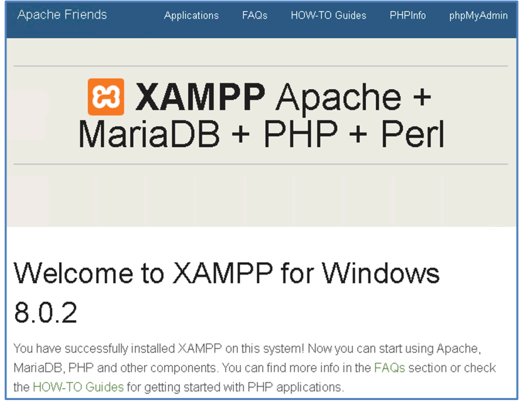
What are the risks of allowing an app through a firewall?

12. Stop the XAMPP Stack.



13a. Checking the XAMPP stack is working.

- Start XAMPP
- Press Apache [Admin] button on XAMPP Control Panel for look XAMPP page in your browser

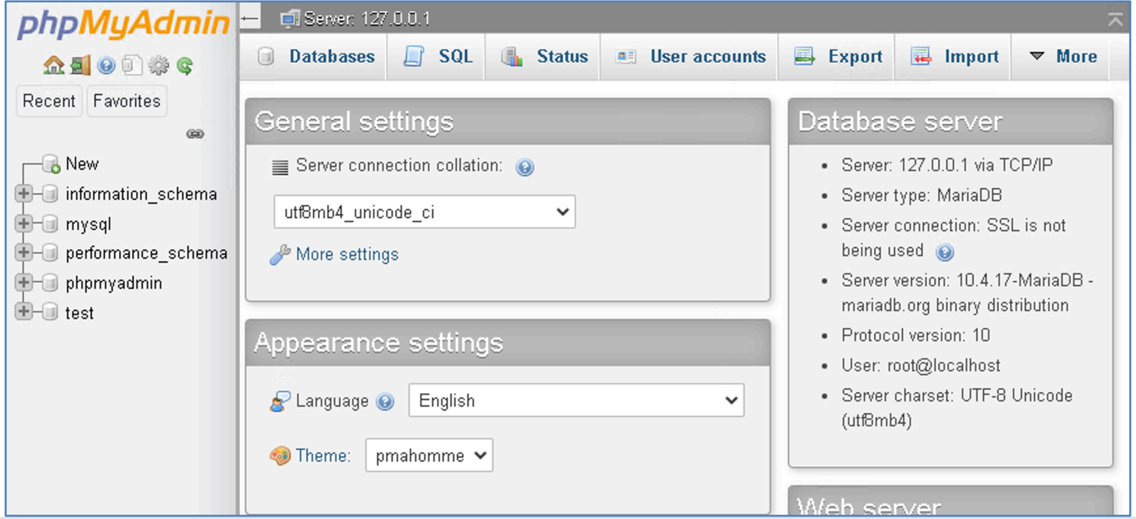


XAMPP Apache + MariaDB + PHP + Perl

Welcome to XAMPP for Windows 8.0.2

You have successfully installed XAMPP on this system! Now you can start using Apache, MariaDB, PHP and other components. You can find more info in the FAQs section or check the HOW-TO Guides for getting started with PHP applications.

13b. Checking the XAMPP stack is working.
Press MySQL [Admin] button on XAMPP Control Panel for look phpMyAdmin page in your browser



General settings

Server connection collation: utf8mb4_unicode_ci

More settings

Appearance settings

Language: English

Theme: pmahomme

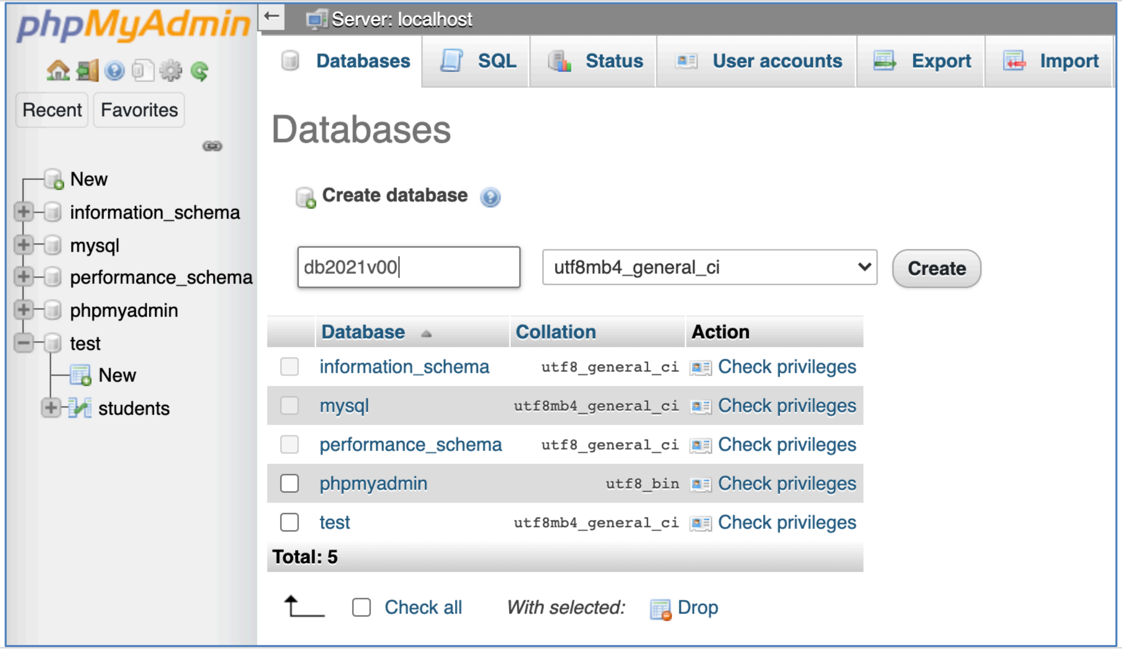
Database server

- Server: 127.0.0.1 via TCP/IP
- Server type: MariaDB
- Server connection: SSL is not being used
- Server version: 10.4.17-MariaDB - mariadb.org binary distribution
- Protocol version: 10
- User: root@localhost
- Server charset: UTF-8 Unicode (utf8mb4)

Web server

14. Create database

- Press [New] button on phpMyAdmin
- Typing database name
- And press Create.



Databases

Create database

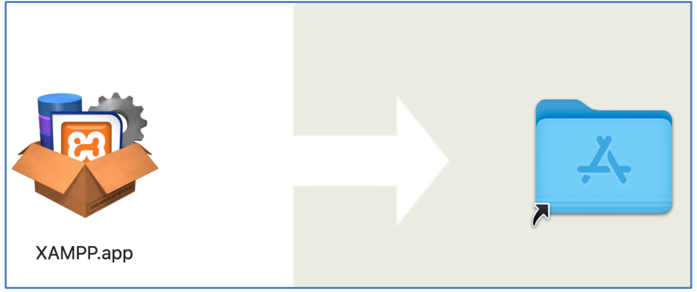
db2021v00 | utf8mb4_general_ci | Create

	Database	Collation	Action
□	information_schema	utf8_general_ci	Check privileges
□	mysql	utf8mb4_general_ci	Check privileges
□	performance_schema	utf8_general_ci	Check privileges
□	phpmyadmin	utf8_bin	Check privileges
□	test	utf8mb4_general_ci	Check privileges
Total: 5			

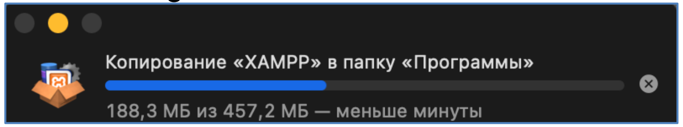
□ Check all *With selected:* Drop

4.2.1.a.4. Install XAMPP on Mac OS X

1a. If need, rename package-file xampp-osx-8.0.2-0-vm.bz2 to xampp-osx-8.0.2-0-vm.dmg
and
1b. Start Setup



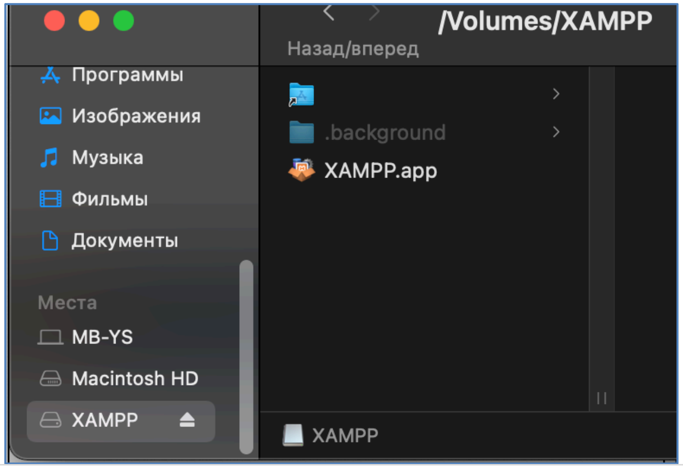
2a. Installing



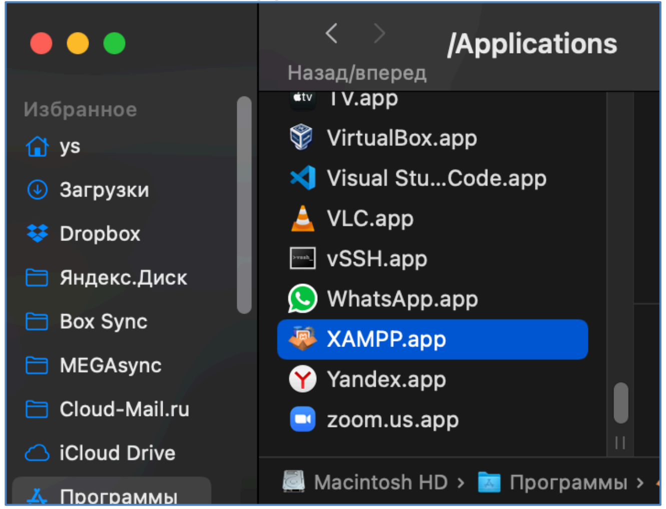
Копирование «XAMPP» в папку «Программы»

188,3 МБ из 457,2 МБ — меньше минуты

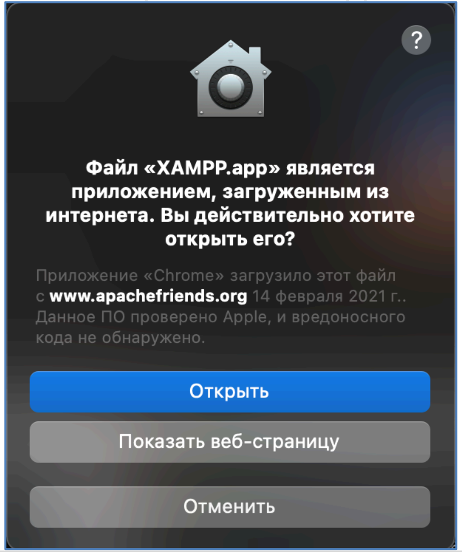
2b. and Remove XAMPP volume



3. Start XAMPP.app



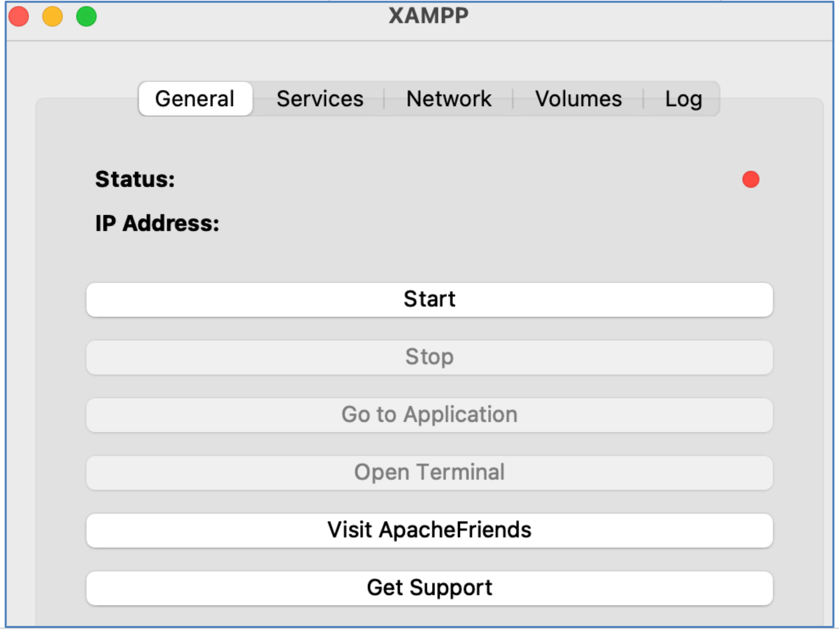
4. Allow open XAMPP.app



Файл «XAMPP.app» является приложением, загруженным из интернета. Вы действительно хотите открыть его?

Приложение «Chrome» загрузило этот файл с **www.apachefriends.org** 14 февраля 2021 г.. Данное ПО проверено Apple, и вредоносного кода не обнаружено.

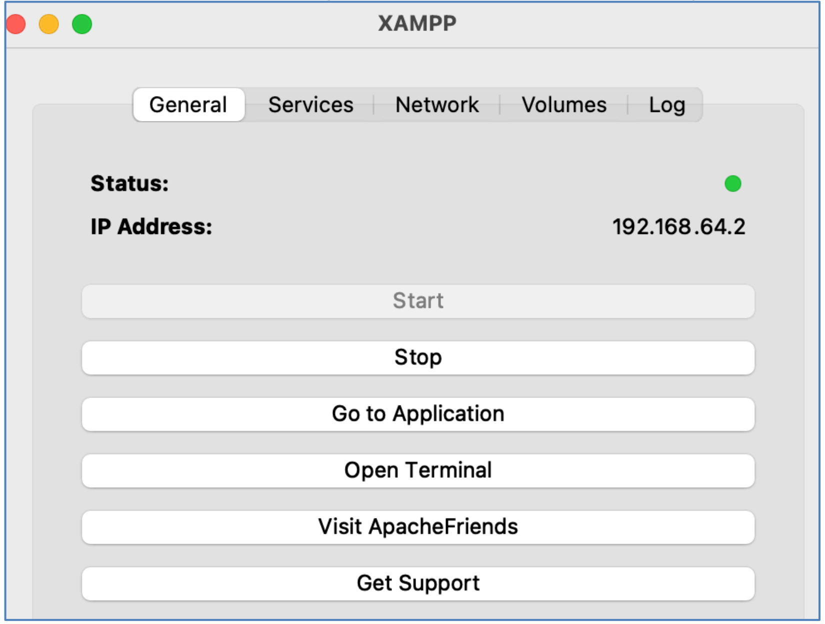
5a. First start XAMPP (before press [Start] buttons)



Status: 🟥

IP Address:

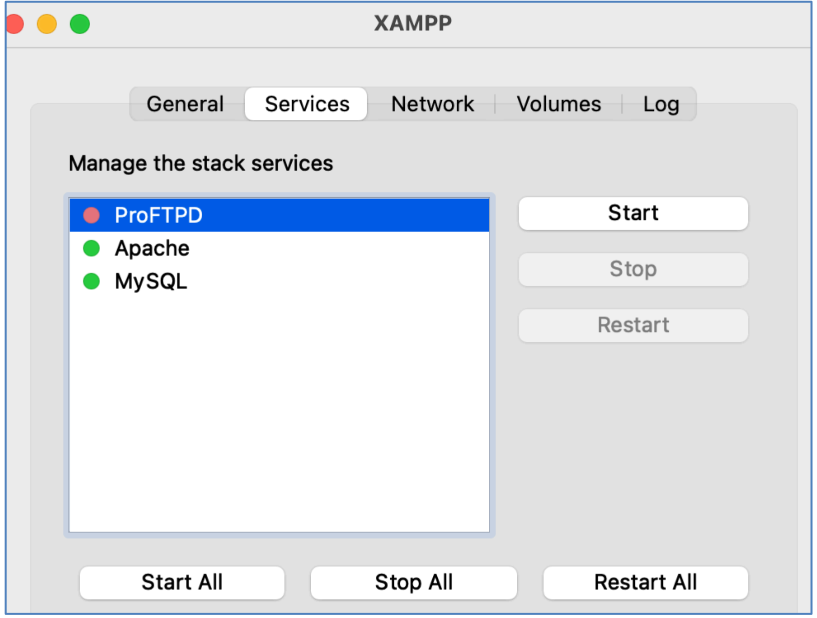
5b. First start XAMPP (after press [Start] buttons)



Status: 🟩

IP Address: 192.168.64.2

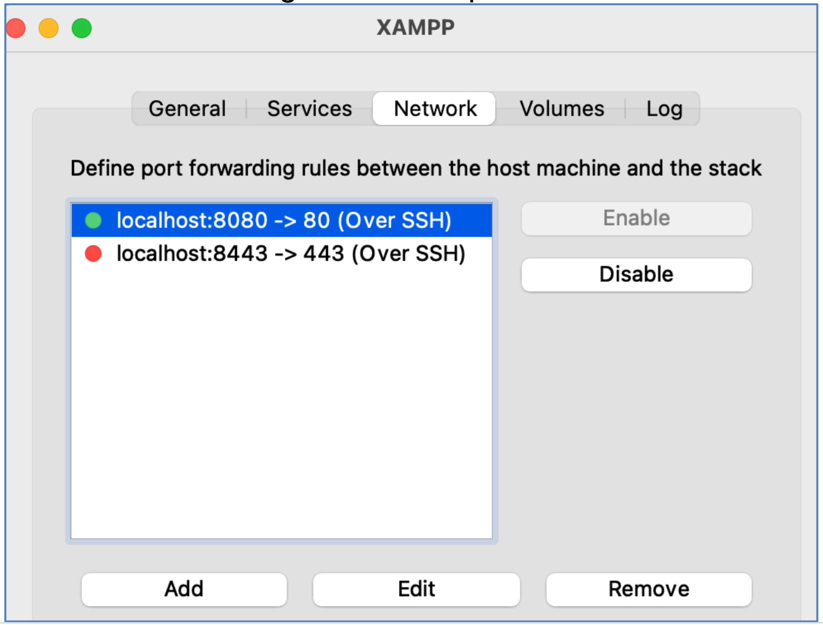
6. Stop ProFTPD service



Manage the stack services

- 🟥 ProFTPD
- 🟩 Apache
- 🟩 MySQL

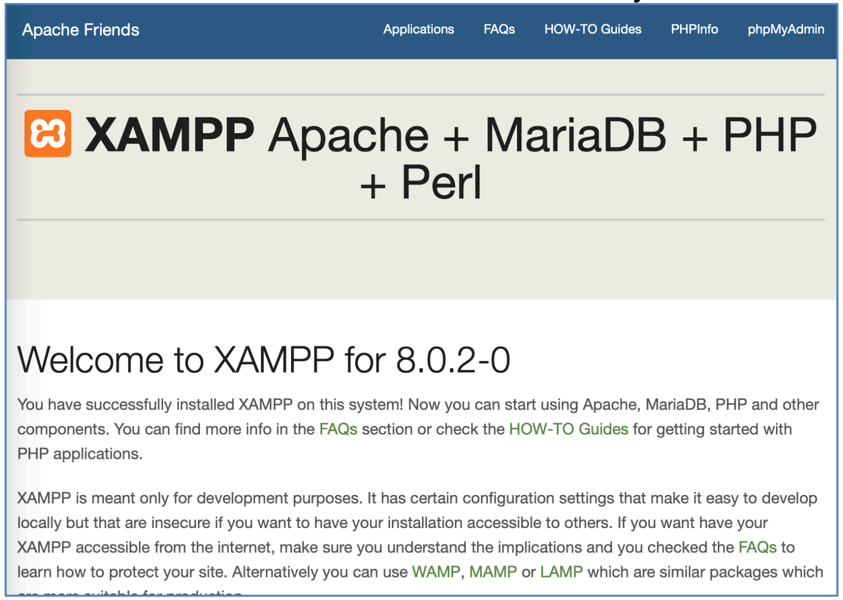
7. Enable forwarding to Network port 8080



