



Introduction to MySQL



Outline

- How to Manage your data?
- Introduction to MySQL
- Connecting and Disconnecting
- Entering Basic Queries
- Creating and Using a Database

How to Manage your data?

- ❑ Access vs. Excel
- ❑ In both Access and Excel, you can:
 - ✓ Import data from external sources
 - ✓ Sort and filter your data.
 - ✓ Do calculations to derive the information you want.
- ❑ Excel is spreadsheet software, that stores data in columns and rows.
- ❑ Access stores data in tables similar to worksheets in Excel

How to Manage your data?

- ❑ However, table in Access are designed for complex querying in relation to data stored in other tables.

**both programs work well for
managing data**

How to Manage your data?

- The key to your decision:

Is the data relational or not?

- **Flat or non-relational** data:

- ✓ data in each column is directly related and need only reside in a single, flat table.

- **Relational** data:

- ✓ Data needs to be stored in more than one table
- ✓ Each table is a description of a type of data
- ✓ For example: customer information in one table and their orders in another table

How to Manage your data?

- Use Access when you:
 - ✓ Require a relational database (multiple tables) to store your data.
 - ✓ May need to add more tables in the future to an originally flat or non-relational data set.
 - ✓ Want to run **complex queries**.
- Use Excel when you:
 - ✓ Require a flat or **non-relational** view of your data
 - ✓ Want to run primarily **calculations** and **statistical comparisons** on your data
 - ✓ Know your **dataset is manageable in size**

MySQL

- ❑ MySQL is a very popular, open source database (since 2008).
- ❑ MySQL is a ***relational*** database.
- ❑ Officially pronounced “my S-Q-L” (also my sequel).
- ❑ MySQL runs as a server and provides multi-user access to a number of databases
- ❑ Handles very large databases; very fast performance.
- ❑ Why are we using MySQL?
 - Free (much cheaper than Oracle!)
 - Everyone can install MySQL locally.

When to use MySQL

- ❑ MySQL is a much more stable and faster database than Microsoft Access
- ❑ Microsoft Access has **2GB** size limitations
- ❑ MySQL is free!

Installing MySQL

- MySQL Community Server 5.6.11

The software can be downloaded from

<http://www.mysql.com/downloads/mysql/>

- Mysql-connector-net-6.2

The software can be downloaded from

<http://www.mysql.com/downloads/connector/net/6.2.html#downloads>

User Interface

□ MySQL Workbench

- ✓ Database Design & Modeling
- ✓ Database Administration
- ✓ Database Migration

The software can be downloaded from:

<http://dev.mysql.com/downloads/tools/workbench/>

Download MySQL Community Server

MySQL Community Edition is a freely downloadable version of the world's most popular open source database that is : enthusiasts.

MySQL Cluster Community Edition is available as a separate download. The reason for this change is so that MySQL C sources of MySQL Cluster Carrier Grade Edition.

 Important Platform Support Updates

Generally Available (GA) Releases

MySQL Community Server 5.6.10

Select Platform:

Select Platform...

Recommended Download:

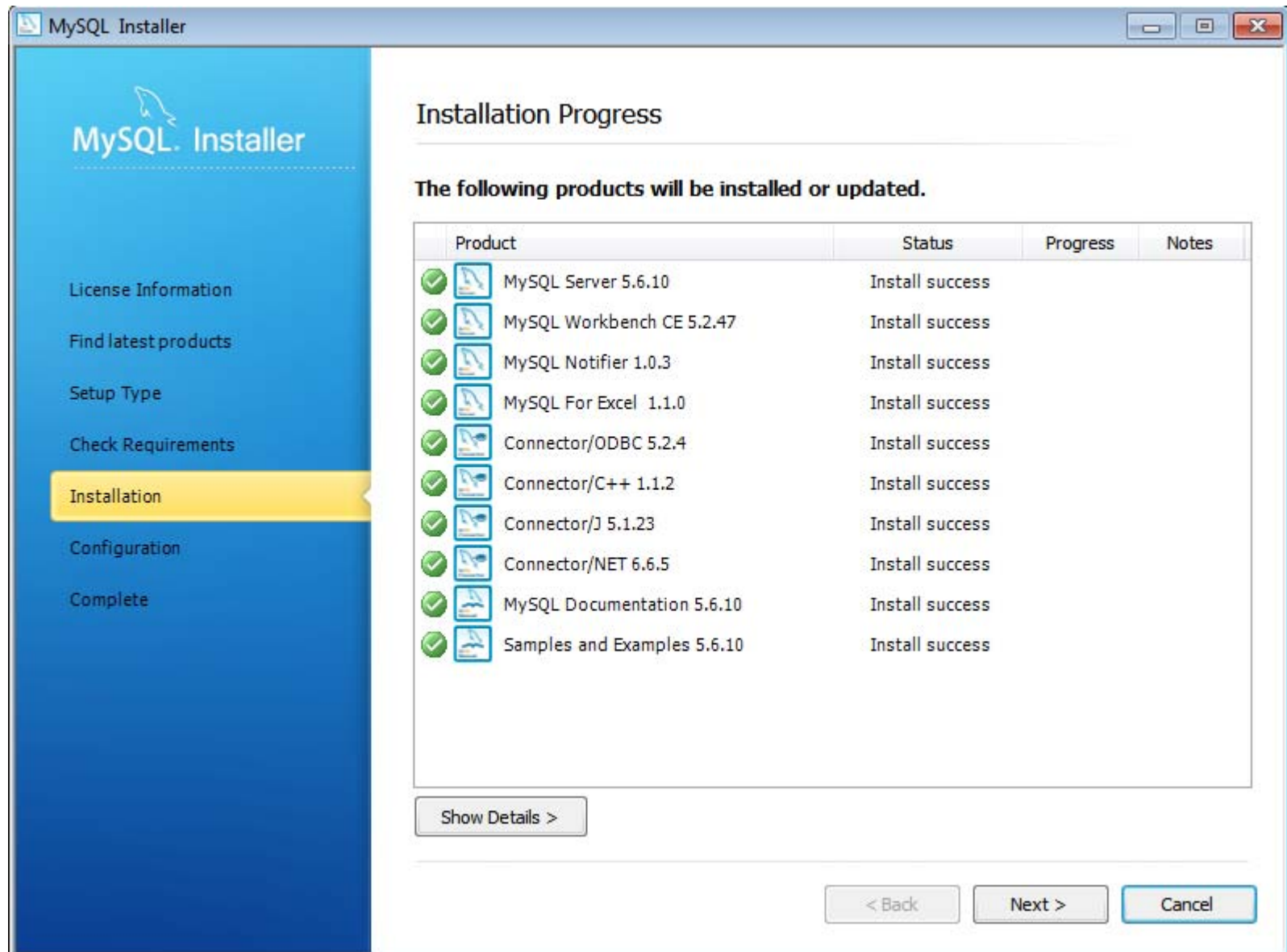
MySQL Installer 5.6 for Windows

**All MySQL Products. For All Windows Platforms.
In One Package.**

Starting with MySQL 5.6 the MySQL Installer package replaces the server-only MSI packages.



<http://dev.mysql.com/doc/refman/5.6/en/mysql-installer-gui.html>



MySQL Installer

MySQL. Installer

- License Information
- Find latest products
- Setup Type
- Check Requirements
- Installation
- Configuration**
- Complete

MySQL Server Configuration 2 / 4

Root Account Password

Enter the password for the root account. Please remember to store this password in a secure place.


MySQL Root Password:

Repeat Password:

Password Strength: **Medium**

MySQL User Accounts

Create MySQL user accounts for your users and applications. Assign a role to the user that consists of a set of privileges.

MySQL Username	Host	User Role
 jon	%	Backup Admin

Connecting to MySQL

The screenshot displays the MySQL Workbench interface. At the top, there is a menu bar with 'File', 'Edit', 'View', 'Database', 'Plugins', 'Scripting', and 'Help'. The 'ORACLE' logo is visible in the top right corner. Below the menu bar is the 'Workbench Central' section, which includes a 'Welcome to MySQL Workbench' message and a 'What's New in This Release?' link. To the right of the welcome message are several utility icons: MySQL Doc Library, MySQL Utilities, Database Migration, MySQL Bug Reporter, Workbench Blogs, Planet MySQL, and Workbench Forums. The main area is titled 'Workspace' and is divided into three columns. The left column is 'SQL Development', which includes an 'Open Connection to Start Querying' button and a list of connections, including 'Local instance MySQL56'. The middle column is 'Data Modeling', which includes an 'Open Existing EER Model' button and a list of models, including 'sakila_full'. The right column is 'Server Administration', which includes a 'Server Administration' button and a list of server instances, including 'Local MySQL56'. At the bottom of each column, there are several action buttons: 'New Connection', 'Edit Table Data', 'Edit SQL Script', and 'Manage Connections' in the left column; 'Create New EER Model', 'Create EER Model From Existing Database', and 'Create EER Model From SQL Script' in the middle column; and 'New Server Instance', 'Manage Import / Export', 'Manage Security', and 'Manage Server Instances' in the right column.

File Edit View Database Plugins Scripting Help ORACLE

Workbench Central

Welcome to MySQL Workbench
→ **What's New in This Release?**
Read about all changes in this MySQL Workbench release.

MySQL Doc Library MySQL Utilities Database Migration MySQL Bug Reporter Workbench Blogs Planet MySQL Workbench Forums

Workspace

SQL Development
Connect to existing databases and run SQL Queries, SQL scripts, edit data and manage database objects.

Data Modeling
Create and manage models, forward & reverse engineer, compare and synchronize schemas, report.

Server Administration
Configure your database server, setup user accounts, browse status variables and server logs.

Open Connection to Start Querying
Or click a DB connection to open the SQL Editor.

Open Existing EER Model
Or select a model to open or click here to browse.

Server Administration
Or click to manage a database server instance.

