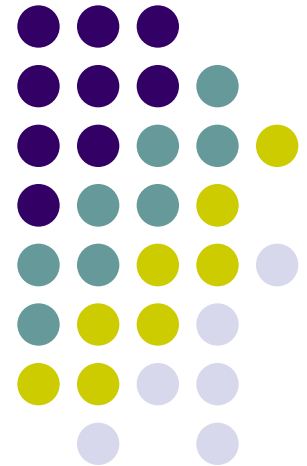
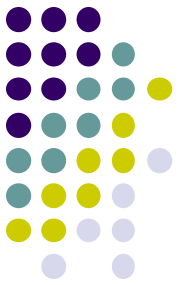


Banco de Dados

MySQL Workbench

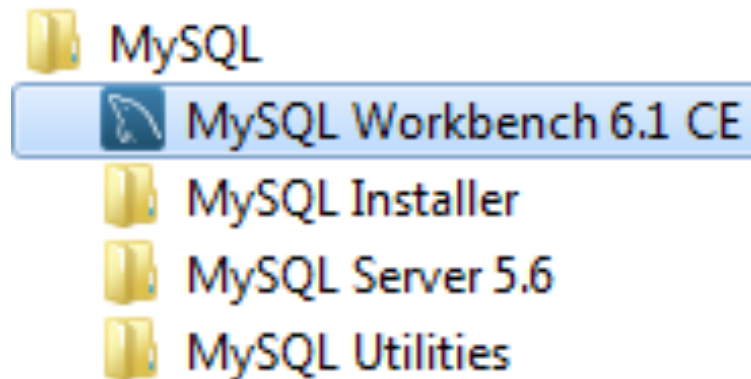
Prof^a. Roberta B Tôrres (rbtorresiff@gmail.com)

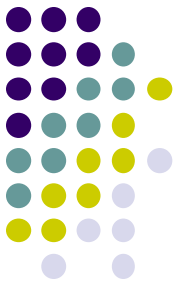




MySQL WORKBENCH

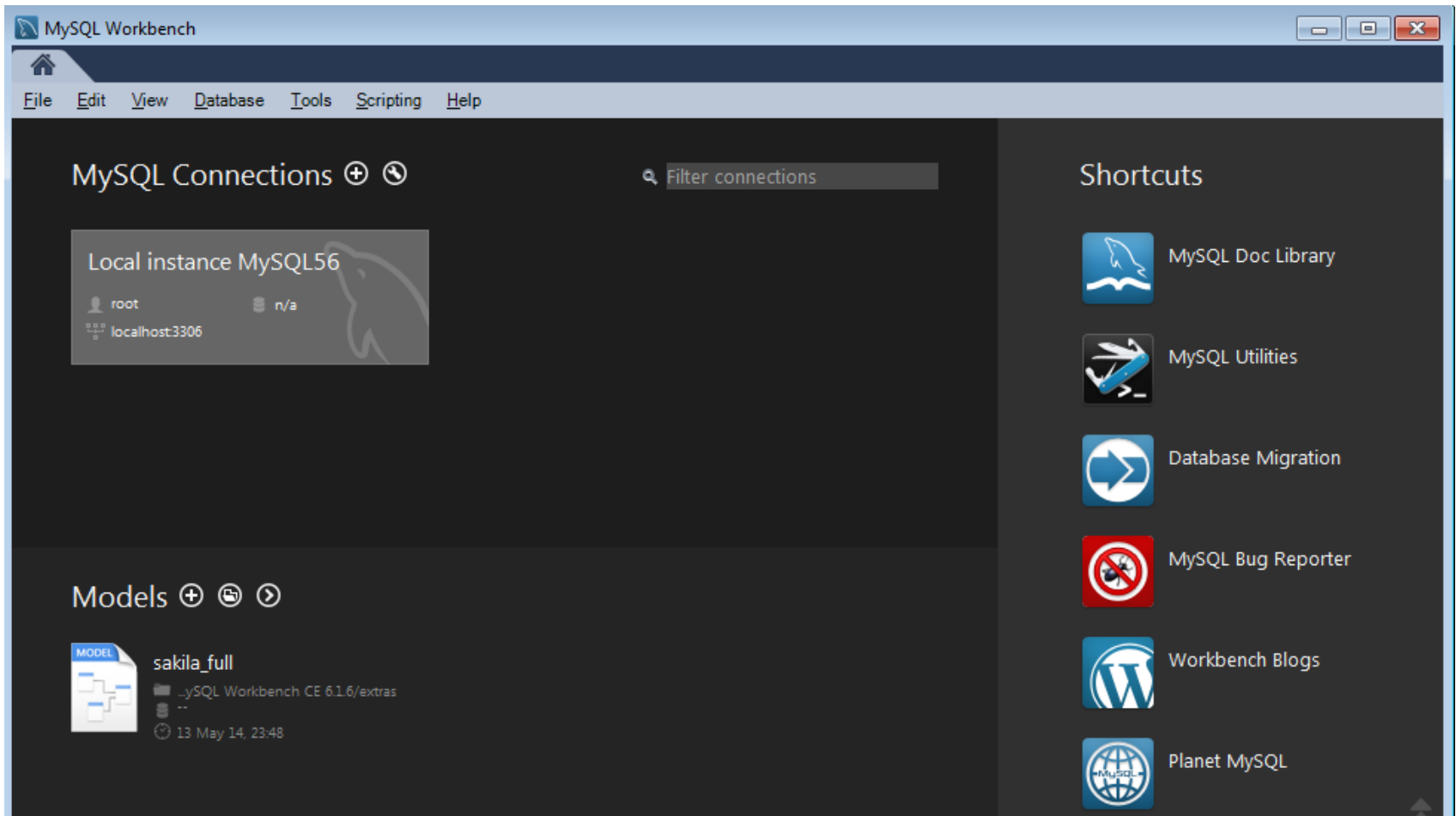
- Para gerenciar o MySQL é interessante ter um programa com interface gráfica amigável.
- Hoje existem várias ferramentas para este fim, uma delas é o MySQL Workbench.
- Este programa é instalado em conjunto com o MySQL.