Define port forwarding rules between the host machine and the stack

- 🟩 localhost:8080 -> 80 (Over SSH)
- 🟥 localhost:8443 -> 443 (Over SSH)

8a. Checking the XAMPP stack is working.
Go to link localhost:8080 for look XAMPP in your browser

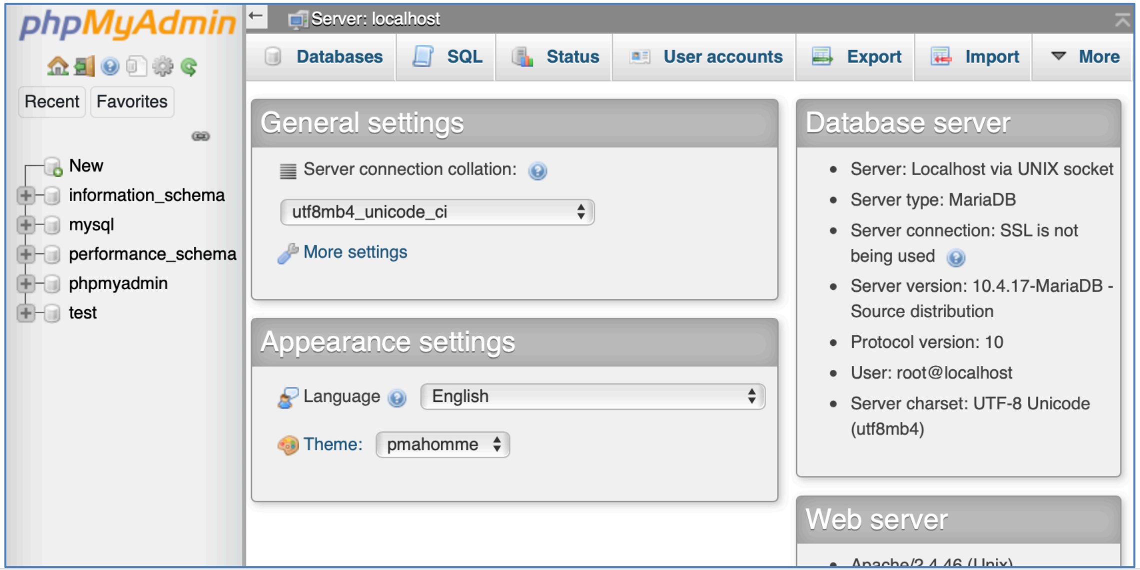


Welcome to XAMPP for 8.0.2-0

You have successfully installed XAMPP on this system! Now you can start using Apache, MariaDB, PHP and other components. You can find more info in the FAQs section or check the HOW-TO Guides for getting started with PHP applications.

XAMPP is meant only for development purposes. It has certain configuration settings that make it easy to develop locally but that are insecure if you want to have your installation accessible to others. If you want have your XAMPP accessible from the internet, make sure you understand the implications and you checked the FAQs to learn how to protect your site. Alternatively you can use WAMP, MAMP or LAMP which are similar packages which are more suitable for production.

8b. Checking the XAMPP stack is working.
Press [phpMyAdmin] button on XAMPP page for look phpMyAdmin page in your browser



Server connection collation: utf8mb4_unicode_ci

Language: English

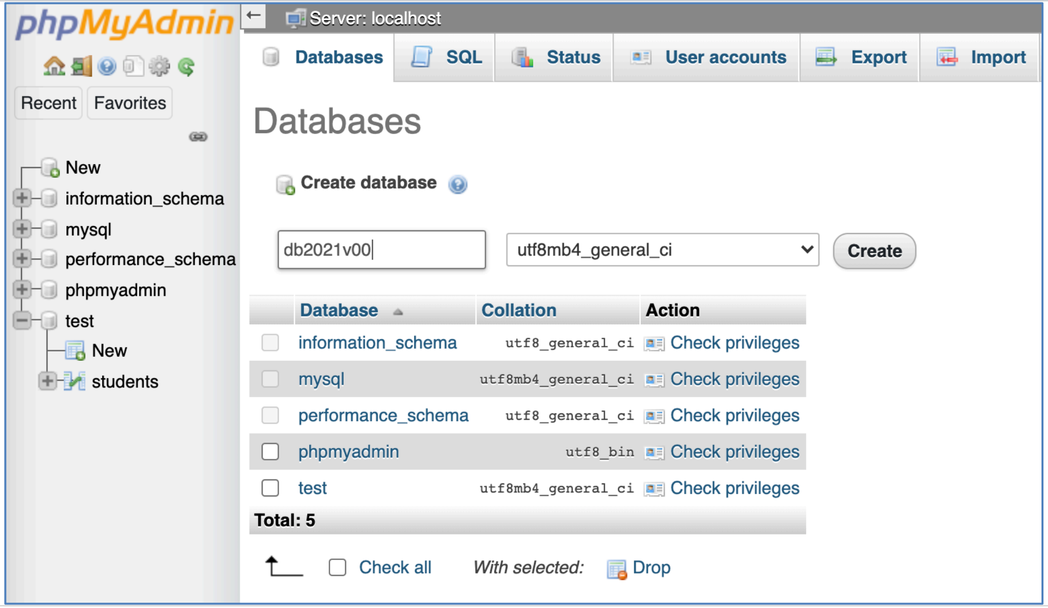
Theme: pmahomme

- Server: Localhost via UNIX socket
- Server type: MariaDB
- Server connection: SSL is not being used
- Server version: 10.4.17-MariaDB - Source distribution
- Protocol version: 10
- User: root@localhost
- Server charset: UTF-8 Unicode (utf8mb4)

- Apache/2.4.46 (Unix)

9. Create database

- Press [New] button on phpMyAdmin
- Typing database name
- And press Create.



Databases

Create database

db2021v00 utf8mb4_general_ci

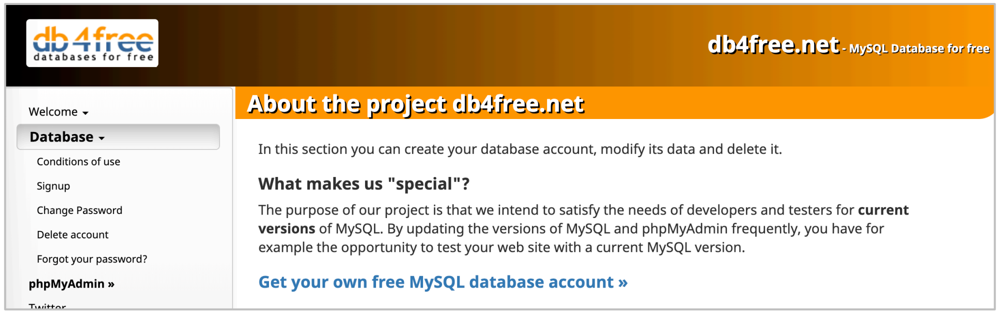
Database	Collation	Action
□ information_schema	utf8_general_ci	Check privileges
□ mysql	utf8mb4_general_ci	Check privileges
□ performance_schema	utf8_general_ci	Check privileges
□ phpmyadmin	utf8_bin	Check privileges
□ test	utf8mb4_general_ci	Check privileges
Total: 5		

4.2.1.b. Register on Free Database Hosting Server (db4free.net).

This is a fallback path that only happens if you have a problem with your XAMPP stack installation!

4.2.1.b.1. Get your free database account.

Go to the site https://www.db4free.net/ and select “Get your own free MySQL database account”.



About the project db4free.net

In this section you can create your database account, modify its data and delete it.

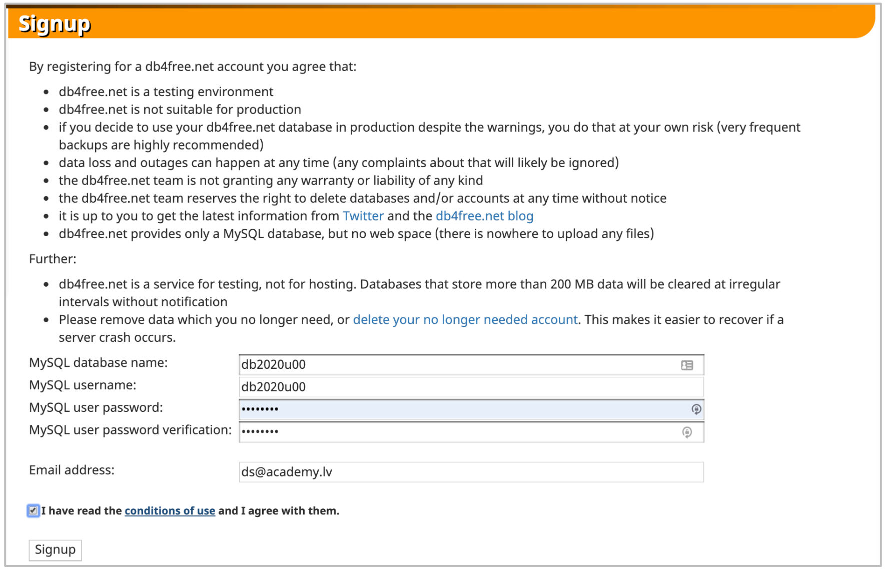
What makes us "special"?

The purpose of our project is that we intend to satisfy the needs of developers and testers for **current versions** of MySQL. By updating the versions of MySQL and phpMyAdmin frequently, you have for example the opportunity to test your web site with a current MySQL version.

Get your own free MySQL database account »

4.2.1.b.2. Register an account.

Fill in the mySQL database name, username, password, e-mail address.



Signup

By registering for a db4free.net account you agree that:

- db4free.net is a testing environment
- db4free.net is not suitable for production
- if you decide to use your db4free.net database in production despite the warnings, you do that at your own risk (very frequent backups are highly recommended)
- data loss and outages can happen at any time (any complaints about that will likely be ignored)
- the db4free.net team is not granting any warranty or liability of any kind
- the db4free.net team reserves the right to delete databases and/or accounts at any time without notice
- it is up to you to get the latest information from Twitter and the db4free.net blog
- db4free.net provides only a MySQL database, but no web space (there is nowhere to upload any files)

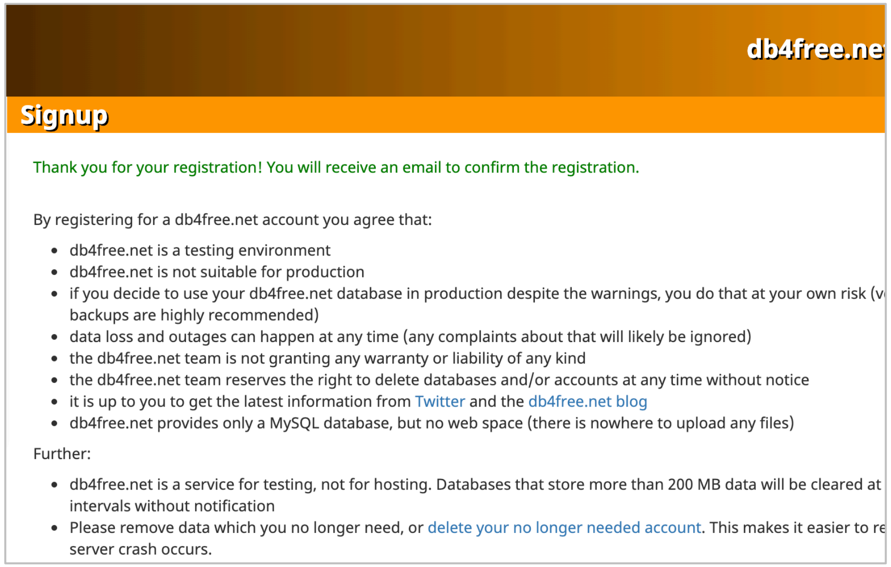
Further:

- db4free.net is a service for testing, not for hosting. Databases that store more than 200 MB data will be cleared at irregular intervals without notification
- Please remove data which you no longer need, or delete your no longer needed account. This makes it easier to recover if a server crash occurs.

MySQL database name:	db2020u00
MySQL username:	db2020u00
MySQL user password:	••••••••
MySQL user password verification:	••••••••
Email address:	ds@academy.lv

☑ **I have read the conditions of use and I agree with them.**

Signup



Signup

Thank you for your registration! You will receive an email to confirm the registration.

By registering for a db4free.net account you agree that:

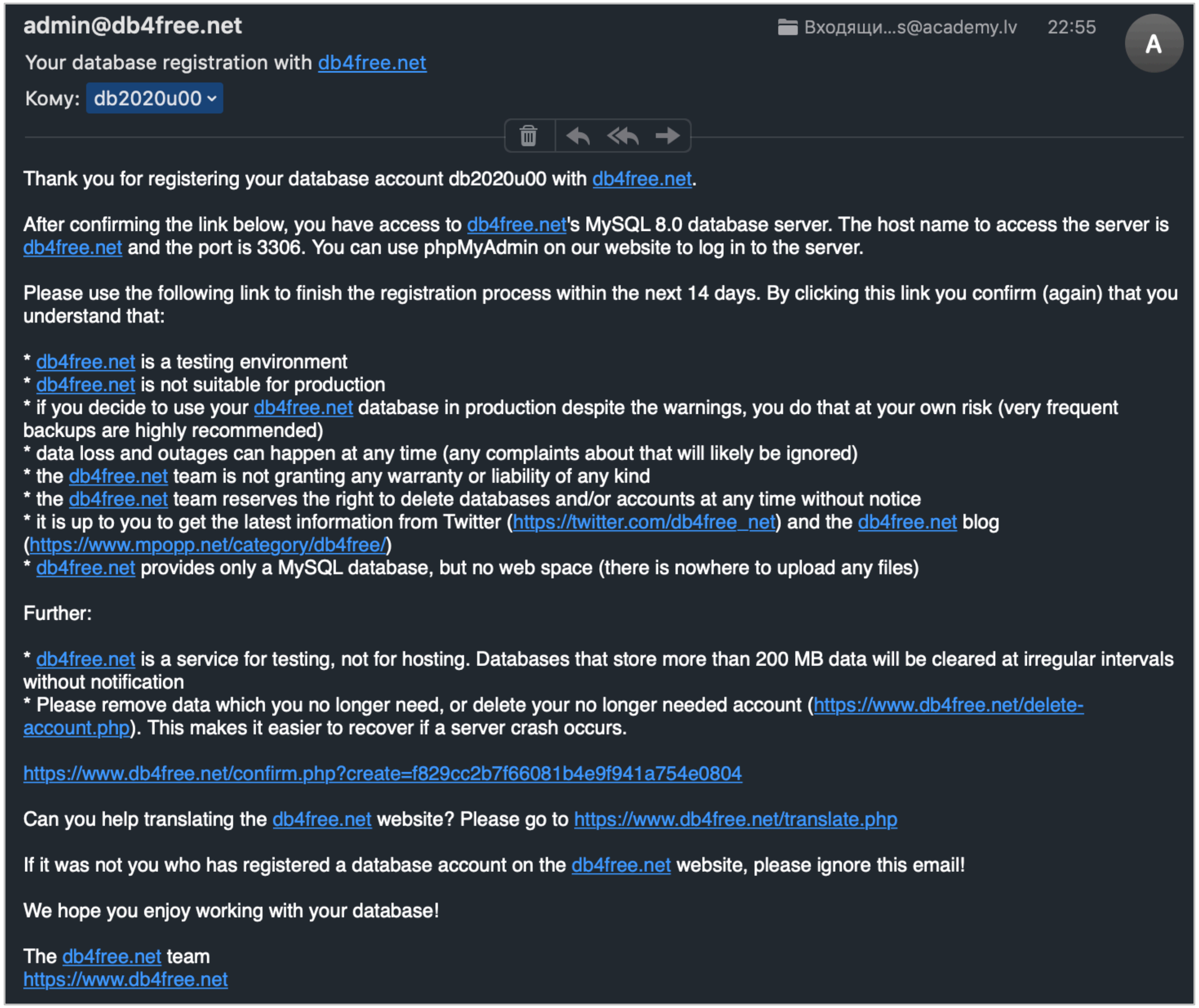
- db4free.net is a testing environment
- db4free.net is not suitable for production
- if you decide to use your db4free.net database in production despite the warnings, you do that at your own risk (v backups are highly recommended)
- data loss and outages can happen at any time (any complaints about that will likely be ignored)
- the db4free.net team is not granting any warranty or liability of any kind
- the db4free.net team reserves the right to delete databases and/or accounts at any time without notice
- it is up to you to get the latest information from Twitter and the db4free.net blog
- db4free.net provides only a MySQL database, but no web space (there is nowhere to upload any files)

Further:

- db4free.net is a service for testing, not for hosting. Databases that store more than 200 MB data will be cleared at intervals without notification
- Please remove data which you no longer need, or delete your no longer needed account. This makes it easier to re server crash occurs.

4.2.1.b.3. Confirmation email.

Read e-mail and confirm without Donate.



admin@db4free.net

Your database registration with db4free.net

Кому: db2020u00

Thank you for registering your database account db2020u00 with db4free.net.

After confirming the link below, you have access to db4free.net's MySQL 8.0 database server. The host name to access the server is db4free.net and the port is 3306. You can use phpMyAdmin on our website to log in to the server.

Please use the following link to finish the registration process within the next 14 days. By clicking this link you confirm (again) that you understand that:

* db4free.net is a testing environment
* db4free.net is not suitable for production
* if you decide to use your db4free.net database in production despite the warnings, you do that at your own risk (very frequent backups are highly recommended)
* data loss and outages can happen at any time (any complaints about that will likely be ignored)
* the db4free.net team is not granting any warranty or liability of any kind
* the db4free.net team reserves the right to delete databases and/or accounts at any time without notice
* it is up to you to get the latest information from Twitter (https://twitter.com/db4free_net) and the db4free.net blog (https://www.mpopp.net/category/db4free/)
* db4free.net provides only a MySQL database, but no web space (there is nowhere to upload any files)

Further:

* db4free.net is a service for testing, not for hosting. Databases that store more than 200 MB data will be cleared at irregular intervals without notification
* Please remove data which you no longer need, or delete your no longer needed account (https://www.db4free.net/delete-account.php). This makes it easier to recover if a server crash occurs.

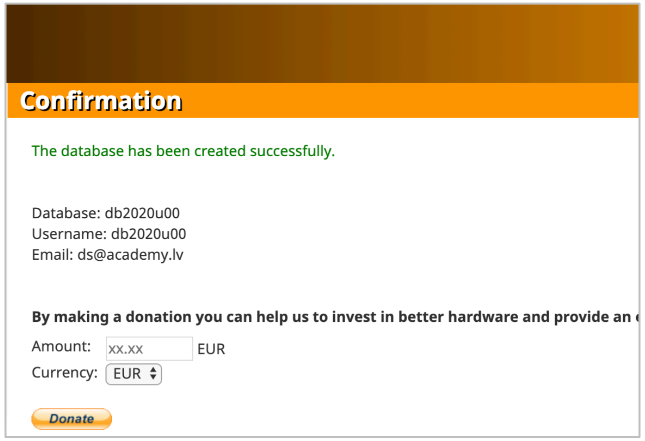
https://www.db4free.net/confirm.php?create=f829cc2b7f66081b4e9f941a754e0804

Can you help translating the db4free.net website? Please go to https://www.db4free.net/translate.php

If it was not you who has registered a database account on the db4free.net website, please ignore this email!