Local instance MySQL56
User: root Host: localhost:3306

sakila_full
Last modified Thu Feb 14 21:54:08 2013

Local MySQL56
Local Type: Windows

New Connection
Add a new database connection for querying.

Edit Table Data
Select a connection and schema table to edit.

Edit SQL Script
Open an existing SQL Script file for editing.

Manage Connections
Modify connection settings or add connections.

Create New EER Model
Create a new EER Model from scratch.

Create EER Model From Existing Database
Create by connecting and reverse engineering.

Create EER Model From SQL Script
Import an existing SQL file.

New Server Instance
Register a new server instance to manage.

Manage Import / Export
Create a dump file or restore data from a file.

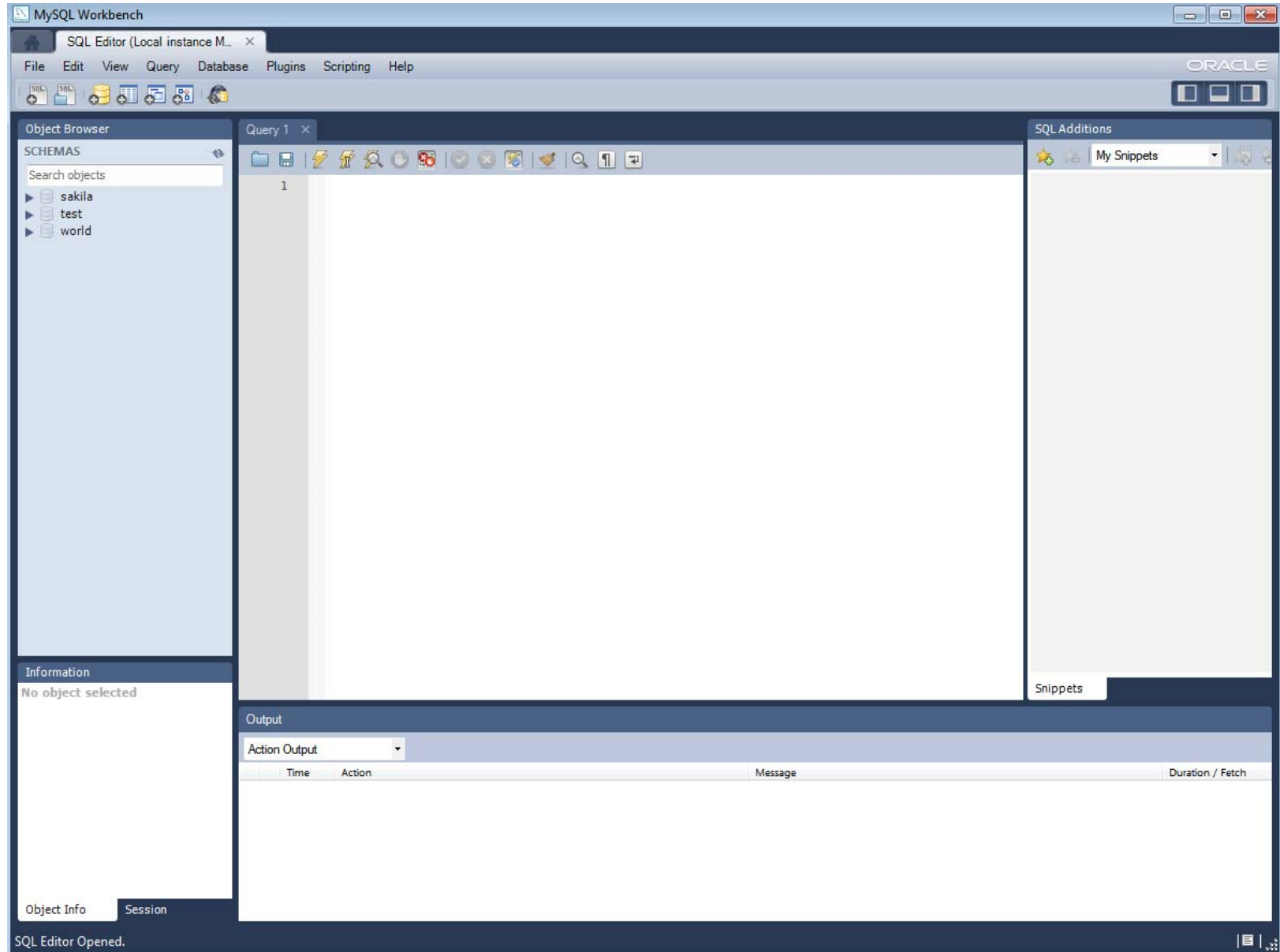
Manage Security
Manage user accounts and assign privileges.

Manage Server Instances
Add, delete and update server instance settings.

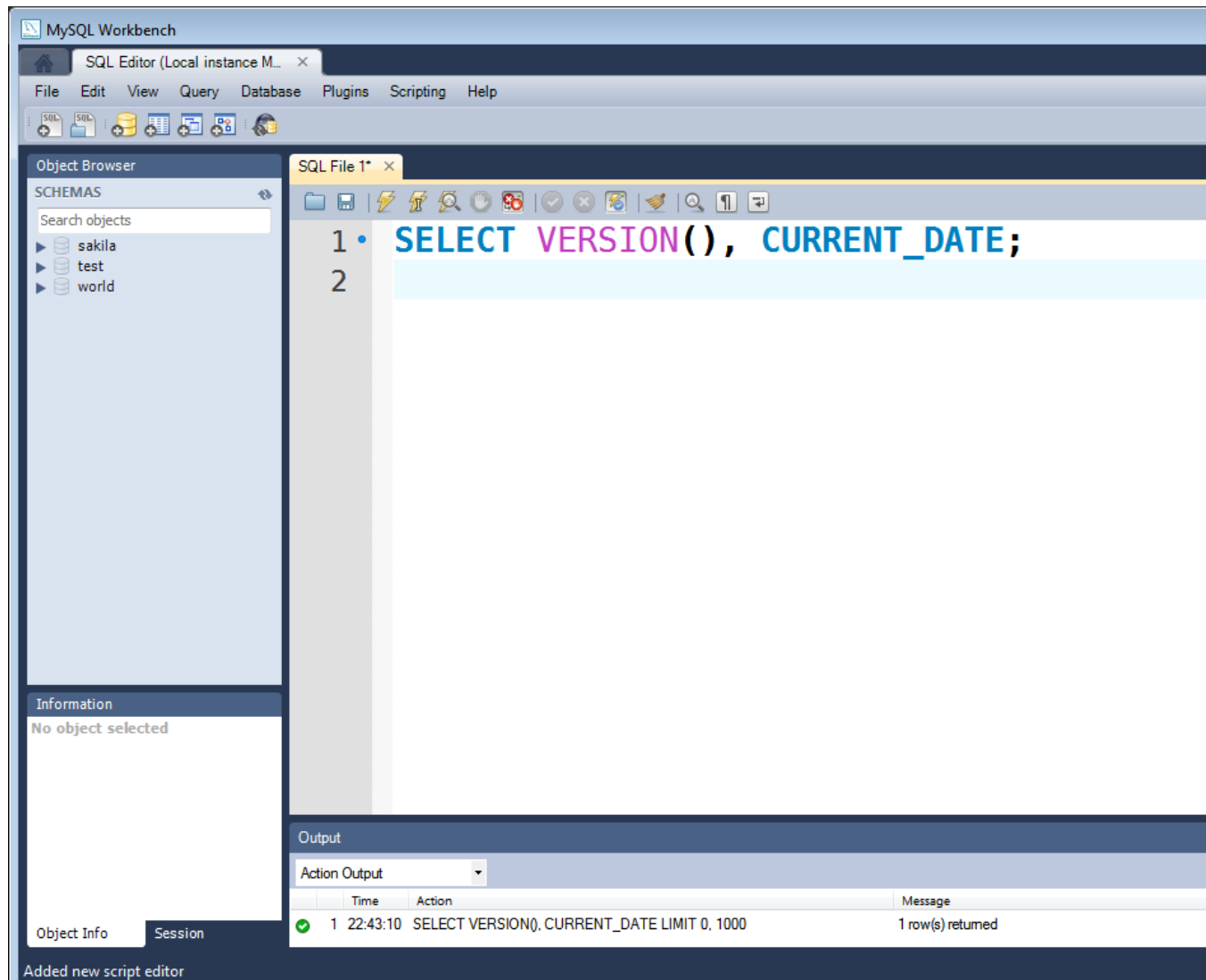
Connecting to MySQL

The screenshot displays the MySQL Workbench Central interface. At the top, there is a menu bar with 'File', 'Edit', 'View', 'Database', 'Plugins', 'Scripting', and 'Help'. The 'ORACLE' logo is visible in the top right corner. Below the menu bar, the 'Workbench Central' section features a 'Welcome to MySQL Workbench' message and a 'What's New in This Release?' link. A row of icons provides quick access to 'MySQL Doc Library', 'MySQL Utilities', 'Database Migration', 'MySQL Bug Reporter', 'Workbench Blogs', 'Planet MySQL', and 'Workbench Forums'. The 'Workspace' section is divided into three main areas: 'SQL Development' (connecting to databases and running queries), 'Data Modeling' (creating and managing models), and 'Server Administration' (configuring the database server). Below these are three task cards: 'Open Connection to Start Querying', 'Open Existing EER Model', and 'Server Administration'. A 'Local instance MySQL56' connection is listed with user 'root' and host 'localhost:3306'. A 'Connect to MySQL Server' dialog box is open, prompting for a password for the 'Mysql@localhost:3306' service using the 'root' user. The dialog includes a 'Save password in vault' checkbox and 'OK' and 'Cancel' buttons. At the bottom, there are several utility cards for 'New Connection', 'Edit Table Data', 'Edit SQL Script', 'Manage Connections', 'Create New EER Model', 'Create EER Model From Existing Database', 'Create EER Model From SQL Script', 'New Server Instance', 'Manage Import / Export', 'Manage Security', and 'Manage Server Instances'.

