

Basi di Dati: Laboratorio



MySQL: Installazione e uso base

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Outline

- ▶ Cos'è MySQL
- ▶ Download ed Installazione
- ▶ Configurazione
- ▶ MySQL Workbench
- ▶ Un caso di studio: database di un'università
 - ▶ Creazione di un database
 - ▶ Creazione di tabelle
 - ▶ Definizione dei vincoli di integrità referenziale
 - ▶ Inserimento e modifica dei dati

MySQL

- ▶ MySQL è un Database Management System (DBMS) Relazionale
- ▶ È uno dei DBMS più utilizzati al mondo perché:
 - ▶ È Open Source, ed è gratuito;
 - ▶ È disponibile su Molti sistemi operativi;
 - ▶ È relativamente leggero;
 - ▶ È semplice da amministrare;
 - ▶ È molto performante, non è un DBMS giocattolo
- ▶ Supporta transazioni ACID, Stored Procedure, Viste, Trigger, Transazioni distribuite, DBMS Federati...

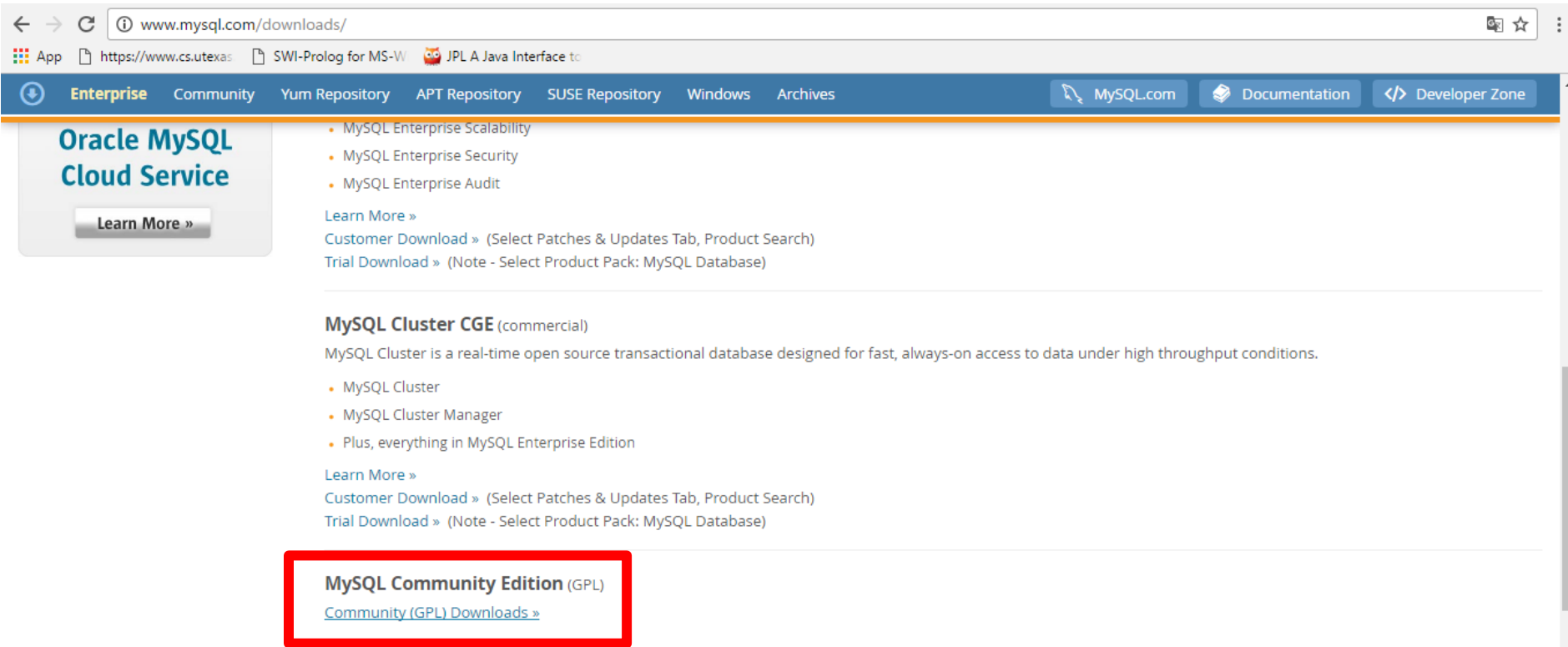
Download ed Installazione

- È attualmente disponibile gratuitamente
- <http://www.mysql.com>

The image shows a screenshot of a web browser displaying the MySQL website. The browser's address bar shows the URL www.mysql.com. The website header includes the MySQL logo, the tagline "The world's most popular open source database", and navigation links for "Contact MySQL", "Login", and "Register". Below the header, there is a navigation bar with links for "Products", "Cloud", "Services", "Partners", "Customers", "Why MySQL?", "News & Events", and "How to Buy". The "Downloads" link is highlighted with a red box. Below the navigation bar, there is a section for "MySQL Enterprise Monitor" with the text "New! Backup Dashboard" and a "LEARN MORE" button. To the left of the "LEARN MORE" button, there is a screenshot of the MySQL Enterprise Monitor interface, which displays a "Backup Overview" dashboard with various metrics and charts.

Download ed Installazione

- ▶ È attualmente disponibile gratuitamente
- ▶ <http://www.mysql.com/downloads/>



The screenshot shows the MySQL Downloads page. The browser address bar displays 'www.mysql.com/downloads/'. The page features a navigation bar with links to 'Enterprise', 'Community', 'Yum Repository', 'APT Repository', 'SUSE Repository', 'Windows', and 'Archives'. On the left, there is a sidebar for 'Oracle MySQL Cloud Service' with a 'Learn More »' button. The main content area lists several MySQL products, including 'MySQL Enterprise Scalability', 'MySQL Enterprise Security', and 'MySQL Enterprise Audit'. Below these, there are links for 'Learn More »', 'Customer Download »', and 'Trial Download »'. The 'MySQL Cluster CGE (commercial)' section is highlighted with a red box, and it includes a link to 'Community (GPL) Downloads »'.

www.mysql.com/downloads/

Enterprise Community Yum Repository APT Repository SUSE Repository Windows Archives

MySQL.com Documentation Developer Zone

Oracle MySQL Cloud Service

Learn More »

- MySQL Enterprise Scalability
- MySQL Enterprise Security
- MySQL Enterprise Audit

Learn More »

Customer Download » (Select Patches & Updates Tab, Product Search)

Trial Download » (Note - Select Product Pack: MySQL Database)

MySQL Cluster CGE (commercial)

MySQL Cluster is a real-time open source transactional database designed for fast, always-on access to data under high throughput conditions.

- MySQL Cluster
- MySQL Cluster Manager
- Plus, everything in MySQL Enterprise Edition

Learn More »

Customer Download » (Select Patches & Updates Tab, Product Search)

Trial Download » (Note - Select Product Pack: MySQL Database)

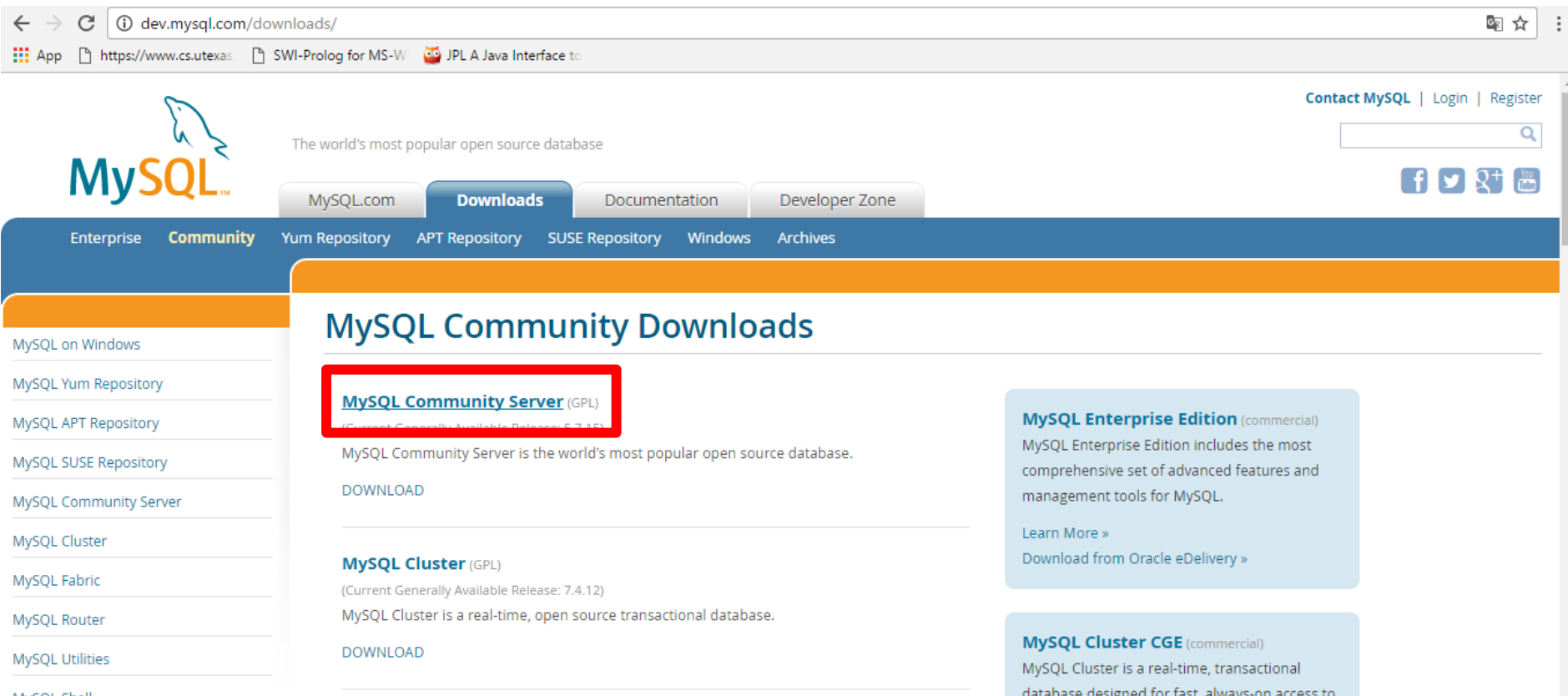
MySQL Community Edition (GPL)

[Community \(GPL\) Downloads »](#)

Download ed Installazione

► È attualmente disponibile gratuitamente

► <http://www.mysql.com/downloads/>



The screenshot shows the MySQL Community Downloads page. The browser address bar displays 'dev.mysql.com/downloads/'. The page features the MySQL logo and the tagline 'The world's most popular open source database'. Navigation tabs include 'MySQL.com', 'Downloads' (highlighted), 'Documentation', and 'Developer Zone'. A secondary navigation bar lists 'Enterprise', 'Community' (highlighted), 'Yum Repository', 'APT Repository', 'SUSE Repository', 'Windows', and 'Archives'. On the left, a sidebar lists various MySQL products, with 'MySQL Community Server' highlighted. The main content area is titled 'MySQL Community Downloads' and lists three options: 'MySQL Community Server (GPL)' (highlighted with a red box), 'MySQL Cluster (GPL)', and 'MySQL Enterprise Edition (commercial)'. Each option includes a brief description and a 'DOWNLOAD' link. The 'MySQL Enterprise Edition' section also includes links for 'Learn More' and 'Download from Oracle eDelivery'.

MySQL on Windows

MySQL Yum Repository

MySQL APT Repository

MySQL SUSE Repository

MySQL Community Server

MySQL Cluster

MySQL Fabric

MySQL Router

MySQL Utilities

MySQL Shell

MySQL Community Downloads

MySQL Community Server (GPL)
(Current Generally Available Release: 7.4.12)

MySQL Community Server is the world's most popular open source database.

DOWNLOAD

MySQL Cluster (GPL)
(Current Generally Available Release: 7.4.12)

MySQL Cluster is a real-time, open source transactional database.

DOWNLOAD

MySQL Enterprise Edition (commercial)
MySQL Enterprise Edition includes the most comprehensive set of advanced features and management tools for MySQL.

[Learn More »](#)
[Download from Oracle eDelivery »](#)

MySQL Cluster CGE (commercial)
MySQL Cluster is a real-time, transactional database designed for fast, always-on access to

Download ed Installazione

► È attualmente disponibile gratuitamente

► <http://www.mysql.com/downloads/>

The screenshot shows the MySQL Community Server 5.7.15 download page. The browser address bar shows 'dev.mysql.com/downloads/mysql/'. The page has a navigation bar with links for Enterprise, Community, Yum Repository, APT Repository, SUSE Repository, Windows, and Archives. Below the navigation bar, there's a 'Thank you for your support!' message. The main content area has two tabs: 'Generally Available (GA) Releases' (selected) and 'Development Releases'. Under the 'GA' tab, the version 'MySQL Community Server 5.7.15' is displayed. A 'Select Platform:' dropdown menu is set to 'Microsoft Windows'. To the right of the dropdown is a link 'Looking for previous GA versions?'. Below the platform selection, it says 'Recommended Download:'. The main download card is titled 'MySQL Installer 5.7 for Windows' and features the Windows logo. It states 'All MySQL Products. For All Windows Platforms. In One Package.' and includes a small note: 'Starting with MySQL 5.6 the MySQL Installer package replaces the server-only MSI packages.' At the bottom of the card, it specifies 'Windows (x86, 32-bit), MySQL Installer MSI'. A red rectangular box highlights the 'Download' button in the bottom right corner of the download card.

dev.mysql.com/downloads/mysql/

Enterprise **Community** Yum Repository APT Repository SUSE Repository Windows Archives

MySQL.com Documentation Developer Zone

Other Downloads

Thank you for your support!

Generally Available (GA) Releases Development Releases

MySQL Community Server 5.7.15

Select Platform:
Microsoft Windows ▼

Looking for previous GA versions?

Recommended Download:

MySQL Installer 5.7
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.

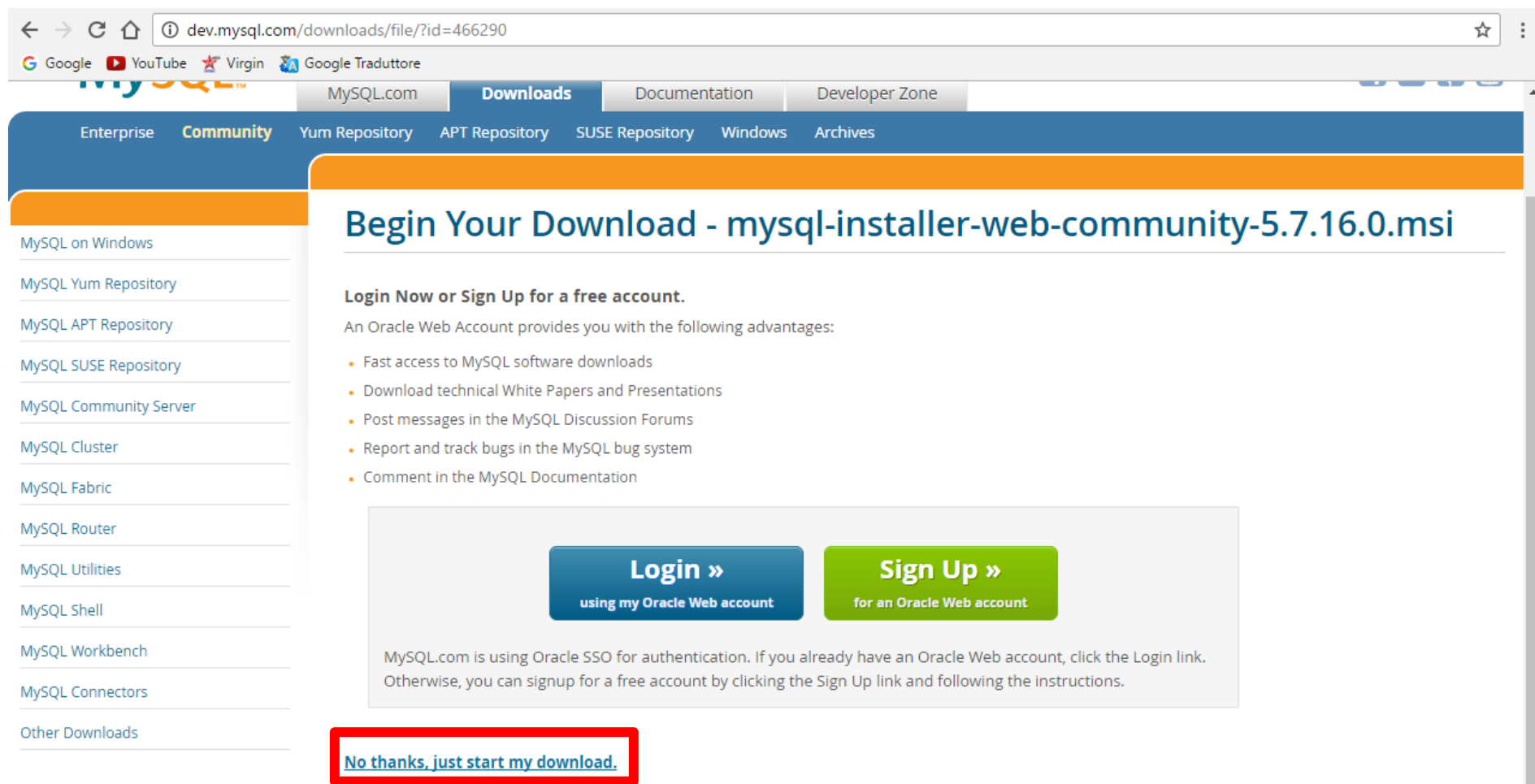
Windows (x86, 32-bit), MySQL Installer MSI

Download

Download ed Installazione

► È attualmente disponibile gratuitamente

► <http://www.mysql.com/downloads/>



The screenshot shows a web browser window with the URL `dev.mysql.com/downloads/file/?id=466290`. The page title is "Begin Your Download - mysql-installer-web-community-5.7.16.0.msi". The navigation bar includes links for Enterprise, Community, Yum Repository, APT Repository, SUSE Repository, Windows, and Archives. The left sidebar lists various MySQL products and tools. The main content area prompts the user to "Login Now or Sign Up for a free account" and lists the advantages of an Oracle Web Account. At the bottom, there are "Login »" and "Sign Up »" buttons. A red box highlights the link "No thanks, just start my download." at the bottom of the page.