We hope you enjoy working with your database!

The db4free.net team
https://www.db4free.net



Confirmation

The database has been created successfully.

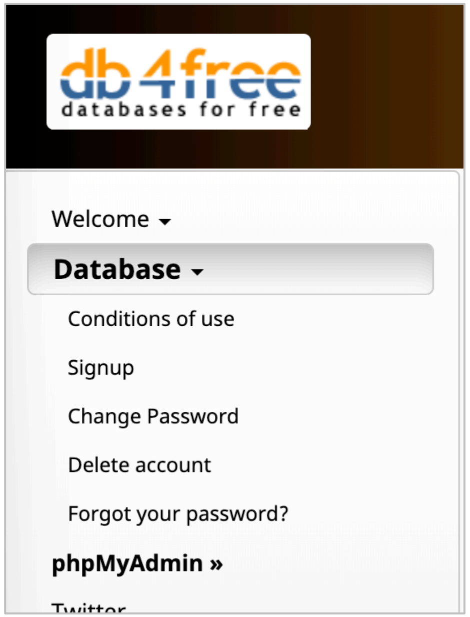
Database: db2020u00
Username: db2020u00
Email: ds@academy.lv

By making a donation you can help us to invest in better hardware and provide an

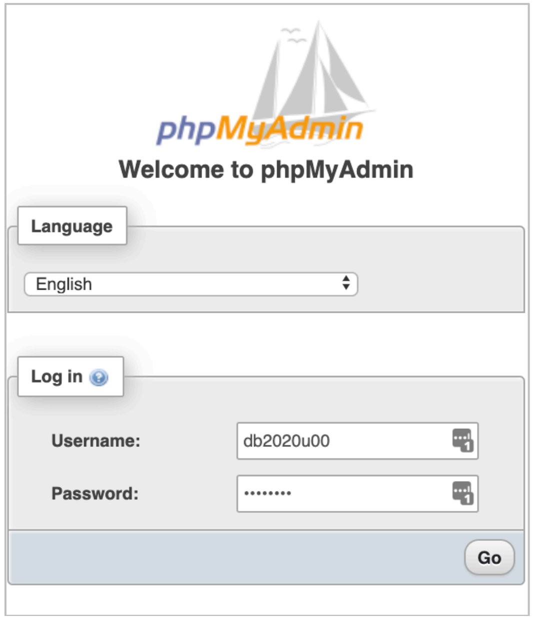
Amount: xx.xx EUR
Currency: EUR

4.2.1.b.4. Control phpMyAdmin login on db4free.net:

a) select the phpMyAdmin;



b) connect to mySQL database;



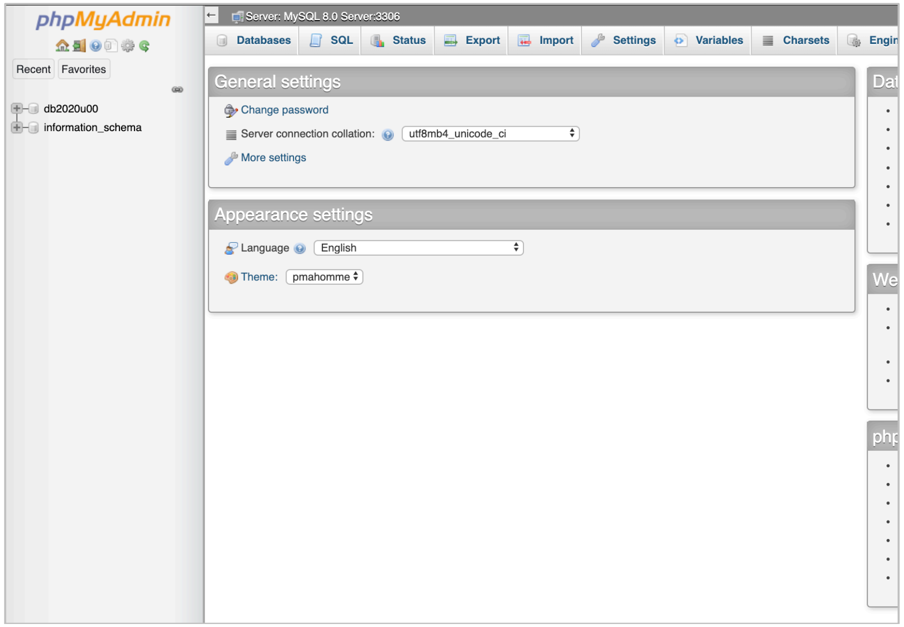
Welcome to phpMyAdmin

Language: English

Username: db2020u00

Password: ••••••••

c) look account phpMyAdmin options.



Server: MySQL 8.0 Server:3306

General settings

Change password

Server connection collation: utf8mb4_unicode_ci

More settings

Appearance settings

Language: English

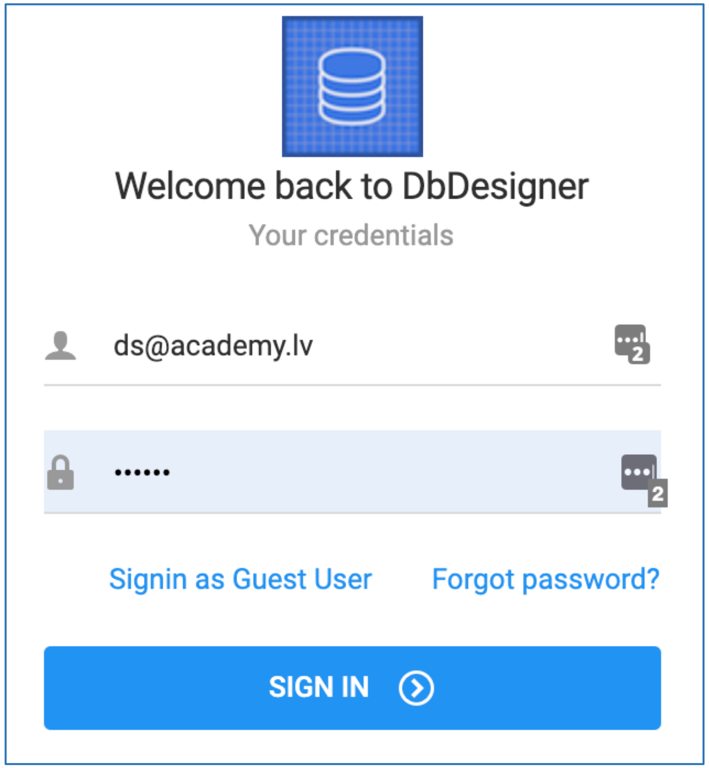
Theme: pmahomme

4.2.2. Import Database Scheme width phpMyAdmin.

4.2.2.1. Export RDM from DB Designer to Create.sql File.

a) Open Your Variant RDM from LW-02.

Instruction: Sign In on https://dbdesigner.net and select Schema → Load…

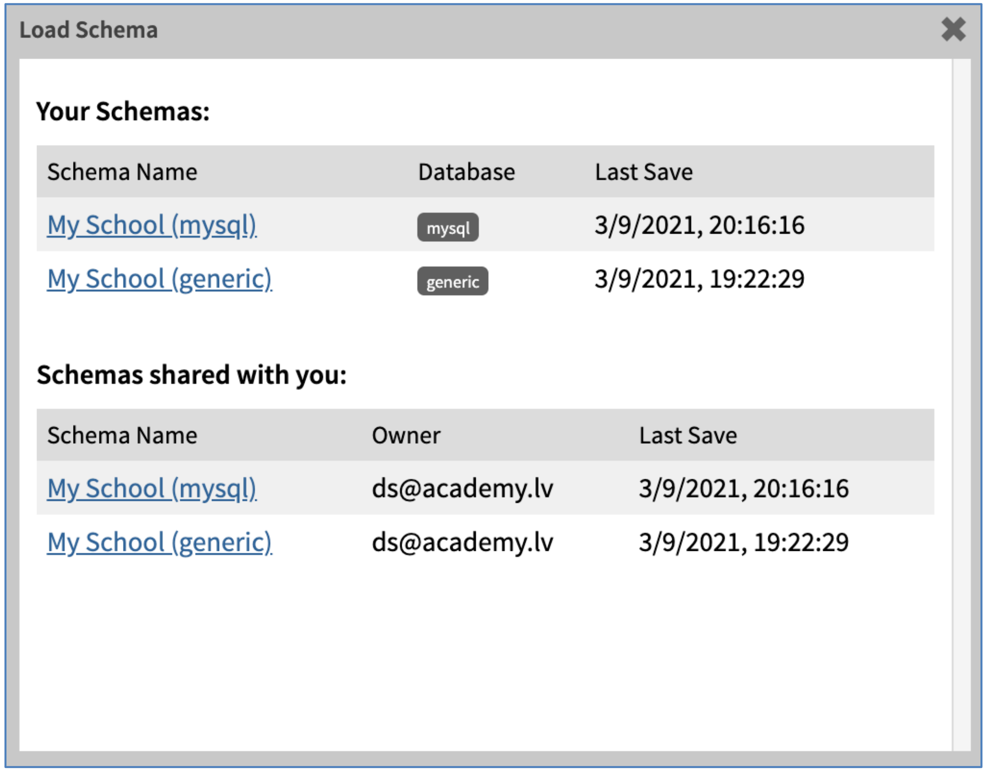


Welcome back to DbDesigner

Your credentials

ds@academy.lv

••••••



Your Schemas:

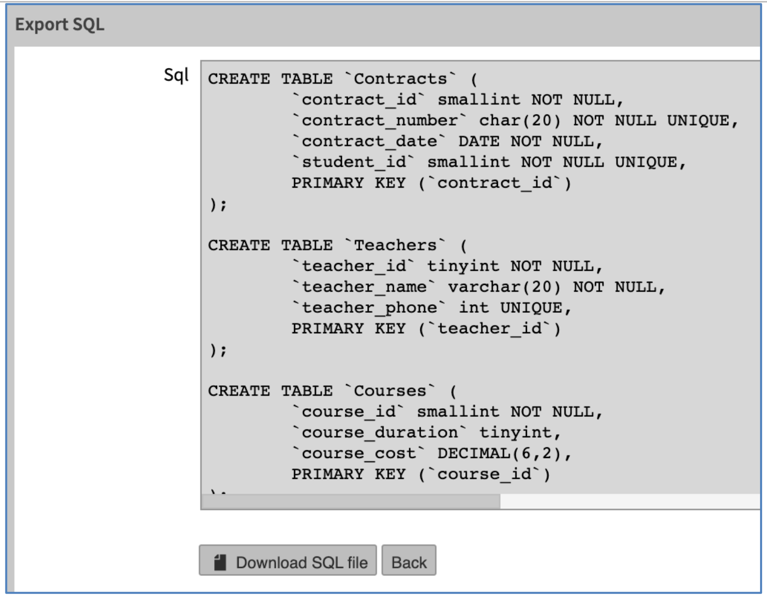
Schema Name	Database	Last Save
My School (mysql)	mysql	3/9/2021, 20:16:16
My School (generic)	generic	3/9/2021, 19:22:29

Schemas shared with you:

Schema Name	Owner	Last Save
My School (mysql)	ds@academy.lv	3/9/2021, 20:16:16
My School (generic)	ds@academy.lv	3/9/2021, 19:22:29

b) Export RDM to create.sql.

Instruction: Export → SQL … → Create script MySQL → Generate SQL → Download SQL file



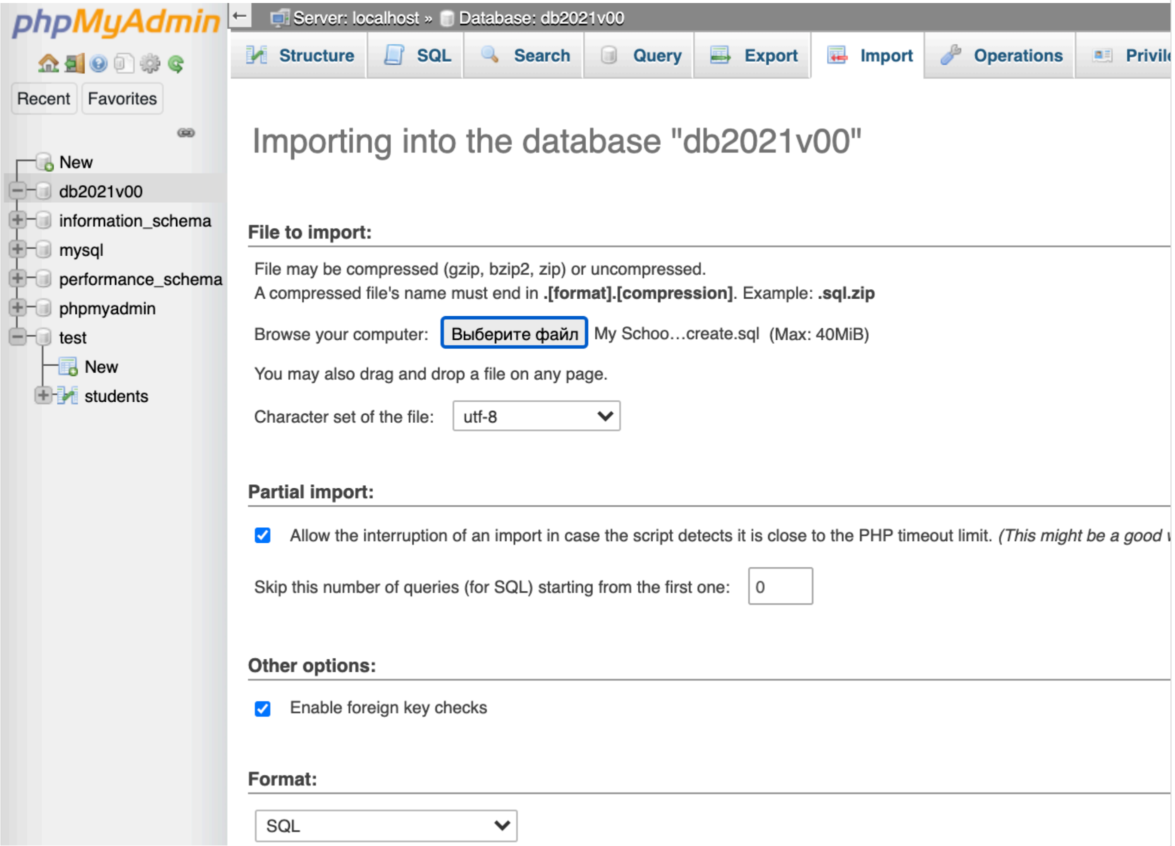
```
CREATE TABLE `Contracts` (
	`contract_id` smallint NOT NULL,
	`contract_number` char(20) NOT NULL UNIQUE,
	`contract_date` DATE NOT NULL,
	`student_id` smallint NOT NULL UNIQUE,
	PRIMARY KEY (`contract_id`)
);

CREATE TABLE `Teachers` (
	`teacher_id` tinyint NOT NULL,
	`teacher_name` varchar(20) NOT NULL,
	`teacher_phone` int UNIQUE,
	PRIMARY KEY (`teacher_id`)
);

CREATE TABLE `Courses` (
	`course_id` smallint NOT NULL,
	`course_duration` tinyint,
	`course_cost` DECIMAL(6,2),
	PRIMARY KEY (`course_id`)
```

```
CREATE TABLE `Contracts` (
	`contract_id` smallint NOT NULL,
	`contract_number` char(20) NOT NULL UNIQUE,
	`contract_date` DATE NOT NULL,
	`student_id` smallint NOT NULL UNIQUE,
	PRIMARY KEY (`contract_id`)
);
CREATE TABLE `Teachers` (
	`teacher_id` tinyint NOT NULL,
	`teacher_name` varchar(20) NOT NULL,
	`teacher_phone` int UNIQUE,
	PRIMARY KEY (`teacher_id`)
);
CREATE TABLE `Courses` (
	`course_id` smallint NOT NULL,
	`course_duration` tinyint,
	`course_cost` DECIMAL(6,2),
	PRIMARY KEY (`course_id`)
);
```

```
CREATE TABLE `Students` (
	`student_id` smallint NOT NULL,
	`student_name` varchar(20) NOT NULL,
	`student_birthday` DATE,
	`student_adress` varchar(40),
	`student_phone` int UNIQUE,
	`student_passport` char(15) UNIQUE,
	~~/*`language` enum DEFAULT 'English',*/~~
	`language` enum('Russian','English','Latvian') DEAFULT 'English',
	`group_id` tinyint NOT NULL,
	PRIMARY KEY (`student_id`)
);
CREATE TABLE `Groups` (
	`group_id` tinyint NOT NULL,
	`group_start` DATE,
	`group_finish` DATE,
	`course_id` smallint NOT NULL,
	PRIMARY KEY (`group_id`)
);
CREATE TABLE `CoursesTeachers` (
	`course_id` smallint NOT NULL,
	`teacher_id` tinyint NOT NULL,
	PRIMARY KEY (`course_id`)
);

ALTER TABLE `Contracts` ADD CONSTRAINT `Contracts_fk0` FOREIGN KEY
(`student_id`) REFERENCES `Students`(`student_id`);

ALTER TABLE `Students` ADD CONSTRAINT `Students_fk0` FOREIGN KEY
(`group_id`) REFERENCES `Groups`(`group_id`);

ALTER TABLE `Groups` ADD CONSTRAINT `Groups_fk0` FOREIGN KEY
(`course_id`) REFERENCES `Courses`(`course_id`);

ALTER TABLE `CoursesTeachers` ADD CONSTRAINT `CoursesTeachers_fk0`
FOREIGN KEY (`course_id`) REFERENCES `Courses`(`course_id`);

ALTER TABLE `CoursesTeachers` ADD CONSTRAINT `CoursesTeachers_fk1`
FOREIGN KEY (`teacher_id`) REFERENCES `Teachers`(`teacher_id`);
```

4.2.2.2. Import database scheme into MySQL.

a1) OR over phpMyAdmin Import Create.sql File



Importing into the database "db2021v00"

File to import:

File may be compressed (gzip, bzip2, zip) or uncompressed.
A compressed file's name must end in **.[format].[compression]**. Example: **.sql.zip**

Browse your computer: Выберите файл My Schoo…create.sql (Max: 40MiB)

You may also drag and drop a file on any page.