Connecting to MySQL

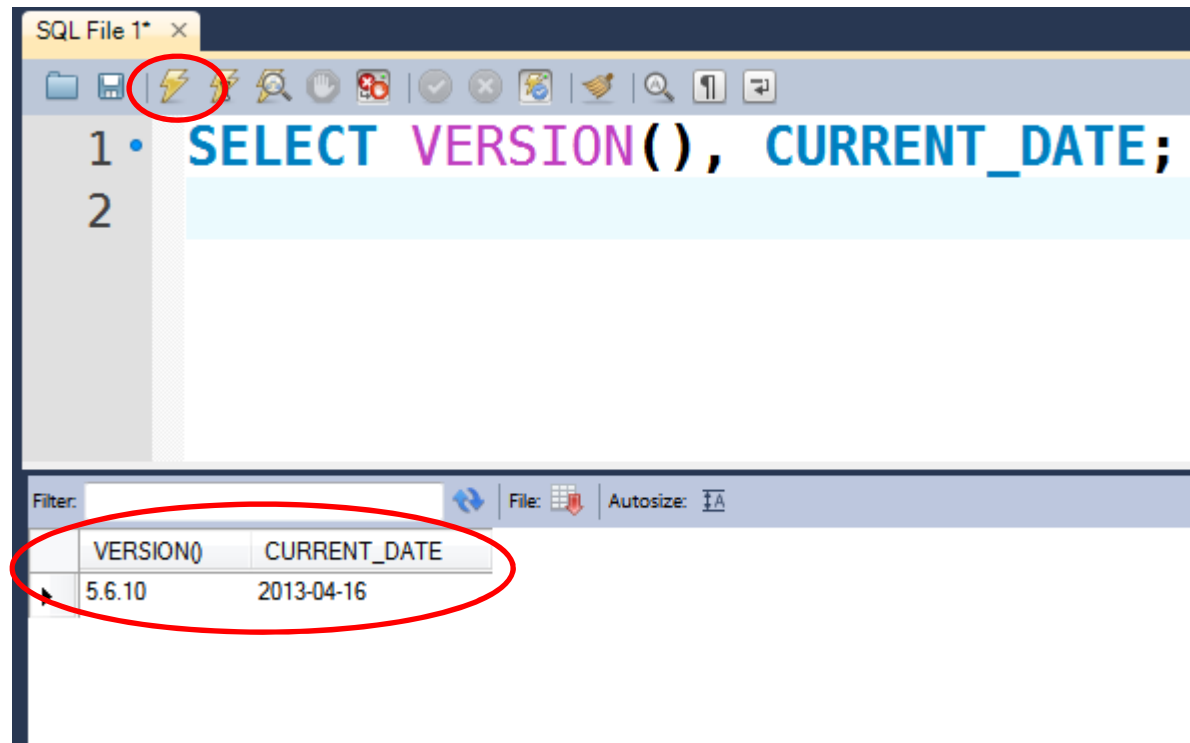


Basic Queries



- Note that most MySQL commands end with a semicolon (;)
- MySQL returns the total number of rows found, and the total time to execute the query.

Basic Queries



The screenshot shows an SQL IDE window titled "SQL File 1* x". The query editor contains the following SQL statement:

```
1 • SELECT VERSION(), CURRENT_DATE;  
2
```

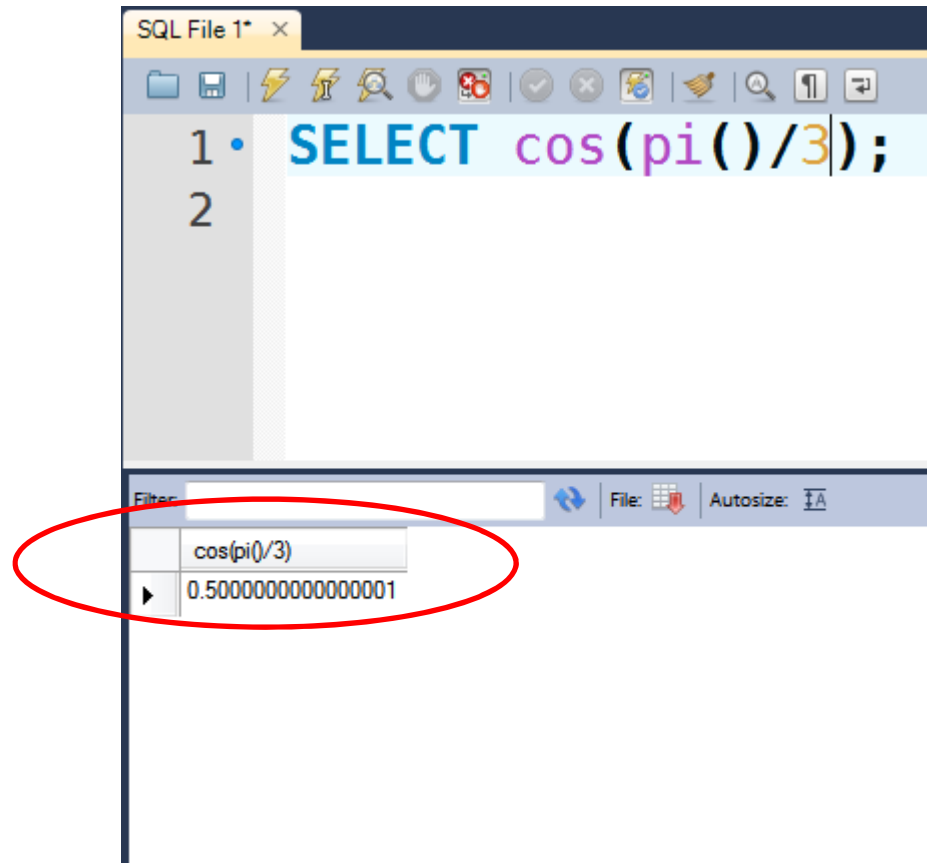
The results pane at the bottom displays the output of the query in a table format. The table has two columns: "VERSION()" and "CURRENT_DATE". The first row of data shows the values "5.6.10" and "2013-04-16".

VERSION()	CURRENT_DATE
5.6.10	2013-04-16

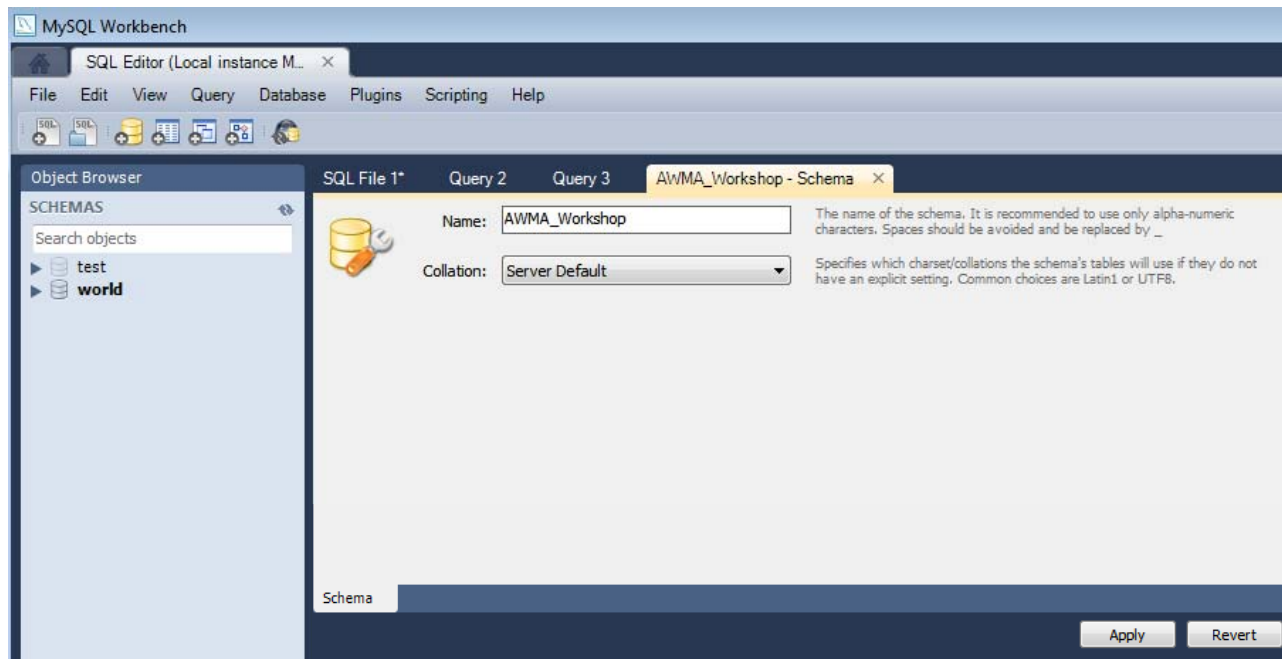
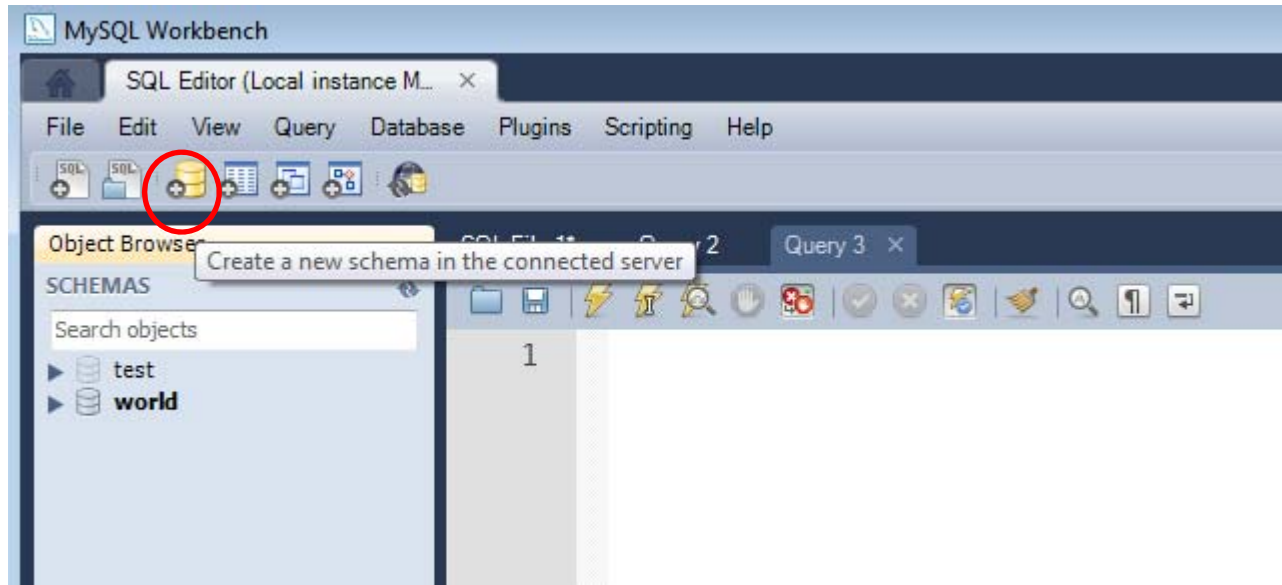
Basic Queries