MySQL on Windows

MySQL Yum Repository

MySQL APT Repository

MySQL SUSE Repository

MySQL Community Server

MySQL Cluster

MySQL Fabric

MySQL Router

MySQL Utilities

MySQL Shell

MySQL Workbench

MySQL Connectors

Other Downloads

Begin Your Download - mysql-installer-web-community-5.7.16.0.msi

Login Now or Sign Up for a free account.

An Oracle Web Account provides you with the following advantages:

- Fast access to MySQL software downloads
- Download technical White Papers and Presentations
- Post messages in the MySQL Discussion Forums
- Report and track bugs in the MySQL bug system
- Comment in the MySQL Documentation

Login »
using my Oracle Web account

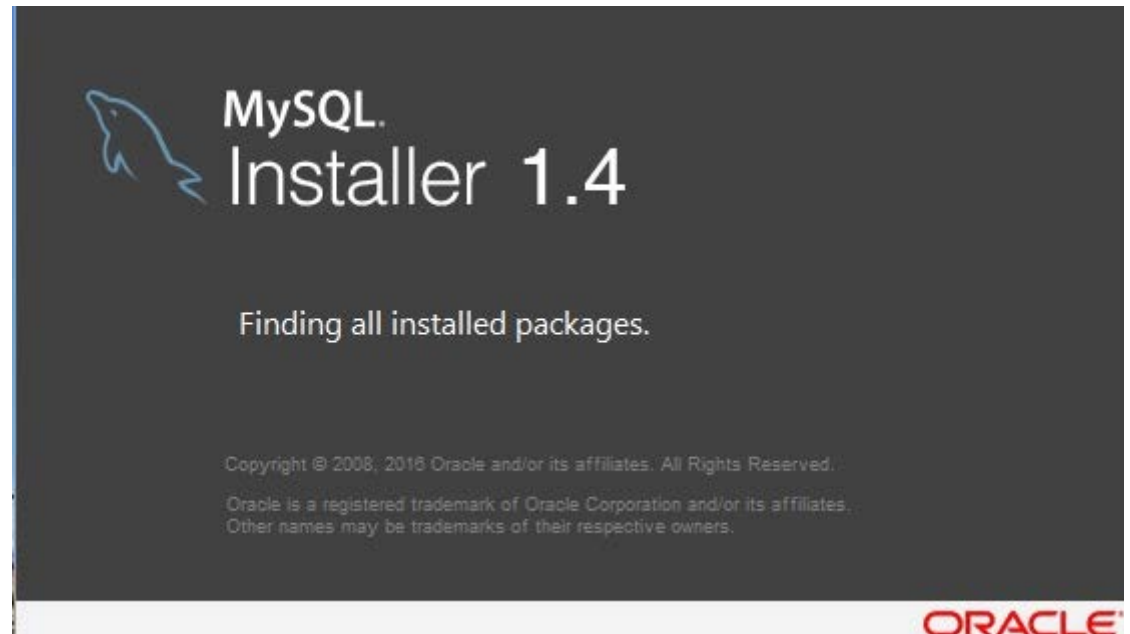
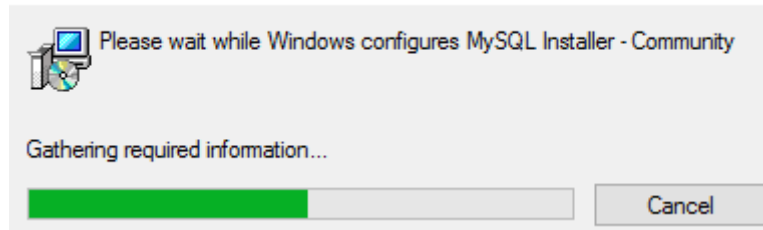
Sign Up »
for an Oracle Web account

MySQL.com is using Oracle SSO for authentication. If you already have an Oracle Web account, click the Login link. Otherwise, you can signup for a free account by clicking the Sign Up link and following the instructions.

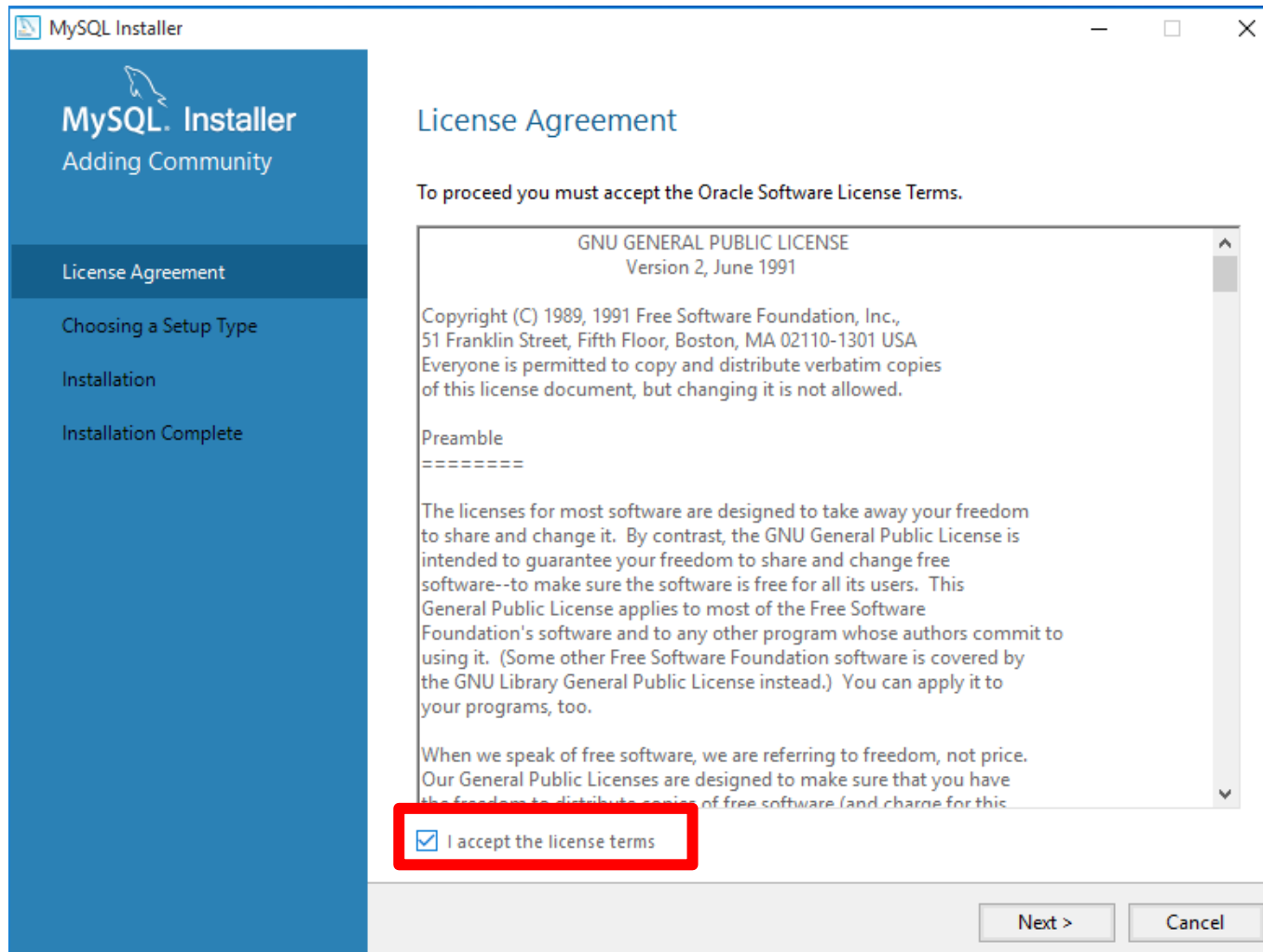
[No thanks, just start my download.](#)