Character set of the file: utf-8

Partial import:

☑ Allow the interruption of an import in case the script detects it is close to the PHP timeout limit. *(This might be a good*

Skip this number of queries (for SQL) starting from the first one: 0

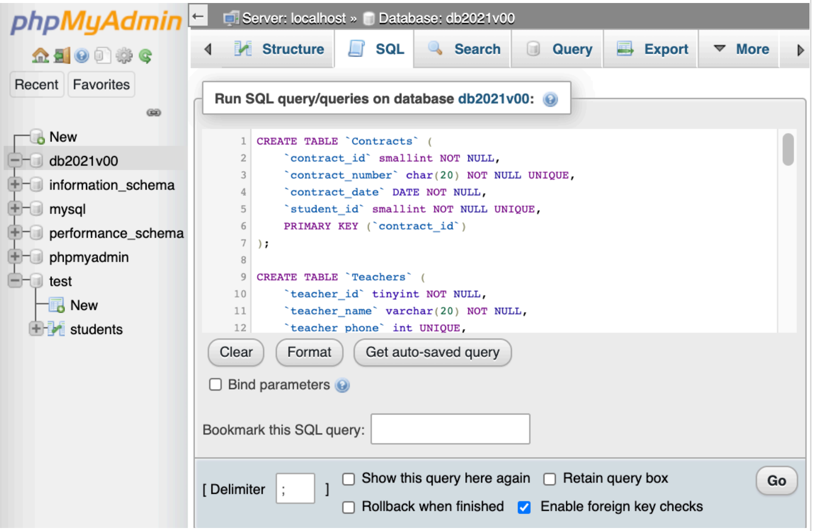
Other options:

☑ Enable foreign key checks

Format:

SQL

a2) OR over phpMyAdmin Run SQL



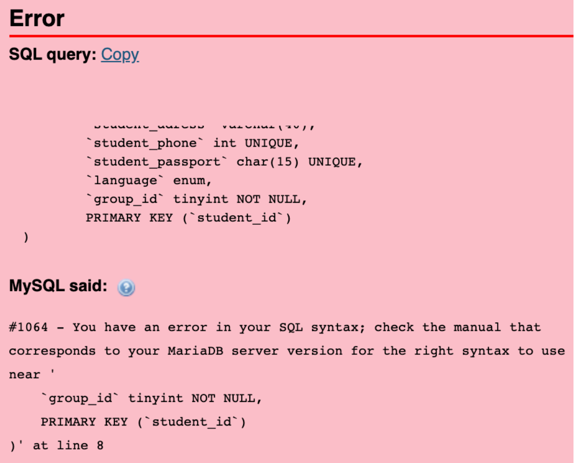
Run SQL query/queries on database db2021v00:

```
CREATE TABLE `Contracts` (
    `contract_id` smallint NOT NULL,
    `contract_number` char(20) NOT NULL UNIQUE,
    `contract_date` DATE NOT NULL,
    `student_id` smallint NOT NULL UNIQUE,
    PRIMARY KEY (`contract_id`)
);

CREATE TABLE `Teachers` (
    `teacher_id` tinyint NOT NULL,
    `teacher_name` varchar(20) NOT NULL,
    `teacher_phone` int UNIQUE,
```

□ Bind parameters

Bookmark this SQL query:

[Delimiter ;] □ Show this query here again □ Retain query box
□ Rollback when finished ☑ Enable foreign key checks



Error

SQL query: Copy

```
        `student_adress` varchar(40),
        `student_phone` int UNIQUE,
        `student_passport` char(15) UNIQUE,
        `language` enum,
        `group_id` tinyint NOT NULL,
        PRIMARY KEY (`student_id`)
 )
```

MySQL said:

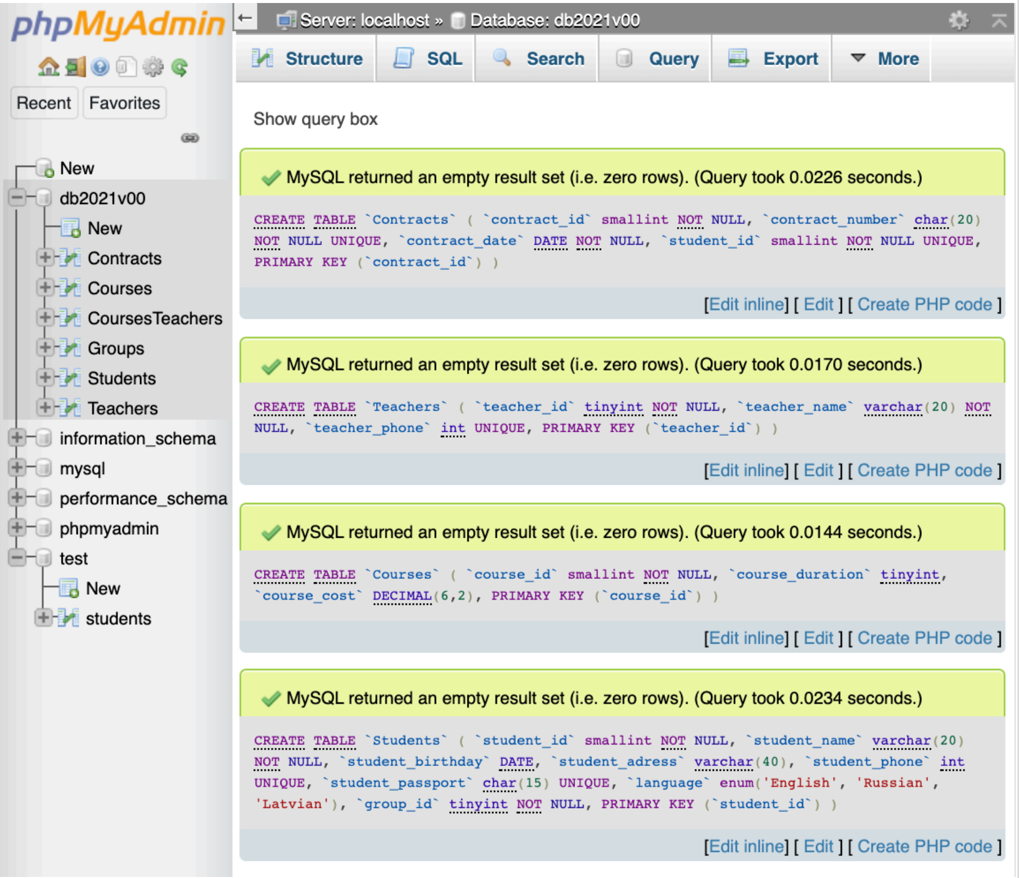
```
#1064 - You have an error in your SQL syntax; check the manual that
corresponds to your MariaDB server version for the right syntax to use
near '
    `group_id` tinyint NOT NULL,
    PRIMARY KEY (`student_id`)
)' at line 8
```

a3) If You have problem with Import, Your need correct bugs on create.sql file →

Error example: not right syntax of `language` enum, phrase

Correct syntax `language` enum('English', 'Russian', 'Latvian'),

b) Result



✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0226 seconds.)

```
CREATE TABLE `Contracts` ( `contract_id` smallint NOT NULL, `contract_number` char(20)
NOT NULL UNIQUE, `contract_date` DATE NOT NULL, `student_id` smallint NOT NULL UNIQUE,
PRIMARY KEY (`contract_id`) )
```

[Edit inline] [Edit] [Create PHP code]

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0170 seconds.)

```
CREATE TABLE `Teachers` ( `teacher_id` tinyint NOT NULL, `teacher_name` varchar(20) NOT
NULL, `teacher_phone` int UNIQUE, PRIMARY KEY (`teacher_id`) )
```

[Edit inline] [Edit] [Create PHP code]

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0144 seconds.)

```
CREATE TABLE `Courses` ( `course_id` smallint NOT NULL, `course_duration` tinyint,
`course_cost` DECIMAL(6,2), PRIMARY KEY (`course_id`) )
```

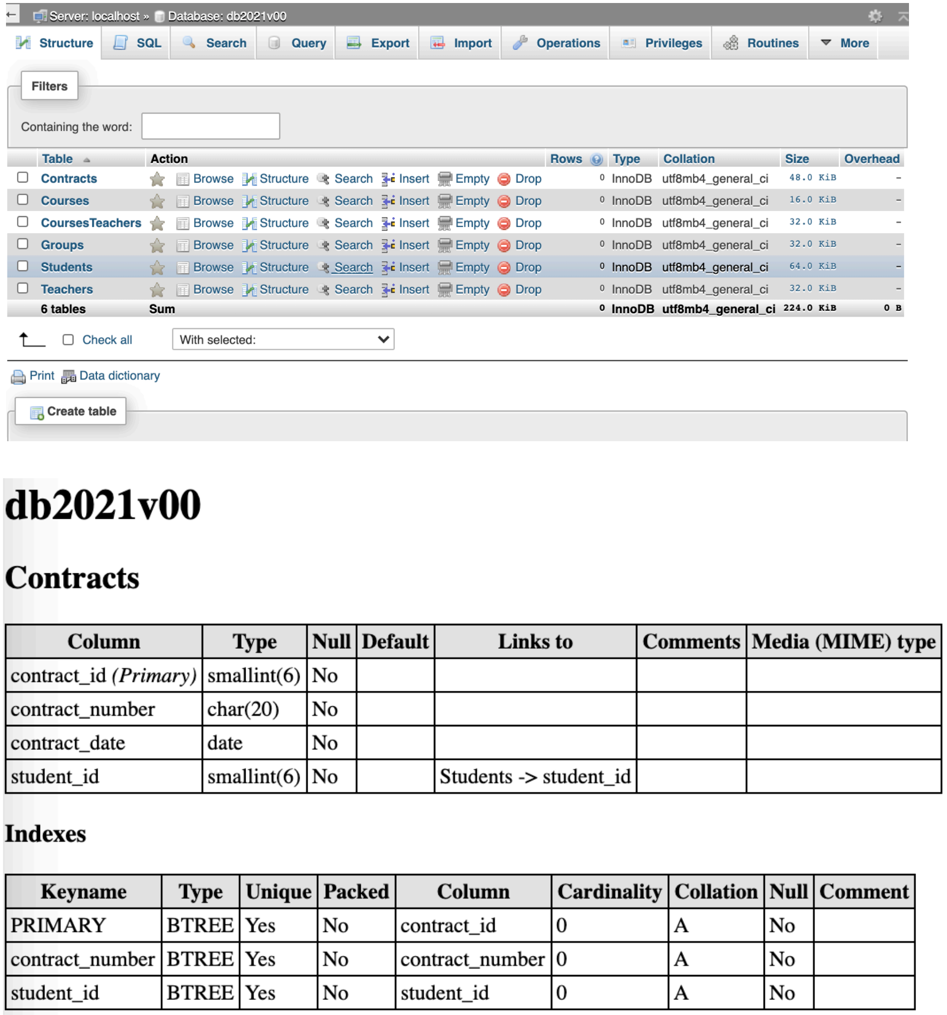
[Edit inline] [Edit] [Create PHP code]

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0234 seconds.)

```
CREATE TABLE `Students` ( `student_id` smallint NOT NULL, `student_name` varchar(20)
NOT NULL, `student_birthday` DATE, `student_adress` varchar(40), `student_phone` int
UNIQUE, `student_passport` char(15) UNIQUE, `language` enum('English', 'Russian',
'Latvian'), `group_id` tinyint NOT NULL, PRIMARY KEY (`student_id`) )
```

[Edit inline] [Edit] [Create PHP code]

c) Control table design over phpMyAdmin Structure → Data dictionary



Containing the word:

	Table	Action	Rows	Type	Collation	Size	Overhead
□	Contracts	☆ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	48.0 KiB	-
□	Courses	☆ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
□	CoursesTeachers	☆ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
□	Groups	☆ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
□	Students	☆ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	64.0 KiB	-
□	Teachers	☆ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
	6 tables	Sum	0	InnoDB	utf8mb4_general_ci	224.0 KiB	0 B

□ Check all   With selected:

Print   Data dictionary

Create table

db2021v00

Contracts

Column	Type	Null	Default	Links to	Comments	Media (MIME) type
contract_id *(Primary)*	smallint(6)	No				
contract_number	char(20)	No				
contract_date	date	No				
student_id	smallint(6)	No		Students -> student_id		

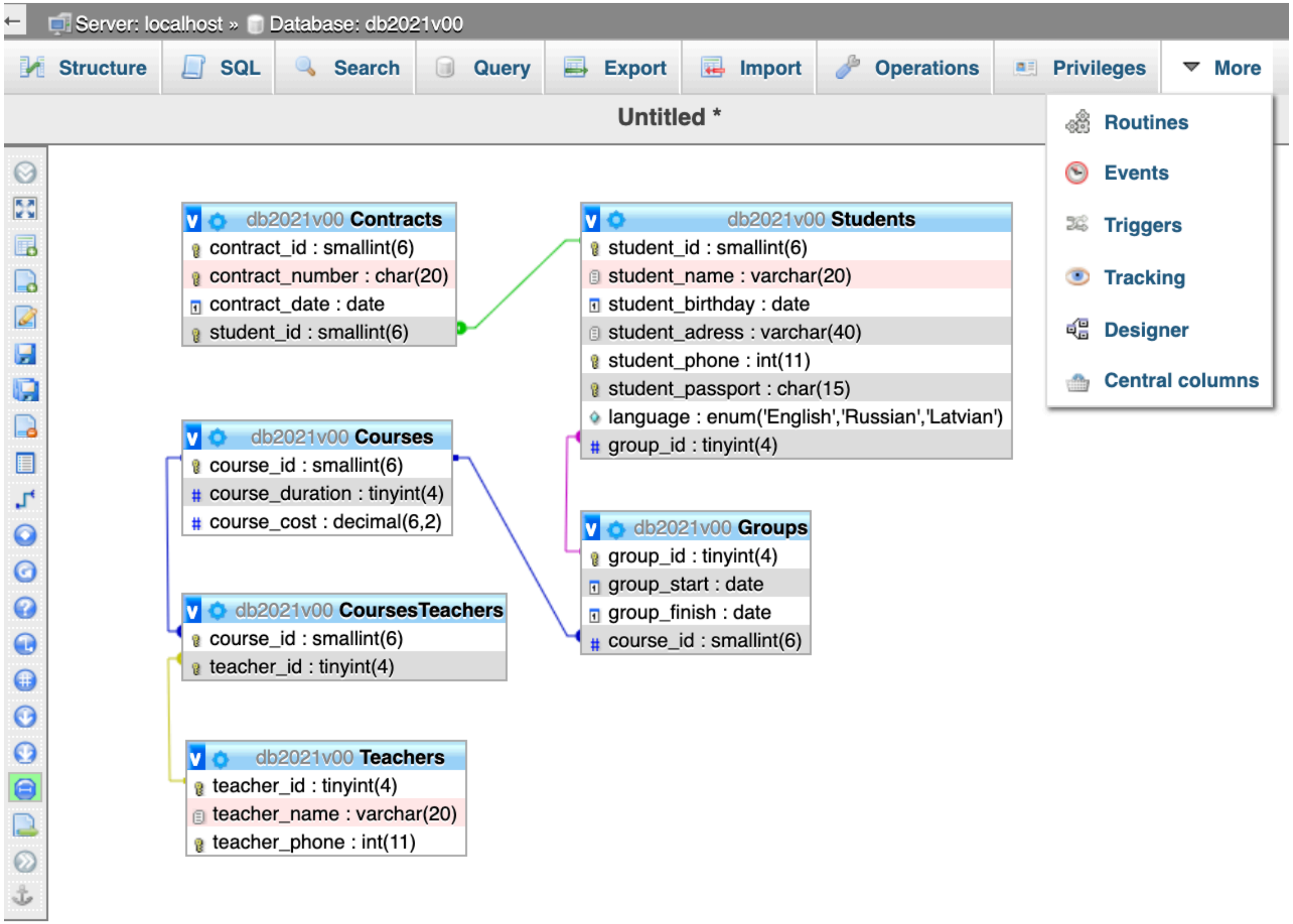
Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	contract_id	0	A	No	
contract_number	BTREE	Yes	No	contract_number	0	A	No	
student_id	BTREE	Yes	No	student_id	0	A	No	

4.2.2.3. Create RDM from phpMyAdmin Designer

Instruction:

- Press Right Mouse button and select Save image as...
- Insert RDM from phpMyAdmin Designer to LW report



db2021v00 Contracts
contract_id : smallint(6)
contract_number : char(20)
contract_date : date
student_id : smallint(6)

db2021v00 Students
student_id : smallint(6)
student_name : varchar(20)
student_birthday : date
student_adress : varchar(40)
student_phone : int(11)
student_passport : char(15)
language : enum('English','Russian','Latvian')
group_id : tinyint(4)

db2021v00 Courses
course_id : smallint(6)
course_duration : tinyint(4)
course_cost : decimal(6,2)

db2021v00 Groups
group_id : tinyint(4)
group_start : date
group_finish : date
course_id : smallint(6)

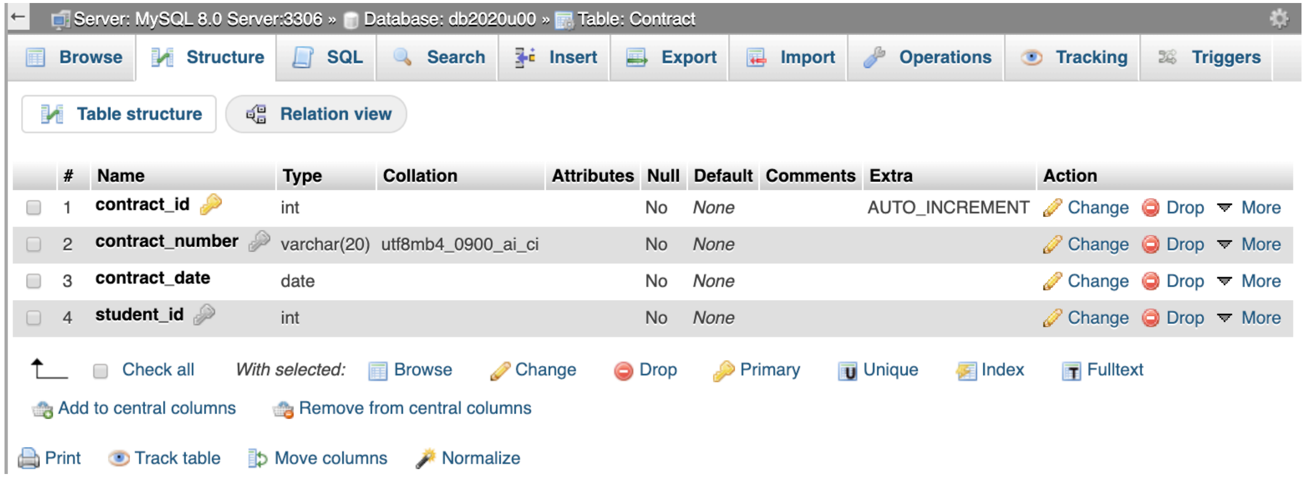
db2021v00 CoursesTeachers
course_id : smallint(6)
teacher_id : tinyint(4)

db2021v00 Teachers
teacher_id : tinyint(4)
teacher_name : varchar(20)
teacher_phone : int(11)

4.3. Normalize MySQL database width phpMyAdmin.

4.3.1. Check of Normalization with phpMyAdmin and correct database scheme.

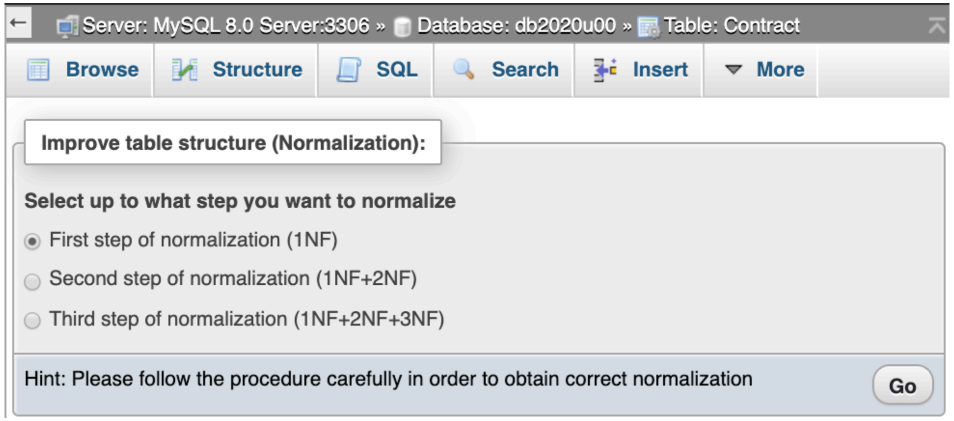
Instruction: Select database → Select Table → Structure → Normalize