- ❑ Keywords may be entered in any letter-case.
- ❑ The following queries are equivalent:
 - ✓ `SELECT VERSION(), CURRENT_DATE;`
 - ✓ `select version(), current_date;`
 - ✓ `SeLeCt vErSiOn(), current_DATE;`

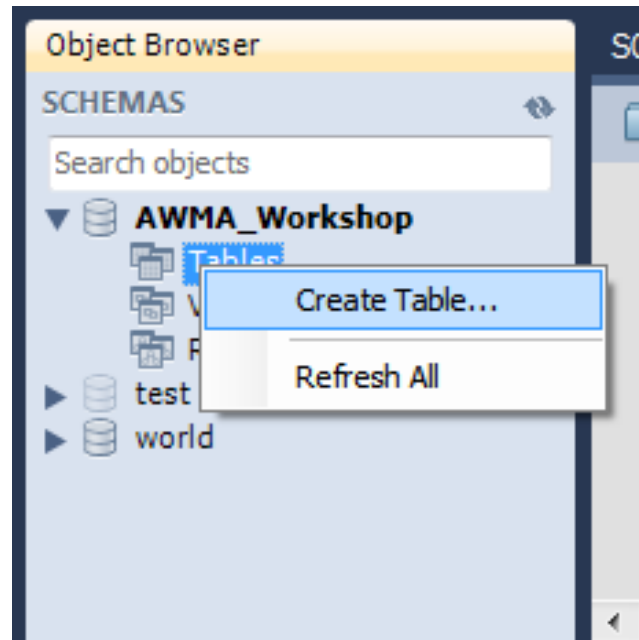
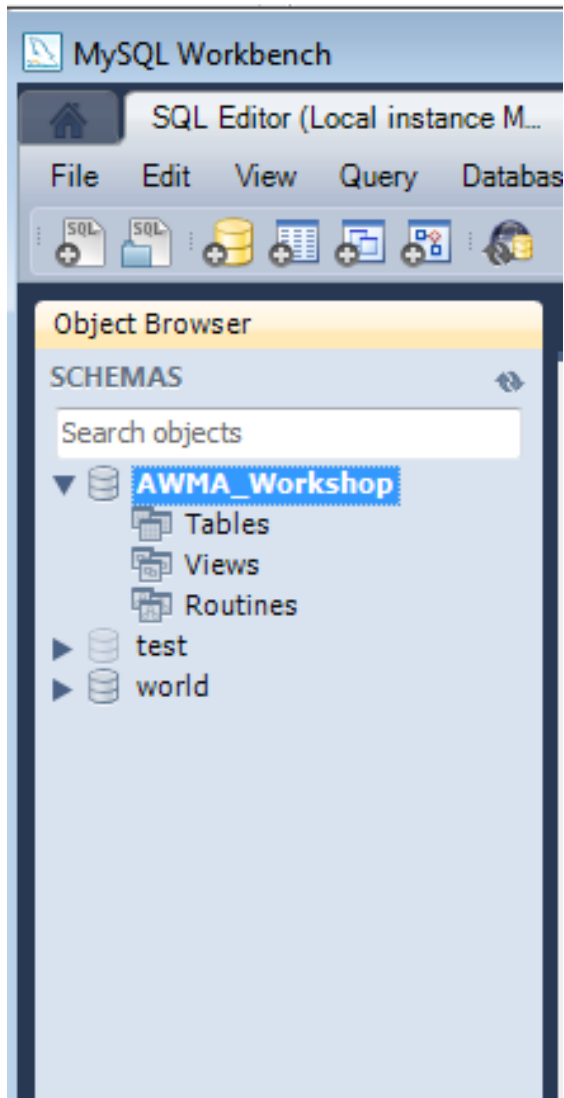
Basic Queries



Creating a Database



Creating a Database



Creating a Table

SQL File 1* Query 2 Query 3 Query 4 city - Table city - Table x

Table Name: city Schema: **AWMA_Workshop**

Collation: Schema Default Engine: InnoDB

Comments:

Column Name	Datatype	PK	NN	UQ	BIN	UN	ZF	AI	Default
ID	INT(11)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Name	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
CountyCode	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Population	INT(11)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Column Name: Population Data Type: INT(11)

Collation: Table Default Default:

Comments:

Primary Key Not Null Unique

Binary Unsigned Zero Fill

Auto Increment

Columns Indexes Foreign Keys Triggers Partitioning Options

Apply Revert

Creating a Table

Apply SQL Script to Database

Review SQL Script

Apply SQL Script

Review the SQL Script to be Applied on the Database

Please review the following SQL script that will be applied to the database.
Note that once applied, these statements may not be revertible without losing some of the data.
You can also manually change the SQL statements before execution.

Online DDL

Algorithm: Lock Type:

```
1 CREATE TABLE `AWMA_Workshop`.`city` (  
2   `ID` INT(11) NOT NULL ,  
3   `Name` VARCHAR(45) NOT NULL ,  
4   `CountyCode` VARCHAR(45) NOT NULL ,  
5   `Population` INT(11) NOT NULL ,  
6   PRIMARY KEY (`ID`));  
7
```

Back **Apply** Cancel

Basic Queries

The screenshot displays the MySQL Workbench interface. The SQL Editor window contains the following query:

```
1 • SELECT * FROM AWMA_Workshop.city;  
2
```

The Object Browser on the left shows the database structure, including the **AWMA_Workshop** schema and the **city** table. The Information panel at the bottom left indicates the current schema is **AWMA_Workshop**.

The Output panel at the bottom right shows the execution results:

Time	Action	Message	Duration / Fetch
14 22:58:40	SELECT * FROM world.city LIMIT 0, 1000	1000 row(s) returned	0.000 sec / 0.000 sec
15 23:01:39	Apply changes to city	Changes applied	
16 23:02:48	SELECT * FROM AWMA_Workshop.city LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec

A red oval highlights the empty result set in the main query window, indicating that the query returned zero rows.

Basic Queries

The screenshot displays two windows from a SQL IDE. The top window, titled 'Query 5', contains the following SQL code:

```
1 • INSERT INTO AWMA_Workshop.city
2 VALUES (1, "New York", "USA", 8008278);
3
```

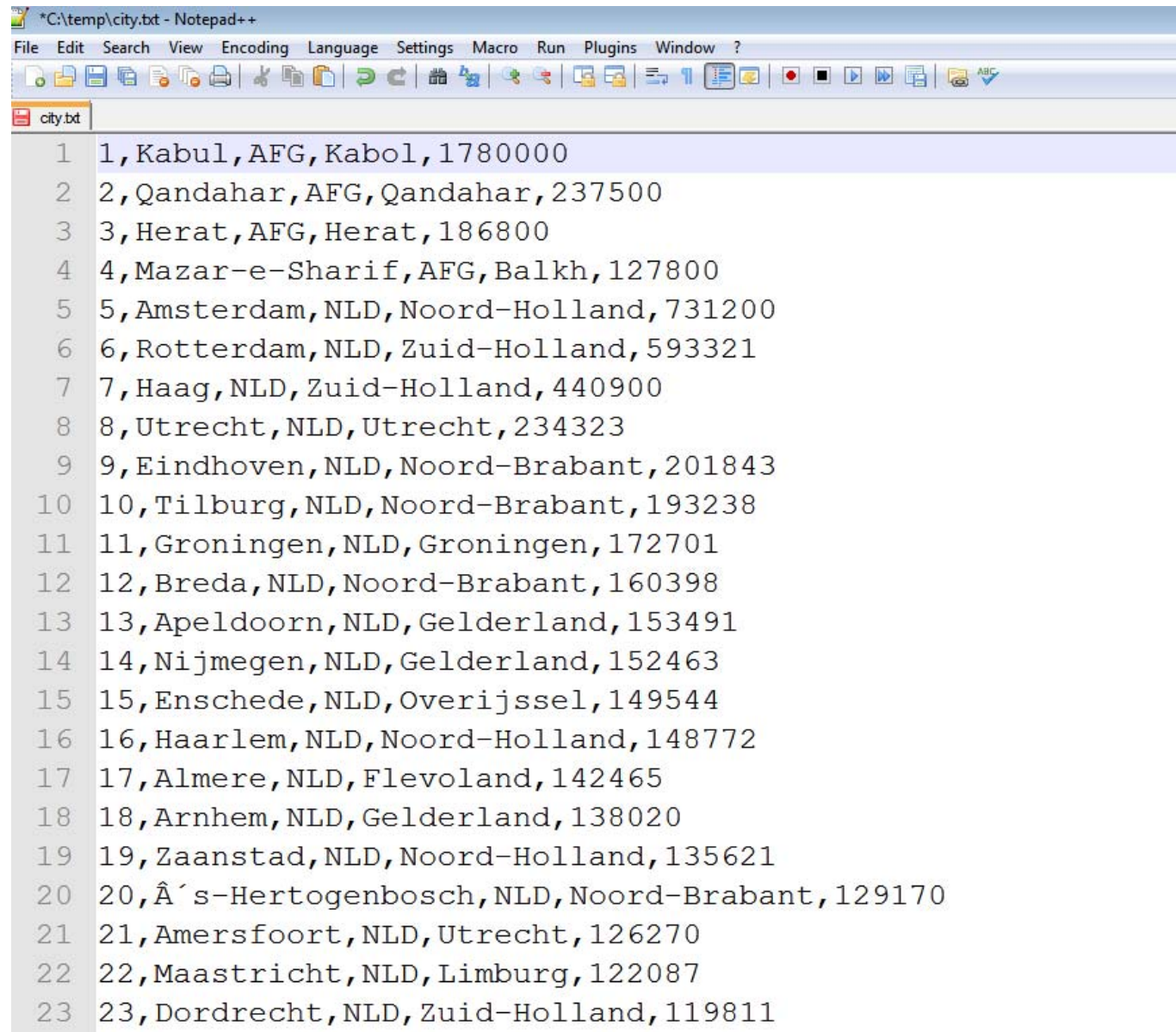
The bottom window, titled 'Query 6', contains the following SQL code:

```
1 • SELECT * FROM AWMA_Workshop.city;
```

