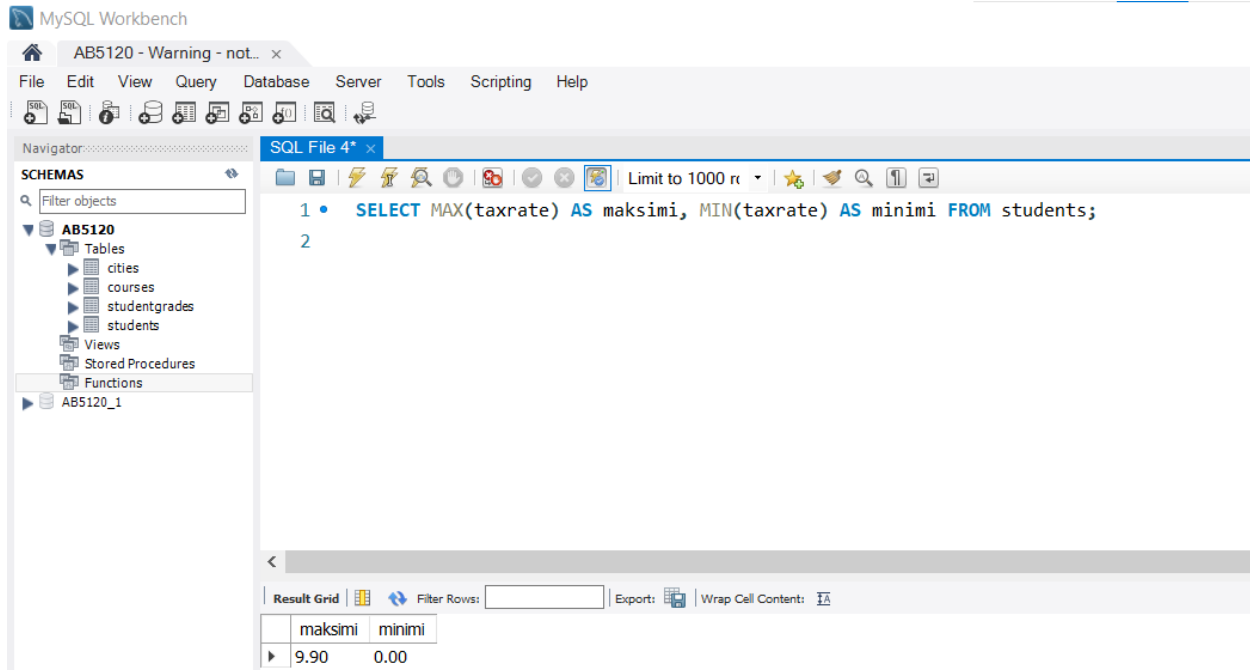


# Tietokannat HARJOITUS 5

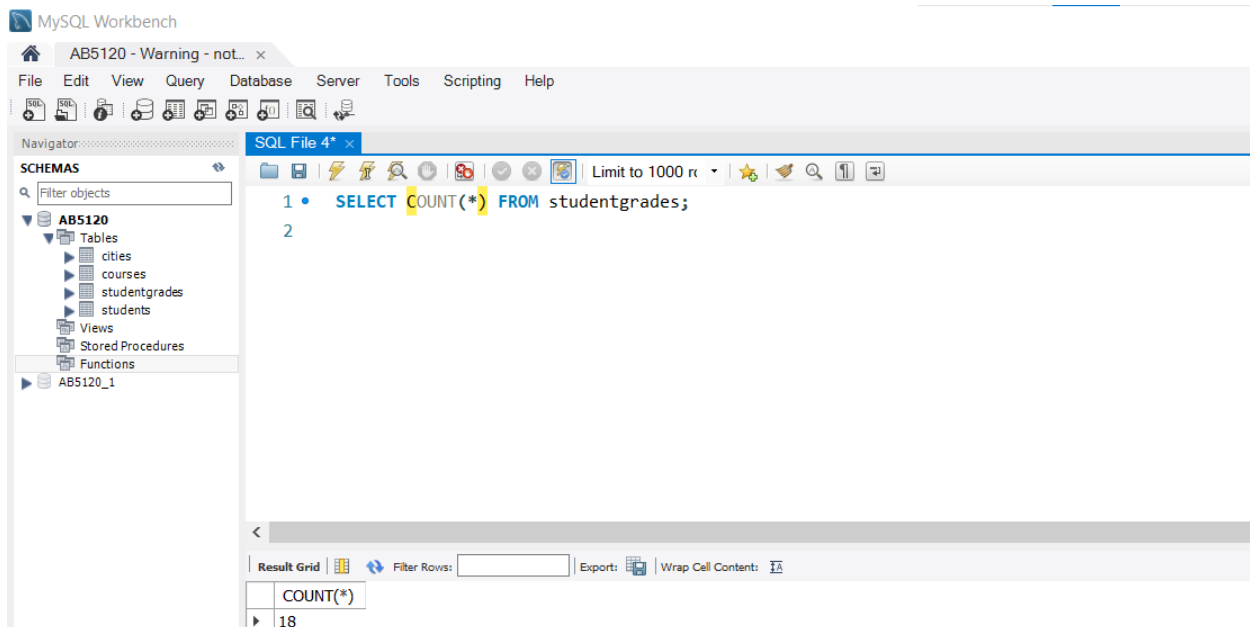
## 5.1.A



The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' tree with 'AB5120' selected, showing tables like 'cities', 'courses', 'studentgrades', and 'students'. The main editor window contains a SQL query: `SELECT MAX(taxrate) AS maksimi, MIN(taxrate) AS minimi FROM students;`. Below the query, the 'Result Grid' shows the results of the query.