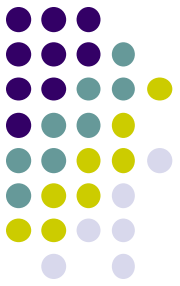




Primeiros Passos

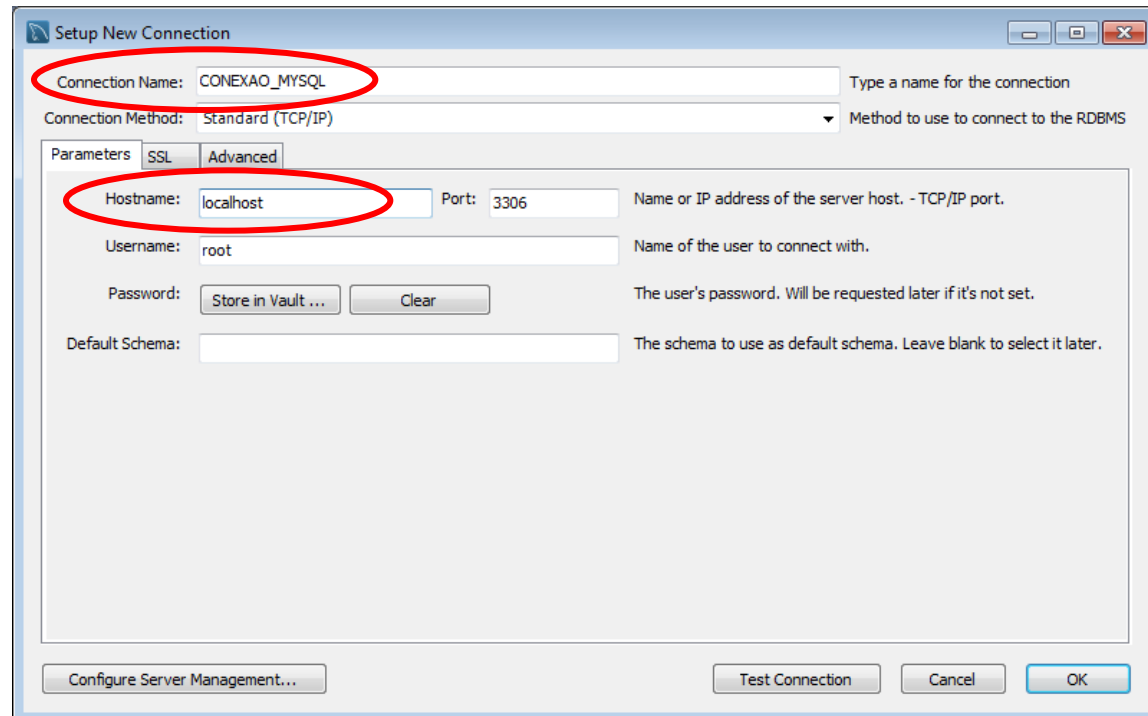
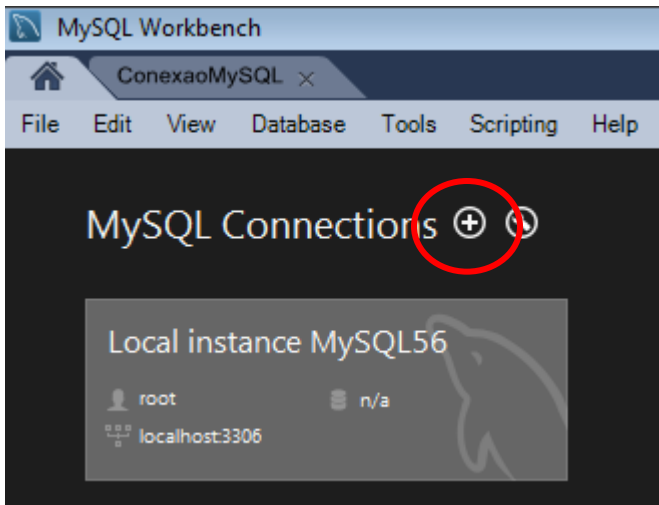
- Ao acessar o Workbench a tela abaixo será apresentada.