Download ed Installazione

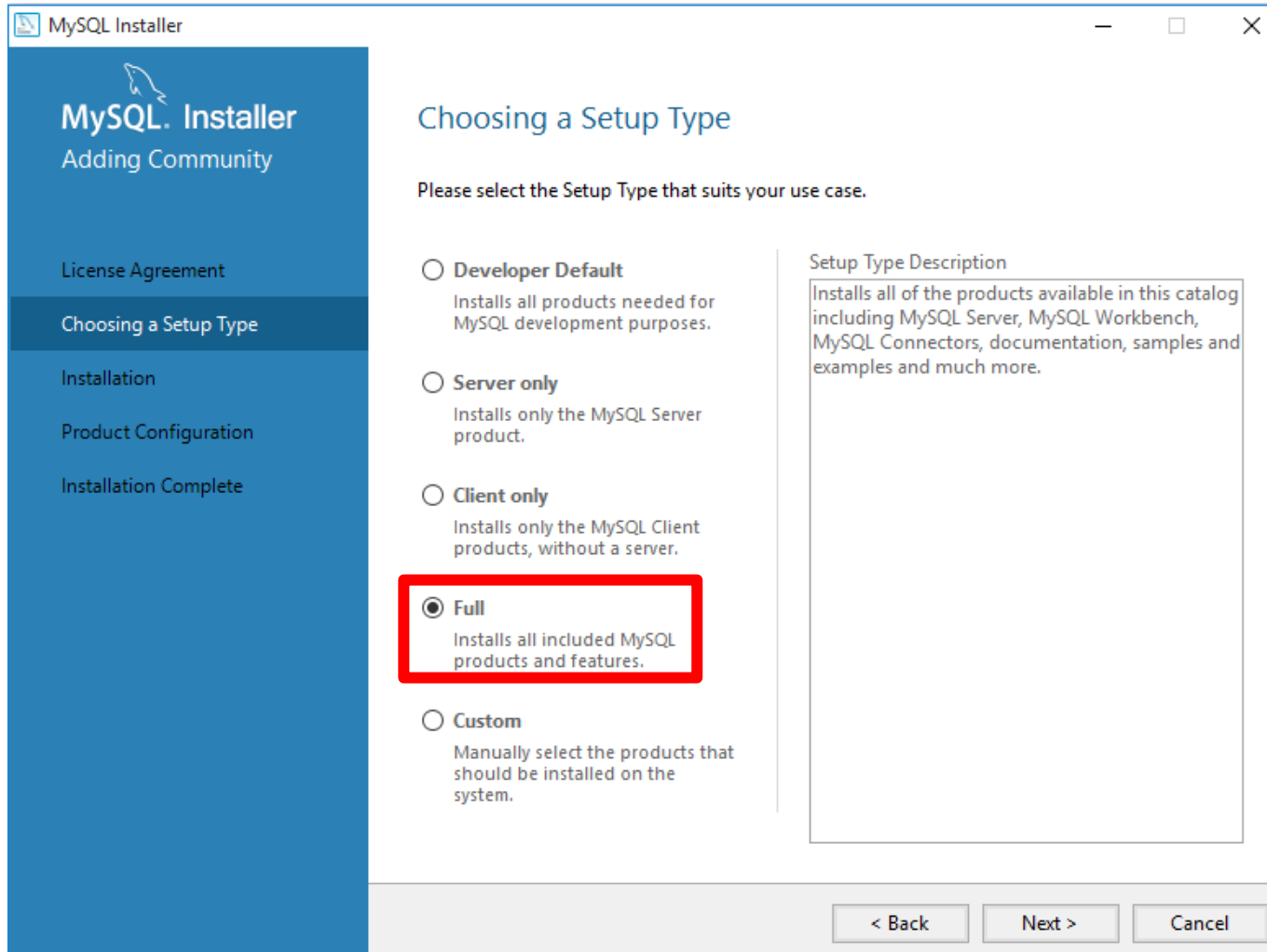
MySQL Installer - Community



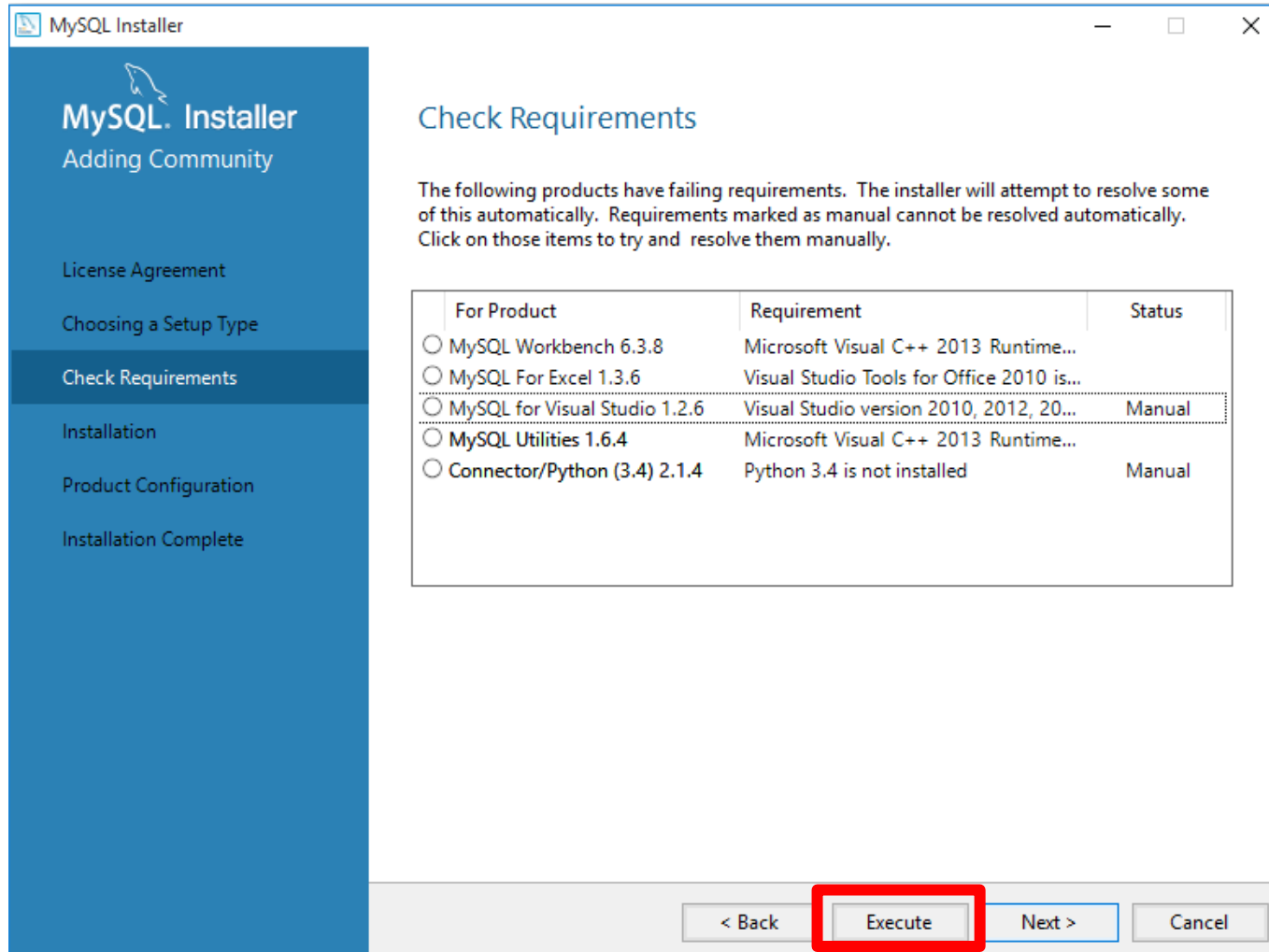
Download ed Installazione



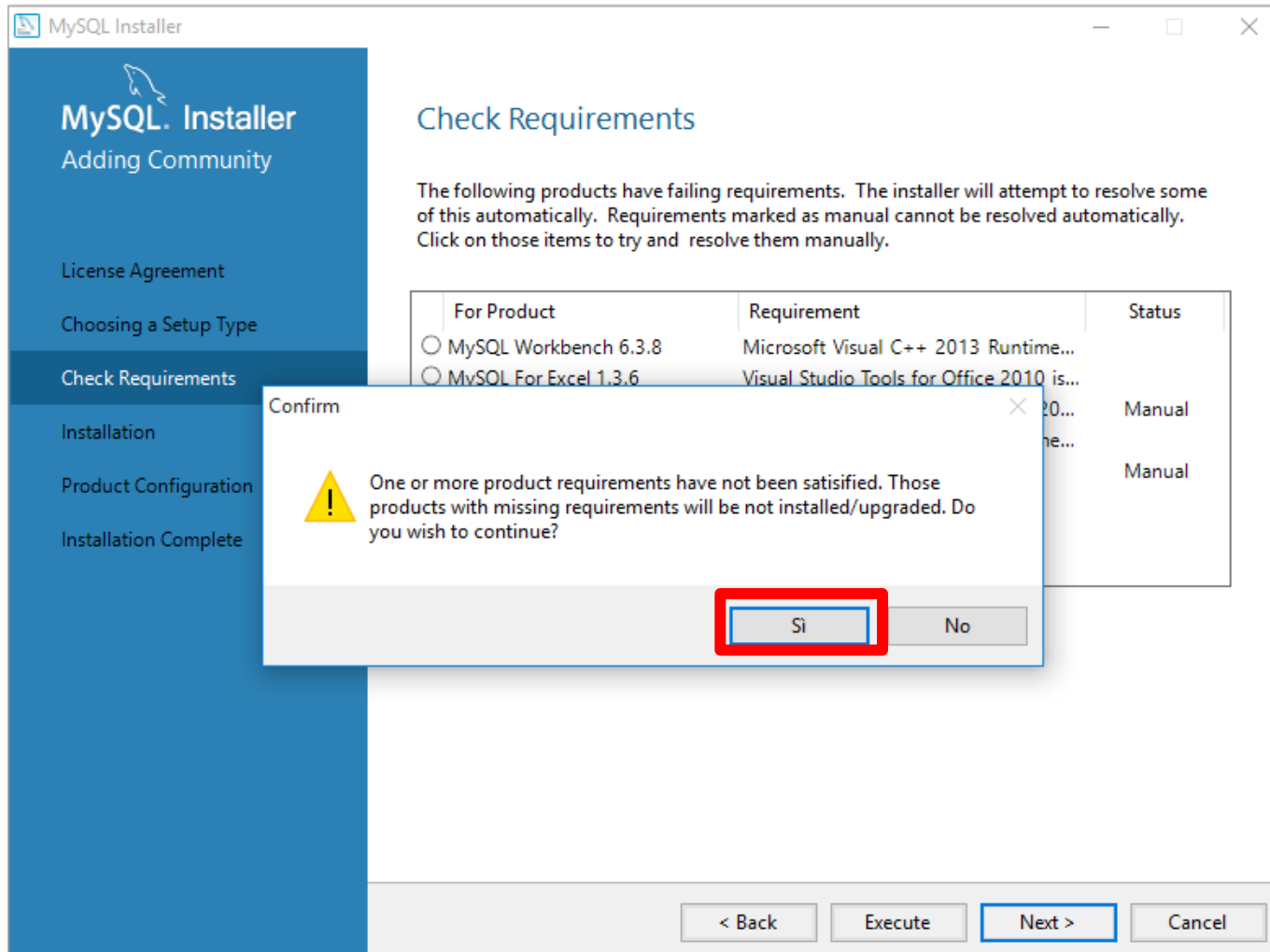
Download ed Installazione



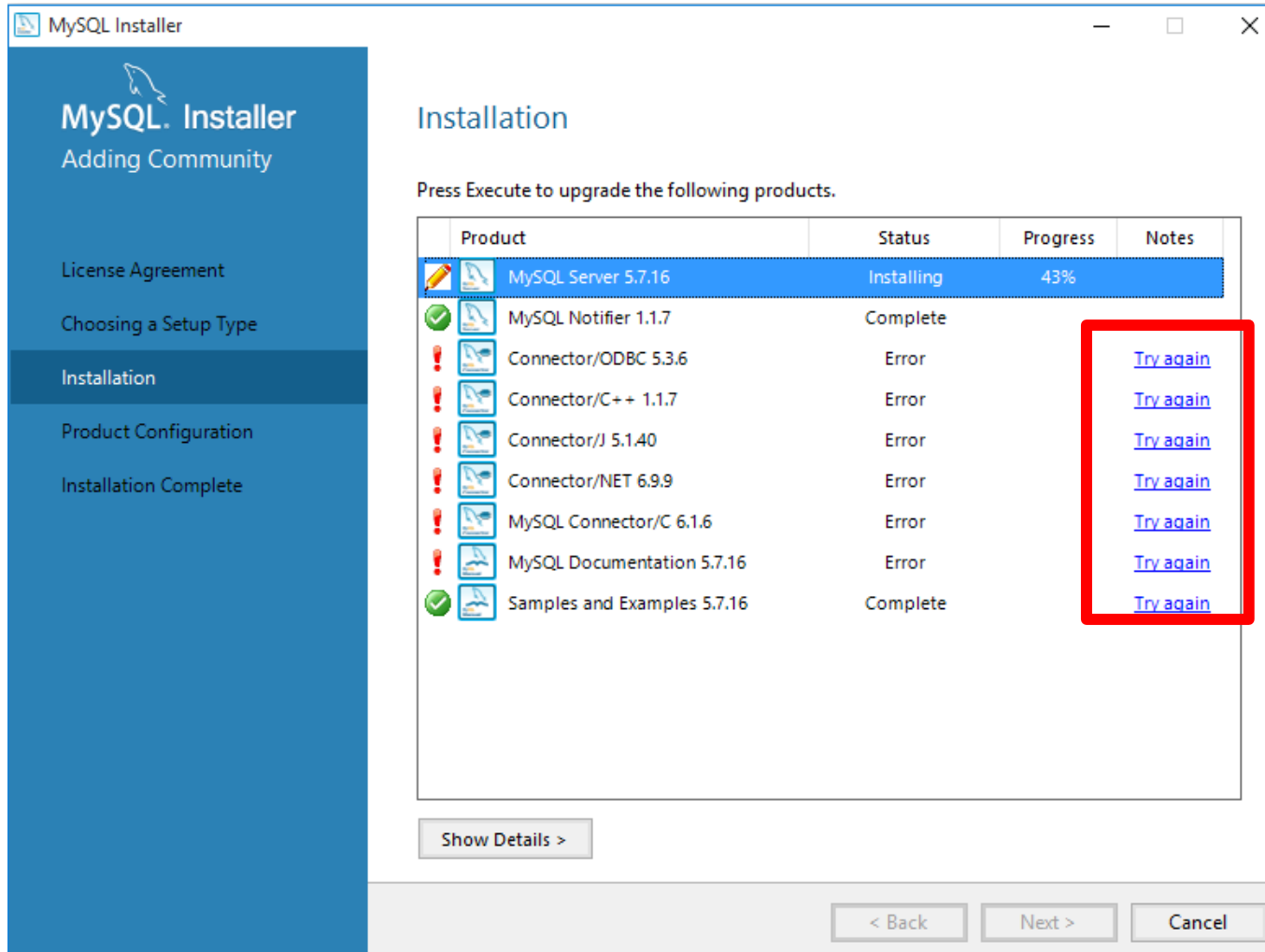
Download ed Installazione



Download ed Installazione



Download ed Installazione



Configurazione

MySQL Installer

MySQL Server 5.7.16

Type and Networking

Accounts and Roles

Windows Service

Plugins and Extensions

Advanced Options

Apply Server Configuration

Type and Networking

Server Configuration Type

Choose the correct server configuration type for this MySQL Server installation. This setting will define how much system resources are assigned to the MySQL Server instance.

Config Type: Development Machine

Connectivity

Use the following controls to select how you would like to connect to this server.

☒ TCP/IP Port Number: 3306

☒ Open Firewall port for network access

☐ Named Pipe Pipe Name: MYSQL

☐ Shared Memory Memory Name: MYSQL

Advanced Configuration

Select the checkbox below to get additional configuration page where you can set advanced options for this server instance.

☒ Show Advanced Options

Next > Cancel

Configurazione

► Inserire la password e confermarla

MySQL Installer
MySQL Server 5.7.16

Type and Networking

Accounts and Roles

Windows Service

Plugins and Extensions

Advanced Options

Apply Server Configuration

Accounts and Roles

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: **Weak**

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

Add User

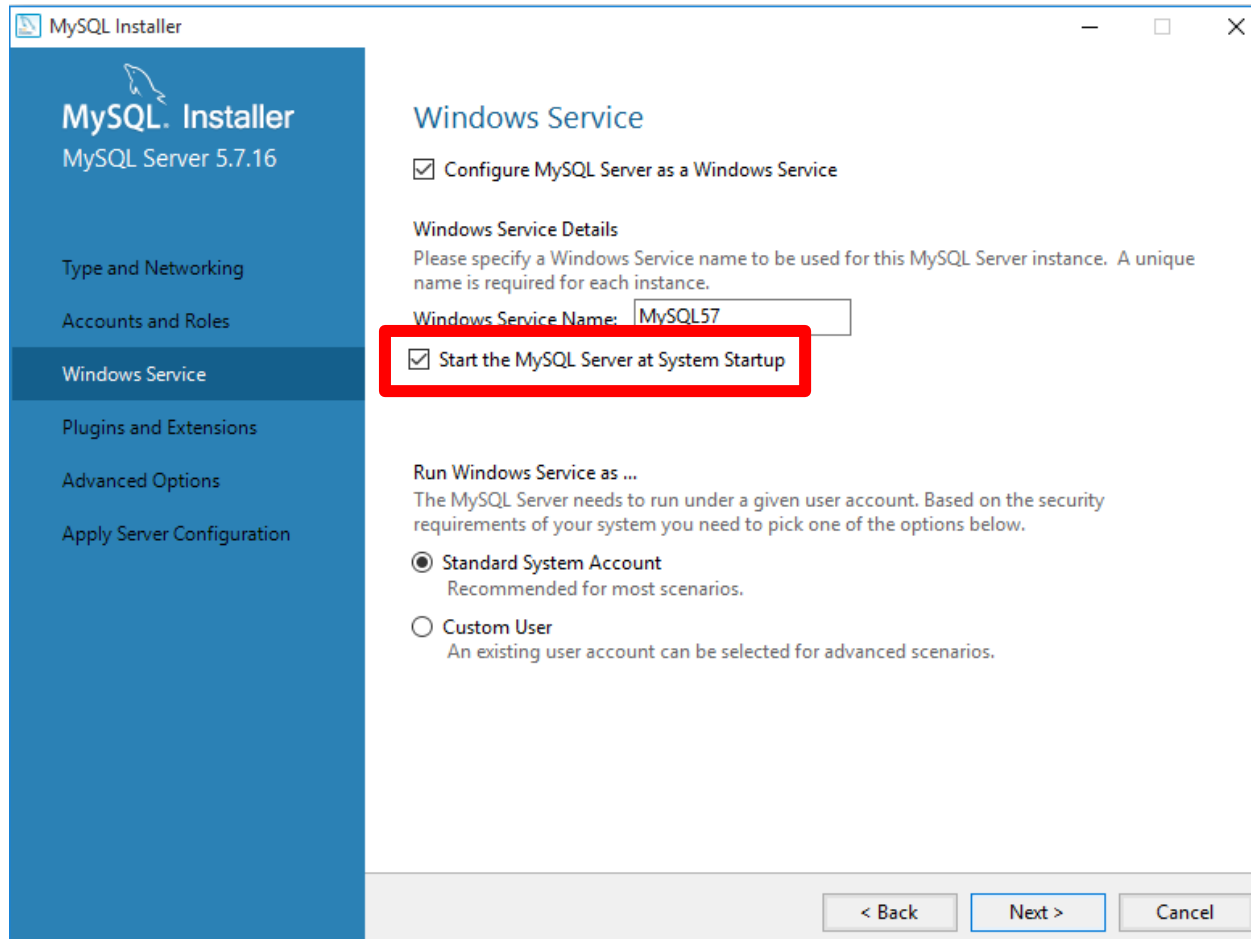
Edit User

Delete

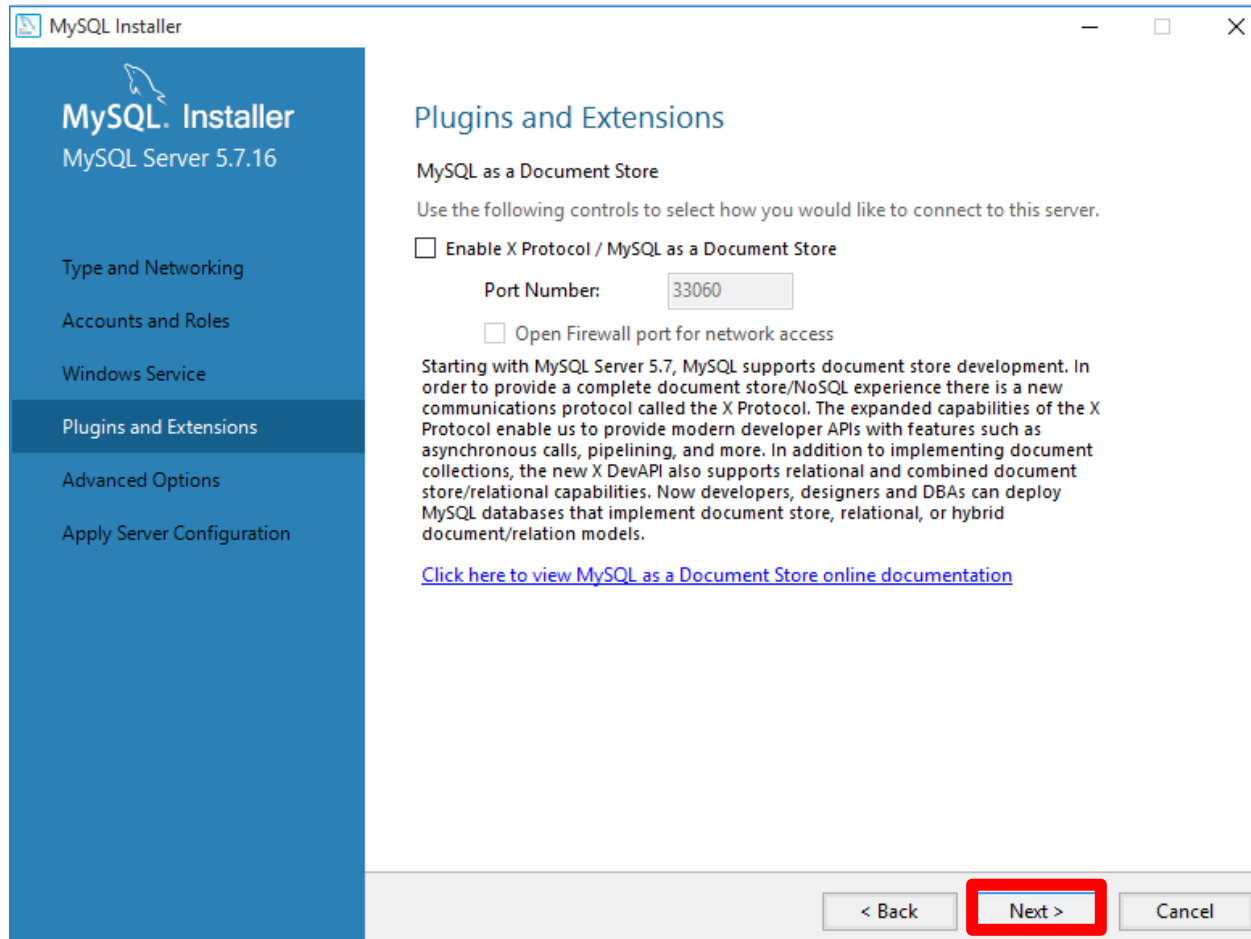
< Back Next > Cancel

Configurazione

- Decidere se si vuole lanciare MySQL all'avvio del sistema



Configurazione



Configurazione

MySQL Installer

MySQL Server 5.7.16

Type and Networking

Accounts and Roles

Windows Service

Plugins and Extensions

Advanced Options

Apply Server Configuration

Advanced Options

Logging Options

Please select the logs you want to activate for this server in addition to the Error Log. On production machines it can be beneficial to separate the log files from the data.

Error Log: ...

☐ General Log

The general query log is a general record of what the MySQL Server is doing. It should only be used to track down issues.

File Path: ...

☒ Slow Query Log

The slow query log consists of SQL statements that took more than the given value of seconds to execute. It is recommended to turn this log on.