	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□	1	**contract_id**	int			No	*None*		AUTO_INCREMENT	Change Drop More
□	2	**contract_number**	varchar(20)	utf8mb4_0900_ai_ci		No	*None*			Change Drop More
□	3	**contract_date**	date			No	*None*			Change Drop More
□	4	**student_id**	int			No	*None*			Change Drop More

4.3.1.1. Check 1NF.

Make Conclusion about 1NF for every database table and add it to the Report:



Server: MySQL 8.0 Server:3306 » Database: db2020u00 » Table: Contract
Browse
Structure
SQL
Search
Insert
More
Go

Improve table structure (Normalization):

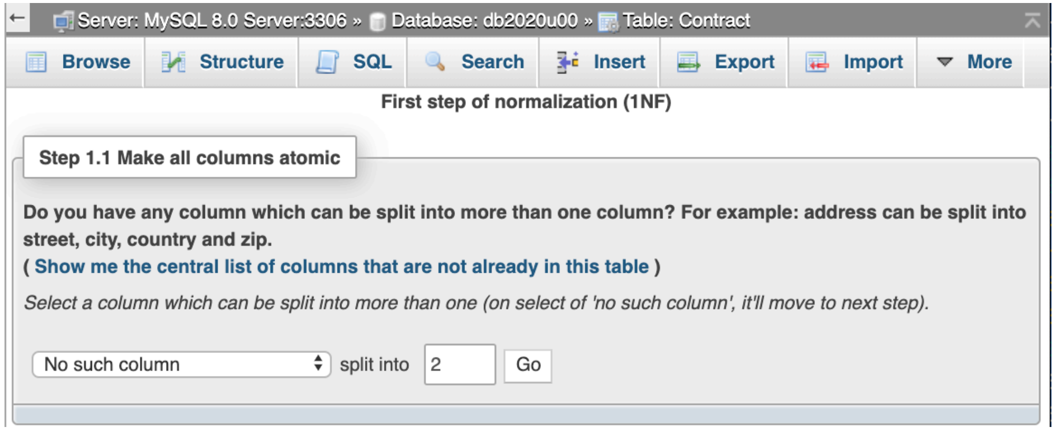
Select up to what step you want to normalize

● First step of normalization (1NF)

○ Second step of normalization (1NF+2NF)

○ Third step of normalization (1NF+2NF+3NF)

Hint: Please follow the procedure carefully in order to obtain correct normalization



Server: MySQL 8.0 Server:3306 » Database: db2020u00 » Table: Contract
Browse
Structure
SQL
Search
Insert
Export
Import
More
Go

First step of normalization (1NF)

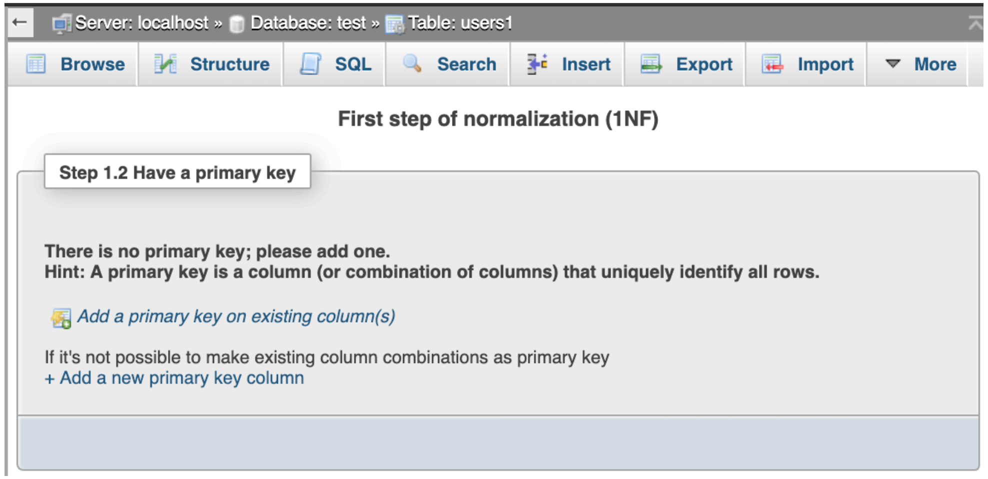
Step 1.1 Make all columns atomic

Do you have any column which can be split into more than one column? For example: address can be split into street, city, country and zip.

(Show me the central list of columns that are not already in this table)

Select a column which can be split into more than one (on select of 'no such column', it'll move to next step).

No such column split into 2



First step of normalization (1NF)

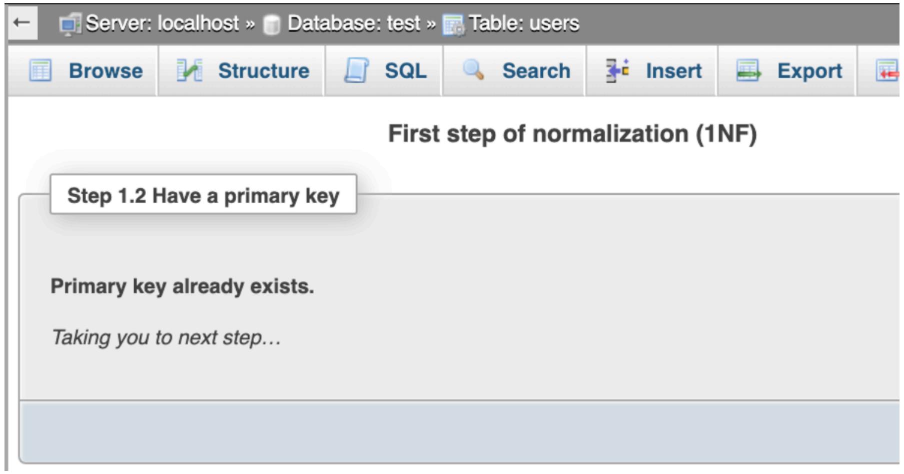
Step 1.2 Have a primary key

There is no primary key; please add one.
Hint: A primary key is a column (or combination of columns) that uniquely identify all rows.

Add a primary key on existing column(s)

If it's not possible to make existing column combinations as primary key
+ Add a new primary key column

or

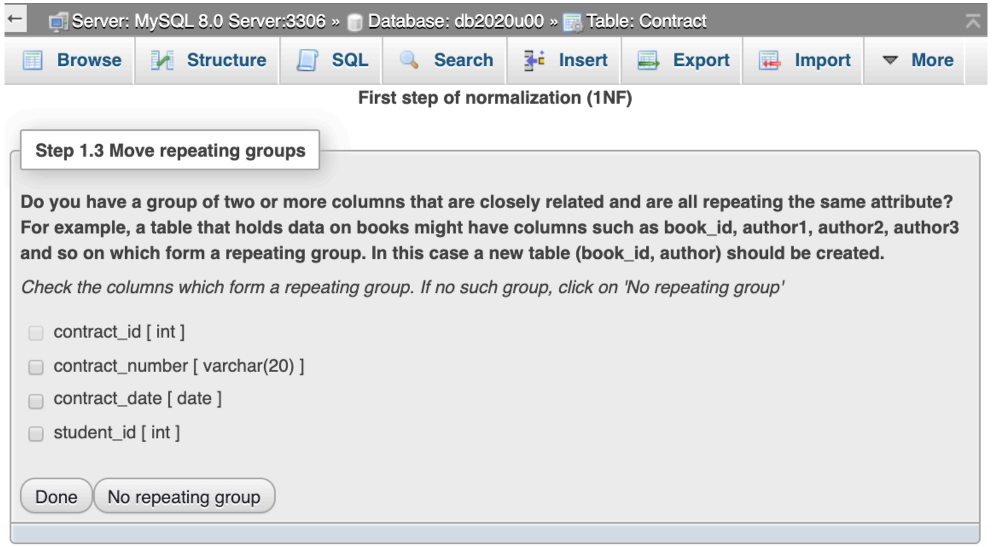


First step of normalization (1NF)

Step 1.2 Have a primary key

Primary key already exists.

Taking you to next step…


Server: MySQL 8.0 Server:3306 » Database: db2020u00 » Table: Contract
Browse
Structure
SQL
Search
Insert
Export
Import
More

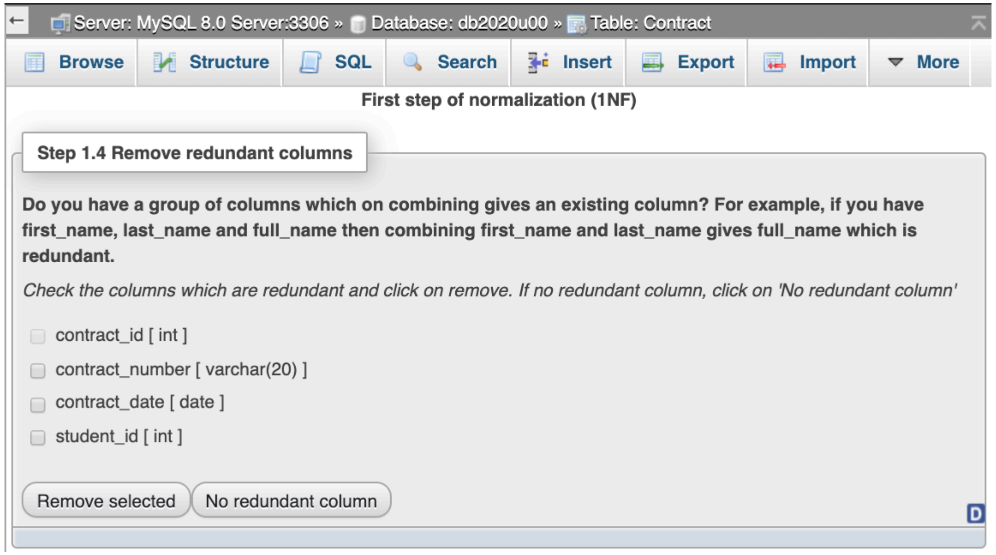
First step of normalization (1NF)

Step 1.3 Move repeating groups

Do you have a group of two or more columns that are closely related and are all repeating the same attribute? For example, a table that holds data on books might have columns such as book_id, author1, author2, author3 and so on which form a repeating group. In this case a new table (book_id, author) should be created.

Check the columns which form a repeating group. If no such group, click on 'No repeating group'

☐ contract_id [int]
☐ contract_number [varchar(20)]
☐ contract_date [date]
☐ student_id [int]


Server: MySQL 8.0 Server:3306 » Database: db2020u00 » Table: Contract
Browse
Structure
SQL
Search
Insert
Export
Import
More

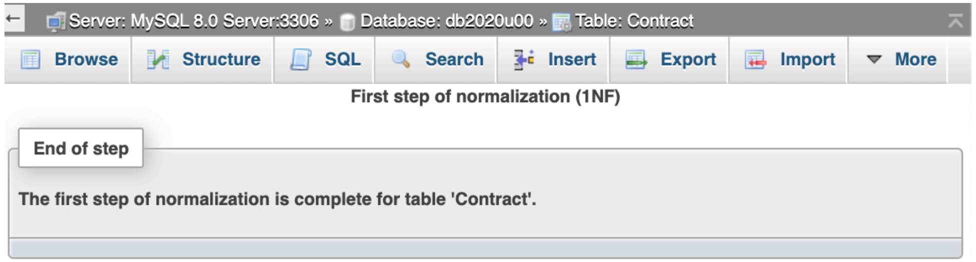
First step of normalization (1NF)

Step 1.4 Remove redundant columns

Do you have a group of columns which on combining gives an existing column? For example, if you have first_name, last_name and full_name then combining first_name and last_name gives full_name which is redundant.

Check the columns which are redundant and click on remove. If no redundant column, click on 'No redundant column'

☐ contract_id [int]
☐ contract_number [varchar(20)]
☐ contract_date [date]
☐ student_id [int]


Server: MySQL 8.0 Server:3306 » Database: db2020u00 » Table: Contract
Browse
Structure
SQL
Search
Insert
Export
Import
More

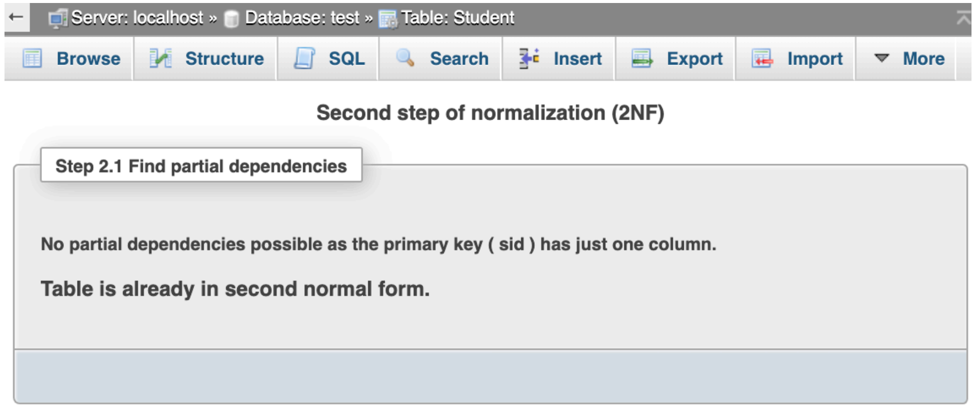
First step of normalization (1NF)

End of step

The first step of normalization is complete for table 'Contract'.

4.3.2. Check 2NF.

Make Conclusion about 2NF for every database table and add it to the Report.



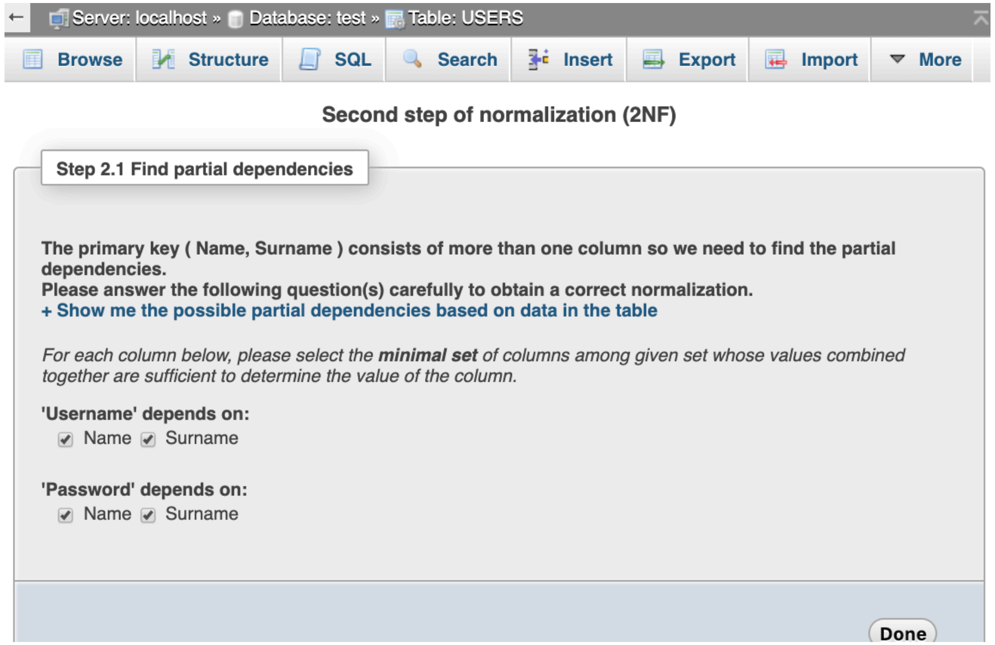
Second step of normalization (2NF)

Step 2.1 Find partial dependencies

No partial dependencies possible as the primary key (sid) has just one column.

Table is already in second normal form.

or



Second step of normalization (2NF)

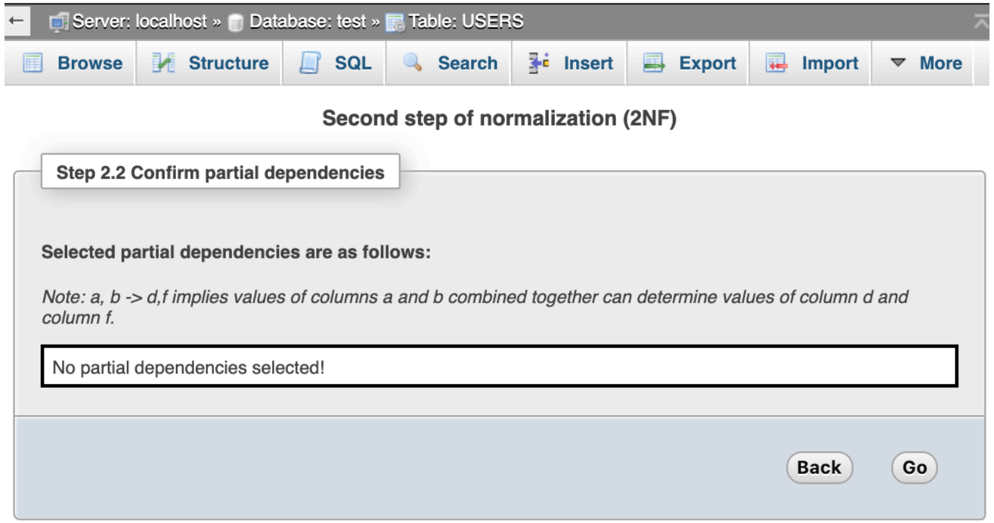
Step 2.1 Find partial dependencies

The primary key (Name, Surname) consists of more than one column so we need to find the partial dependencies.
Please answer the following question(s) carefully to obtain a correct normalization.
+ Show me the possible partial dependencies based on data in the table

*For each column below, please select the **minimal set** of columns among given set whose values combined together are sufficient to determine the value of the column.*

'Username' depends on:
☑ Name ☑ Surname

'Password' depends on:
☑ Name ☑ Surname



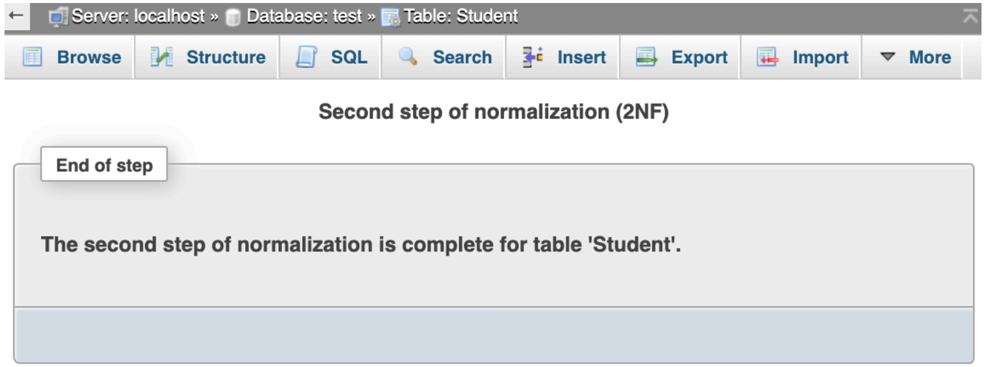
Second step of normalization (2NF)

Step 2.2 Confirm partial dependencies

Selected partial dependencies are as follows:

Note: a, b -> d,f implies values of columns a and b combined together can determine values of column d and column f.