Below the code editor, a table displays the results of the second query. The table has four columns: ID, Name, CountyCode, and Population. The first row shows the data for ID 1, and the second row shows NULL values for all columns.

	ID	Name	CountyCode	Population
▶	1	New York	USA	8008278
*	NULL	NULL	NULL	NULL

Loading Data from a TextFile



```
*C:\temp\city.txt - Notepad++
File Edit Search View Encoding Language Settings Macro Run Plugins Window ?
city.txt
1 1, Kabul, AFG, Kabol, 1780000
2 2, Qandahar, AFG, Qandahar, 237500
3 3, Herat, AFG, Herat, 186800
4 4, Mazar-e-Sharif, AFG, Balkh, 127800
5 5, Amsterdam, NLD, Noord-Holland, 731200
6 6, Rotterdam, NLD, Zuid-Holland, 593321
7 7, Haag, NLD, Zuid-Holland, 440900
8 8, Utrecht, NLD, Utrecht, 234323
9 9, Eindhoven, NLD, Noord-Brabant, 201843
10 10, Tilburg, NLD, Noord-Brabant, 193238
11 11, Groningen, NLD, Groningen, 172701
12 12, Breda, NLD, Noord-Brabant, 160398
13 13, Apeldoorn, NLD, Gelderland, 153491
14 14, Nijmegen, NLD, Gelderland, 152463
15 15, Enschede, NLD, Overijssel, 149544
16 16, Haarlem, NLD, Noord-Holland, 148772
17 17, Almere, NLD, Flevoland, 142465
18 18, Arnhem, NLD, Gelderland, 138020
19 19, Zaanstad, NLD, Noord-Holland, 135621
20 20, Á's-Hertogenbosch, NLD, Noord-Brabant, 129170
21 21, Amersfoort, NLD, Utrecht, 126270
22 22, Maastricht, NLD, Limburg, 122087
23 23, Dordrecht, NLD, Zuid-Holland, 119811
```

Loading Data from a TextFile

The image shows two screenshots of a SQL IDE. The top screenshot displays the SQL command to load data from a text file into a table. The bottom screenshot shows the resulting table view with 10 rows of data.

```
1 • LOAD DATA LOCAL INFILE 'c:/temp/city.txt'  
2 INTO TABLE city  
3 FIELDS TERMINATED BY ","  
4 LINES TERMINATED BY "\n";
```

```
1 • SELECT * FROM awma_workshop.city;
```

ID	Name	CountyCode	Population
1	Kabul	AFG	1780000
2	Qandahar	AFG	237500
3	Herat	AFG	186800
4	Mazare-e-Sharif	AFG	127800
5	Amsterdam	NLD	731200
6	Rotterdam	NLD	593321
7	Haag	NLD	440900
8	Utrecht	NLD	234323
9	Eindhoven	NLD	201843
10	Tilburg	NLD	193238

Sending data through MS Access

The screenshot shows the Microsoft Access interface with the 'Table Tools' ribbon active. The 'Export' menu is open, and the 'ODBC Database' option is selected. The 'Export' dialog box is displayed, showing the table 'city' selected for export to an ODBC Database.

ID	Name	CountryCode	District	Population
1	Kabul	AFG	Kabul	1780000
2	Qandahar	AFG	Qandahar	237500
3	Herat	AFG	Herat	186800
4	Mazar-e-Sharif	AFG	Balkh	127800
5	Amsterdam	NLD	Noord-Holland	731200
			Zuid-Holland	593321
			Zuid-Holland	440900
			Utrecht	234323
			Noord-Holland	148772
			Flevoland	142465
			Gelderland	138020
9	Zaanstad	NLD	Noord-Holland	135621
20	Å's-Hertogenb	NLD	Noord-Brabant	129170
21	Amersfoort	NLD	Utrecht	126270
22	Maastricht	NLD	Limburg	122087
23	Dordrecht	NLD	Zuid-Holland	119811
24	Leiden	NLD	Zuid-Holland	117196
25	Haarlemmerm	NLD	Noord-Holland	110722
26	Zaotermeer	NLD	Zuid-Holland	110314

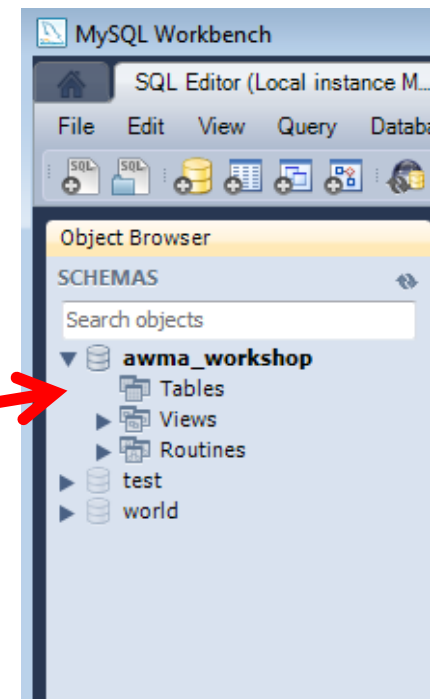
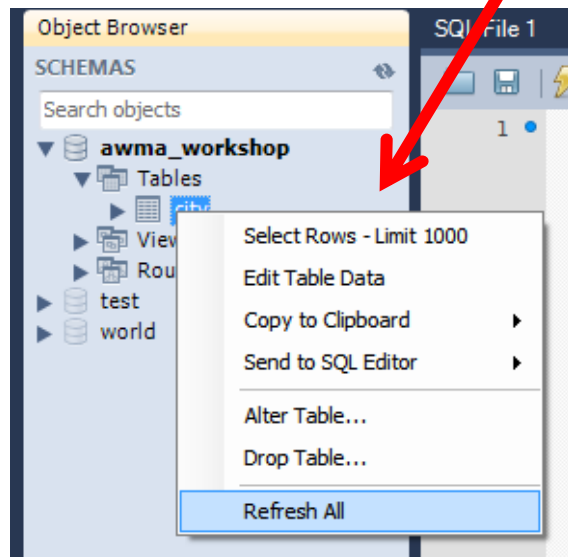
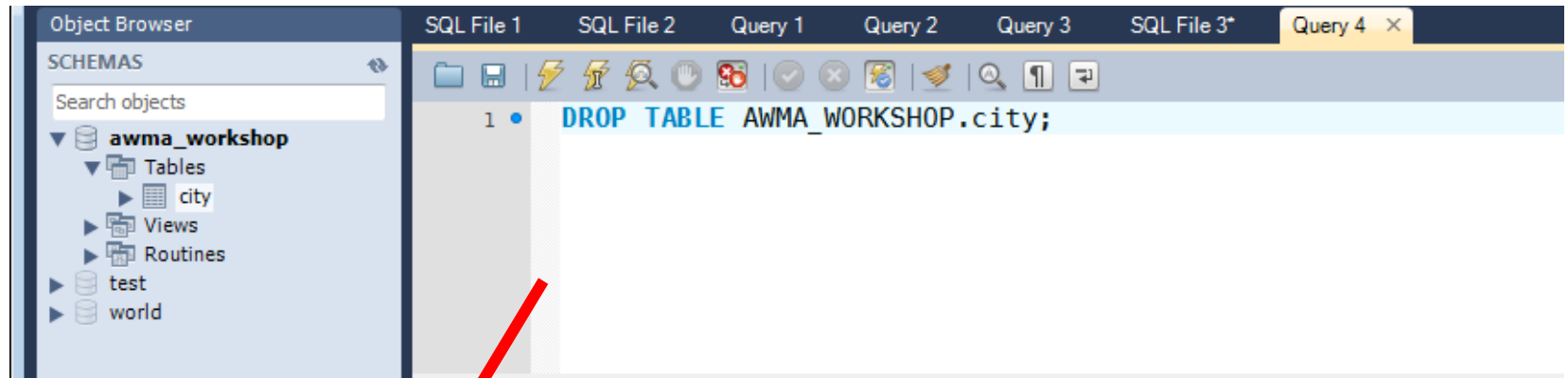
Sending data through MS Access

The screenshot shows the 'Select Data Source' dialog box in Microsoft Access. The 'Machine Data Source' tab is selected. The dialog lists several data sources, with 'world' selected. Below the list is a 'New...' button and a text box explaining that machine data sources are specific to the machine and user.