	maksimi	minimi
1	9.90	0.00

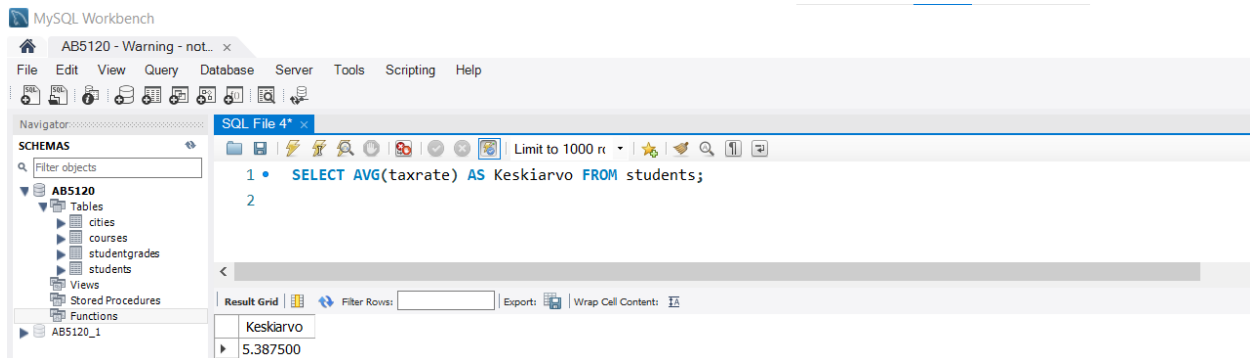
## 5.1.B



The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' tree with 'AB5120' selected, showing tables like 'cities', 'courses', 'studentgrades', and 'students'. The main editor window contains a SQL query: `SELECT COUNT(*) FROM studentgrades;`. Below the query, the 'Result Grid' shows the results of the query.