No partial dependencies selected!



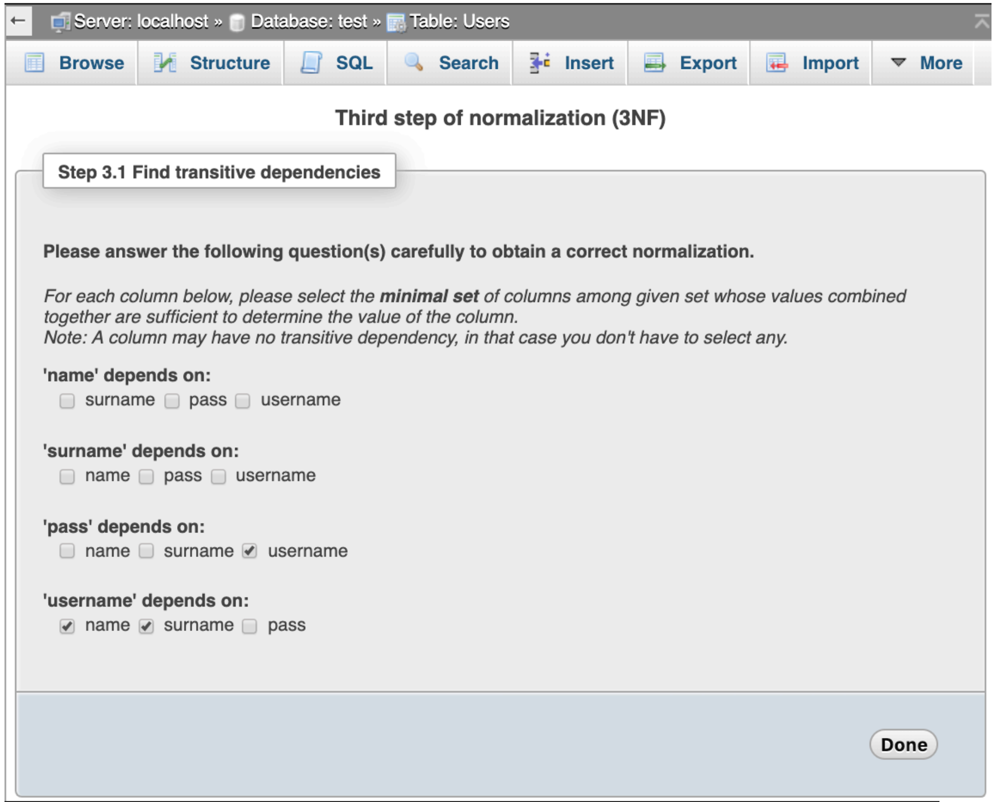
Second step of normalization (2NF)

End of step

The second step of normalization is complete for table 'Student'.

4.3.3. Check 3NF or BCNF.

Make Conclusion about 3NF for every database table and add it to the Report.



Third step of normalization (3NF)

Step 3.1 Find transitive dependencies

Please answer the following question(s) carefully to obtain a correct normalization.

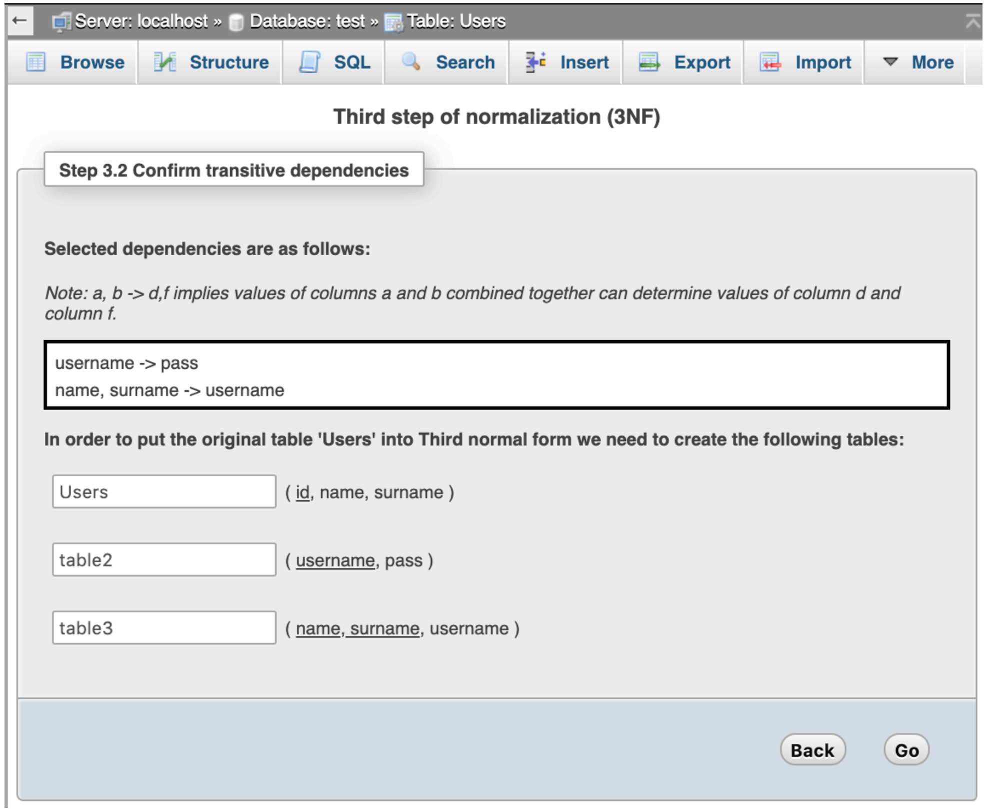
*For each column below, please select the **minimal set** of columns among given set whose values combined together are sufficient to determine the value of the column.*
Note: A column may have no transitive dependency, in that case you don't have to select any.

'name' depends on:
☐ surname ☐ pass ☐ username

'surname' depends on:
☐ name ☐ pass ☐ username

'pass' depends on:
☐ name ☐ surname ☑ username

'username' depends on:
☑ name ☑ surname ☐ pass



Third step of normalization (3NF)

Step 3.2 Confirm transitive dependencies

Selected dependencies are as follows:

Note: a, b -> d,f implies values of columns a and b combined together can determine values of column d and column f.

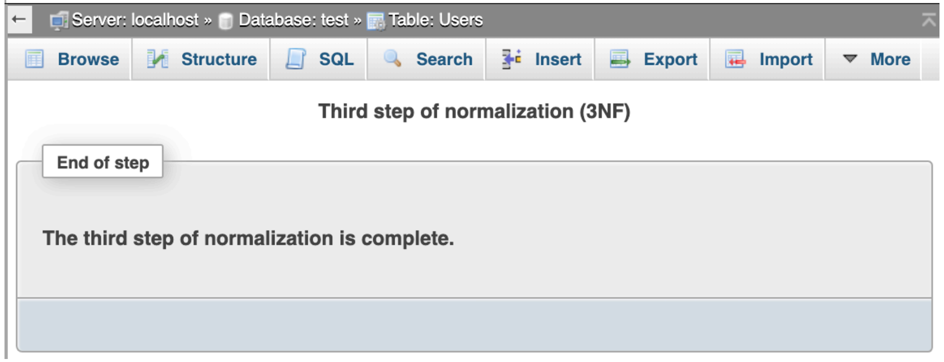
username -> pass
name, surname -> username

In order to put the original table 'Users' into Third normal form we need to create the following tables:

Users (id, name, surname)

table2 (username, pass)

table3 (name, surname, username)



Third step of normalization (3NF)

End of step

The third step of normalization is complete.

4.4. Populate MySQL Database.

4.4.1. Manual insert test data

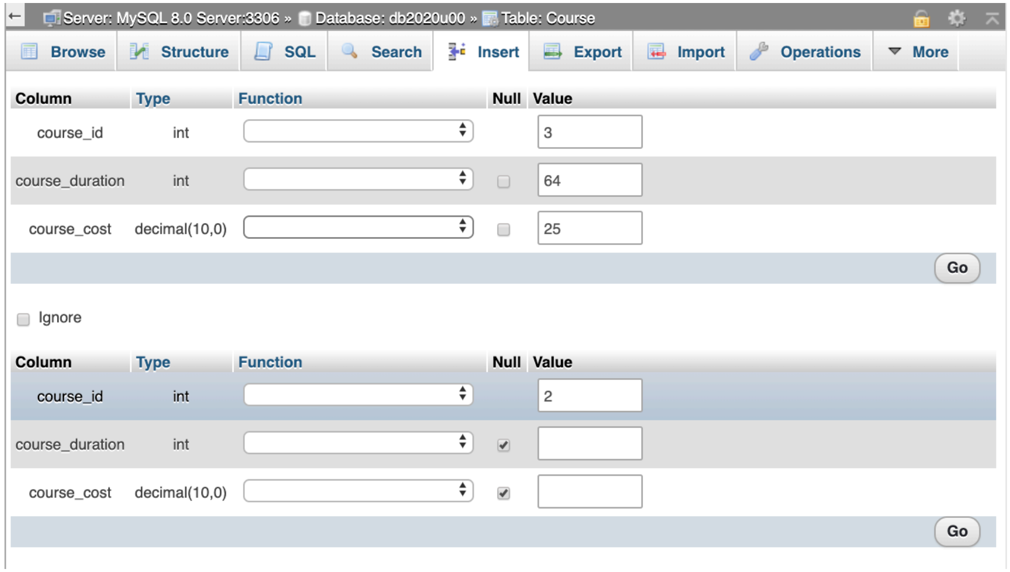
Instruction:

a) Determine the Order of table population
b) Empty tables if need
c) Select table
d) Select Insert
e) Fill in Columns Value
f) Save INSERT INTO sql query code.

4.4.1.1. Example of Order of table population:

Courses, Groups, Students, Contracts, Teachers, CoursesTeachers.

4.4.1.2. Example for Courses table.

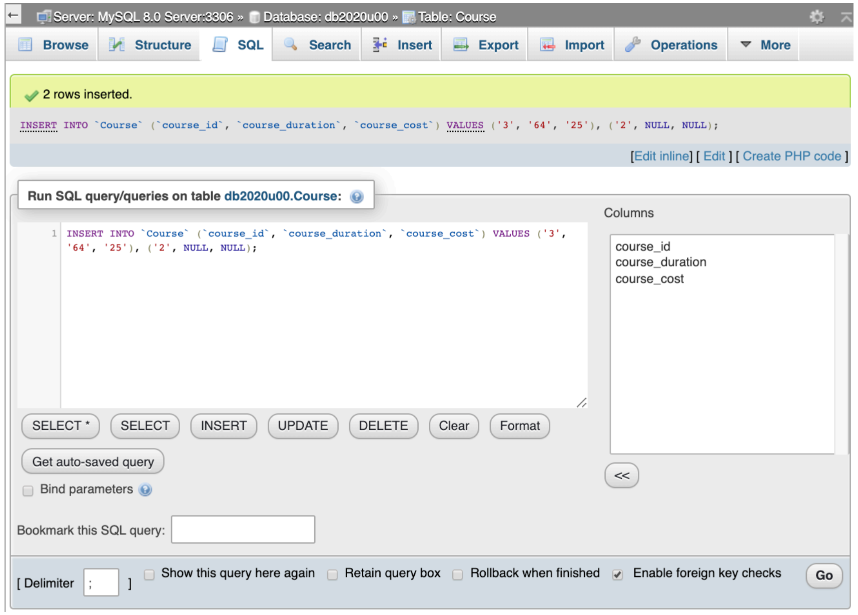


Server: MySQL 8.0 Server:3306 » Database: db2020u00 » Table: Course
Browse
Structure
SQL
Search
Insert
Export
Import
Operations
More
Go
Go

Column	Type	Function	Null	Value
course_id	int			3
course_duration	int		☐	64
course_cost	decimal(10,0)		☐	25

☐ Ignore

Column	Type	Function	Null	Value
course_id	int			2
course_duration	int		☑	
course_cost	decimal(10,0)		☑	



✓ 2 rows inserted.

```
INSERT INTO `Course` (`course_id`, `course_duration`, `course_cost`) VALUES ('3', '64', '25'), ('2', NULL, NULL);
```

Run SQL query/queries on table db2020u00.Course:

```
INSERT INTO `Course` (`course_id`, `course_duration`, `course_cost`) VALUES ('3',
'64', '25'), ('2', NULL, NULL);
```

Columns

course_id
course_duration
course_cost

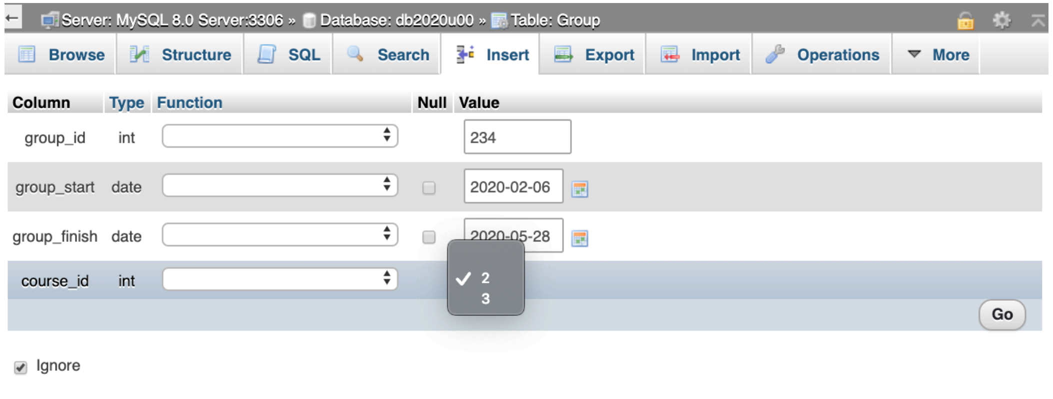
☐ Bind parameters

Bookmark this SQL query:

[Delimiter ;] ☐ Show this query here again ☐ Retain query box ☐ Rollback when finished ☑ Enable foreign key checks

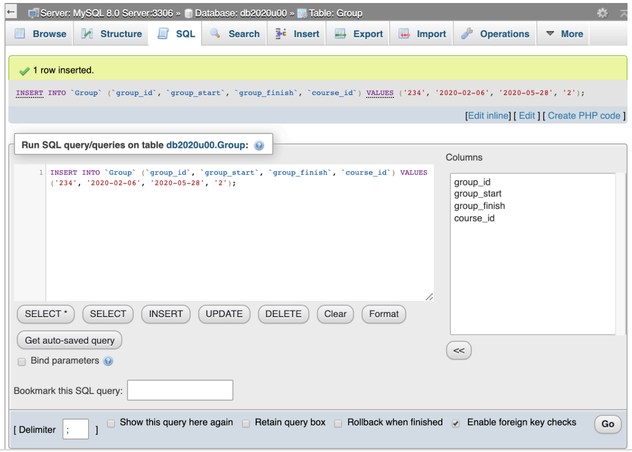
```
INSERT INTO `Courses` (`course_id`, `course_duration`, `course_cost`) VALUES ('3', '64', '25'), ('2', NULL, NULL);
```

4.4.1.2. Example for Groups table.


Server: MySQL 8.0 Server:3306 » Database: db2020u00 » Table: Group
Browse
Structure
SQL
Search
Insert
Export
Import
Operations
More
Go

Column	Type	Function	Null	Value
group_id	int			234
group_start	date		□	2020-02-06
group_finish	date		□	2020-05-28
course_id	int			✓ 2 3

☑ Ignore



✓ 1 row inserted.

```
INSERT INTO `Group` (`group_id`, `group_start`, `group_finish`, `course_id`) VALUES ('234', '2020-02-06', '2020-05-28', '2');
```

Run SQL query/queries on table db2020u00.Group:

```
INSERT INTO `Group` (`group_id`, `group_start`, `group_finish`, `course_id`) VALUES
('234', '2020-02-06', '2020-05-28', '2');
```

Columns: group_id, group_start, group_finish, course_id

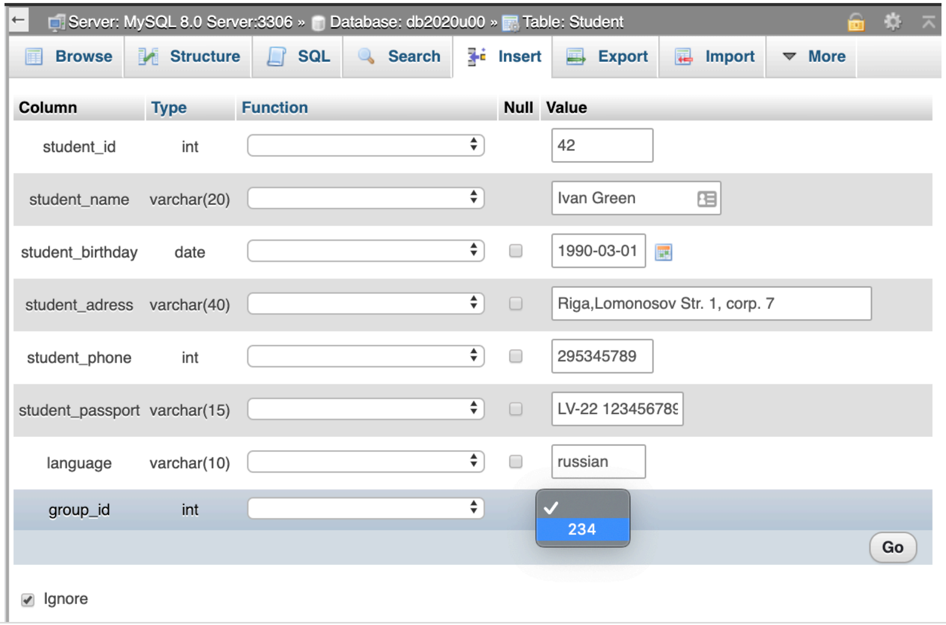
□ Bind parameters

Bookmark this SQL query:

[Delimiter ;] □ Show this query here again □ Retain query box □ Rollback when finished ☑ Enable foreign key checks

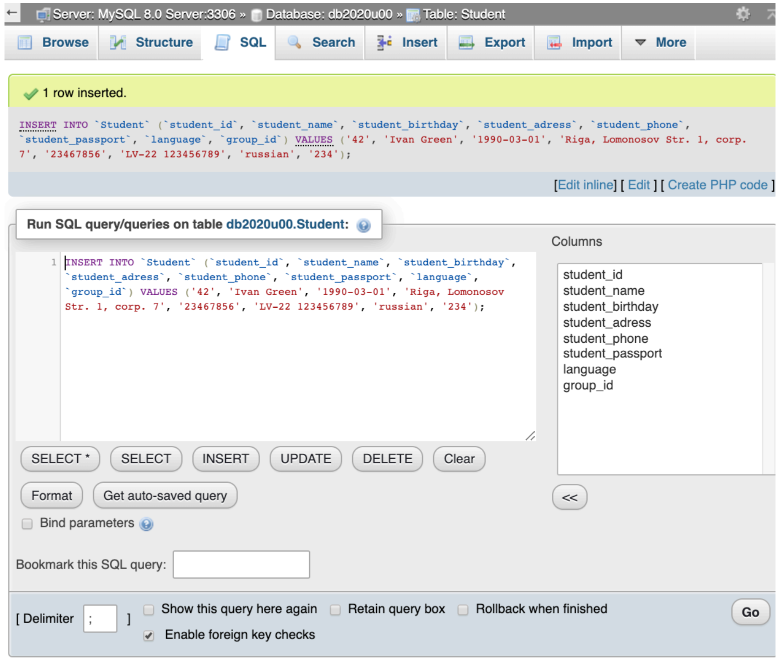
```
INSERT INTO `Groups` (`group_id`, `group_start`, `group_finish`, `course_id`) VALUES ('234', '2020-02-06', '2020-05-28', '2');
```