The background shows a table with columns 'CountryCode', 'District', and 'Population'. The table contains data for various districts in the Netherlands, including Breda, Apeldoorn, Nijmegen, Enschede, Haarlem, Almere, Arnhem, Zaanstad, and 's-Hertogenbosch.

CountryCode	District	Population
	Kabool	1780000
	Qandahar	237500
	Herat	186800
	Balkh	127800
	Noord-Holland	731200
	Zuid-Holland	593321
	Zuid-Holland	440900
	Utrecht	234323
	Noord-Brabant	201843
	Noord-Brabant	193238
	Groningen	172701
12	Breda	NLD Noord-Brabant 160398
13	Apeldoorn	NLD Gelderland 153491
14	Nijmegen	NLD Gelderland 152463
15	Enschede	NLD Overijssel 149544
16	Haarlem	NLD Noord-Holland 148772
17	Almere	NLD Flevoland 142465
18	Arnhem	NLD Gelderland 138020
19	Zaanstad	NLD Noord-Holland 135621
20	's-Hertogenbosch	NLD Noord-Brabant 129170

Dropping a Table



WHERE Clause

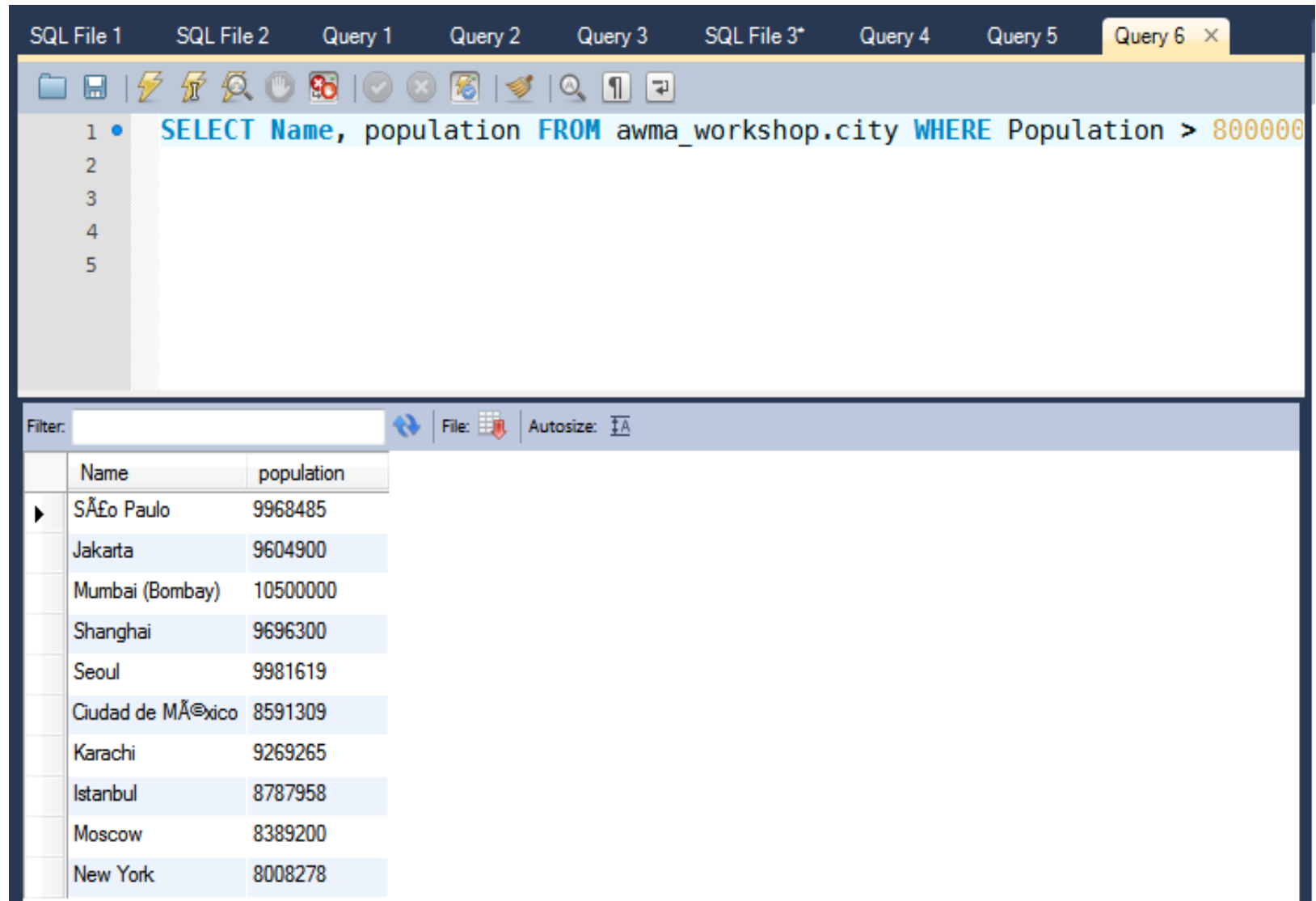
The screenshot shows a SQL IDE interface with a query editor and a results pane. The query editor contains the following SQL statement:

```
1 • SELECT Name FROM awma_workshop.city WHERE Population > 8000000;  
2  
3  
4  
5
```

The results pane displays a table with the following data:

Name
SÃ£o Paulo
Jakarta
Mumbai (Bombay)
Shanghai
Seoul
Ciudad de MÃ©xico
Karachi
Istanbul
Moscow
New York

WHERE Clause



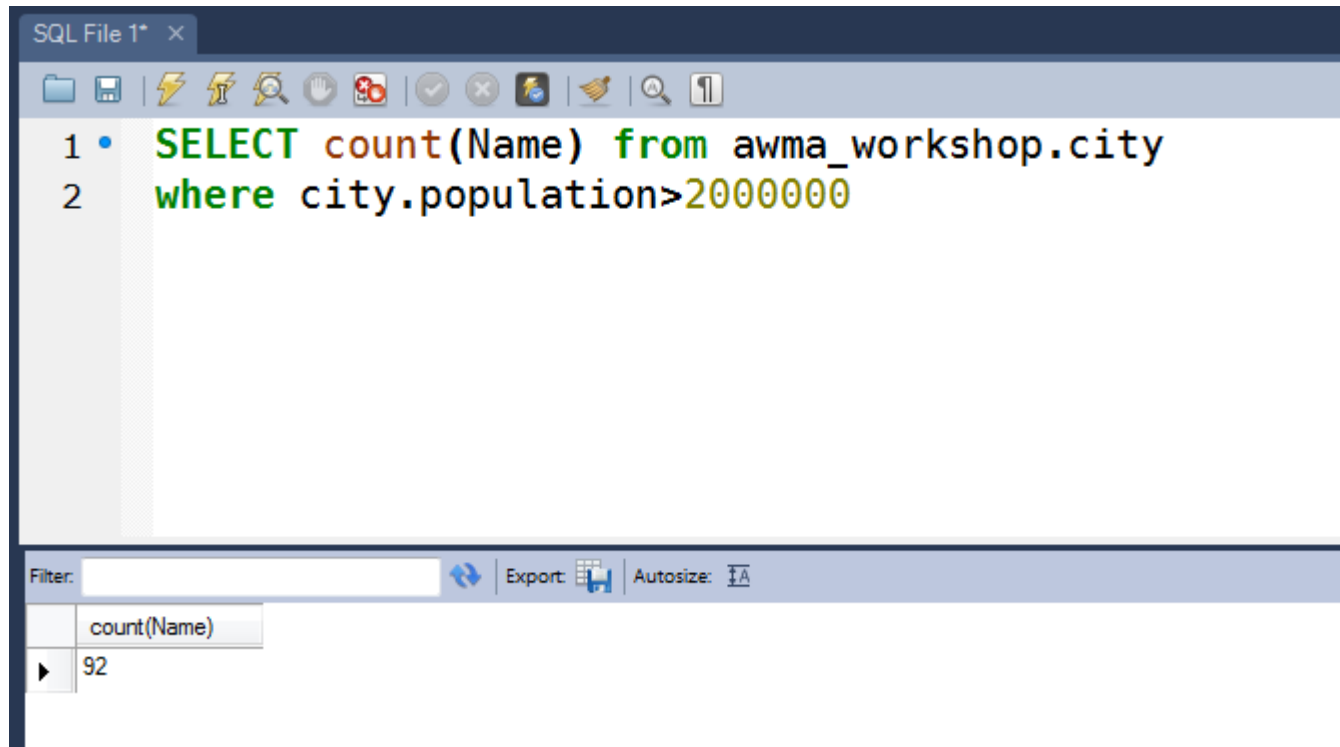
The screenshot shows a SQL IDE interface with a query editor and a results pane. The query editor contains the following SQL statement:

```
1 • SELECT Name, population FROM awma_workshop.city WHERE Population > 800000
```

The results pane displays a table with the following data:

Name	population
SÃo Paulo	9968485
Jakarta	9604900
Mumbai (Bombay)	10500000
Shanghai	9696300
Seoul	9981619
Ciudad de MÃxico	8591309
Karachi	9269265
Istanbul	8787958
Moscow	8389200
New York	8008278