	COUNT(*)
1	18

## 5.1.C



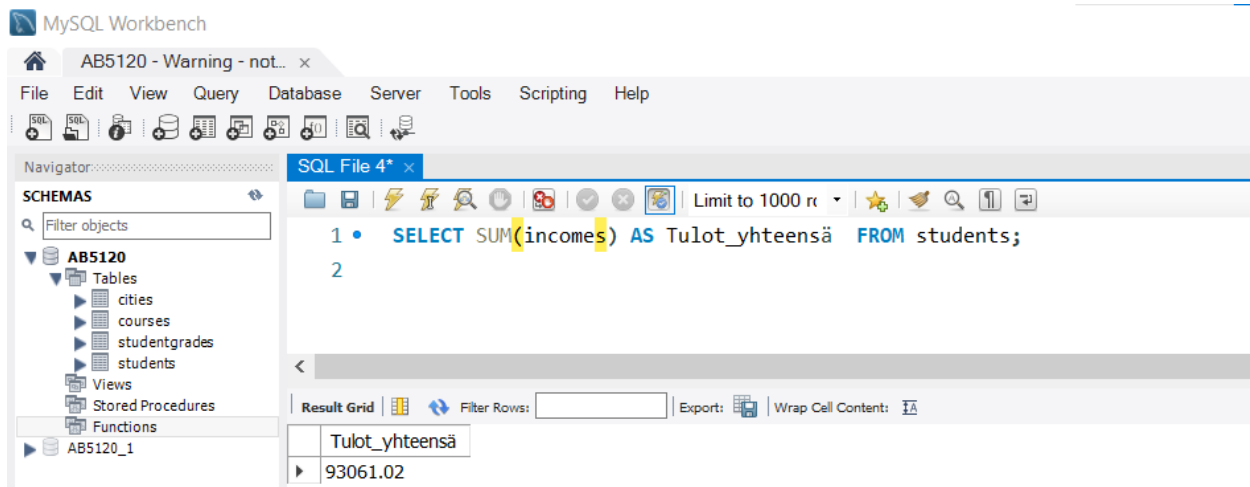
MySQL Workbench interface showing a query in the SQL File 4\* editor. The query is:

```
1 • SELECT AVG(taxrate) AS Keskiarvo FROM students;
```

The result grid shows the following data:

Keskiarvo
5.387500

## 5.1.D



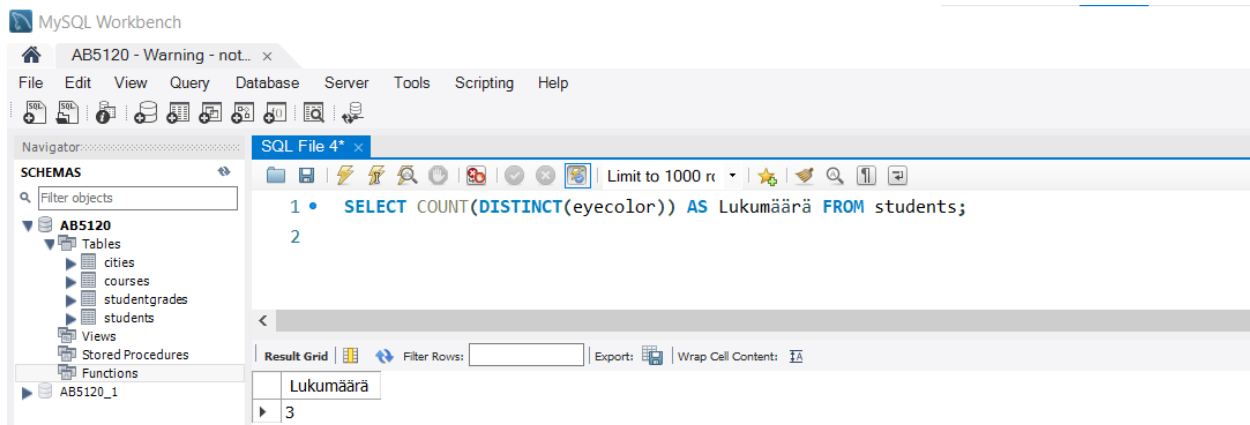
MySQL Workbench interface showing a query in the SQL File 4\* editor. The query is:

```
1 • SELECT SUM(incomes) AS Tulot_yhteensä FROM students;
```

The result grid shows the following data:

Tulot_yhteensä
93061.02

## 5.1.E



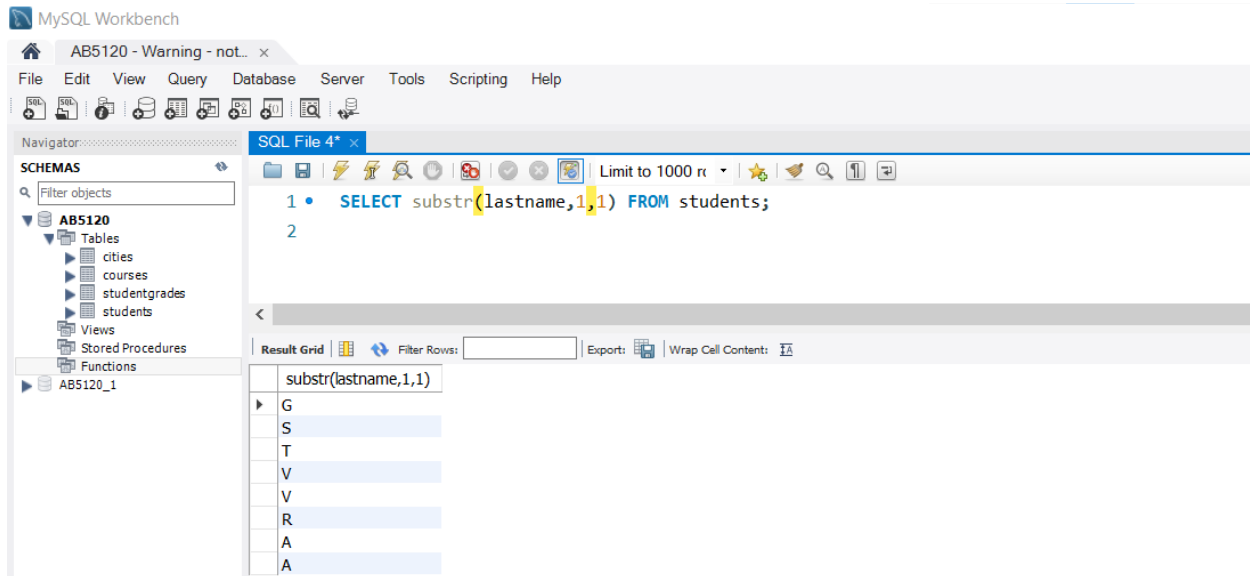
MySQL Workbench interface showing a query in the SQL File 4\* editor. The query is:

```
1 • SELECT COUNT(DISTINCT(eyecolor)) AS Lukumäärä FROM students;
```

The result grid shows the following data:

Lukumäärä
3

## 5.2.A



MySQL Workbench interface showing a SQL query and its result grid.

**Navigator:**

- SCHEMAS
  - AB5120
    - Tables
      - cities
      - courses
      - studentgrades
      - students
    - Views
    - Stored Procedures
    - Functions
  - AB5120\_1

