

LW-05EN. SQL: DATA RETRIEVING EXERCISES (SELECT).

1. PRACTICE TARGET.

Learn how to create SQL Select Statements.

2. PRACTICE ASSIGNMENT.

2.1. Register on SQL Exercises Site (sql-ex.ru).

2.2. Repeat Example of Exercise and Incorrect Answer Analysis.

2.3. Fully complete any 31 Exercises on sql-ex.ru Site in Learning stage, choosing DBMS Section.

2.4. Make Your Results Screenshots.

3. PRACTICE REPORT.

The report is provided electronic form with Report Blank Form.

The report includes:

3.1. Screenshot “Completed Exercises”.

3.2. Screenshot “Personal data”.

3.3. Screenshot “Rating and solved exercises”.

3.4. Screenshot “List of tasks solved”.

RATING FORMATION.

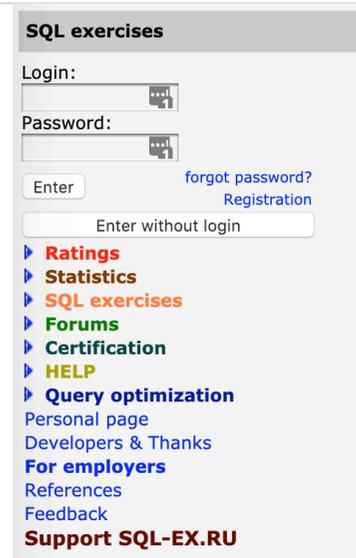
Plus 10 points to final grade, if correctly made all assignments.