4.4.1.3. Example for Students table.


Server: MySQL 8.0 Server:3306 » Database: db2020u00 » Table: Student
Browse
Structure
SQL
Search
Insert
Export
Import
More
Go

Column	Type	Function	Null	Value
student_id	int			42
student_name	varchar(20)			Ivan Green
student_birthday	date		□	1990-03-01
student_adress	varchar(40)		□	Riga,Lomonosov Str. 1, corp. 7
student_phone	int		□	295345789
student_passport	varchar(15)		□	LV-22 12345678‹
language	varchar(10)		□	russian
group_id	int			✓ 234

☑ Ignore



✓ 1 row inserted.

```
INSERT INTO `Student` (`student_id`, `student_name`, `student_birthday`, `student_adress`, `student_phone`,
`student_passport`, `language`, `group_id`) VALUES ('42', 'Ivan Green', '1990-03-01', 'Riga, Lomonosov Str. 1, corp.
7', '23467856', 'LV-22 123456789', 'russian', '234');
```

Run SQL query/queries on table db2020u00.Student:

```
INSERT INTO `Student` (`student_id`, `student_name`, `student_birthday`,
`student_adress`, `student_phone`, `student_passport`, `language`,
`group_id`) VALUES ('42', 'Ivan Green', '1990-03-01', 'Riga, Lomonosov
Str. 1, corp. 7', '23467856', 'LV-22 123456789', 'russian', '234');
```

Columns: student_id, student_name, student_birthday, student_adress, student_phone, student_passport, language, group_id

□ Bind parameters

Bookmark this SQL query:

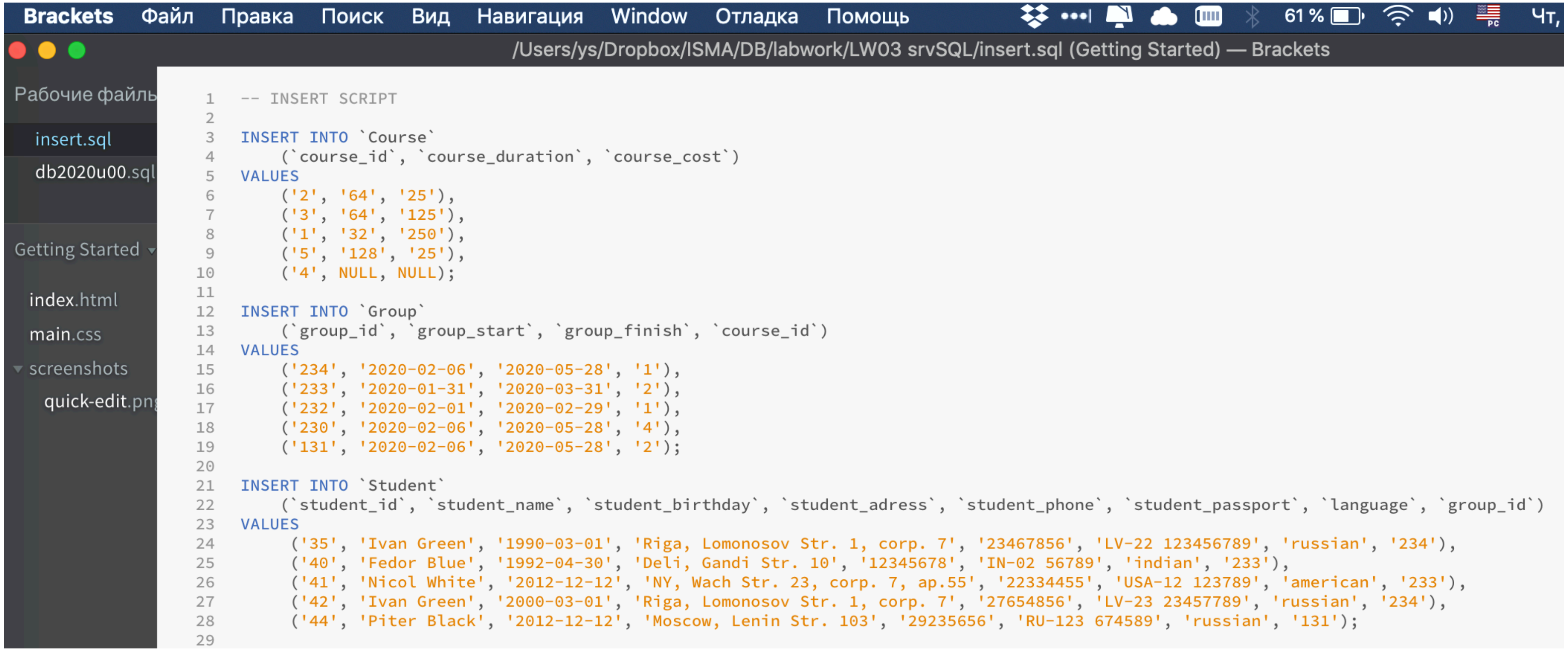
[Delimiter ;] □ Show this query here again □ Retain query box □ Rollback when finished ☑ Enable foreign key checks

```
INSERT INTO `Students` (`student_id`, `student_name`, `student_birthday`, `student_adress`, `student_phone`, `student_passport`, `language`, `group_id`)
VALUES ('42', 'Ivan Green', '1990-03-01', 'Riga, Lomonosov Str. 1, corp. 7', '23467856', 'LV-22 123456789', 'Russian', '234');
```

4.4.2. Create insert.sql database population file.

Instruction:

Open text editor for coding (example, Brackets) and create insert.sql file.
As prototype use command from p. 4.4.1.
Every table add minimum 5 string.
Add insert.sql code to Report



```sql
-- INSERT SCRIPT

INSERT INTO `Course`
    (`course_id`, `course_duration`, `course_cost`)
VALUES
    ('2', '64', '25'),
    ('3', '64', '125'),
    ('1', '32', '250'),
    ('5', '128', '25'),
    ('4', NULL, NULL);

INSERT INTO `Group`
    (`group_id`, `group_start`, `group_finish`, `course_id`)
VALUES
    ('234', '2020-02-06', '2020-05-28', '1'),
    ('233', '2020-01-31', '2020-03-31', '2'),
    ('232', '2020-02-01', '2020-02-29', '1'),
    ('230', '2020-02-06', '2020-05-28', '4'),
    ('131', '2020-02-06', '2020-05-28', '2');

INSERT INTO `Student`
    (`student_id`, `student_name`, `student_birthday`, `student_adress`, `student_phone`, `student_passport`, `language`, `group_id`)
VALUES
     ('35', 'Ivan Green', '1990-03-01', 'Riga, Lomonosov Str. 1, corp. 7', '23467856', 'LV-22 123456789', 'russian', '234'),
     ('40', 'Fedor Blue', '1992-04-30', 'Deli, Gandi Str. 10', '12345678', 'IN-02 56789', 'indian', '233'),
     ('41', 'Nicol White', '2012-12-12', 'NY, Wach Str. 23, corp. 7, ap.55', '22334455', 'USA-12 123789', 'american', '233'),
     ('42', 'Ivan Green', '2000-03-01', 'Riga, Lomonosov Str. 1, corp. 7', '27654856', 'LV-23 23457789', 'russian', '234'),
     ('44', 'Piter Black', '2012-12-12', 'Moscow, Lenin Str. 103', '29235656', 'RU-123 674589', 'russian', '131');
```

4.4.3. Import data from insert.sql file.

a) Empty tables: Structure → Check all → Empty (no FK check)

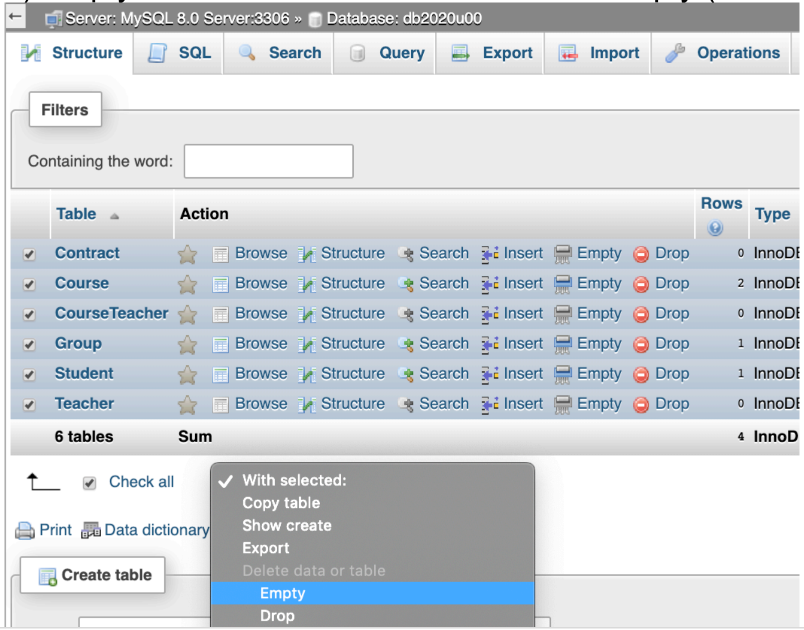
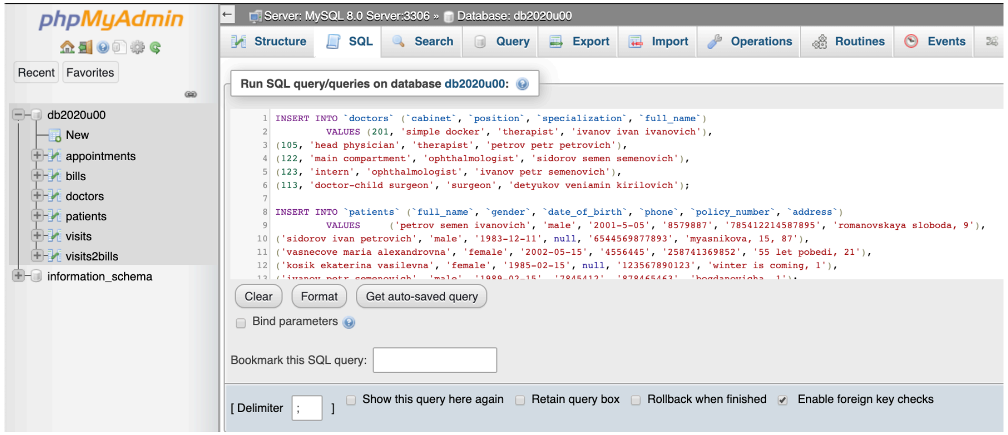


	Table ▲	Action						Rows	Type
☑	Contract	Browse	Structure	Search	Insert	Empty	Drop	0	InnoDE
☑	Course	Browse	Structure	Search	Insert	Empty	Drop	2	InnoDE
☑	CourseTeacher	Browse	Structure	Search	Insert	Empty	Drop	0	InnoDE
☑	Group	Browse	Structure	Search	Insert	Empty	Drop	1	InnoDE
☑	Student	Browse	Structure	Search	Insert	Empty	Drop	1	InnoDE
☑	Teacher	Browse	Structure	Search	Insert	Empty	Drop	0	InnoDE
	6 tables	Sum						4	InnoD

b) over phpMyAdmin → SQL



Run SQL query/queries on database db2020u00:

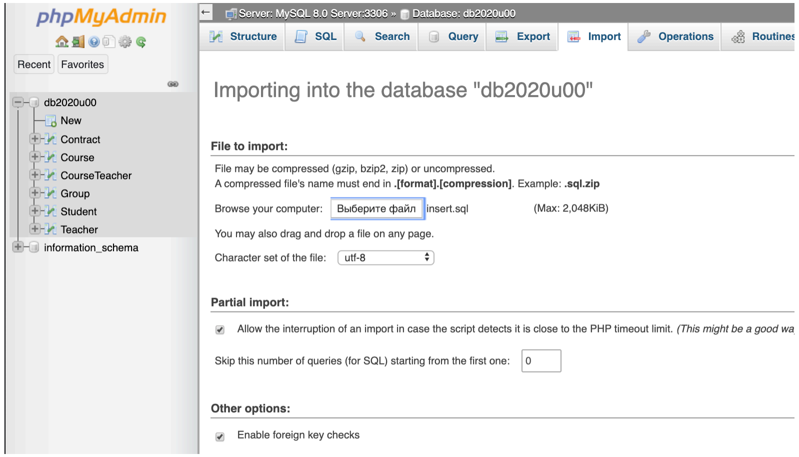
```
INSERT INTO `doctors` (`cabinet`, `position`, `specialization`, `full_name`)
        VALUES (201, 'simple docker', 'therapist', 'ivanov ivan ivanovich'),
(105, 'head physician', 'therapist', 'petrov petr petrovich'),
(122, 'main compartment', 'ophthalmologist', 'sidorov semen semenovich'),
(123, 'intern', 'ophthalmologist', 'ivanov petr semenovich'),
(113, 'doctor-child surgeon', 'surgeon', 'detyukov veniamin kirilovich');

INSERT INTO `patients` (`full_name`, `gender`, `date_of_birth`, `phone`, `policy_number`, `address`)
        VALUES     ('petrov semen ivanovich', 'male', '2001-5-05', '8579887', '785412214587895', 'romanovskaya sloboda, 9'),
('sidorov ivan petrovich', 'male', '1983-12-11', null, '6544569877893', 'myasnikova, 15, 87'),
('vasnecove maria alexandrovna', 'female', '2002-05-15', '4556445', '258741369852', '55 let pobedi, 21'),
('kosik ekaterina vasilevna', 'female', '1985-02-15', null, '123567890123', 'winter is coming, 1'),
('ivanov petr semenovich', 'male', '1989-02-15', '7845412', '878465463', 'bogdanovicha, 1');
```

□ Bind parameters

Bookmark this SQL query:

[Delimiter ;] □ Show this query here again □ Retain query box □ Rollback when finished ☑ Enable foreign key checks

c) over phpMyAdmin → Select database → Import → Select file



Importing into the database "db2020u00"

File to import:

File may be compressed (gzip, bzip2, zip) or uncompressed.
A compressed file's name must end in **.[format].[compression]**. Example: **.sql.zip**

Browse your computer: Выберите файл insert.sql (Max: 2,048KiB)

You may also drag and drop a file on any page.

Character set of the file: utf-8

Partial import:

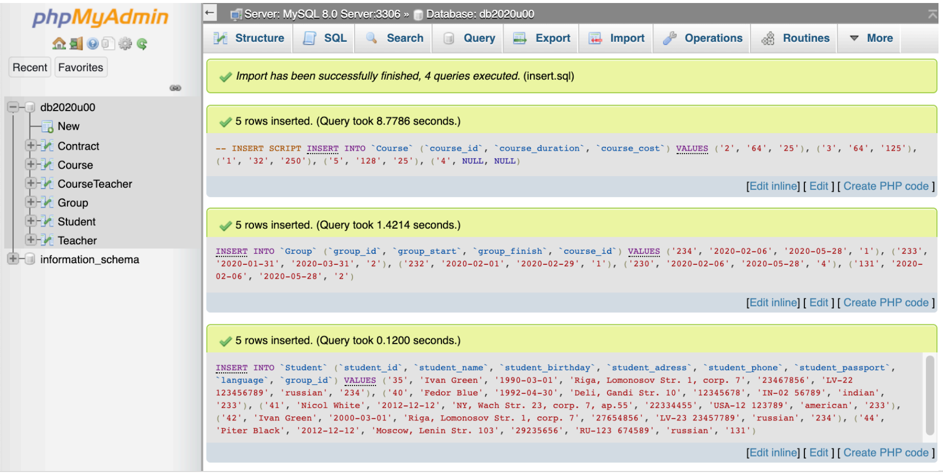
☑ Allow the interruption of an import in case the script detects it is close to the PHP timeout limit. *(This might be a good wa*

Skip this number of queries (for SQL) starting from the first one: 0

Other options:

☑ Enable foreign key checks

d) Result



✓ *Import has been successfully finished, 4 queries executed.* (insert.sql)

✓ 5 rows inserted. (Query took 8.7786 seconds.)

```
-- INSERT SCRIPT INSERT INTO `Course` (`course_id`, `course_duration`, `course_cost`) VALUES ('2', '64', '25'), ('3', '64', '125'),
('1', '32', '250'), ('5', '128', '25'), ('4', NULL, NULL)
```

[Edit inline] [Edit] [Create PHP code]

✓ 5 rows inserted. (Query took 1.4214 seconds.)

```
INSERT INTO `Group` (`group_id`, `group_start`, `group_finish`, `course_id`) VALUES ('234', '2020-02-06', '2020-05-28', '1'), ('233',
'2020-01-31', '2020-03-31', '2'), ('232', '2020-02-01', '2020-02-29', '1'), ('230', '2020-02-06', '2020-05-28', '4'), ('131', '2020-
02-06', '2020-05-28', '2')
```

[Edit inline] [Edit] [Create PHP code]

✓ 5 rows inserted. (Query took 0.1200 seconds.)

```
INSERT INTO `Student` (`student_id`, `student_name`, `student_birthday`, `student_adress`, `student_phone`, `student_passport`,
`language`, `group_id`) VALUES ('35', 'Ivan Green', '1990-03-01', 'Riga, Lomonosov Str. 1, corp. 7', '23467856', 'LV-22
123456789', 'russian', '234'), ('40', 'Fedor Blue', '1992-04-30', 'Deli, Gandi Str. 10', '12345678', 'IN-02 56789', 'indian',
'233'), ('41', 'Nicol White', '2012-12-12', 'NY, Wach Str. 23, corp. 7, ap.55', '22334455', 'USA-12 123789', 'american', '233'),
('42', 'Ivan Green', '2000-03-01', 'Riga, Lomonosov Str. 1, corp. 7', '27654856', 'LV-23 23457789', 'russian', '234'), ('44',
'Piter Black', '2012-12-12', 'Moscow, Lenin Str. 103', '29235656', 'RU-123 674589', 'russian', '131')
```