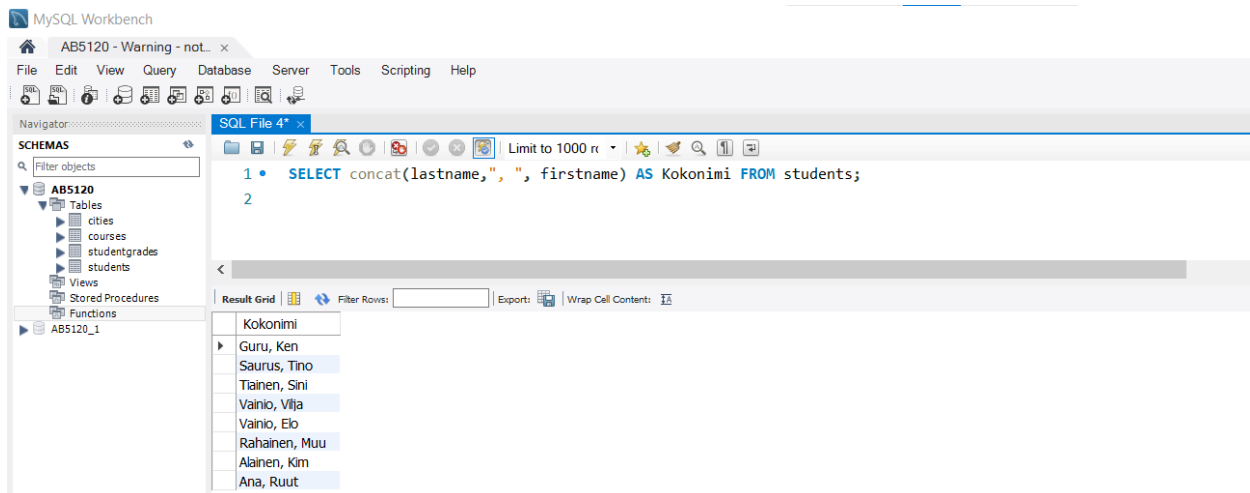
**SQL File 4\* x**

```
1 • SELECT substr(lastname,1,1) FROM students;
```

**Result Grid**

substr(lastname,1,1)
G
S
T
V
V
R
A
A

## 5.2.B



MySQL Workbench interface showing a SQL query and its result grid.

**Navigator:**

- SCHEMAS
  - AB5120
    - Tables
      - cities
      - courses
      - studentgrades
      - students
    - Views
    - Stored Procedures
    - Functions
  - AB5120\_1

**SQL File 4\* x**

```
1 • SELECT concat(lastname," ", firstname) AS Kokonimi FROM students;
```

**Result Grid**

Kokonimi
Guru, Ken
Saurus, Tino
Tainen, Sini
Vainio, Vilja
Vainio, Elo
Rahainen, Muu
Alainen, Kim
Ana, Ruut



## 5.3.A

MySQL Workbench

AB5120 - Warning - not... x

File Edit View Query Database Server Tools Scripting Help

Navigator: SQL File 4\* x

Limit to 1000 rows

```
1 • SELECT hometown AS Kotikunnan_ID, AVG(incomes) AS KATulot FROM students
2 GROUP BY hometown
3 ORDER BY KATulot DESC;
4
```

Result Grid

	Kotikunnan_ID	KATulot
▶	HULL	20010.120000
2	15510.120000	
1	14010.220000	
3	0.000000	

## 5.3.B

MySQL Workbench

AB5120 - Warning - not... x

File Edit View Query Database Server Tools Scripting Help

Navigator: SQL File 4\* x

Limit to 1000 rows

```
1 • SELECT substr(lastname,2,1) AS X_Factor, COUNT(substr(lastname,2,1)) AS X_Factor_Lkm, AVG(incomes) AS income_avg FROM students
2 GROUP BY X_Factor
3 ORDER BY income_avg DESC;
4
```

Result Grid

	X_Factor	X_Factor_Lkm	income_avg
▶	n	1	20010.120000
	l	1	18010.120000
	i	1	16010.320000
	u	1	12010.120000
	a	4	6755.085000

## 5.3.C

MySQL Workbench

AB5120 - Warning - not... x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

AB5120

- Tables
  - cities
  - courses
  - studentgrades
  - students
- Views
- Stored Procedures
- Functions
- AB5120\_1

SQL File 4\* x

Limit to 1000 rows

```
1 • SELECT lastname, firstname, incomes, taxrate, ((incomes/100)*taxrate) AS tax FROM students
2 ORDER BY tax DESC;
3
4
```

Result Grid

lastname	firstname	incomes	taxrate	tax
Ana	Ruut	20010.12	9.90	1981.00188000
Alainen	Kim	18010.12	8.80	1584.89056000
Tiainen	Sini	16010.32	7.30	1168.75336000
Saurus	Tino	14010.22	6.20	868.63364000
Rahainen	Muu	13010.12	5.80	754.58696000
Guru	Ken	12010.12	5.10	612.51612000
Vainio	Vilja	0.00	0.00	0.00000000
Vainio	Elo	0.00	0.00	0.00000000