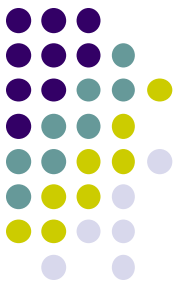




Criando uma Conexão

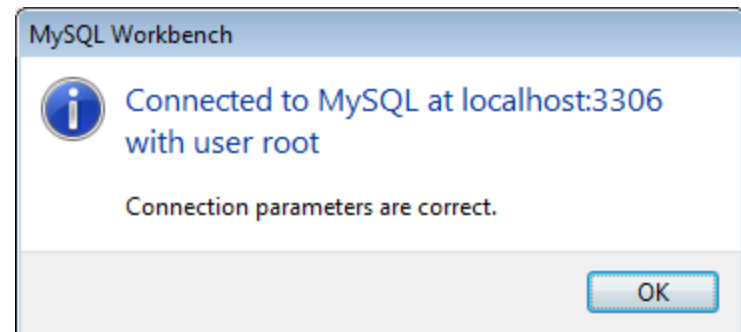
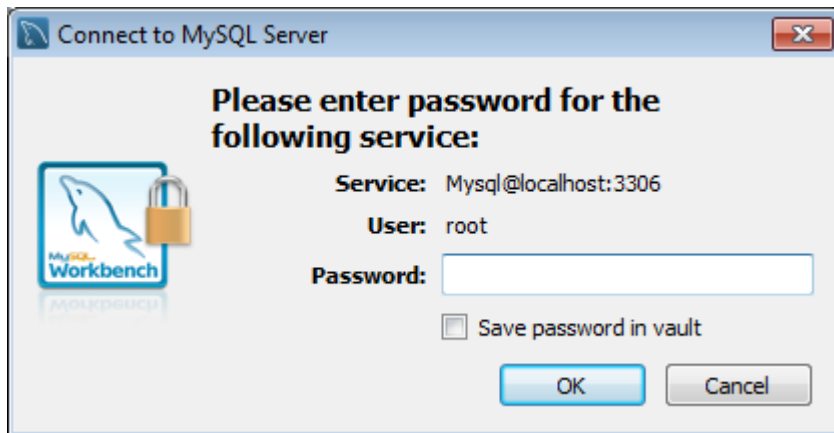
- Para gerenciar o MySQL a partir do Workbench é necessário criar uma conexão.
- Selecione a opção **New Connection**.
- Na tela apresentada digite **CONEXAO_MYSQL** em Connection Name e **localhost** em Hostname.