File Path: ... Seconds:

☐ Bin Log

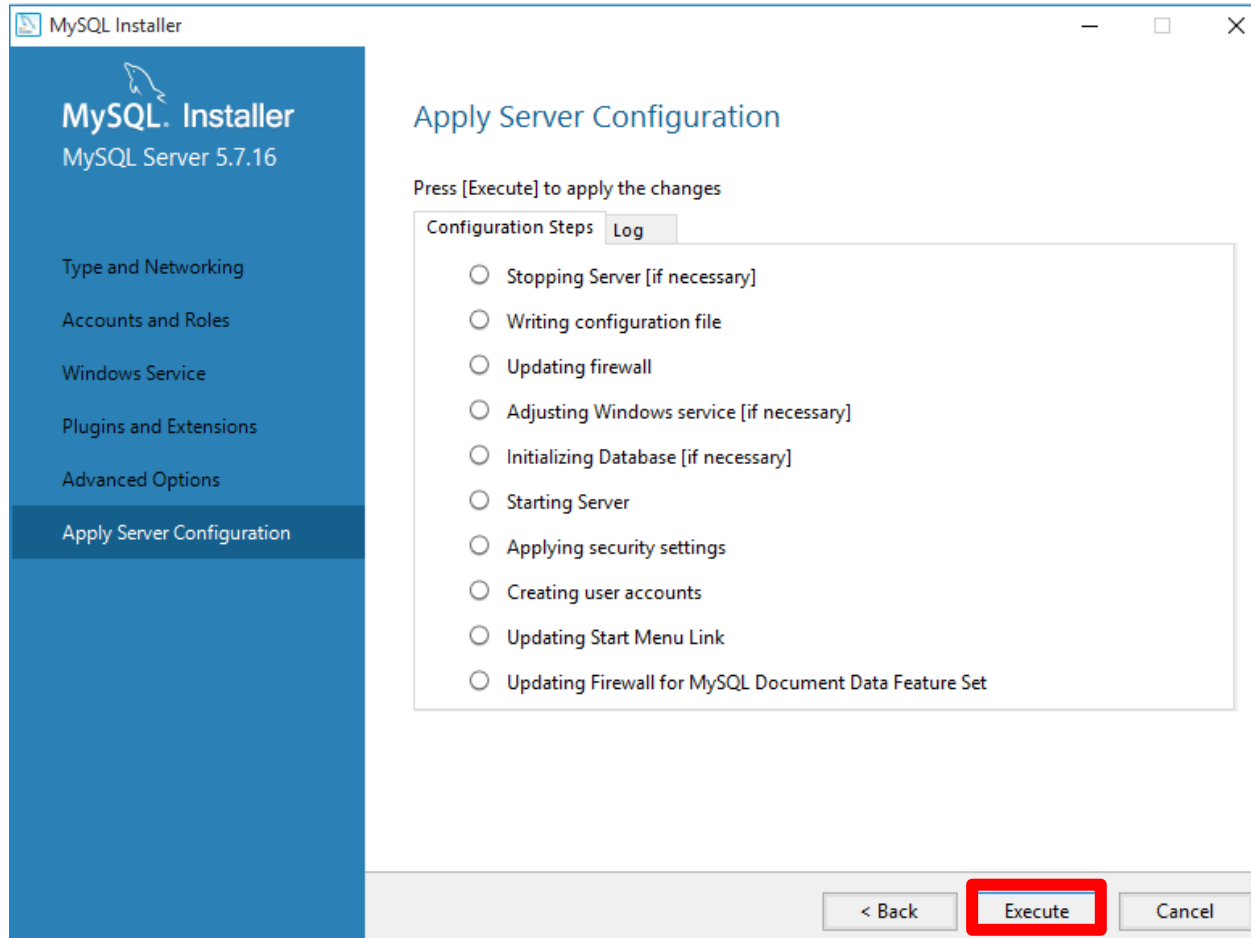
The binary log contains all database events and is used for replication and data recovery operations. It has a performance impact on the server. Only a filename base should be given as the server will append an appropriate extension

File Path: ...

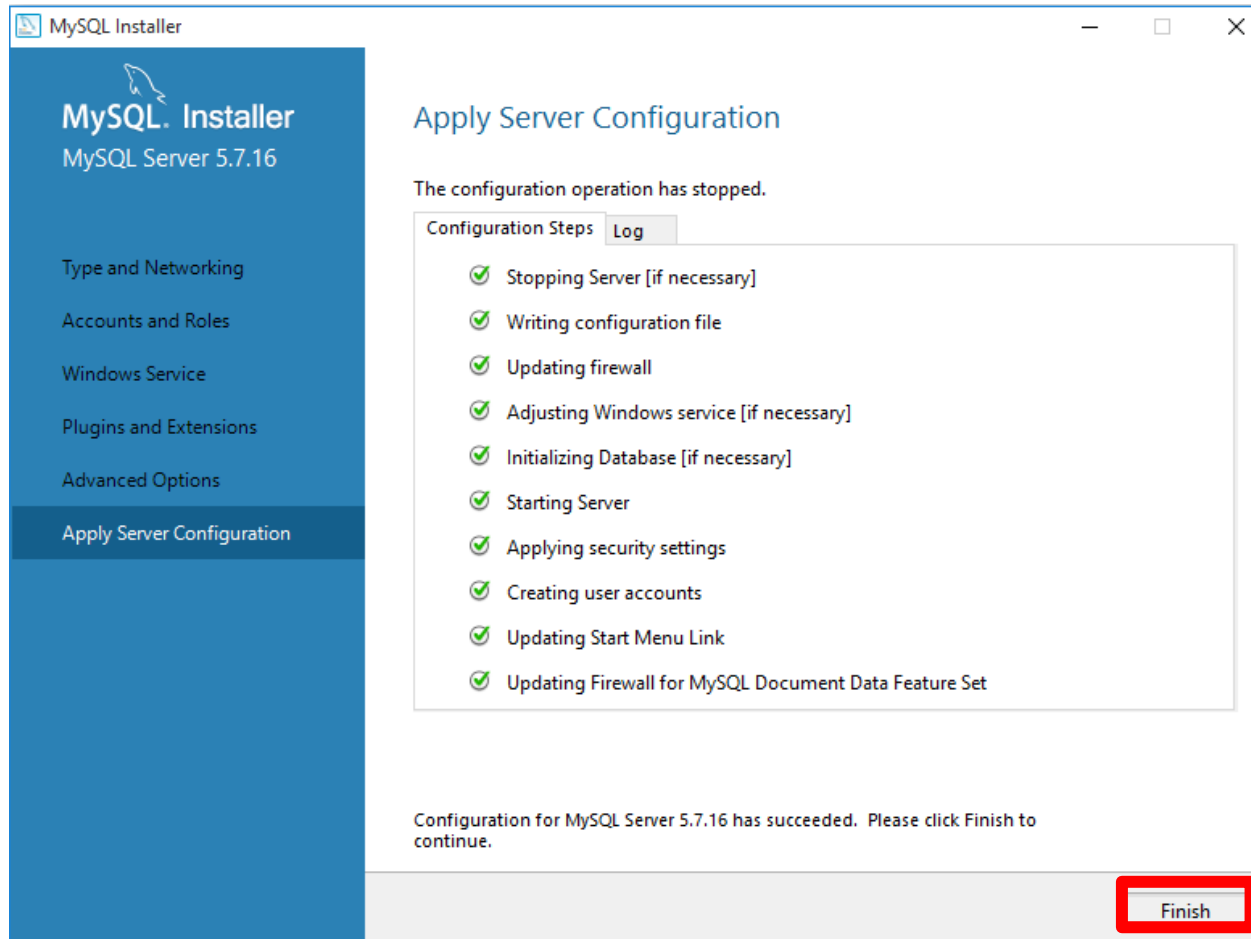
Server Id:

< Back **Next >** Cancel

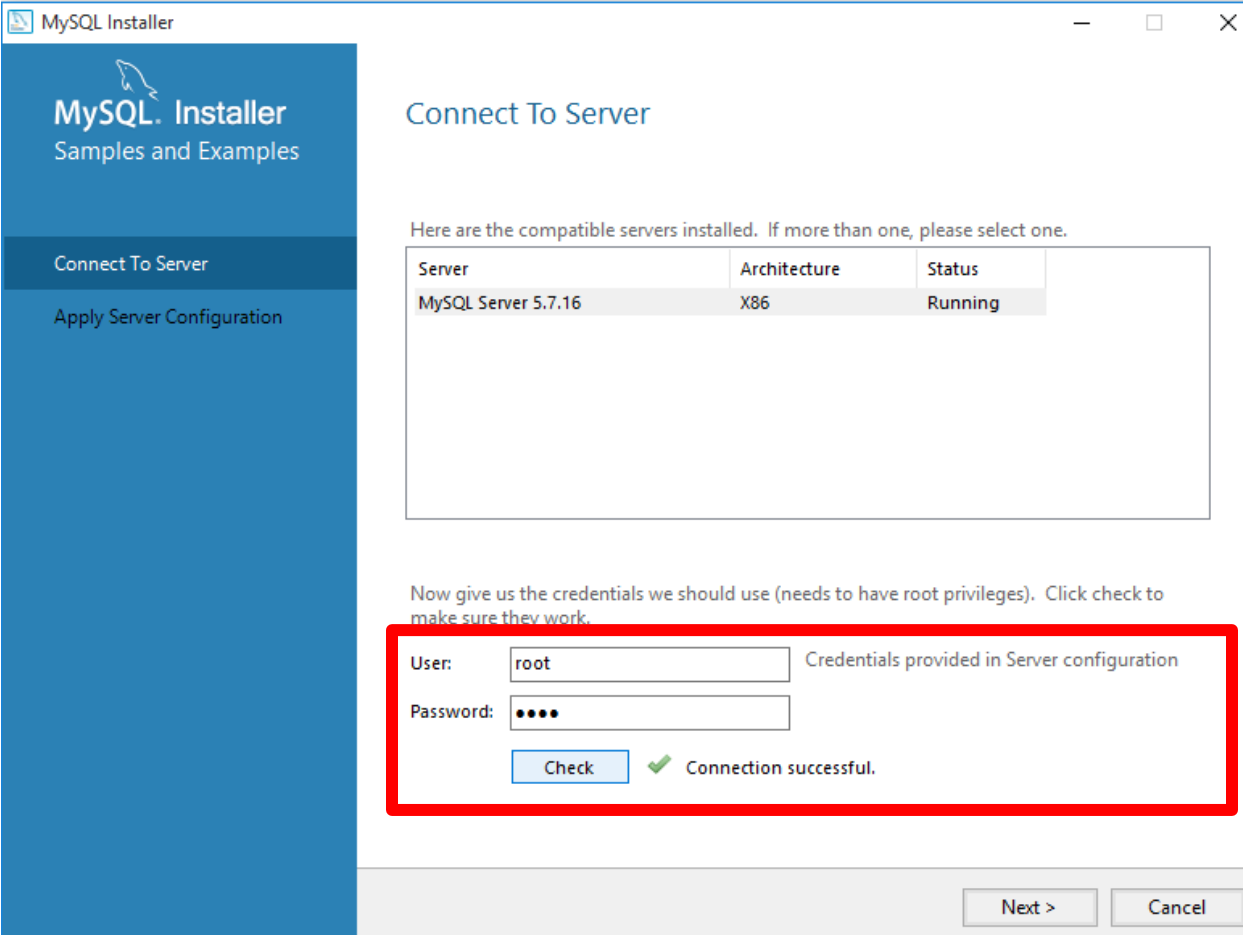
Configurazione



Configurazione



Configurazione



The image shows the 'MySQL Installer' window, specifically the 'Connect To Server' step. The left sidebar has two options: 'Connect To Server' (selected) and 'Apply Server Configuration'. The main area is titled 'Connect To Server' and contains a table of installed servers. Below the table, there is a section for entering credentials, which is highlighted with a red rectangle. The 'User' field is set to 'root' and the 'Password' field is masked with dots. A 'Check' button is present, and a green checkmark with the text 'Connection successful.' is displayed next to it. At the bottom right, there are 'Next >' and 'Cancel' buttons.

MySQL Installer

MySQL. Installer
Samples and Examples

Connect To Server

Apply Server Configuration

Connect To Server


Here are the compatible servers installed. If more than one, please select one.

Server	Architecture	Status
MySQL Server 5.7.16	X86	Running

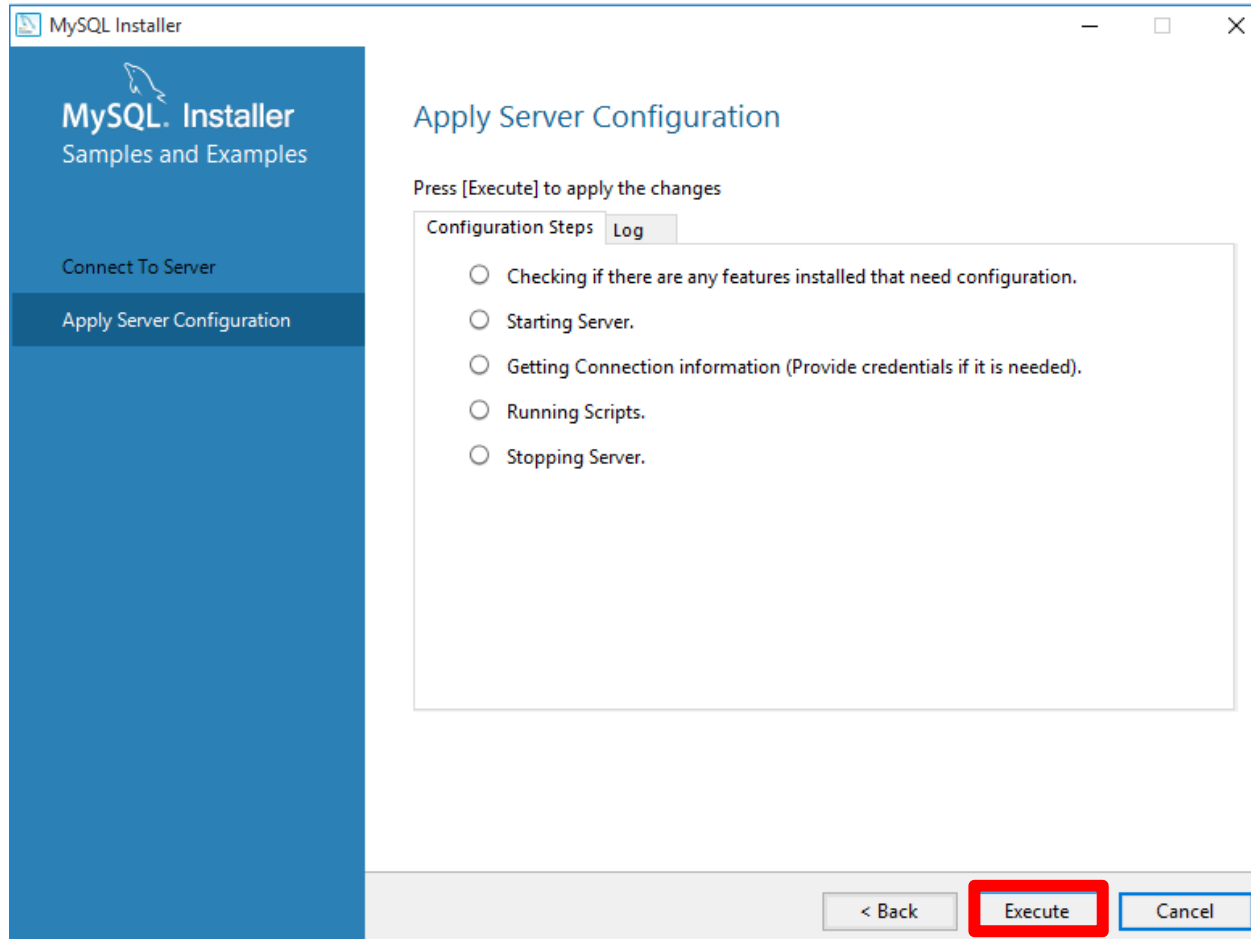
Now give us the credentials we should use (needs to have root privileges). Click check to make sure they work.