4. PRACTICE GUIDELINES.

4.1. REGISTER ON SQL EXERCISES SITE (SQL-EX.RU).

4.1.1. Go to in URL:

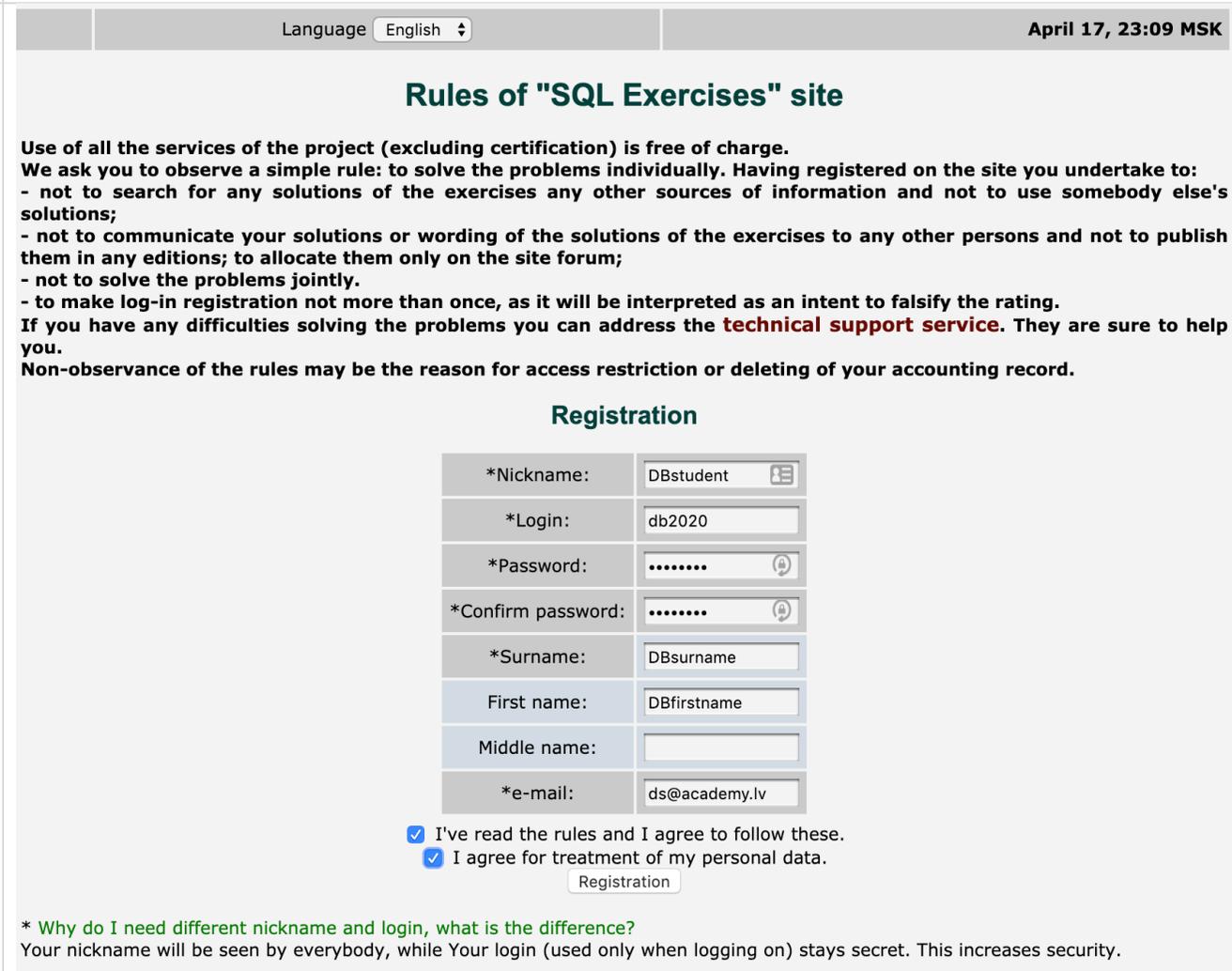
<http://www.sql-ex.ru/register.php>



The screenshot shows the left sidebar of the SQL exercises site. It features a 'SQL exercises' header, a login section with fields for 'Login:' and 'Password:', and an 'Enter' button. There are links for 'forgot password?' and 'Registration'. Below this is a search bar labeled 'Enter without login'. A list of navigation links includes: Ratings, Statistics, SQL exercises, Forums, Certification, HELP, Query optimization, Personal page, Developers & Thanks, For employers, References, Feedback, and Support SQL-EX.RU.

4.1.2. Select Language and complete Registration Form - fill in *-fields.

Use real Surname and First name



The screenshot shows the registration page of the SQL exercises site. At the top, there is a language selector set to 'English' and a timestamp 'April 17, 23:09 MSK'. The main heading is 'Rules of "SQL Exercises" site'. Below this, there is a section titled 'Use of all the services of the project (excluding certification) is free of charge.' followed by a list of rules. The registration form includes fields for: *Nickname (DBstudent), *Login (db2020), *Password (masked), *Confirm password (masked), *Surname (DBsurname), First name (DBfirstname), Middle name (empty), and *e-mail (ds@academy.lv). There are two checked checkboxes: 'I've read the rules and I agree to follow these.' and 'I agree for treatment of my personal data.' A 'Registration' button is at the bottom. A note at the bottom explains the difference between nickname and login.

Language English April 17, 23:09 MSK

Rules of "SQL Exercises" site

Use of all the services of the project (excluding certification) is free of charge.
We ask you to observe a simple rule: to solve the problems individually. Having registered on the site you undertake to:

- not to search for any solutions of the exercises any other sources of information and not to use somebody else's solutions;
- not to communicate your solutions or wording of the solutions of the exercises to any other persons and not to publish them in any editions; to allocate them only on the site forum;
- not to solve the problems jointly.

- to make log-in registration not more than once, as it will be interpreted as an intent to falsify the rating.
If you have any difficulties solving the problems you can address the **technical support service**. They are sure to help you.
Non-observance of the rules may be the reason for access restriction or deleting of your accounting record.

Registration

*Nickname:	DBstudent
*Login:	db2020
*Password:
*Confirm password:
*Surname:	DBsurname
First name:	DBfirstname
Middle name:	
*e-mail:	ds@academy.lv

I've read the rules and I agree to follow these.
 I agree for treatment of my personal data.

Registration

* Why do I need different nickname and login, what is the difference?
Your nickname will be seen by everybody, while Your login (used only when logging on) stays secret. This increases security.