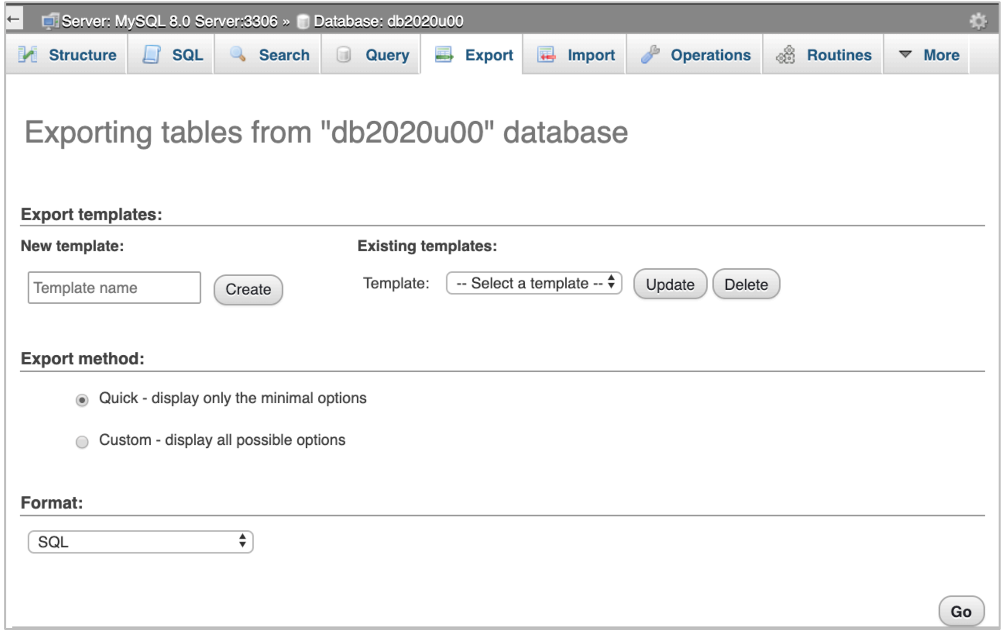
[Edit inline] [Edit] [Create PHP code]

4.5. Backup, Drop and Restore mySQL database on db4free.net

4.5.1. Backup database to backup.sql file.

Instruction:

- Select Export → Go.
- Save Backup.sql file
- Add backup.sql to Report



Exporting tables from "db2020u00" database

Export templates:

New template: Template name [Create]

Existing templates: Template: -- Select a template -- [Update] [Delete]

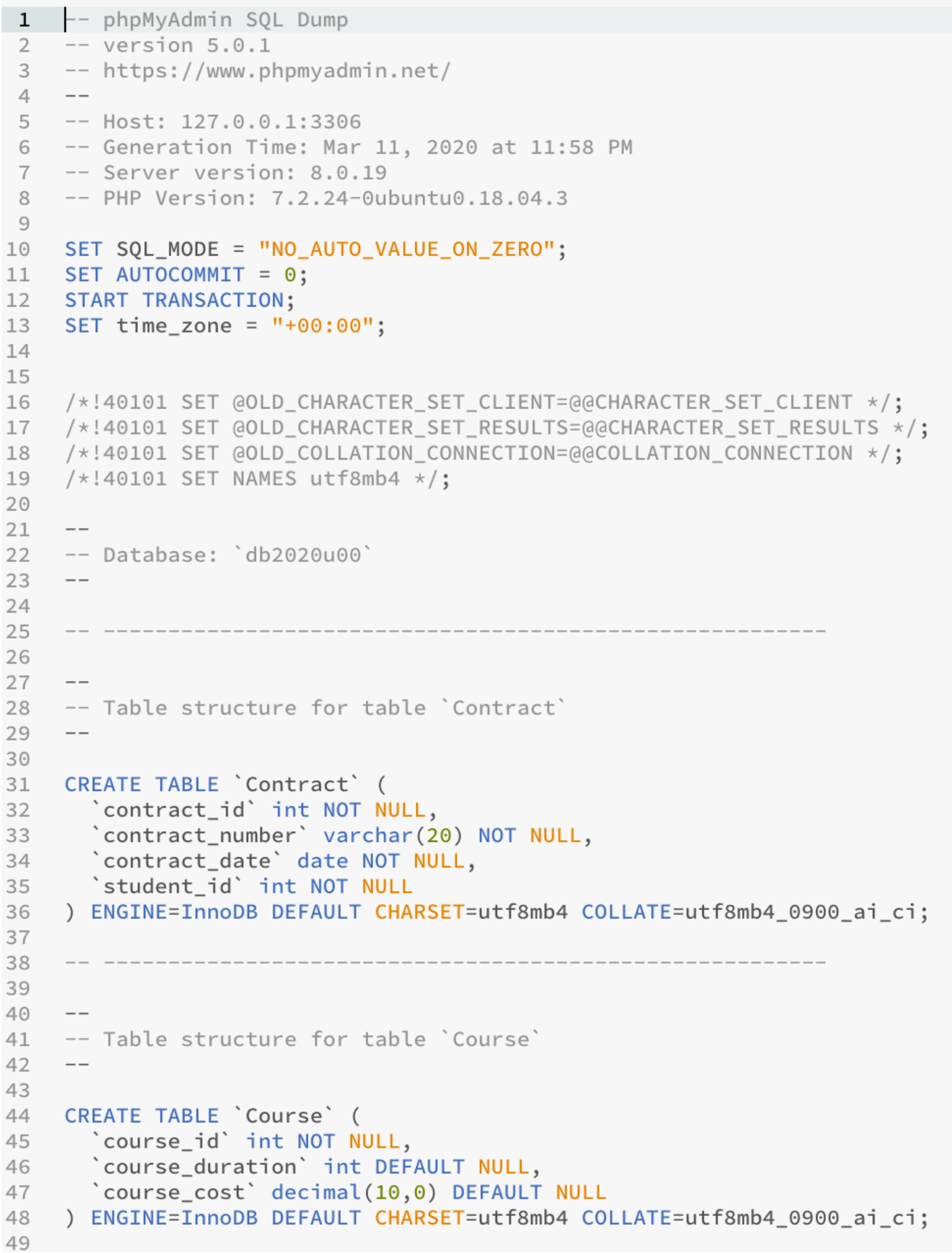
Export method:

● Quick - display only the minimal options

○ Custom - display all possible options

Format: SQL

[Go]



```
-- phpMyAdmin SQL Dump
-- version 5.0.1
-- https://www.phpmyadmin.net/
--
-- Host: 127.0.0.1:3306
-- Generation Time: Mar 11, 2020 at 11:58 PM
-- Server version: 8.0.19
-- PHP Version: 7.2.24-0ubuntu0.18.04.3

SET SQL_MODE = "NO_AUTO_VALUE_ON_ZERO";
SET AUTOCOMMIT = 0;
START TRANSACTION;
SET time_zone = "+00:00";


/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
/*!40101 SET NAMES utf8mb4 */;

--
-- Database: `db2020u00`
--

-- --------------------------------------------------------

--
-- Table structure for table `Contract`
--

CREATE TABLE `Contract` (
  `contract_id` int NOT NULL,
  `contract_number` varchar(20) NOT NULL,
  `contract_date` date NOT NULL,
  `student_id` int NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;

-- --------------------------------------------------------

--
-- Table structure for table `Course`
--

CREATE TABLE `Course` (
  `course_id` int NOT NULL,
  `course_duration` int DEFAULT NULL,
  `course_cost` decimal(10,0) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;

```

4.5.2. Drop database tables and data.

a) Structure → Check Tables → Drop

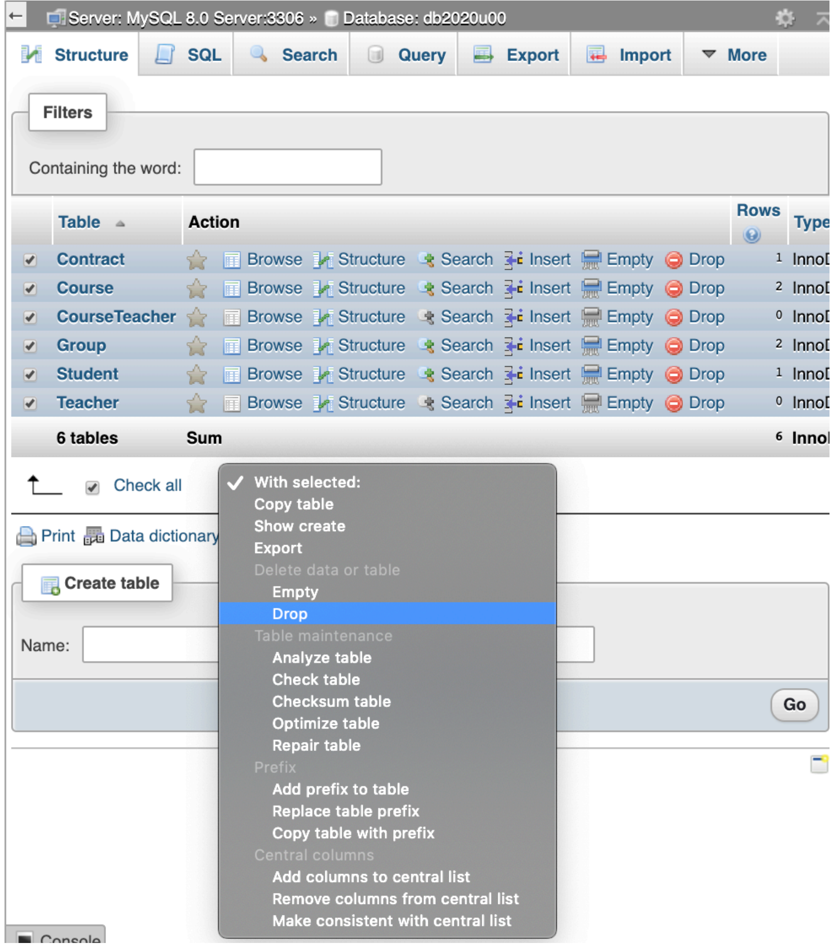
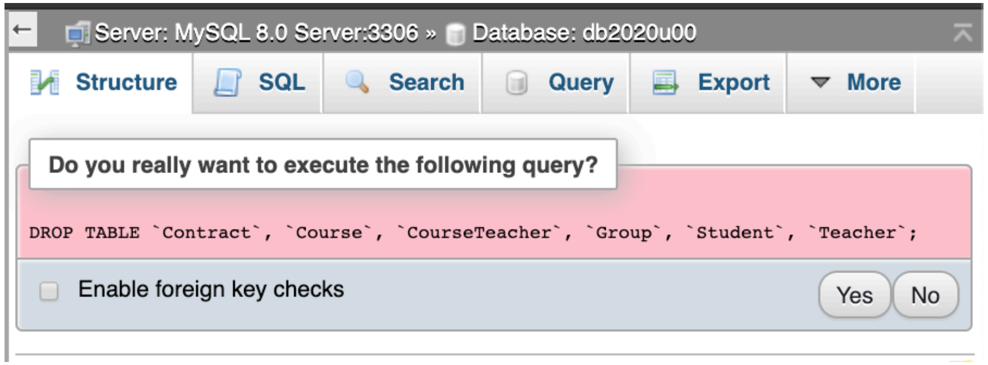


	Table	Action							Rows	Type
☑	Contract	☆	Browse	Structure	Search	Insert	Empty	Drop	1	Inno
☑	Course	☆	Browse	Structure	Search	Insert	Empty	Drop	2	Inno
☑	CourseTeacher	☆	Browse	Structure	Search	Insert	Empty	Drop	0	Inno
☑	Group	☆	Browse	Structure	Search	Insert	Empty	Drop	2	Inno
☑	Student	☆	Browse	Structure	Search	Insert	Empty	Drop	1	Inno
☑	Teacher	☆	Browse	Structure	Search	Insert	Empty	Drop	0	Inno
	6 tables	Sum							6	Inno

a)



Do you really want to execute the following query?

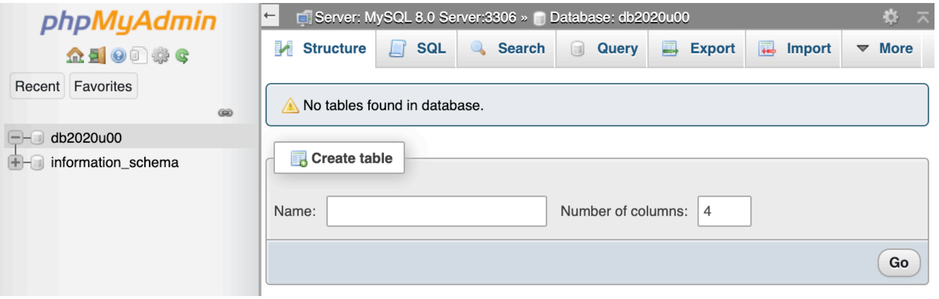
```
DROP TABLE `Contract`, `Course`, `CourseTeacher`, `Group`, `Student`, `Teacher`;
```

□ Enable foreign key checks

b)

4.5.3. Restore database from backup.sql file.

a) Empty database

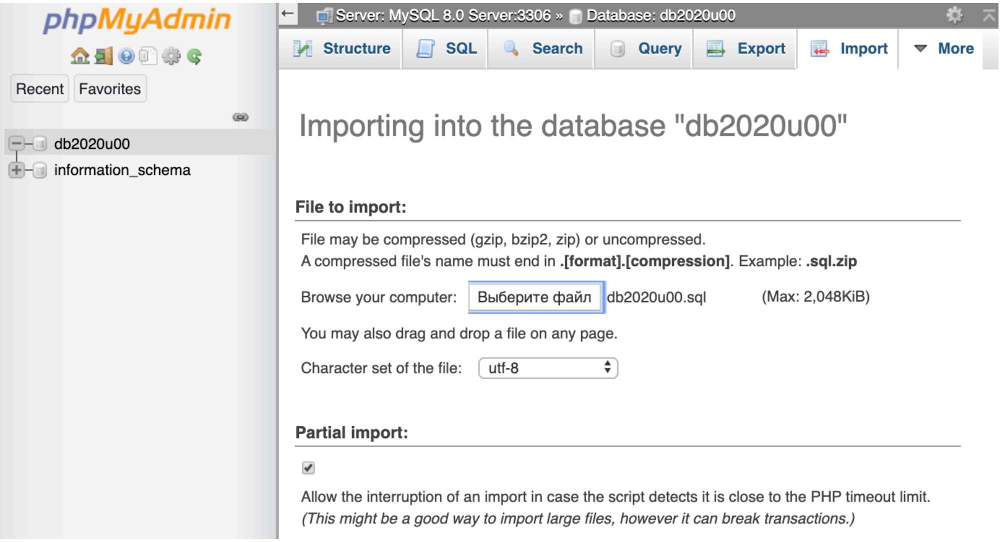


No tables found in database.

Name:

Number of columns: 4

b) Select database → Import → Select backup.sql file → Go



Importing into the database "db2020u00"

File to import:

File may be compressed (gzip, bzip2, zip) or uncompressed.
A compressed file's name must end in **.[format].[compression]**. Example: **.sql.zip**

Browse your computer: db2020u00.sql (Max: 2,048KiB)

You may also drag and drop a file on any page.

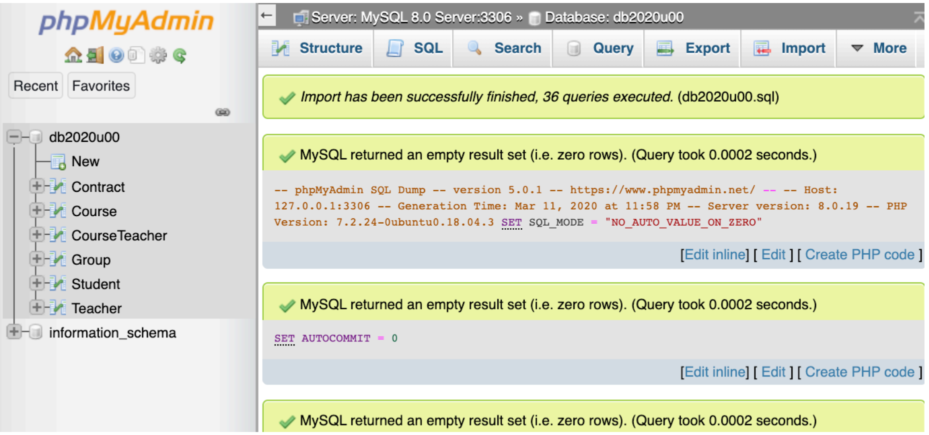
Character set of the file: utf-8

Partial import:

☑

Allow the interruption of an import in case the script detects it is close to the PHP timeout limit. *(This might be a good way to import large files, however it can break transactions.)*

c) Result



Import has been successfully finished, 36 queries executed. (db2020u00.sql)

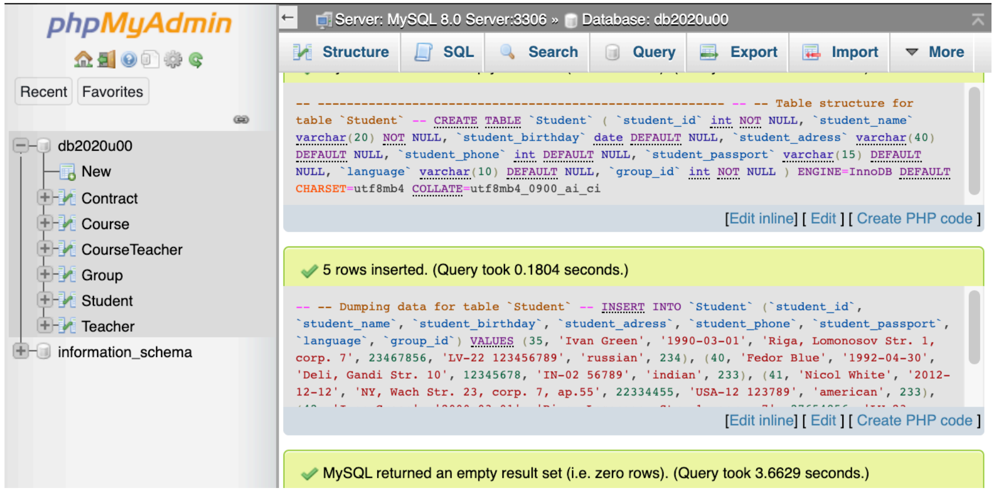
MySQL returned an empty result set (i.e. zero rows). (Query took 0.0002 seconds.)

```
-- phpMyAdmin SQL Dump -- version 5.0.1 -- https://www.phpmyadmin.net/ -- -- Host:
127.0.0.1:3306 -- Generation Time: Mar 11, 2020 at 11:58 PM -- Server version: 8.0.19 -- PHP
Version: 7.2.24-0ubuntu0.18.04.3 SET SQL_MODE = "NO_AUTO_VALUE_ON_ZERO"
```

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0002 seconds.)

```
SET AUTOCOMMIT = 0
```

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0002 seconds.)



```
-- ------------------------------------------------------- -- -- Table structure for
table `Student` -- CREATE TABLE `Student` ( `student_id` int NOT NULL, `student_name`
varchar(20) NOT NULL, `student_birthday` date DEFAULT NULL, `student_adress` varchar(40)
DEFAULT NULL, `student_phone` int DEFAULT NULL, `student_passport` varchar(15) DEFAULT
NULL, `language` varchar(10) DEFAULT NULL, `group_id` int NOT NULL ) ENGINE=InnoDB DEFAULT
CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

5 rows inserted. (Query took 0.1804 seconds.)

```
-- -- Dumping data for table `Student` -- INSERT INTO `Student` (`student_id`,
`student_name`, `student_birthday`, `student_adress`, `student_phone`, `student_passport`,
`language`, `group_id`) VALUES (35, 'Ivan Green', '1990-03-01', 'Riga, Lomonosov Str. 1,
corp. 7', 23467856, 'LV-22 123456789', 'russian', 234), (40, 'Fedor Blue', '1992-04-30',
'Deli, Gandi Str. 10', 12345678, 'IN-02 56789', 'indian', 233), (41, 'Nicol White', '2012-
12-12', 'NY, Wach Str. 23, corp. 7, ap.55', 22334455, 'USA-12 123789', 'american', 233),
```

MySQL returned an empty result set (i.e. zero rows). (Query took 3.6629 seconds.)