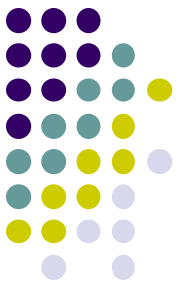




Criando uma Conexão

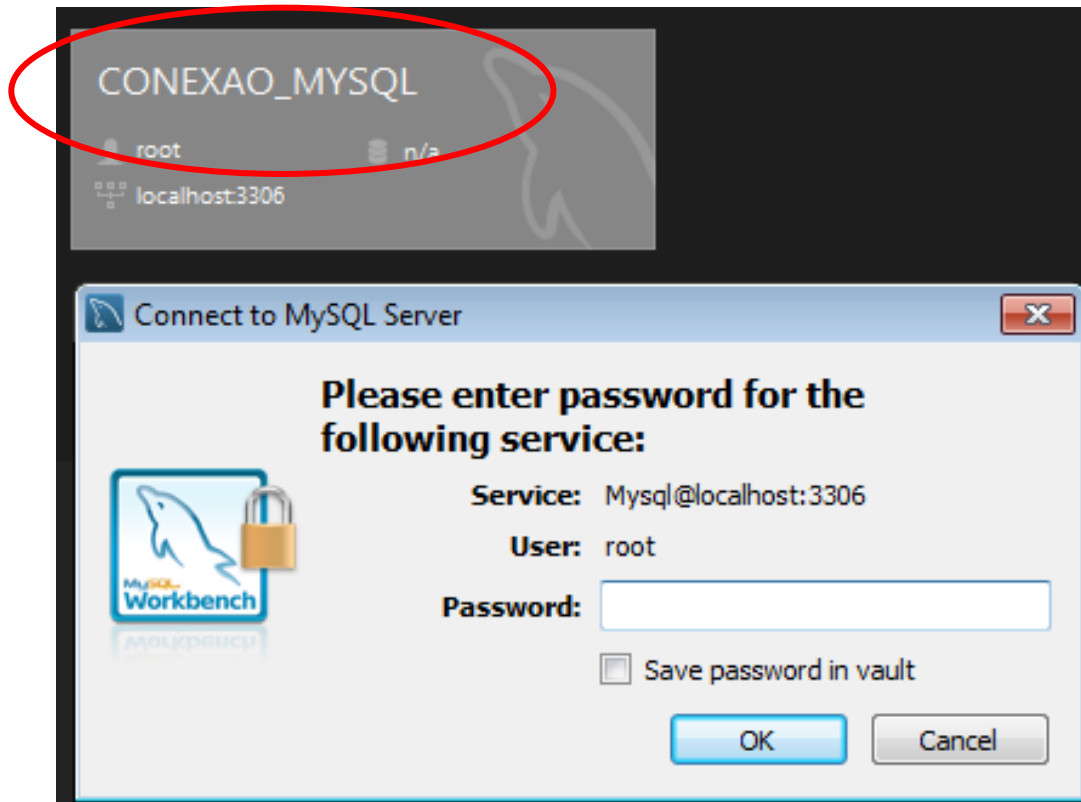
- Em seguida teste a conexão (botão Test Connection).
- O sistema pede para que você informe a senha do root.
- Se a conexão for bem sucedida, a tela com a mensagem **Connection parameters are correct** será apresentada.
- Clique no botão OK da tela de **Setup New Connection** para finalizar a criação da conexão.