4.1.3. Confirmation Result

SQL exercises Language English April 17, 23:12 MSK DBstudent

▶ Ratings
▶ Statistics
▶ SQL exercises
▶ Forums
▶ Certification
▶ HELP
▶ Query optimization
Personal page
Developers & Thanks
For employers
References
Feedback
Support SQL-EX.RU

Congratulations!
You are now a registered user in our remote education system.
Any time You shall visit our site again, type Your login and password to enter the system as registered user.

To begin please choose the exercises You are interested in:

SELECT exercises (learning stage)
SELECT exercises (learning stage, choose DBMS)
SELECT exercises (rating stages)
DML exercises

4.1.4. Logout from SQL Exercises site: select  button on right-up corner after you Username

April 17, 23:36 MSK

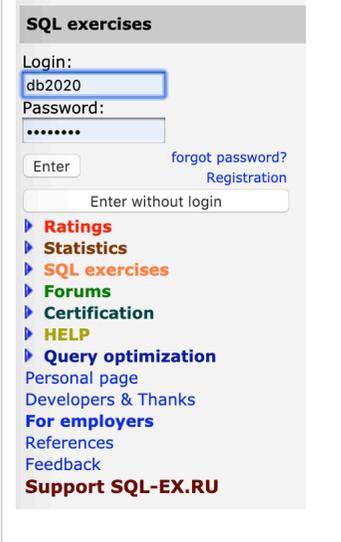
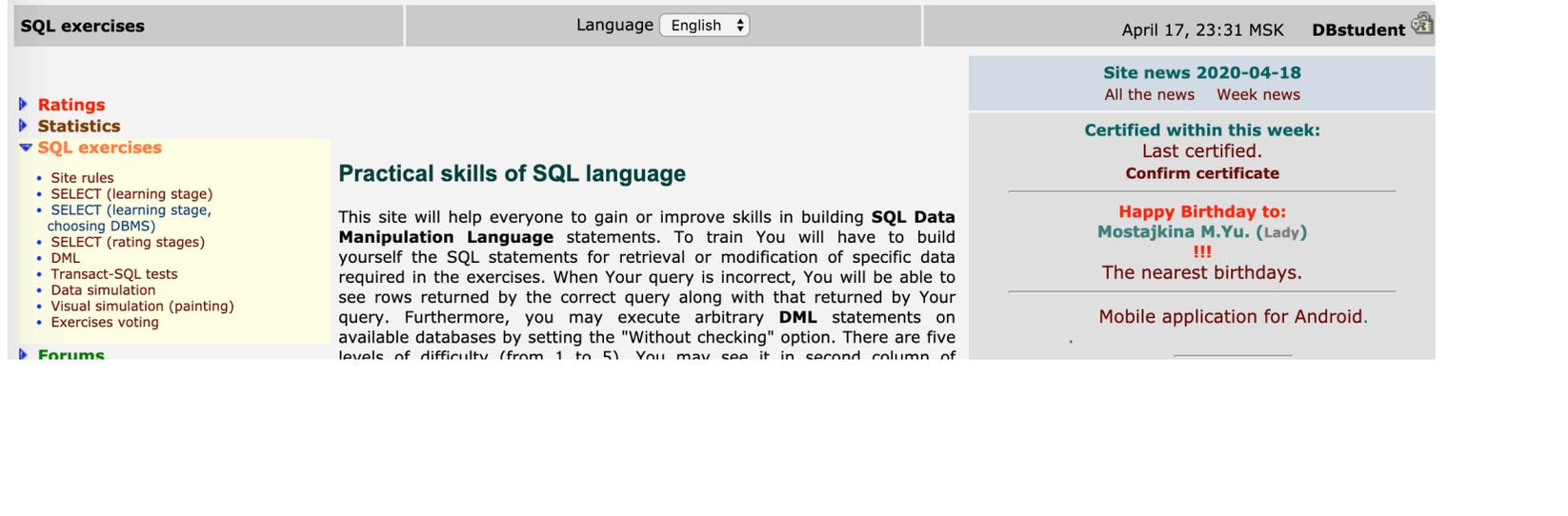
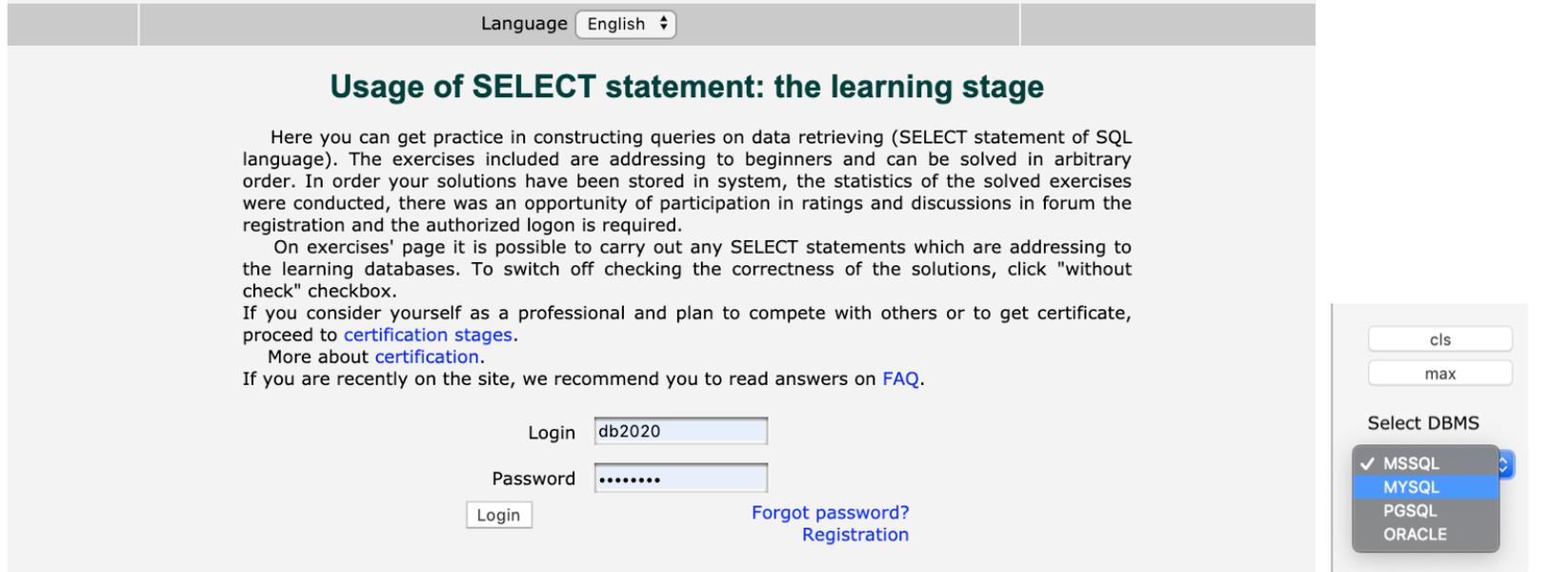
DBstudent 