Counting Rows Example



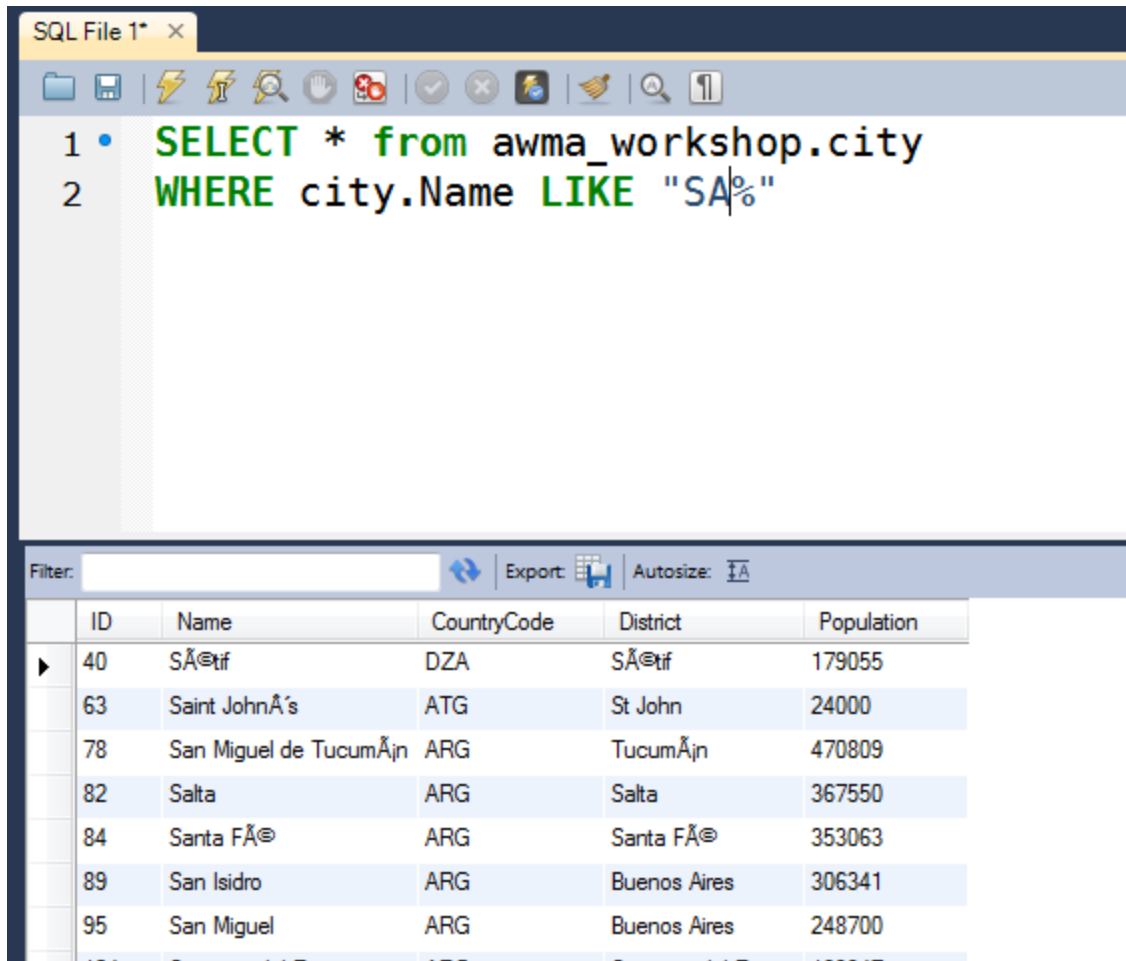
The screenshot shows an SQL IDE window titled "SQL File 1* x". The main editor contains the following SQL query:

```
1 • SELECT count(Name) from awma_workshop.city
2   where city.population>2000000
```

Below the editor, there is a toolbar with icons for Filter, Export, and Autosize. The result pane at the bottom shows a single row with the value 92.

count(Name)
92

“LIKE”



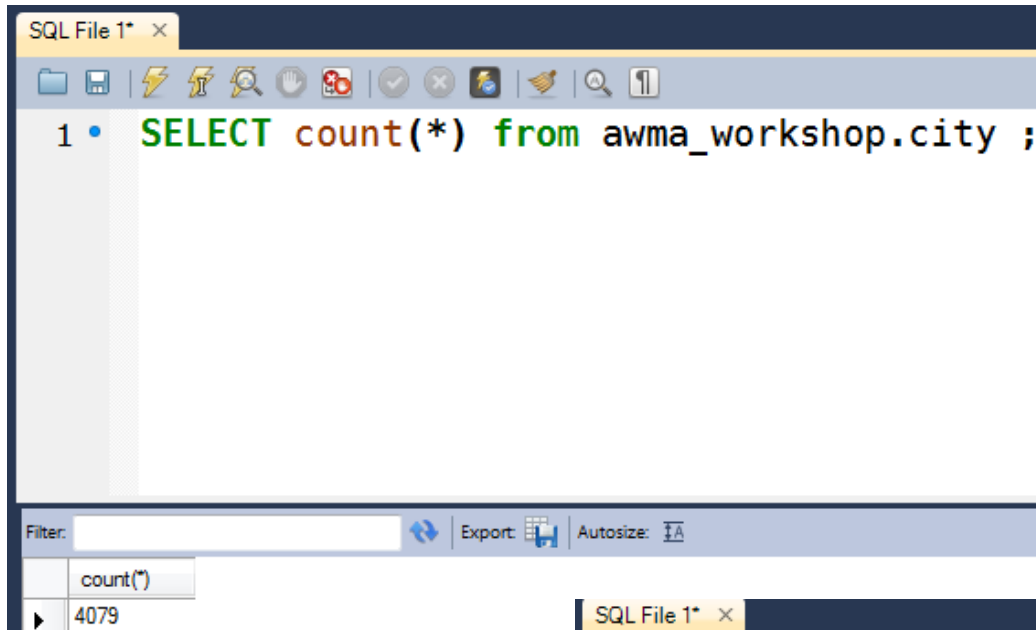
The screenshot shows an SQL IDE window titled "SQL File 1* x". The query editor contains the following SQL code:

```
1 • SELECT * from awma_workshop.city
2 WHERE city.Name LIKE "SA%"
```

Below the query editor, there is a toolbar with a "Filter:" input field, a refresh icon, an "Export:" button, and an "Autosize:" button. The results pane displays a table with the following data:

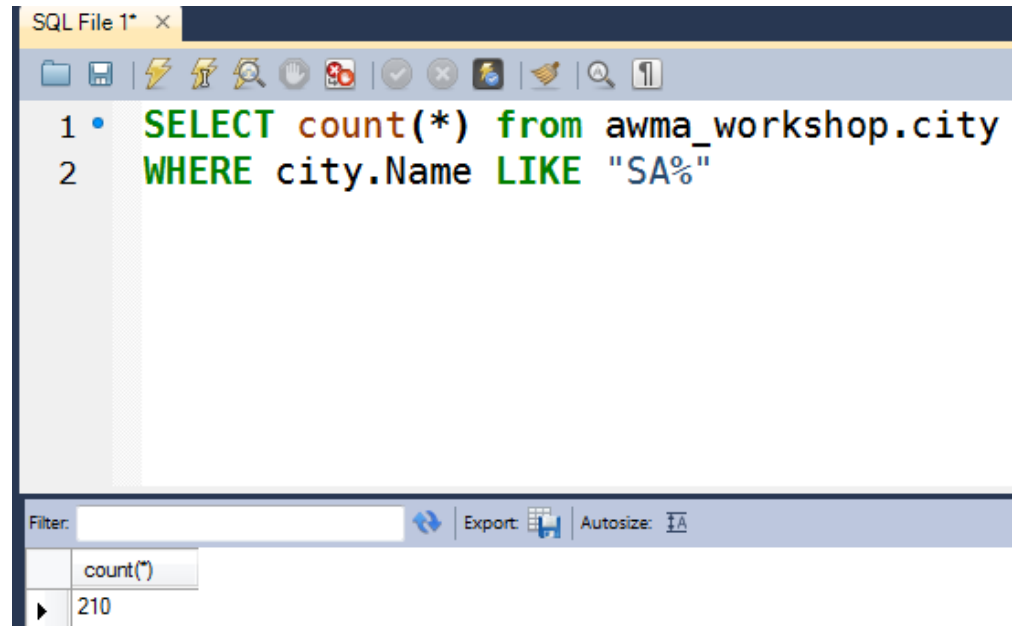
ID	Name	CountryCode	District	Population
40	SÅ©tif	DZA	SÅ©tif	179055
63	Saint JohnÅ’s	ATG	St John	24000
78	San Miguel de TucumÅjn	ARG	TucumÅjn	470809
82	Salta	ARG	Salta	367550
84	Santa FÅ©	ARG	Santa FÅ©	353063
89	San Isidro	ARG	Buenos Aires	306341
95	San Miguel	ARG	Buenos Aires	248700

Counting Rows Example



```
1 • SELECT count(*) from awma_workshop.city ;
```

count(*)
4079



```
1 • SELECT count(*) from awma_workshop.city  
2 WHERE city.Name LIKE "SA%"
```

count(*)
210

Counting number of cities with population larger than 20,000

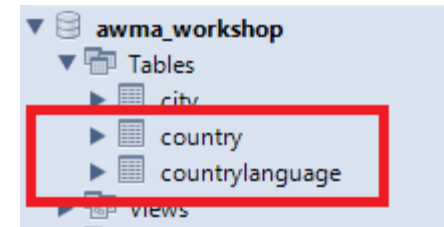
```
1 • SELECT count(*) FROM awma_workshop.city;
2
3
4
```

Filter:	File:	Autosize:
count(*)		
▶ 4079		

```
1 • SELECT count(*) FROM awma_workshop.city WHERE Population > 20000;
2
3
4
```

Filter:	File:	Autosize:
count(*)		
▶ 4025		

Country Details



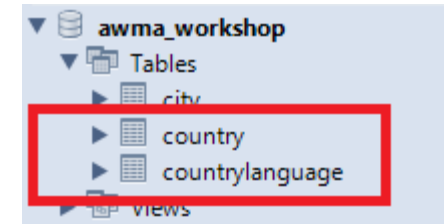
SQL File 1* Query 5 Query 6 Query 7 x

```
1 • SELECT * FROM awma_workshop.country;
```

Filter: [] Export: [] Autosize: []

