

# Basic Server-Side Application Development for PostgreSQL 12



## Student's Guide

### Setting up the Workspace

If you take the course at a training center, your workspace will be prepared for you.

In the case of self-study, you have to install a virtualization platform (choose [VirtualBox](#) 6.1 or higher) and then download and import a virtual machine: <https://edu.postgrespro.com/DEV1-student-12-en.ova>. The virtual machine at this location is regularly updated to reflect any changes in the training course.

Note that you can only install the VM on a computer with a 64-bit operating system.

The VM runs 64-bit Xubuntu 20.04 as its guest OS, which is already configured for taking the course. You will need at least 1 GB of RAM. When using pgAdmin 4, you should increase RAM up to 1.5–2 GB.

Log in to the system on behalf of the student user (for all users, passwords are the same as their usernames).

The Firefox browser of the VM is set up to display local documentation in English. You do not have to be online to complete the course.

To manage files, you can use both the command line (`ls`, `pwd`, `cd`, ...) and GUI tools (`mc`, Thunar file manager). To edit files, you can choose from several editors pre-installed on the system: `vim`, `nano`, `gedit`, `mousepad`.

## Course Handouts

The latest version of course handouts is available at <https://edu.postgrespro.com/DEV1-handouts-12-en.zip>.

If you would like to download these materials onto the VM, you can click the “Get DEV1 handouts” icon on the Desktop or run the `get_handouts.sh` script in the Home directory of the student user. All the files will be installed into the `dev1` directory.

If required, you can find the previous versions of the handouts at <https://edu.postgrespro.com/>.

The main course handouts are available in two formats (only the layout is different, the content is absolutely the same):

- html is good for browsing and copying code snippets;
- pdf is more convenient for printing.

These handouts include lecture slides, demos, and keys to practical assignments.

Apart from the main handouts, the course also includes some reference materials:

- the list of the main functions and data types (`datatypes.pdf`);
- a chart of the main tables of the system catalog, with `psql` commands (`catalogs.pdf`);
- basic Unix commands (`unix_commands.pdf`).

All commands in demonstrations and answer keys start with a prompt. We use the following conventions:

- `user$`

A prompt that ends with a dollar sign denotes a Unix command; it contains the name of the OS user that will run this command. For example, “`student$`” means that the command has to be executed by the student user.

To run the command on behalf of a different user (such as `postgres`), enter:

```
sudo -u postgres command
```

But it is usually more convenient to open another terminal, run `sudo su postgres` once, and then run all commands in this terminal on behalf of the `postgres` user.

- `=>`

An arrow prompt denotes a command entered in `psql`. If `psql` is not open yet, first run the `psql` command on behalf of the student OS user.

## Self-Study

If you are taking the course on your own, you should study the topics as they follow, lecture by lecture.

In-class course videos will be available at <https://postgrespro.com/education/courses/DEV1>.

Course materials can be used both in addition to the videos and independently. Apart from the slides, presentations also contain slide notes; they provide enough information to understand the topic. Besides, there are demonstrations for almost each lecture. Always try out the commands provided in these demos.

Doing practical assignments is an important part of the course: you cannot learn programming without writing code. It's advisable to always look through the provided solutions: they can contain some additional information, which is not covered in presentations and demos. But do it only after you have completed the task on your own.

The course includes a series of practical assignments based on the Bookstore sample application: from designing a database schema to creating tables, views, functions, and triggers. To get a fully functional application at the end of the course, you have to complete all the assignments marked with the book tag—it is the basic minimum. But we recommend completing additional practical assignments, too.

While taking the course, use the provided reference materials. If you are not familiar with the Unix OS, take a look at its main commands. The system catalog chart can help you understand the database structure and use `psql` to get the descriptions of tables, views, and other objects. The list of the main data types and functions can be used as a “cheat sheet,” alongside with regular documentation.

Good luck, and enjoy your learning journey!

We'll be happy to get your feedback at [edu@postgrespro.ru](mailto:edu@postgrespro.ru).