4.2. REPEAT EXAMPLE OF EXERCISE AND INCORRECT ANSWER ANALYSIS

4.2.1. EXERCISE EXECUTION PLAN:

1. Login to the Site and select a language (RU, EN)
2. On Left Site Menu select a **SQL exercises** point, select a (**SELECT Learning stage, choosing DBMS**) and select a DBMS type (MySQL on right-down corner)
3. Select any Task Nr (from 1 to 190).
The second numbers in brackets (1-4) indicate the level of exercise (low-high)
4. Read a current database Short description (top on page)
5. Read the Exercise (left on page)
6. Enter & Run your Query (right on page)
7. Check the Result (Correct, Incorrect)
8. If necessary, analyze, correct and repeat your Query (4-7 steps):
 - 8a. press "Show correct result";
 - 8b. see the current Database Schema;
 - 8c. read the Help topics;
 - 8d. read the Hints for task.
9. Completed Exercises (marked as Nr Ok)

4.2.2. STEP BY STEP PROCESS:

<p>1. Login to sql-ex.ru</p>	<p>2. Select a DML section (on Left Menu open roll-down SQL exercises and select Select (learning stage, choosing DBMS)</p>
	
<p>1+2. Short way. Go to on URL and Logon to site and Select DBMS MySQL (on right-down corner)</p>	