User: Credentials provided in Server configuration

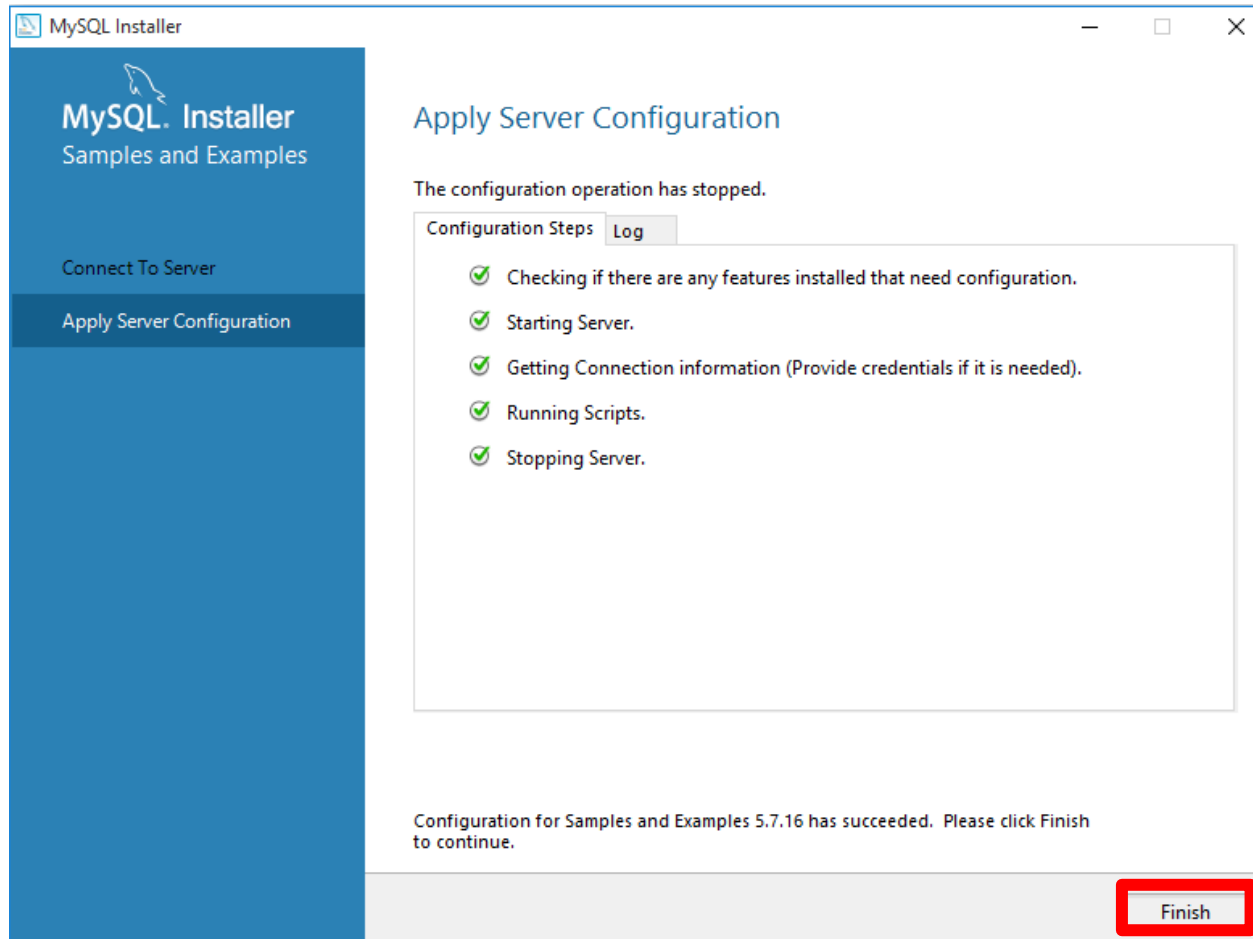
Password:

 Connection successful.

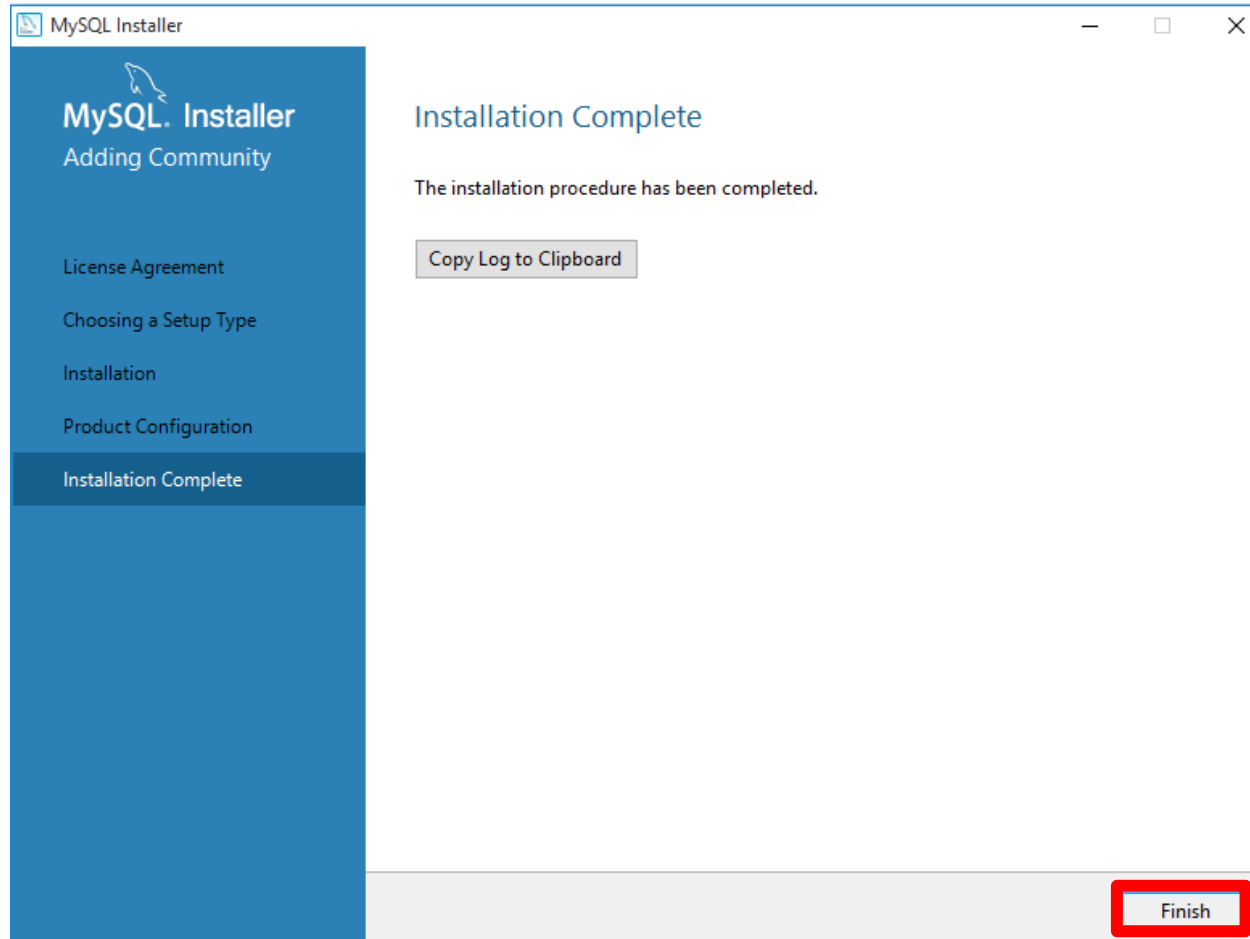
Configurazione



Configurazione

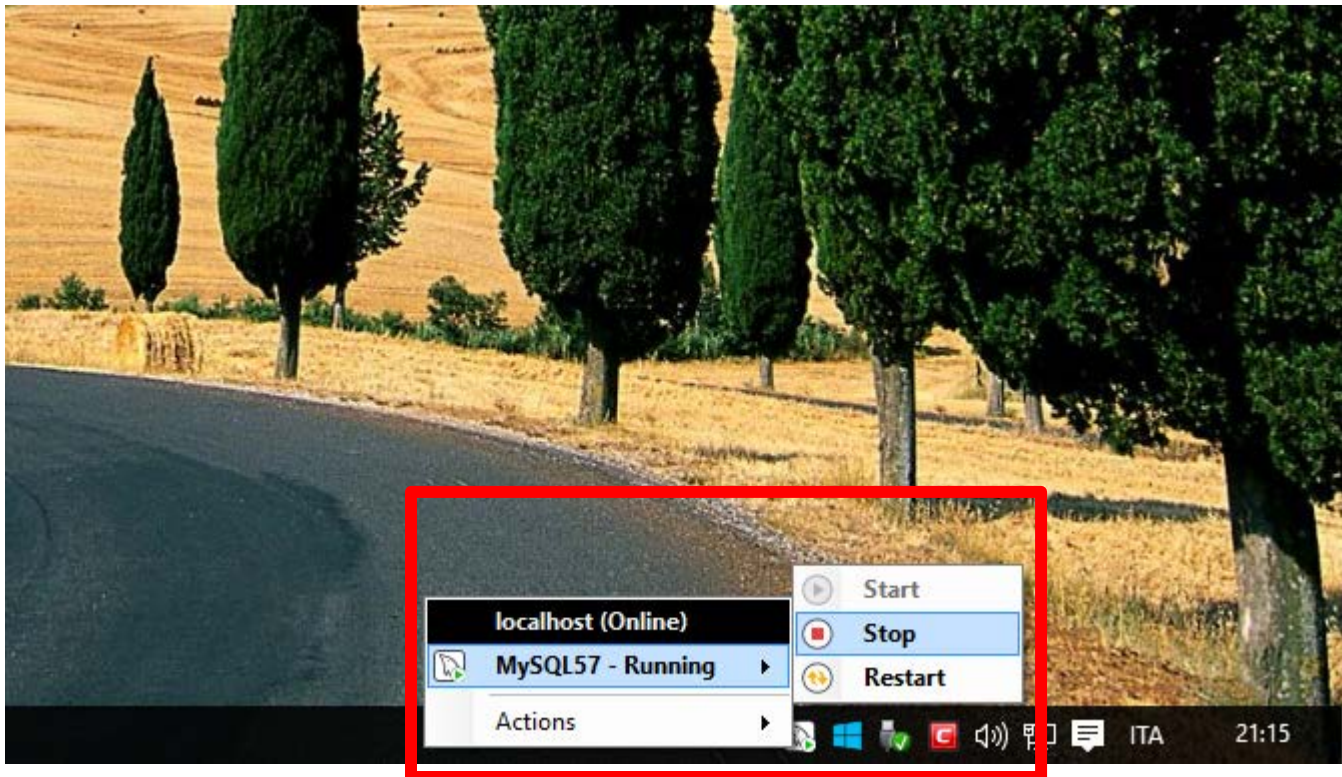


Configurazione

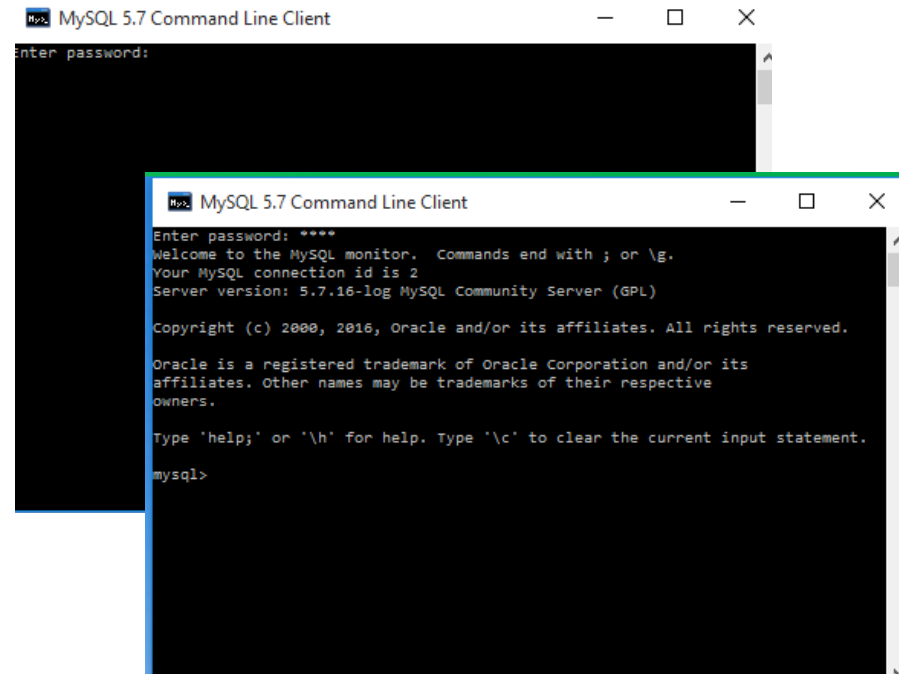
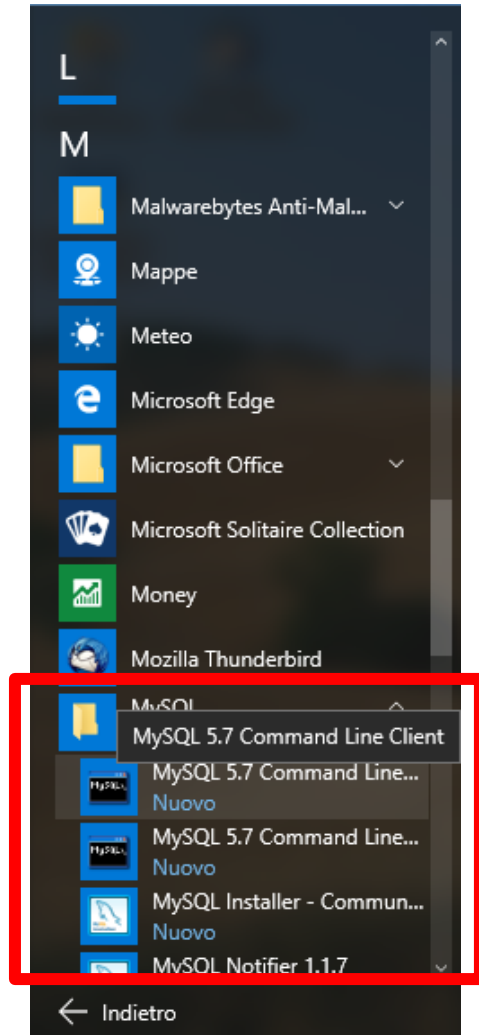


Esecuzione del Server MySQL

- ▶ Con l'installazione di MySQL è stato installato anche il MySQL Notifier
 - ▶ Attraverso il quale è possibile avviare o stoppare il server



Esecuzione del Client MySQL



Reset or Change MySQL Root Password on Linux or Windows

► Prerequisites

- An existing MySQL database
- Access to a Linux or Windows server running MySQL
- Administrator privileges on the computer that hosts the MySQL database
- A text editor. Notepad is included by default in Windows. Vim is installed by default in Linux.
- Access to a command-line interface (or terminal)

► URL:

<https://phoenixnap.com/kb/how-to-reset-mysql-root-password-windows-linux>

Creazione di tabelle

- ▶ Per creare un database si può usare il comando: **create schema <nomeDB>**
- ▶ Una volta creato il db si possono creare le tabelle che dovrà contenere
 - ▶ Ricordate di effettuare prima il comando: **use <nomeDB>;**
 - ▶ Il comando per creare una tabella è il seguente:

```
CREATE TABLE contocorrente(  
    numerocc          CHAR(6) PRIMARY KEY,  
    cognome           VARCHAR(20) NOT NULL,  
    nome              VARCHAR(20) NOT NULL,  
    cf                CHAR(16) NOT NULL,  
    datanascita       DATE NOT NULL,  
    luogonascita       VARCHAR(25),  
    telefono          CHAR(12),  
    indirizzo         VARCHAR (30),  
    saldo             NUMERIC(15,2),  
    tipo              CHAR(2)  
);
```

Creazione di tabelle

- ▶ Una volta creato il db si possono creare le tabelle che dovrà contenere

```
mysql> CREATE TABLE contocorrente(  
-> numerocc CHAR(6) PRIMARY KEY,  
-> cognome VARCHAR(20) NOT NULL,  
-> nome VARCHAR(20) NOT NULL,  
-> cf CHAR(16) NOT NULL,  
-> datanascita DATE NOT NULL,  
-> luogonascita VARCHAR(25),  
-> telefono CHAR(12),  
-> indirizzo VARCHAR(30),  
-> saldo NUMERIC(15,2),  
-> tipo CHAR(2)  
-> );
```

- ▶ Alcuni comandi utili quando si crea una tabella sono:
 - ▶ **show tables;** // visualizzare la lista delle tabelle del db
 - ▶ **describe <nomeT>;** // visualizzare la struttura della tabella <nomeT>
 - ▶ **drop table <nomeT>;** // per cancellare la tabella <nomeT>
 - ▶ **source <pathFile>;** // per invocare una query caricandola da un file

Creazione di tabelle

- Una volta creato il db si possono creare le tabelle che dovrà contenere

```
CREATE TABLE operazione(  
    codice            CHAR(6) PRIMARY KEY,  
    data              DATE NOT NULL,  
    ora               TIME NOT NULL,  
    cc                CHAR(6) REFERENCES  
                        contocorrente(numerocc)  
                        ON UPDATE CASCADE  
                        ON DELETE CASCADE,  
    tipo              CHAR(1),  
    importo            NUMERIC(15,2),  
    descrizione        VARCHAR(30)  
);
```

Creazione di tabelle

- ▶ Una volta creato il db si possono creare le tabelle che dovrà contenere

```
mysql> create table operazione(  
-> codice CHAR(6) PRIMARY KEY,  
-> data DATE NOT NULL,  
-> ora TIME NOT NULL,  
-> cc CHAR(6) REFERENCES contocorrente(numerocc) ON UPDATE CASCADE ON DELETE CASCADE,  
-> tipo CHAR(1),  
-> importo NUMERIC(15,2),  
-> descrizione VARCHAR(30)  
-> );
```