## 5.3.D

MySQL Workbench

AB5120 - Warning - not... x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

AB5120

- Tables
  - cities
  - courses
  - studentgrades
  - students
- Views
- Stored Procedures
- Functions
- AB5120\_1

SQL File 4\* x

Limit to 1000 rows

```
1 • SELECT (population) AS samll_Lkm, MAX(population) AS big_Lkm, (MAX(population)-MIN(population)) AS Pop_Diff
2 ,((MAX(population)-MIN(population))/MIN(population))*100 AS perc_diff FROM cities;
3
4
```

Result Grid

samll_Lkm	big_Lkm	Pop_Diff	perc_diff
190000	230000	110000	91.6700

## 5.3.E

MySQL Workbench

AB5120 - Warning - not... x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

AB5120

- Tables
  - cities
  - courses
  - studentgrades
  - students
- Views
- Stored Procedures
- Functions

AB5120\_1

SQL File 4\* x

Limit to 1000 rows

```
1 • SELECT cityname, population FROM cities
2   WHERE population+(population*0.1)>200000;
3
4
```

Result Grid

cityname	population
Turku	190000
Tampere	230000

## 5.4.A

MySQL Workbench

AB5120 - Warning - not... x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

AB5120

- Tables
  - cities
  - courses
  - studentgrades
  - students
- Views
- Stored Procedures
- Functions

AB5120\_1

SQL File 4\* x

Limit to 1000 rows

```
1 • select s.studentID,c.courseID,c.coursename from studentgrades s
2   inner join courses c
3     on c.courseID=s.courseID
4     where studentID=2003;
5
6
7
8
```

Result Grid

studentID	courseID	coursename
2003	1	Ohjelmointi
2003	2	Tietokannat
2003	3	Ruotsi

## 5.4.B

MySQL Workbench

AB5120 - Warning - not.. x

File Edit View Query Database Server Tools Scripting Help

Navigator SQL File 4\*

**SCHEMAS**

Filter objects

AB5120

- Tables
  - cities
  - courses
  - studentgrades
  - students
- Views
- Stored Procedures
- Functions

AB5120\_1

Administration Schemas

Information

No object selected

```
1 • SELECT coursename, date_format(date_created, '%d.%m.%Y') AS completion_date, studentID, grade
2 FROM studentgrades
3 INNER JOIN courses
4 ON courses.courseID=studentgrades.courseID
5 ORDER BY completion_date DESC
6 LIMIT 8;
```

Result Grid

coursename	completion_date	studentID	grade
Ruotsi	11.11.2020	2006	3
Ruotsi	11.11.2020	2005	1
Ruotsi	11.11.2020	2004	1
Ruotsi	11.11.2020	2003	4
Ruotsi	11.11.2020	2002	4
Ruotsi	11.11.2020	2001	5
Tietokannat	11.11.2019	2002	4
Tietokannat	11.11.2019	2001	5

## 5.4.C

MySQL Workbench

AB5120 - Warning - not.. x

File Edit View Query Database Server Tools Scripting Help

Navigator SQL File 4\*

**SCHEMAS**

Filter objects

AB5120

- Tables
  - cities
  - courses
  - studentgrades
  - students
- Views
- Stored Procedures
- Functions

AB5120\_1

Administration Schemas

Information

No object selected

```
1 • SELECT lastname, firstname, AVG(credits)
2 FROM studentgrades
3 INNER JOIN students
4 ON students.studentID=studentgrades.studentID
5 INNER JOIN courses
6 ON studentgrades.courseID=courses.courseID
7 GROUP BY students.studentID;
```

Result Grid

lastname	firstname	AVG(credits)
Guru	Ken	4.0000
Saurus	Tino	4.0000
Tiainen	Sini	4.0000
Vainio	Vilja	3.0000
Vainio	Elo	3.0000
Rahainen	Muu	4.0000
Alainen	Kim	4.5000
Ana	Ruut	4.5000