3. Select a Task Nr
4. Read DB descript
5. Read the Exercise
6. Enter& Run Query
7. Check the Result
(Correct or Incorrect)

SQL exercises Language English April 22, 00:40 MSK DBstudent

Short database description "Computer firm" 4

The database scheme consists of four tables:

- Product(maker, model, type)
- PC(code, model, speed, ram, hd, cd, price)
- Laptop(code, model, speed, ram, hd, screen, price)
- Printer(code, model, color, type, price)

The Product table contains data on the maker, model number, and type of product ('PC', 'Laptop', or 'Printer'). It is assumed that model numbers in the Product table are unique for all makers and product types. Each personal computer in the PC table is unambiguously identified by a unique code, and is additionally characterized by its model (foreign key referring to the Product table), processor speed (in MHz) – speed field, RAM capacity (in Mb) - ram, hard disk drive capacity (in Gb) – hd, CD-ROM speed (e.g, '4x') - cd, and its price. The Laptop table is similar to the PC table, except that instead of the CD-ROM speed, it contains the screen size (in inches) – screen. For each printer model in the Printer table, its output type ('y' for color and 'n' for monochrome) – color field, printing technology ('Laser', 'Jet', or 'Matrix') – type, and price are specified.

Database Schema 8b 3

Exercise: 1 (Serge I: 2002-09-30) 5

Find the model number, speed and hard drive capacity for all the PCs with prices below \$500.
Result set: model, speed, hd.

Help topics:
Simple SELECT statement 8c

Current rating
rpos login score 8d

Type a query 6

```
SELECT * FROM Pc
WHERE price < 500;
```

Run (ctrl + enter) Show correct result 8a

Without checking

Wrong 7

* Wrong number of columns(7, 3)

code	model	speed	ram	hd	cd	price	model	speed	hd
10	1260	500	32	10.0	12x	350.0000	1232	450	10.0
7	1232	500	32	10.0	12x	400.0000	1232	450	8.0
8	1232	450	64	8.0	24x	350.0000	1232	500	10.0
9	1232	450	32	10.0	24x	350.0000	1260	500	10.0

8. If necessary, analyze, correct and repeat your Query

Error #1 "Wrong number of columns (7, 3)". This error occurred because you must use concrete data fields: model, speed and hd for output. Note. The real system will not notice such errors, since the data is **believable**.

Error #2 Error in quert code: (MySQL: 1064 syntax) →

This error occurred because you use not right syntax of SQL Select Statement.

You need to use syntax with coma between field names:

```
SELECT model, speed, hd
FROM Pc
WHERE price < 500;
```

Type a query

```
SELECT
model speed hd
FROM
Pc
WHERE
price < 500;
```

Run (ctrl + enter) Show correct result D

Without checking

Error in query. Code: ((MYSQ): 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 'hd FROM Pc WHERE price < 500' at line 2

9. Completed Exercise.
You see **Right Result** and marked exercises
1(1) Ok

SQL exercises Language English April 22, 00:40 MSK DBstudent

Short database description "Computer firm"

The database scheme consists of four tables:
Product(maker, model, type)
PC(code, model, speed, ram, hd, cd, price)
Laptop(code, model, speed, ram, hd, screen, price)
Printer(code, model, color, type, price)

The Product table contains data on the maker, model number, and type of product ('PC', 'Laptop', or 'Printer'). It is assumed that model numbers in the Product table are unique for all makers and product types. Each personal computer in the PC table is unambiguously identified by a unique code, and is additionally characterized by its model (foreign key referring to the Product table), processor speed (in MHz) – speed field, RAM capacity (in Mb) - ram, hard disk drive capacity (in Gb) – hd, CD-ROM speed (e.g, '4x') - cd, and its price. The Laptop table is similar to the PC table, except that instead of the CD-ROM speed, it contains the screen size (in inches) – screen. For each printer model in the Printer table, its output type ('y' for color and 'n' for monochrome) – color field, printing technology ('Laser', 'Jet', or 'Matrix') – type, and price are specified.

Database Schema

Exercise: 1 (2-09-30)

Find the model number, speed and hd capacity for all the PCs with prices below \$500.
Result set: model, speed, hd.