- ▶ Alcune osservazioni:
 - ▶ Ci sono delle piccole differenze rispetto agli esempi visti a lezione dovute all'implementazione di SQL da parte di MySQL:
 - ▶ i nomi degli attributi non contengono altro che lettere alfabetiche, non sono ammessi simboli come il “-”
 - ▶ tutti gli attributi sono in minuscolo, non è obbligatorio, ma MySQL distingue le maiuscole dalle minuscole, quindi conviene usare sempre la stessa convenzione in tutte le query

Inserimento di dati

- ▶ Vediamo come si possono inserire i dati all'interno delle tabelle
 - ▶ Il comando per inserire i dati in una tabella è il seguente:

```
INSERT INTO contocorrente(numerocc, cognome, nome, cf,  
                           datanascita, luogonascita, telefono,  
                           indirizzo, saldo, tipo)  
VALUES("2000", "Rossi", "Mario", "dddddddddddddddddd",  
       "1920-10-10", "Roma", "1", "2", 10000,"bi");
```

```
mysql> INSERT INTO contocorrente(  
-> numerocc,cognome,nome,cf,datanascita,luogonascita,telefono,indirizzo,saldo,tipo)  
-> VALUES (  
-> "2000","Mario","Rossi","dddddddddddddddddd","1920-10-10","Roma","1","2",10000,"bi");
```

Inserimento di dati

- ▶ Caricare ogni tupla da linea di comando è oneroso
 - ▶ È possibile scrivere tutte le query di inserimento in un file e richiamarlo da linea di comando attraverso **source <pathFile>;**
 - ▶ In alternativa, è possibile caricare i dati da un file .csv
 - ▶ Il file .csv deve contenere una riga di valori per ogni tupla da inserire
 - ▶ Un file così costruito potrà essere automaticamente caricato mediante il seguente comando:

```
LOAD DATA LOCAL INFILE '<pathFile>' INTO TABLE  
contocorrente FIELDS TERMINATED BY ',' LINES  
TERMINATED BY '\n' (numerocc,cognome,nome,cf,datanascita,  
luogonascita,telefono,indirizzo,saldo,tipo);
```

```
mysql> load data local infile 'C:\\Users\\Loredana\\Desktop\\script2.csv' into table contocorrente  
-> fields terminated by ',' lines terminated by '\n'  
-> (numerocc, cognome, nome, cf, datanascita, luogonascita, telefono, indirizzo, saldo, tipo);
```

Interrogazioni

- ▶ Ecco alcuni esempi di query

```
SELECT *  
FROM contocorrente;
```

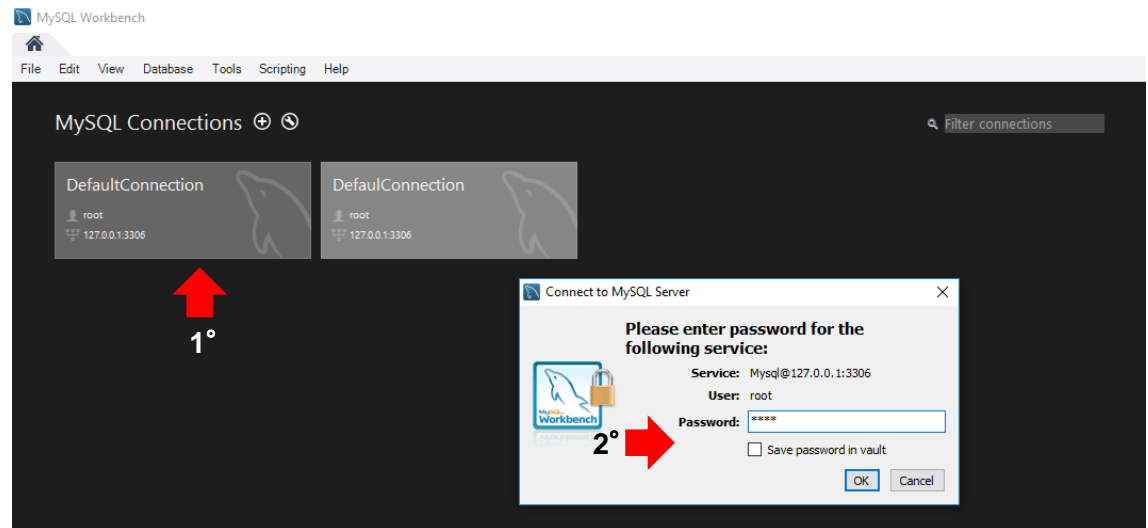
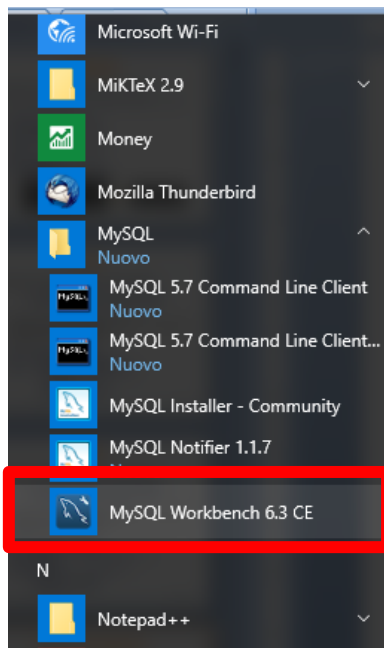
```
mysql> SELECT * FROM contocorrente;  
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
| numerocc | cognome | nome | cf | dataNascita | luogoNascita | telefono | indirizzo | saldo | tipo |  
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
| 2000 | Rossi | Mario | dddddd | 1920-10-10 | Roma | 1 | 2 | 10000.00 | bi |  
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
1 row in set (0.00 sec)
```

```
SELECT COUNT(*) AS num  
FROM contocorrente;  
WHERE saldo >= '10000';
```

```
mysql> SELECT COUNT(*) AS num  
-> FROM contocorrente  
-> WHERE saldo >= '10000';  
+-----+  
| num |  
+-----+  
| 1 |  
+-----+  
1 row in set (0.01 sec)
```

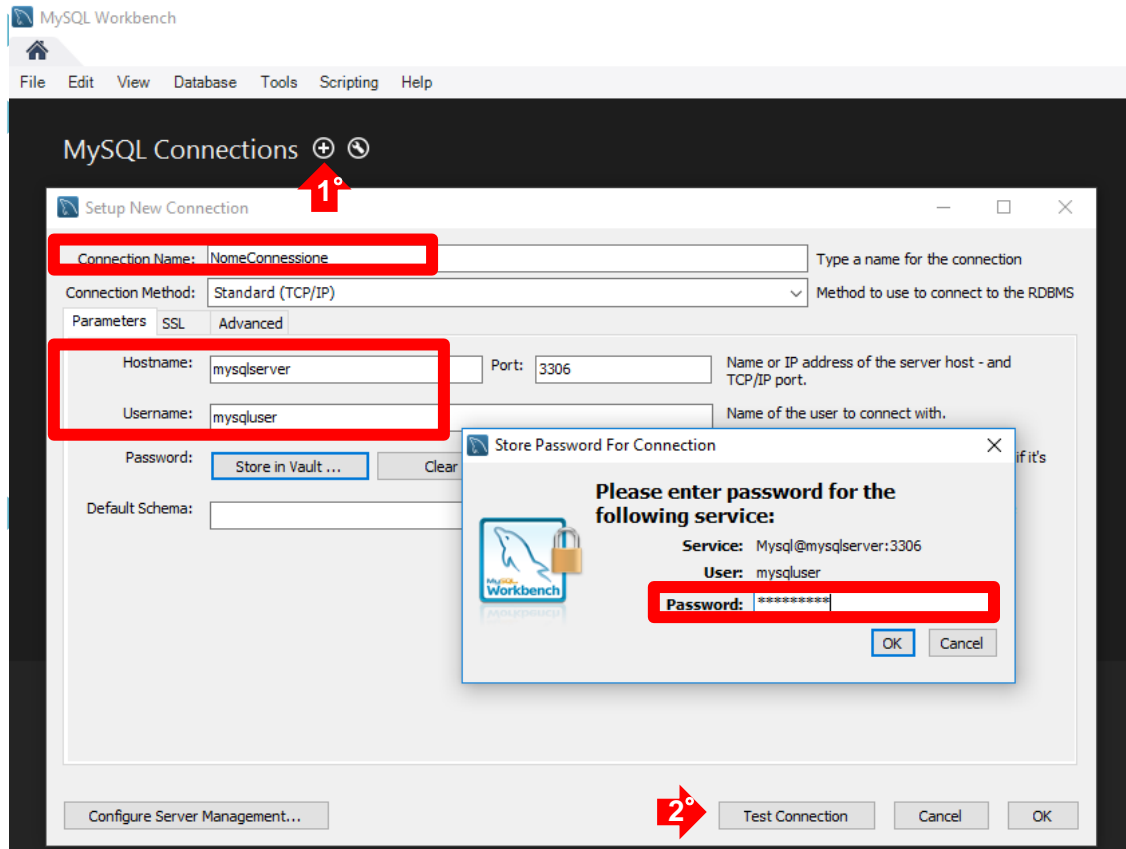
MySQL Workbench

- ▶ Con l'installazione di MySQL è stato installato anche il MySQL Workbench
 - ▶ Un client MySQL con interfaccia grafica

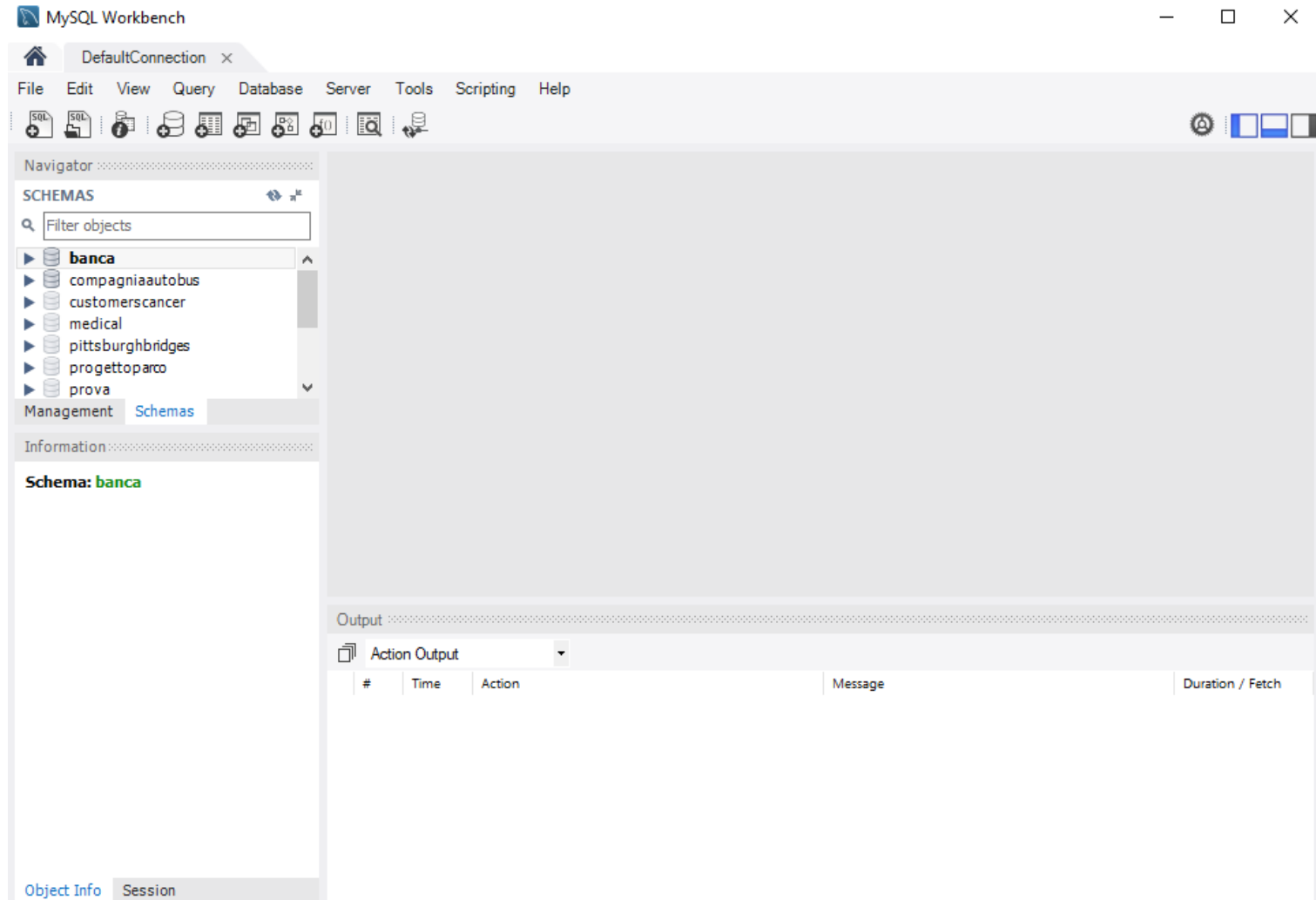


Collegamento al Server del laboratorio

- Per collegarsi al server del laboratorio è necessario



MySQL Workbench



Outline

- ▶ Un caso di studio: database di un'università
 - ▶ Creazione di un database
 - ▶ Creazione di tabelle
 - ▶ Definizione dei vincoli di integrità referenziale
 - ▶ Inserimento e modifica dei dati

Un caso di studio: database di un'università

studenti

Matricola	Cognome	Nome	Data di nascita
6554	Rossi	Mario	05/12/1978
8765	Neri	Paolo	03/11/1976
9283	Verdi	Luisa	12/11/1979
3456	Rossi	Maria	01/02/1978