## 5.4.D

MySQL Workbench

AB5120 - Warning - not... x

File Edit View Query Database Server Tools Scripting Help

Navigator: SCHEMAS

Filter objects

AB5120

- Tables
  - cities
  - courses
  - studentgrades
  - students
- Views
- Stored Procedures
- Functions

AB5120\_1

SQL File 4\* x

Limit to 1000 rows

```
1 • SELECT coursename, AVG(grade) AS average
2 FROM studentgrades
3 INNER JOIN courses
4 ON studentgrades.courseID=courses.courseID
5 GROUP BY coursename
6
7
8
9
10
```

Result Grid

coursename	average
Ohjelmointi	3.5000
Ruotsi	3.0000
Tietokannat	4.0000

## 5.5.A

MySQL Workbench

AB5120 - Warning - not... x

File Edit View Query Database Server Tools Scripting Help

Navigator: SCHEMAS

Filter objects

AB5120

- Tables
  - cities
  - courses
  - studentgrades
  - students
- Views
- Stored Procedures
- Functions

AB5120\_1

SQL File 4\* x

Limit to 1000 rows

```
1 • SELECT eyecolor, AVG(population) AS pop_AVG
2 FROM cities
3 INNER JOIN students
4 ON cities.cityID=students.hometown
5 GROUP BY eyecolor
6 ORDER BY eyecolor DESC;
7
8
9
10
```

Result Grid

eyecolor	pop_AVG
Sininen	143333.3333
Ruskea	190000.0000
Harmaa	230000.0000
Keltainen	230000.0000

## 5.5.B

MySQL Workbench

AB5120 - Warning - not... x

File Edit View Query Database Server Tools Scripting Help

Navigator: SQL File 4\* x

Limit to 100 rows

SCHEMAS

Filter objects

AB5120

- Tables
  - cities
  - courses
  - studentgrades
  - students
- Views
- Stored Procedures
- Functions

AB5120\_1

```
1 • SELECT cityname, coursename, AVG(grade) AS KA
2 FROM studentgrades
3 INNER JOIN courses
4 ON studentgrades.courseID=courses.courseID
5 INNER JOIN students
6 ON students.studentID=studentgrades.studentID
7 INNER JOIN cities
8 ON cities.cityID=students.hometown
9 GROUP BY coursename, hometown
10 ORDER BY KA DESC;
11
```

Result Grid

cityname	coursename	KA
Turku	Tietokannat	4.3333
Turku	Ruotsi	4.3333
Turku	Ohjelmointi	4.0000
Tampere	Tietokannat	3.0000
Tampere	Ruotsi	3.0000
Tampere	Ohjelmointi	2.5000
Lahti	Ruotsi	1.0000

Administration Schemas

Information

## 5.5.c

MySQL Workbench

AB5120 - Warning - not... x

File Edit View Query Database Server Tools Scripting Help

Navigator: SQL File 4\* x

Limit to 100 rows

SCHEMAS

Filter objects

AB5120

- Tables
  - cities
  - courses
  - studentgrades
  - students
- Views
- Stored Procedures
- Functions

AB5120\_1

```
1 • SELECT lastname, firstname, incomes,
2 CASE WHEN incomes <=15000 THEN "pienituloinen"
3 ELSE "isotuloinen"
4 END AS tuloluokka
5 FROM students
6 ORDER BY incomes DESC;
7
8
9
10
11
```

Result Grid

lastname	firstname	incomes	tuloluokka
Ana	Ruut	20010.12	isotuloinen
Alainen	Kim	18010.12	isotuloinen
Tiainen	Sini	16010.32	isotuloinen
Saurus	Tino	14010.22	pienituloinen
Rahainen	Muu	13010.12	pienituloinen
Guru	Ken	12010.12	pienituloinen
Vainio	Vilja	0.00	pienituloinen
Vainio	Elo	0.00	pienituloinen

Administration Schemas

Information

No object selected