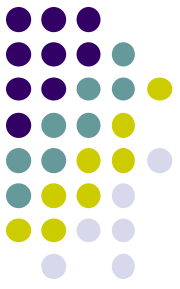





Acesso ao MySQL

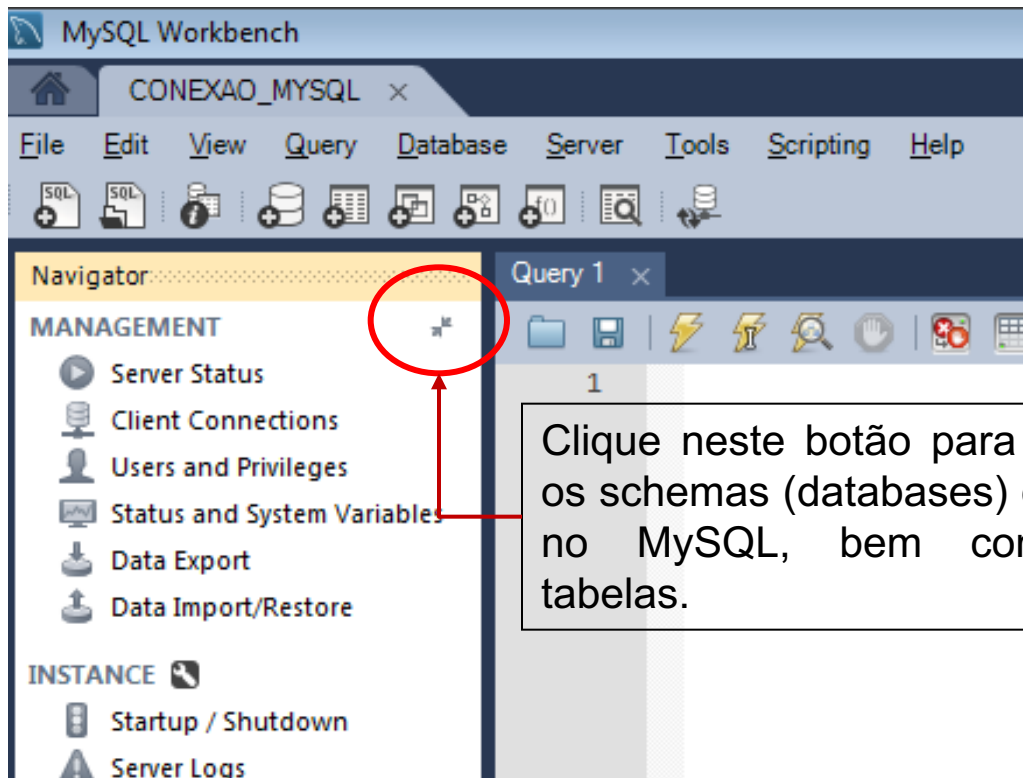
- Dê um duplo clique na conexão criada para acessar a tela de gerenciamento do MySQL. Na tela apresentada digite a senha do root.



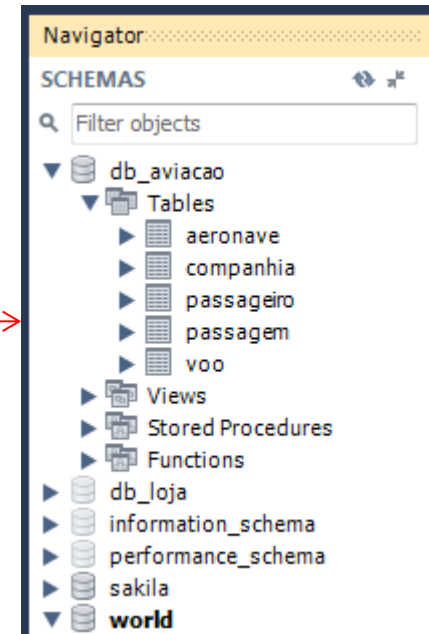


Acesso ao MySQL

- A tela com a aba CONEXAO_MYSQL será apresentada. Neste espaço temos a aba **Query1**, usada para digitar os comandos SQL para manipulação das tabelas.
- Para retornar a tela principal basta selecionar a aba Home. 

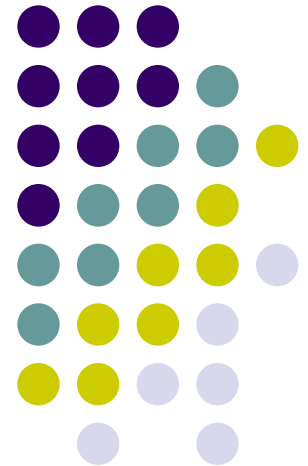


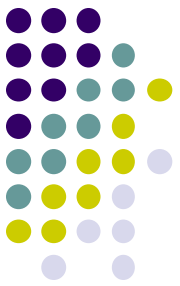
Clique neste botão para visualizar os schemas (databases) existentes no MySQL, bem como suas tabelas.