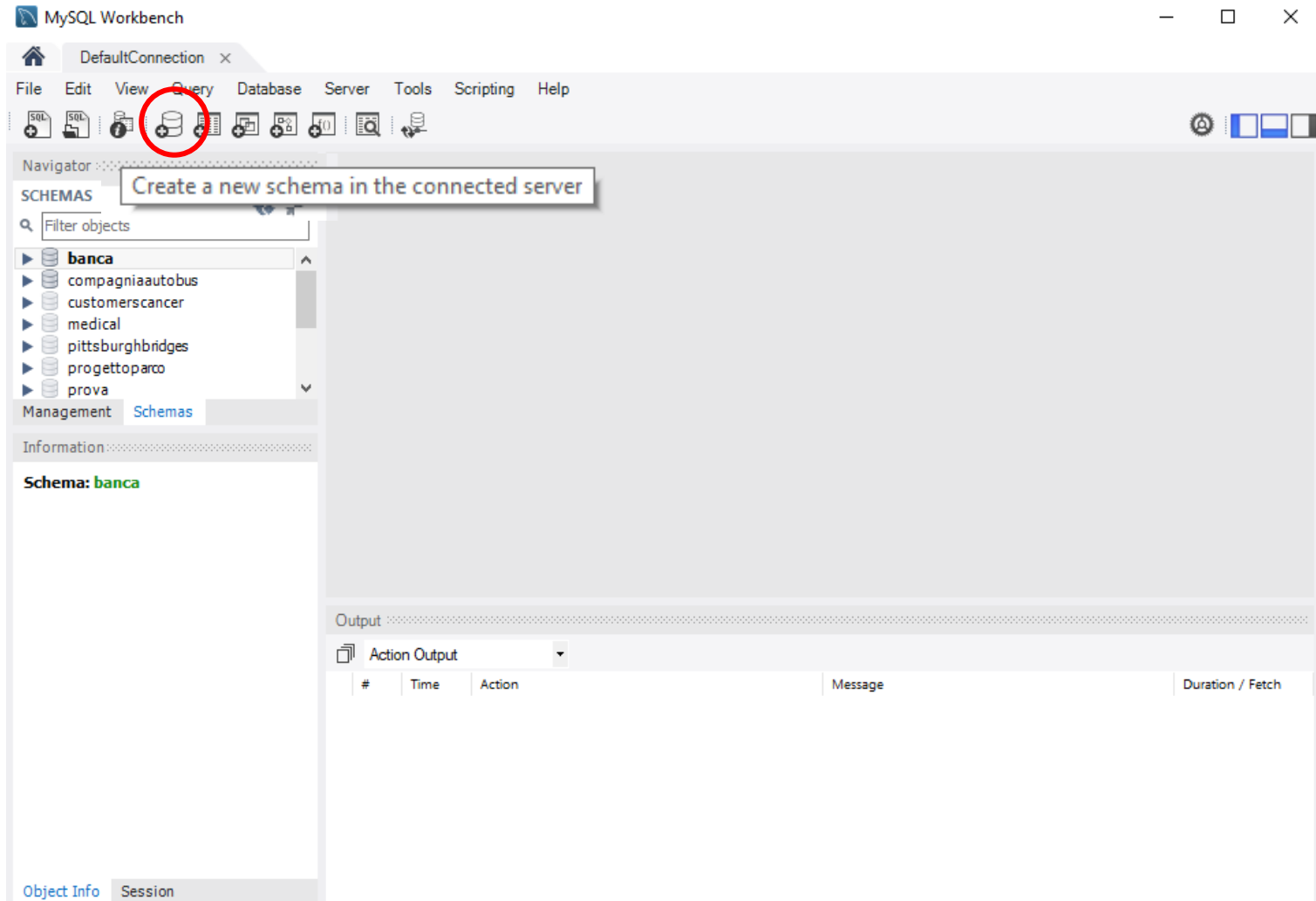
esami

Studente	Voto	Corso
3456	30	04
3456	24	02
9283	28	01
6554	26	01

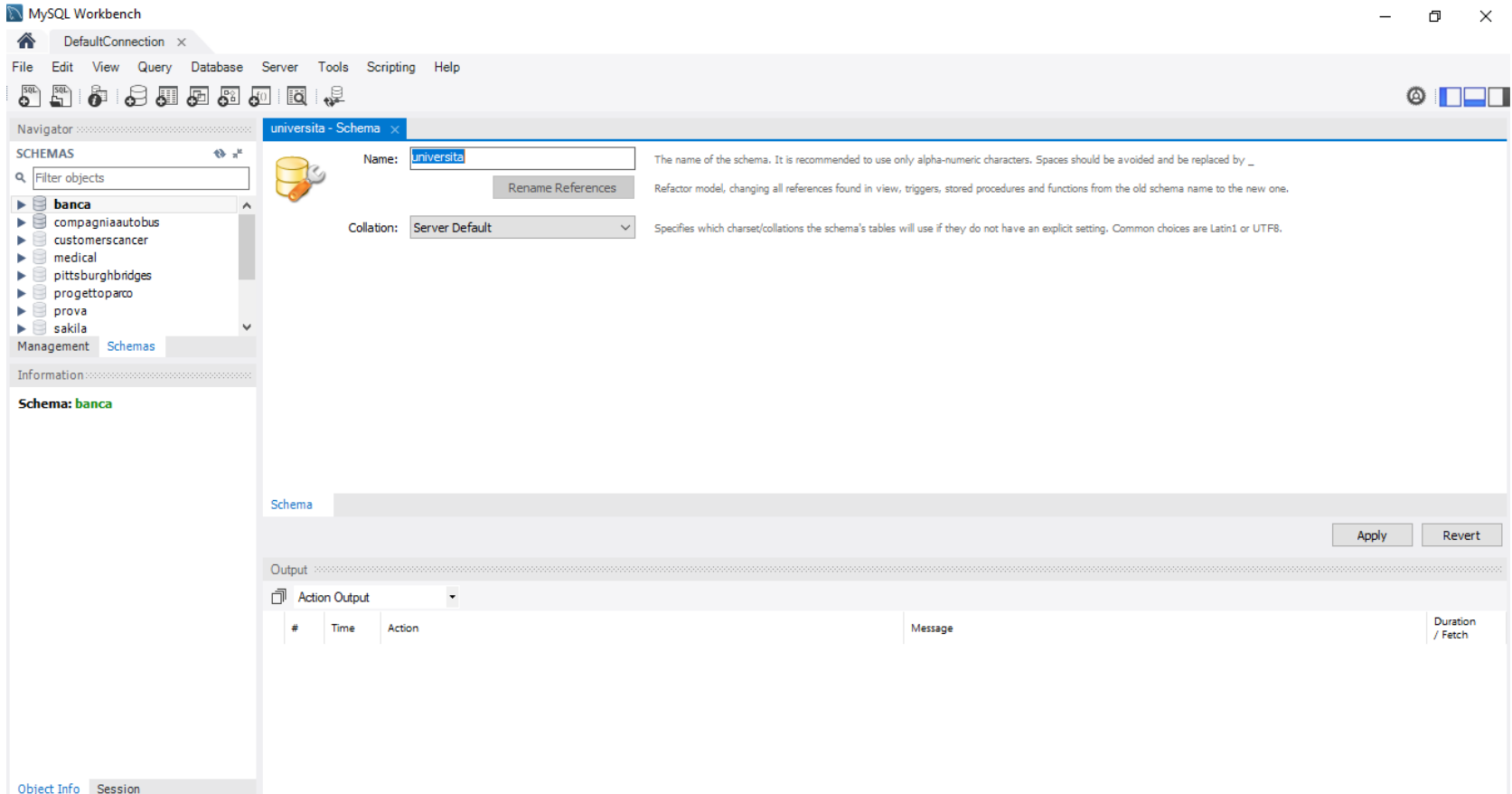
corsi

Codice	Titolo	Docente
01	Analisi	Mario
02	Chimica	Bruni
04	Chimica	Verdi

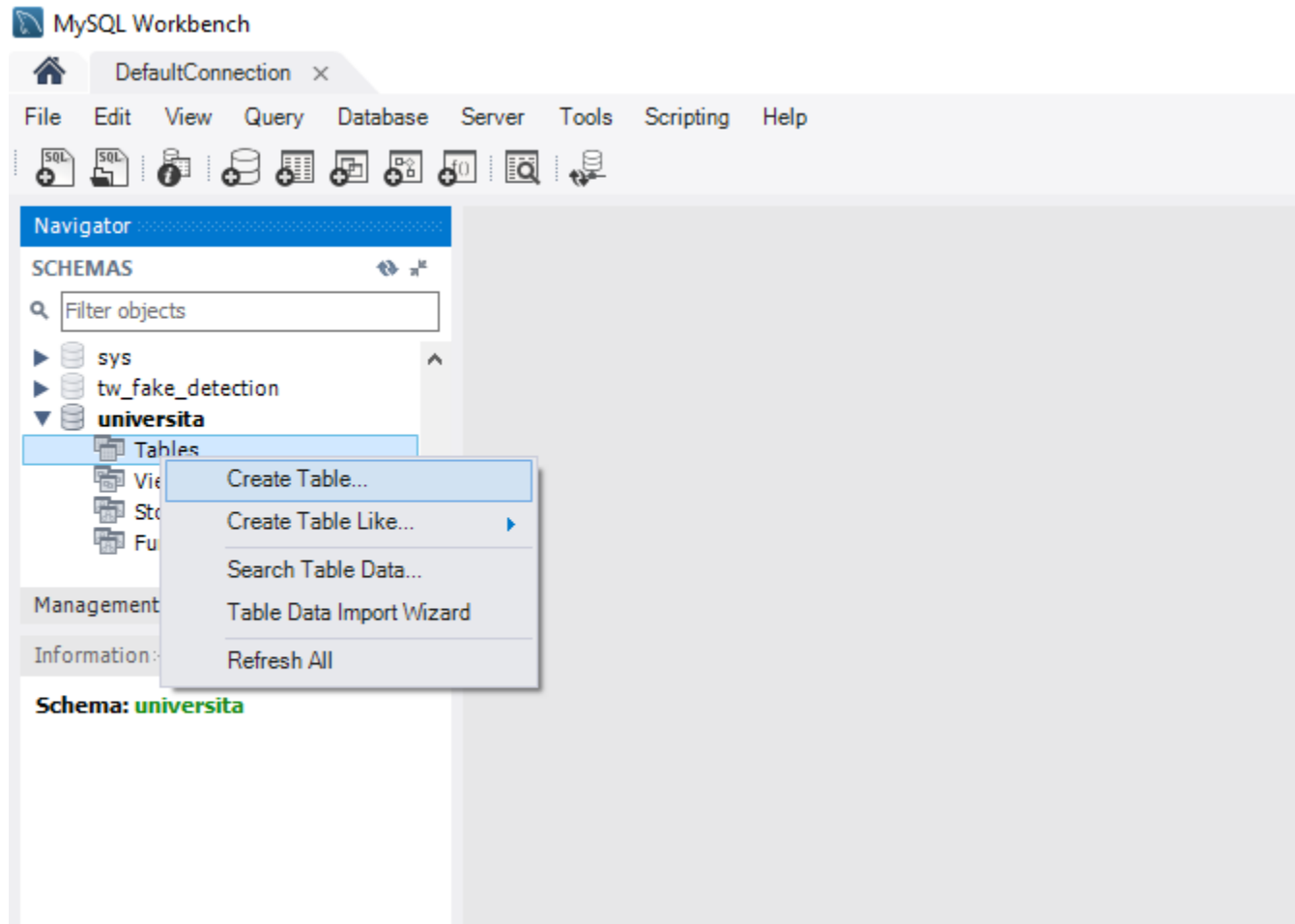
Creazione di un database



Creazione di un database



Creazione di tabelle



Creazione di tabelle

MySQL Workbench

DefaultConnection x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

sys

tw_fake_detection

universita

Tables

Views

Stored Procedures

Functions

Management Schemas

Information

Schema: universita

new_table - Table

Table Name: studenti Schema: universita

Collation: Schema Default Engine: InnoDB

Comments:

Column Name:

Collation:

Comments:

Data Type:

Default:

Storage: ☐ Virtual ☐ Stored

☐ Primary Key ☐ Not Null ☐ Unique

☐ Binary ☐ Unsigned ☐ Zero Fill

☐ Auto Increment ☐ Generated

Columns Indexes Foreign Keys Triggers Partitioning Options

Apply Revert

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 1	18:58:13	Apply changes to universita	Changes applied	

Creazione di tabelle

MySQL Workbench

DefaultConnection x

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Filter objects

sys

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universita

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Functions

Management Schemas

Information

Schema: universita

studenti - Table x

Table Name: studenti Schema: universita

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
matricola	VARCHAR(13)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
cognome	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
nome	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
dataNascita	DATE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Column Name: dataNascita

Collation: Table Default

Comments:

Data Type: DATE

Default:

Storage: ☐ Virtual ☐ Stored

☐ Primary Key ☐ Not Null ☐ Unique

☐ Binary ☐ Unsigned ☐ Zero Fill

☐ Auto Increment ☐ Generated

Columns Indexes Foreign Keys Triggers Partitioning Options

Apply Revert

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	18:58:13	Apply changes to universita	Changes applied	
2	19:03:29	Apply changes to studenti	Error 1064: You have an error in your SQL syntax; check the manual that corresponds to your M...	

Creazione di tabelle

MySQL Workbench

DefaultConnection x

File Edit View Query Database Server Tools Scripting Help

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universita

Tables

studenti

Views

Stored Procedures

Functions

Management Schemas

Information

Schema: universita

studenti - Table corsi - Table x

Table Name: corsi Schema: universita

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
codice	INT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
titolo	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
docente	VARCHAR(70)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Column Name: codice

Collation: Table Default

Comments:

Data Type: INT

Default:

Storage: ☒ Virtual ☐ Stored

☒ Primary Key ☒ Not Null ☐ Unique

☐ Binary ☐ Unsigned ☐ Zero Fill

☒ Auto Increment ☐ Generated

Columns Indexes Foreign Keys Triggers Partitioning Options

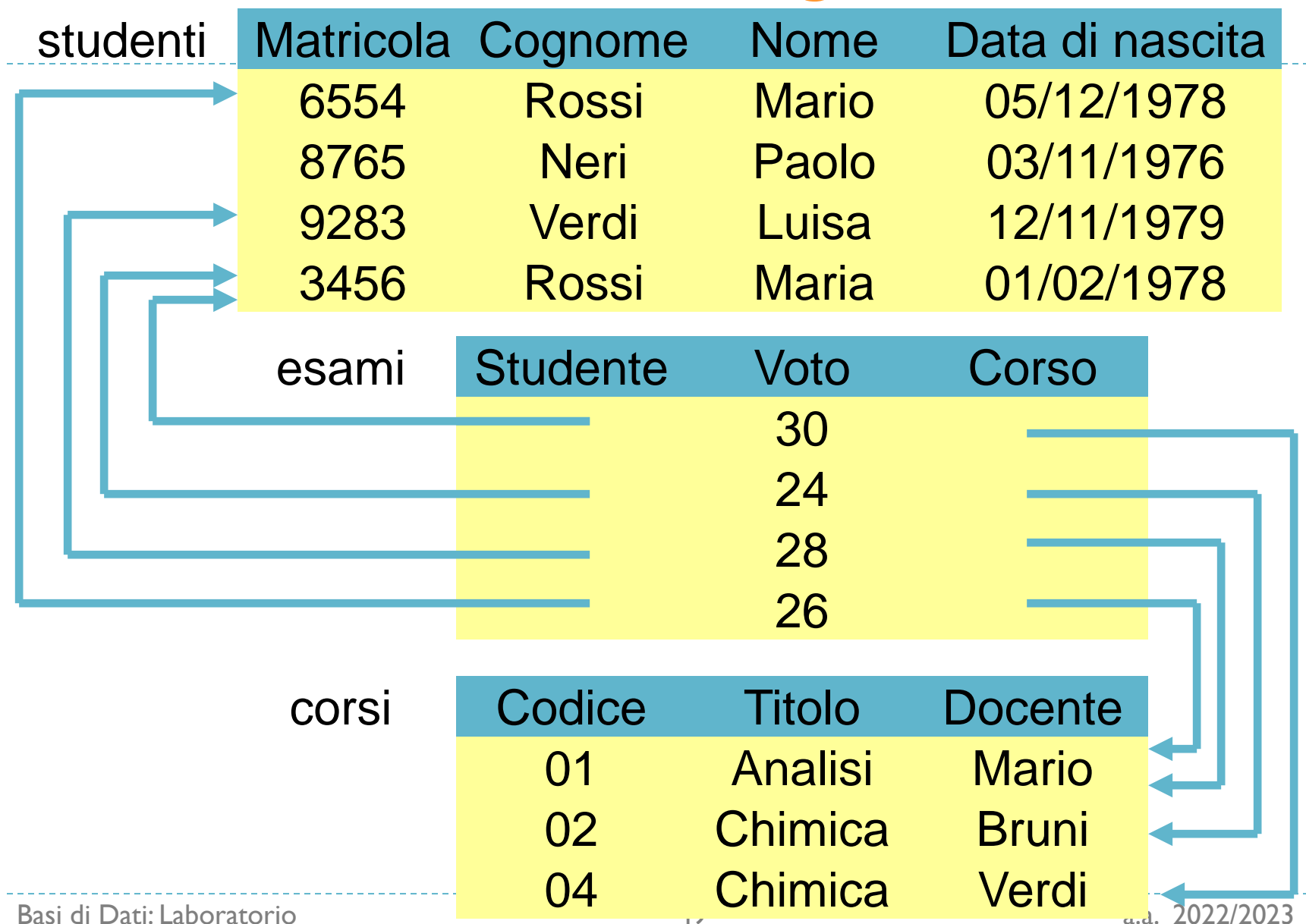
Apply Revert

Output

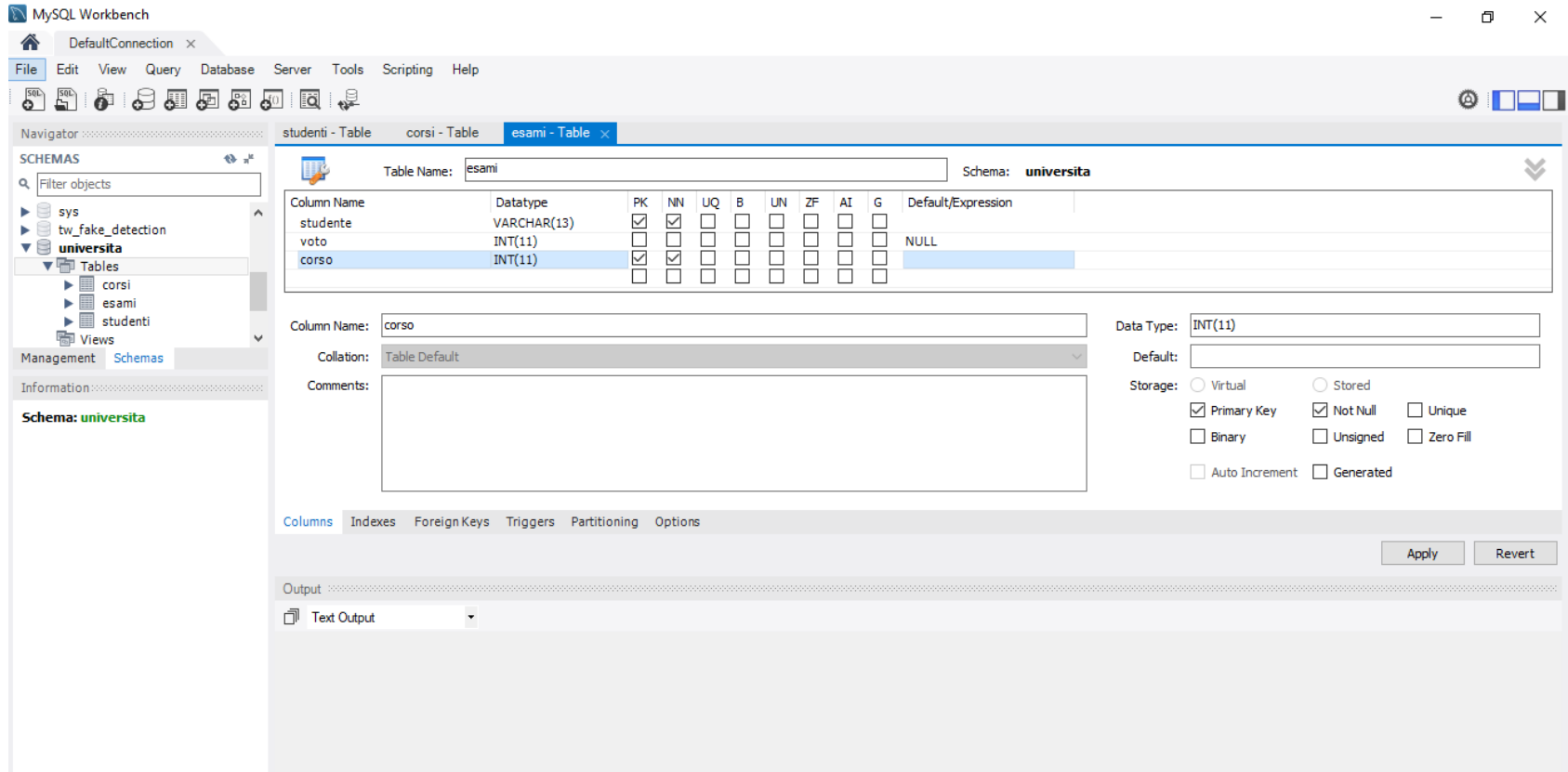
Action Output

#	Time	Action	Message	Duration / Fetch
1	18:58:13	Apply changes to universita	Changes applied	
2	19:03:29	Apply changes to studenti	Error 1064: You have an error in your SQL syntax; check the manual that corresponds to your M...	
3	19:09:57	Apply changes to studenti	Changes applied	