Help topics:
[Simple SELECT statement](#)

Discuss the exercise on [forum](#).
Analyze [execution plan](#) of Your so

Current rating
rpos login score

Jason Statham Bought And Sold House

Type a query

```
SELECT model, speed, hd
FROM Pc
WHERE price < 500;
```

Run (ctrl + enter) Show correct result
 Without checking

Right

model	speed	hd
1232	450	10
1232	450	8
1232	500	10
1260	500	10

4.3. FULLY COMPLETE 31 EXERCISES ON SQL-EX.RU SITE IN DML SECTION.

4.3.1. You need to complete the any 31 (or more) of 190 exercises in DML Section of site sql-ex.ru.

4.4. MAKE YOUR RESULTS SCREENSHOTS.

4.4.1. Select roll-down “Completed Exercises” and make **Screenshot 1a, 1b** and more.

The screenshot shows the 'SQL exercises' page. A dropdown menu is open, listing exercises 1 through 32. Exercise 17 is selected, indicated by a checkmark and a right-pointing arrow. The page content includes a 'Short database description', a 'Database Schema' link, and an 'Exercise: 17' section with a description and a 'Result set'.

4.4.2. Select “Personal Page” on left menu, after Select “Personal data” Tab and make **Screenshot 2**.

The screenshot shows the left navigation menu with the following items: Ratings, Statistics, SQL exercises, Forums, Certification, HELP, Query optimization, Personal page (highlighted), Developers & Thanks, For employers, References, Feedback, and Support SQL-EX.RU.

The screenshot shows the 'Personal page' with a header for 'Language English' and 'April 21, 17:34 MSK DBstudent'. The main heading is 'Personal page' with sub-headings: 'Personal data | Photo | Rating and solved exercises | List of tasks solved'. Below this is a form to change personal data with fields for: *old password, *Nickname (DBstudent), *Login (db2020), *Password, *Confirm password, *Surname (DBsurname), First name (DBfirstname), Middle name, *e-mail (ds@academy.lv), and a checkbox for 'Don\'t show me queries for exercises solved earlier'. A 'Change' button is at the bottom.

4.4.3. Select “Rating and solved exercises” Tab and make **Screenshot 3**.

Language English April 22, 00:21 MSK DBstudent

Personal page

[Personal data](#) | [Photo](#) | **[Rating and solved exercises](#)** | [List of tasks solved](#)

Your rating: 9072.  You can place a **button** with Your current rating position on Your site.. See button variants and get HTML code [on this page](#).

Involved in rating: 12527. 

Statistics on SELECT exercises:

Total number of exercises that have been solved: 0

Statistics on DML exercises:

DB: Computer firm
Exercises: (Total: 2)
1*, 2*

Total number of exercises that have been solved: 2

! The exercises which You've discussed on forum are marked with black color.
Sign (🔔) shows if new messages were posted on forum.

4.4.4. Select “List of tasks solved” Tab and make **Screenshot 4a, 4b** and more with Exercises of learning stage (SELECT).

Language English April 22, 00:18 MSK yursha2

Personal page

[Personal data](#) | [Photo](#) | [Rating and solved exercises](#) | **[List of tasks solved](#)**

Rating exercises (SELECT)

Rating exercises (DML)

Exercises of learning stage (SELECT)

- § Find the model number, speed and hard drive capacity for all the PCs with prices below \$500. Result...
- § List all printer makers. Result set: maker.
- § Find the model number, RAM and screen size of the laptops with prices over \$1000.
- § Find all records from the Printer table containing data about color printers.
- § Find the model number, speed and hard drive capacity of PCs cheaper than \$600 having a 12x or a 24x ...
- § For each maker producing laptops with a hard drive capacity of 10 Gb or higher, find the speed of su...
- § Find the makers of PCs with a processor speed of 450 MHz or more. Result set: maker.
- § Find the printer models having the highest price. Result set: model, price.
- § Find out the average speed of PCs.
- § Find out the average speed of the laptops priced over \$1000.
- § The average screen size for each laptop maker.
- § The maximal PC price for each maker.
- § For each value of PC speed that exceeds 600 MHz, find out the average price of PCs with identical sp...