Banco de Dados

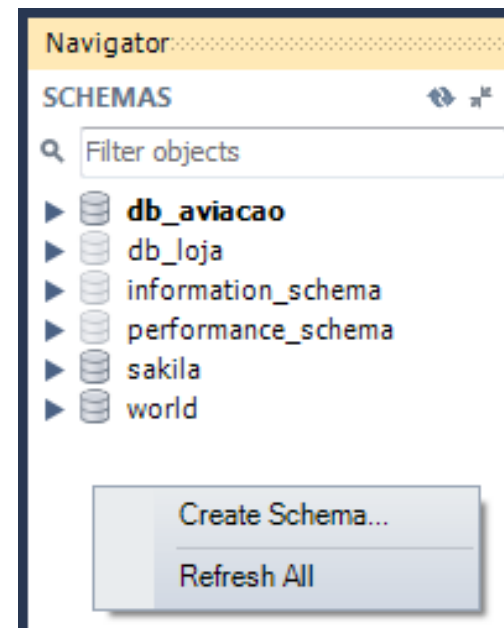
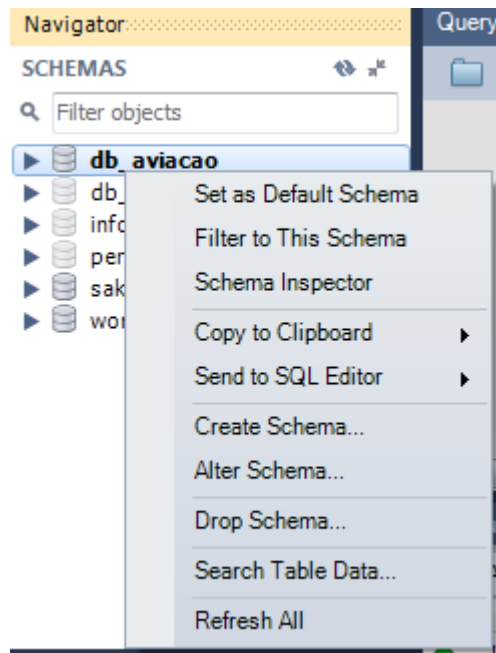
SQL Editor



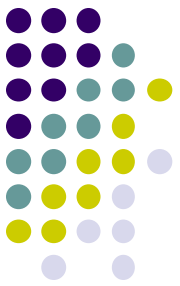


Schemas

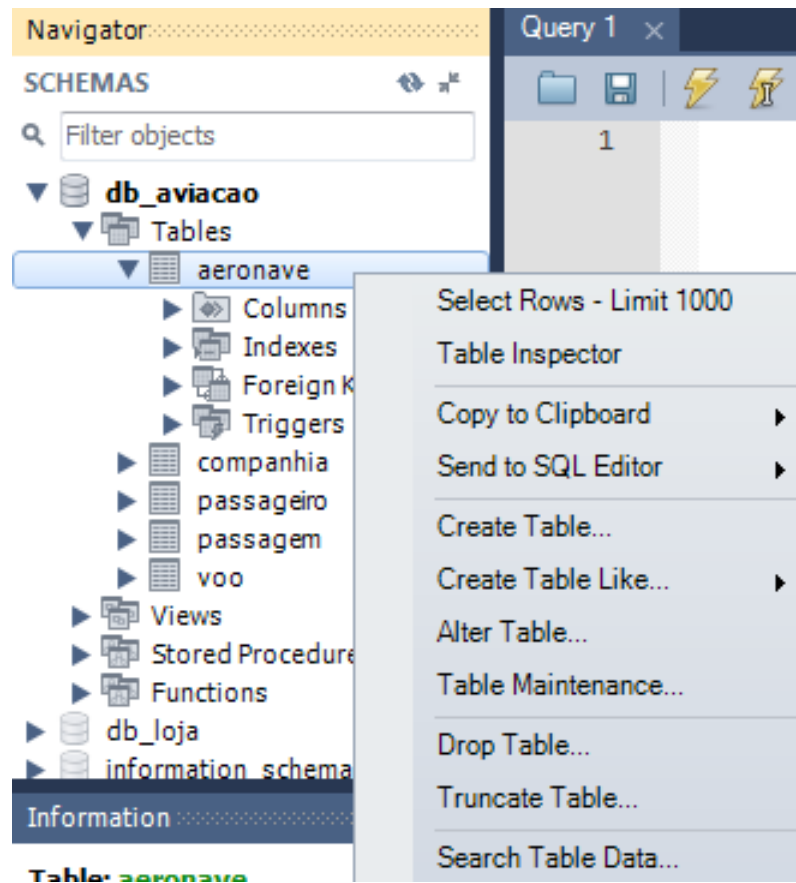
- Nesta área é possível criar um novo schema, apagar e alternar entre os schemas do MySQL.
- Clique com o botão direito do mouse sobre um dos schemas existentes e novas opções de menu serão apresentadas.
- Clique com o botão direito do mouse sobre uma área em branco de SCHEMAS para visualizar o pop-menu **Create Schema**.