Definizione di vincoli di integrità referenziale



Definizione di vincoli di integrità referenziale



The screenshot shows the MySQL Workbench interface with the 'esami' table selected in the 'universita' schema. The table structure is as follows:

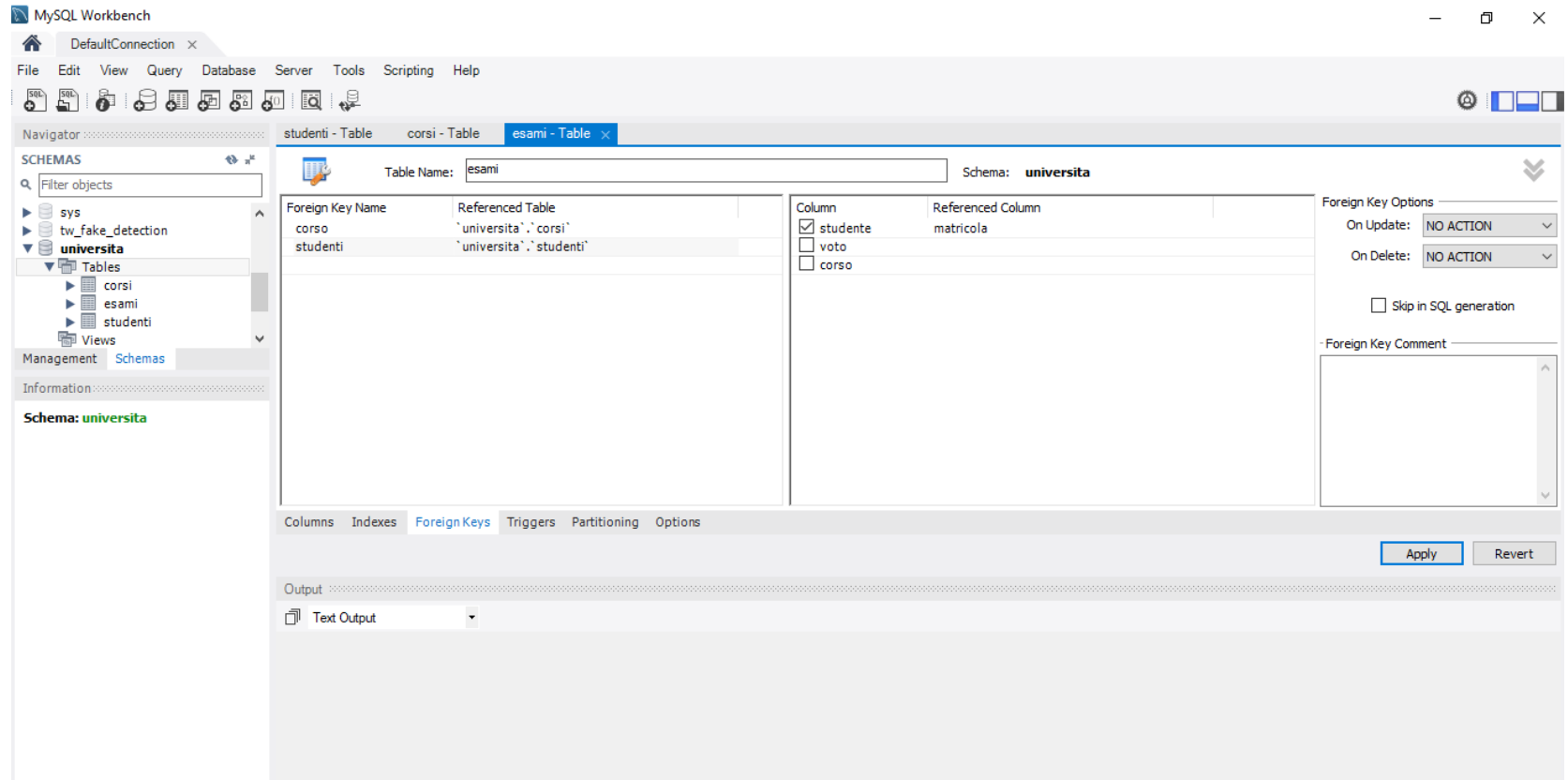
Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
studente	VARCHAR(13)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
voto	INT(11)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
corso	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"/>	<input type="checkbox"/>	

The 'corso' column properties are shown in the right pane:

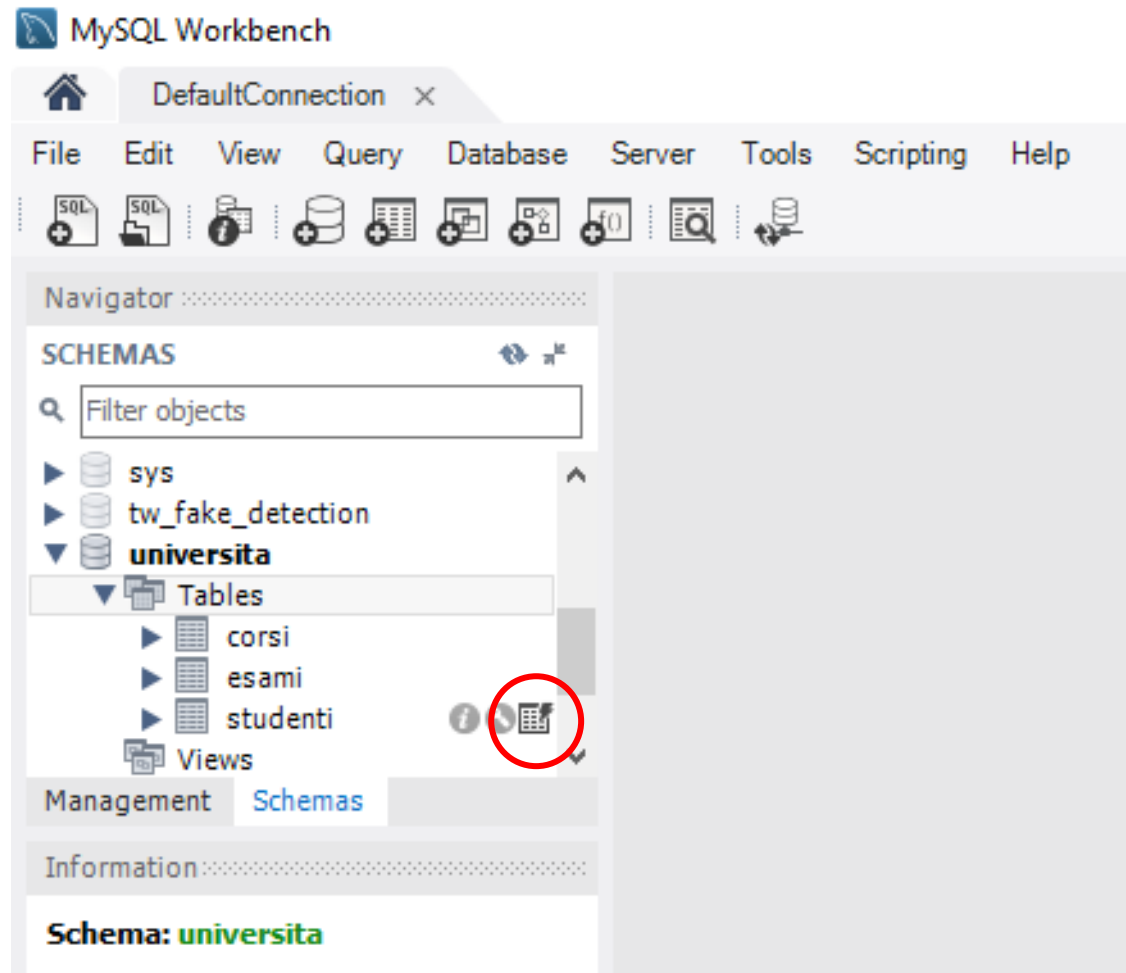
- Column Name: corso
- Collation: Table Default
- Comments:
- Data Type: INT(11)
- Default:
- Storage: ☐ Virtual ☐ Stored
- ☒ Primary Key ☒ Not Null ☐ Unique
- ☐ Binary ☐ Unsigned ☐ Zero Fill
- ☐ Auto Increment ☐ Generated

Buttons: Apply, Revert

Definizione di vincoli di integrità referenziale



Inserimento e modifica dei dati



Inserimento e modifica dei dati

studenti

	matricola	cognome	nome	dataNascita
▶	3456	Rossi	Maria	1978-02-01
	6554	Rossi	Mario	1978-12-05
	8765	Neri	Paolo	1976-11-03
	9283	Verdi	Luisa	1979-11-12
✱	NULL	NULL	NULL	NULL











esami

	studente	voto	corso
▶	3456	24	2
	3456	30	3
	6554	26	1
	9283	28	1
✱	NULL	NULL	NULL

corsi

	codice	titolo	docente
▶	1	Analisi	Mario
	2	Chimica	Bruni
	3	Chimica	Verdi
✱	NULL	NULL	NULL

Inserimento e modifica dei dati

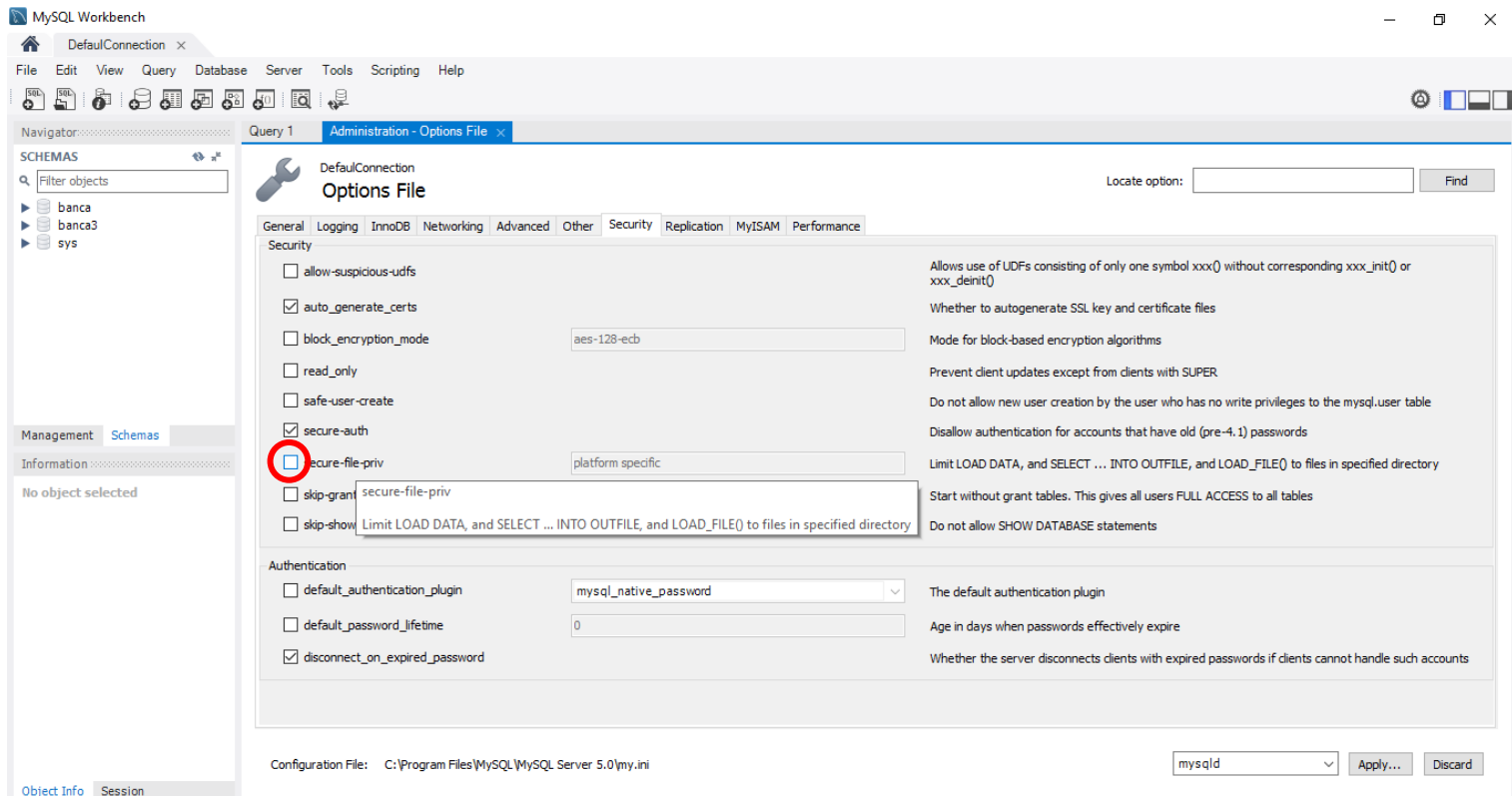
Result Grid			Filter Rows: <input type="text"/>	Edit:   	Export/Import:  	Wrap Cell Content: 
	studente	voto	corso			
	3456	24	2			
	3456	30	3			
	6554	26	1			
	9283	28	1			
	NULL	NULL	NULL			

Problema Workbench e LOAD DATA

- ▶ In MySQL Workbench potreste avere problemi ad eseguire il comando **LOAD DATA LOCAL INFILE** ...
 - ▶ È necessario deselezionare la policy **secure-file-priv**
 - ▶ **Server > Options File >**
 - ▶ Attivare il tab **Security**
 - ▶ Deselezionare la policy **secure-file-priv**
 - ▶ Cliccare su **Apply**
- ▶ Nota: se vi collegate al server del laboratorio non potrete modificare la policy

Problema Workbench e LOAD DATA

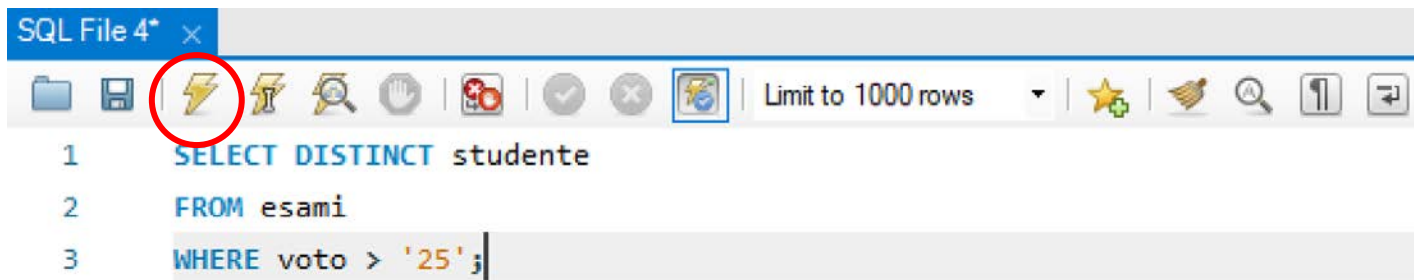
- In MySQL Workbench potreste avere problemi ad eseguire il comando **LOAD DATA LOCAL INFILE ...**



Query

- In MySQL Worckbench è sempre possibile creare query

FILE > NEW QUERY TAB



- Per eseguire la query si può utilizzare il fulmine;
- Anche per effettuare script di DDL si può utilizzare la finestra «query tab».