	Code	Name	Continent	Region	SurfaceArea	IndepYear	Population	LifeExpectancy
▶	ABW	Aruba	North America	Caribbean	193	NULL	103000	78.4
	AFG	Afghanistan	Asia	Southern and Central Asia	652090	1919	22720000	45.9
	AGO	Angola	Africa	Central Africa	1246700	1975	12878000	38.3
	AIA	Anguilla	North America	Caribbean	96	NULL	8000	76.1
	ALB	Albania	Europe	Southern Europe	28748	1912	3401200	71.6
	AND	Andorra	Europe	Southern Europe	468	1278	78000	83.5
	ANT	Netherlands Antilles	North America	Caribbean	800	NULL	217000	74.7
	ARE	United Arab Emirates	Asia	Middle East	83600	1971	2441000	74.1
	ARG	Argentina	South America	South America	2780400	1816	37032000	75.1
	ARM	Armenia	Asia	Middle East	29800	1991	3520000	66.4
	ASM	American Samoa	Oceania	Polynesia	199	NULL	68000	75.1
	ATA	Antarctica	Antarctica	Antarctica	13120000	NULL	0	NULL
	ATF	French Southern territories	Antarctica	Antarctica	7780	NULL	0	NULL
	ATG	Antigua and Barbuda	North America	Caribbean	442	1981	68000	70.5

Country Language



SQL File 1* Query 5 Query 6 Query 7 x

```
1 • SELECT * FROM awma_workshop.countrylanguage;
```

Filter: Export: Autosize: A

CountryCode	Language	IsOfficial	Percentage
ABW	Dutch	T	5.3
ABW	English	F	9.5
ABW	Papiamentu	F	76.7
ABW	Spanish	F	7.4
AFG	Balochi	F	0.9
AFG	Dari	T	32.1
AFG	Pashto	T	52.4
AFG	Turkmenian	F	1.9
AFG	Uzbek	F	8.8
AGO	Ambo	F	2.4
AGO	Chokwe	F	4.2
AGO	Kongo	F	13.2
AGO	Luchazi	F	2.4
AGO	Luimbe-ngan...	F	5.4
AGO	...	F	...

Selecting Distinct *Language*

```
1 • SELECT DISTINCT language FROM awma_workshop.countrylanguage;  
2  
3  
4
```

Filter: File: Autosize:

- language
- ▶ Dutch
- English
- Papiamentu
- Spanish
- Balochi
- Dari
- Pashto
- Turkmenian
- Uzbek
- Ambo
- Chokwe
- Kongo
- Luchazi
- Luimbe-nganguela
- Luvale
- Mbundu
- Nyaneka-nkhumbi
- Ovimbundu
- Albaniana
- Greek
- Macedonian
- Catalan
- French

countrylanguage 7

Output

Action Output ▾

	Time	Action	Message
✓	1 00:00:49	SELECT DISTINCT language FROM awma_workshop.countrylanguage LIMIT 0, 1000	457 row(s) returned

Joining two table

All Access Objects

Search...

Tables

- city
- country
- countrylanguage

country

- *
- Code
- Name
- Continent
- Region
- SurfaceArea
- IndepYear
- Population
- LifeExpectancy
- GNP
- GNPOid
- LocalName
- GovernmentForm
- HeadOfState
- Capital
- Code2

countrylanguage

- *
- CountryCode
- Language
- IsOfficial
- Percentage

Field:	Name	Language	Continent
Table:	country	countrylanguage	country
Sort:			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			

Num Lock

SQL

Joining two table

The screenshot displays the Microsoft Access interface. The ribbon at the top contains the following groups and options:

- Results:** View, Run, **Select** (highlighted), Make Table, Append, Update, Crosstab, Delete.
- Query Type:** Union, Pass-Through, Data Definition.
- Query Setup:** Show Table, Insert Rows, Delete Rows, Builder, Insert Columns, Delete Columns, Return: [dropdown].

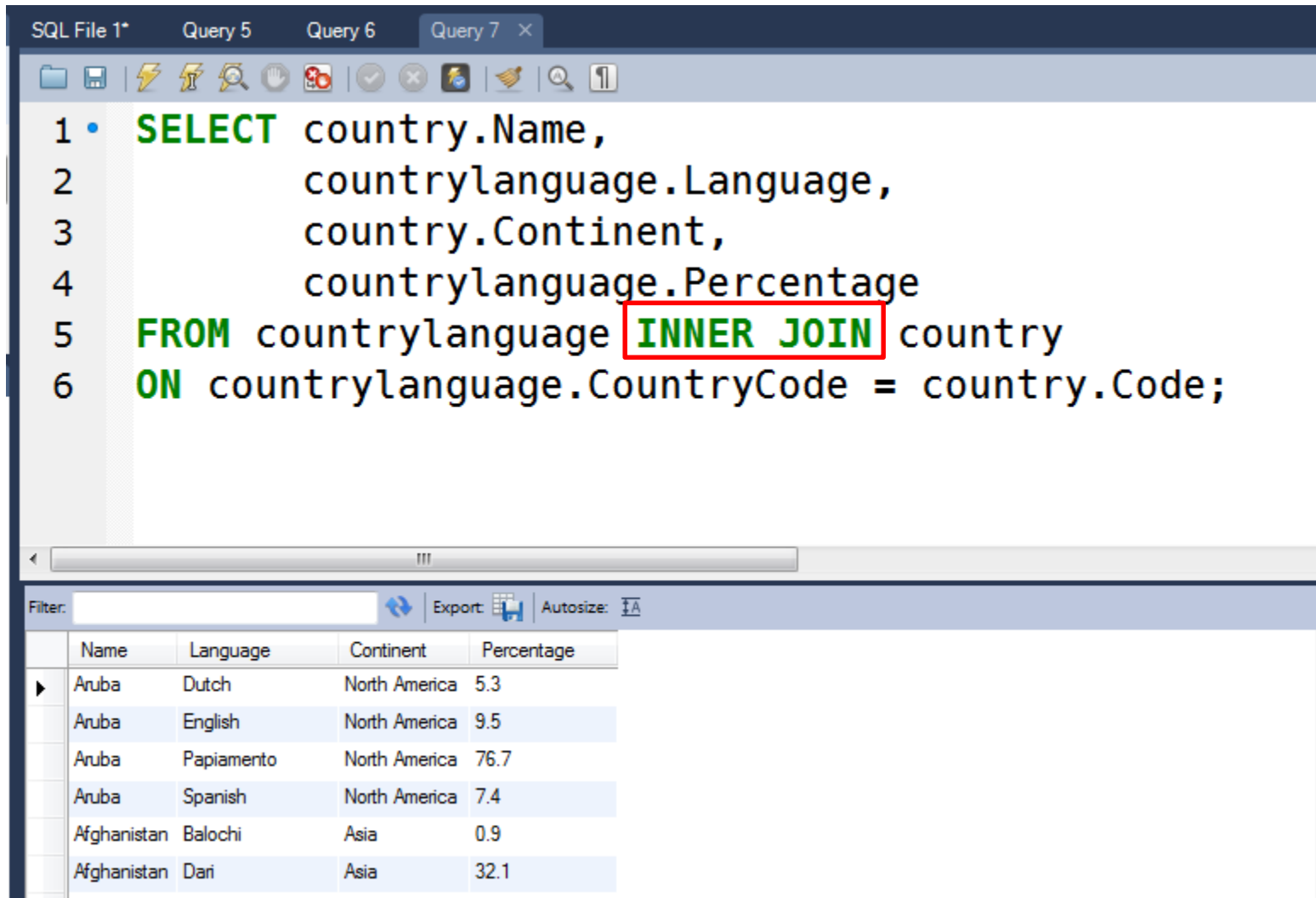
The **All Access Objects** pane on the left shows the **Tables** section with the following tables listed:

- city
- country
- countrylanguage

The **Query1** pane displays the following SQL query:

```
SELECT country.Name, countrylanguage.Language, country.Continent, countrylanguage.Percentage  
FROM countrylanguage INNER JOIN country ON countrylanguage.CountryCode = country.Code;
```

Joining two table



The screenshot shows a SQL IDE window with a query editor and a results grid. The query editor contains the following SQL code:

```
1 • SELECT country.Name,  
2     countrylanguage.Language,  
3     country.Continent,  
4     countrylanguage.Percentage  
5 FROM countrylanguage INNER JOIN country  
6 ON countrylanguage.CountryCode = country.Code;
```

The results grid displays the following data:

	Name	Language	Continent	Percentage
▶	Aruba	Dutch	North America	5.3
	Aruba	English	North America	9.5
	Aruba	Papiamento	North America	76.7
	Aruba	Spanish	North America	7.4
	Afghanistan	Balochi	Asia	0.9
	Afghanistan	Dari	Asia	32.1

Joining two table *USING* ()

```
1 • SELECT a.Name,b.language, b.percentage from
2   city as a inner join countrylanguage as b USING (CountryCode);
3
4
```

Name	language	percentage
Kabul	Balochi	0.9
Kabul	Dari	32.1
Kabul	Pashto	52.4
Kabul	Turkmenian	1.9
Kabul	Uzbek	8.8
Qandahar	Balochi	0.9
Qandahar	Dari	32.1
Qandahar	Pashto	52.4
Qandahar	Turkmenian	1.9
Qandahar	Uzbek	8.8
Herat	Balochi	0.9
Herat	Dari	32.1
Herat	Pashto	52.4
Herat	Turkmenian	1.9
Herat	Uzbek	8.8
Mazar-e-Sharif	Balochi	0.9
Mazar-e-Sharif	Dari	32.1
Mazar-e-Sharif	Pashto	52.4
Mazar-e-Sharif	Turkmenian	1.9
Mazar-e-Sharif	Uzbek	8.8
Amsterdam	Arabic	0.9
Amsterdam	Dutch	95.6
Amsterdam	Fries	3.7

Result 10

Output

Action Output

Time	Action	Message
1 00:03:59	SELECT a.Name,b.language, b.percentage from city as a inner join countrylanguage as b USING (CountryCode) LIMIT 0, 1000	1000 row(s) returned