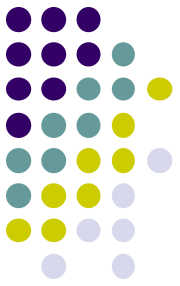
Schemas



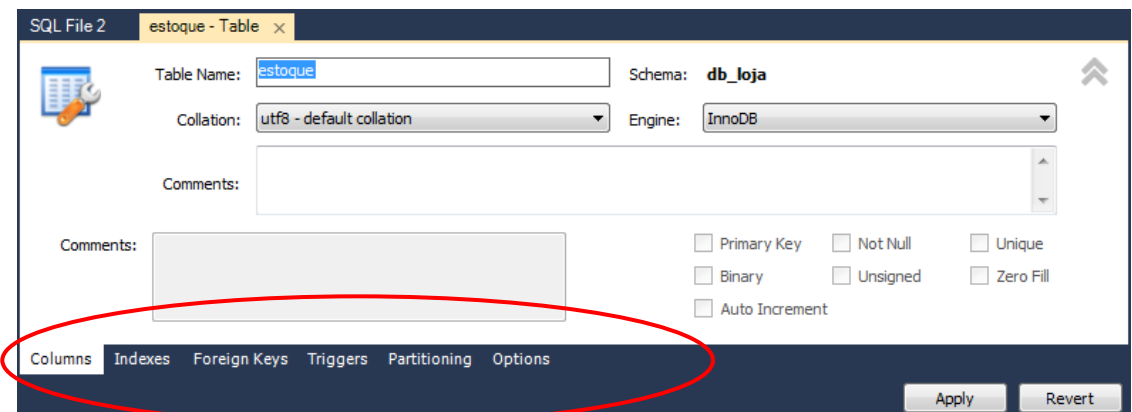
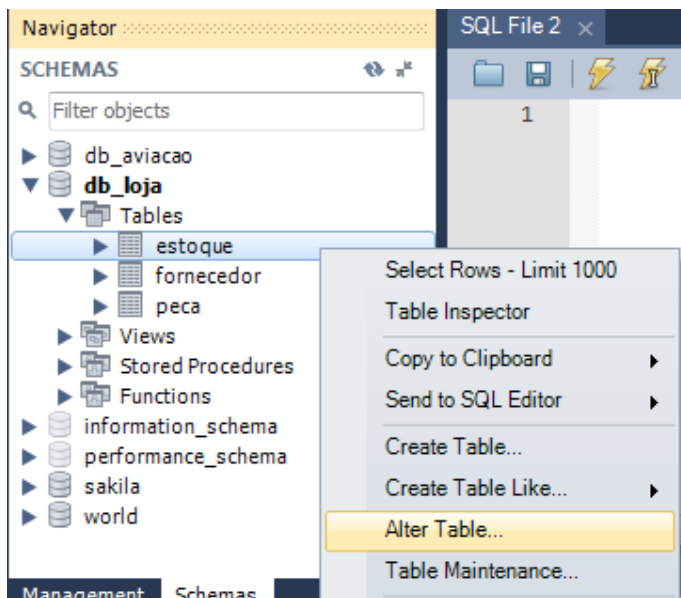
- Na aba Schemas também é possível gerenciar as tabelas de um schema.



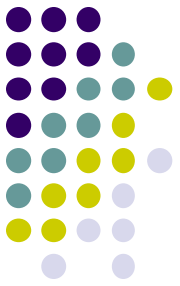
Schemas



- Selecione a tabela **estoque** do schema **db_loja** e clique no menu **Alter Table**. A tabela será editada para alteração.
- A tela apresenta várias abas importantes na parte inferior.



Schemas



- Clique no ícone em destaque para remover a aba Output e visualizar as colunas da tabela **estoque**.

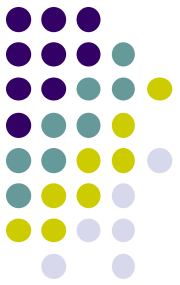
Table Name: Schema: **db_loja**

Collation: Engine:

Comments:

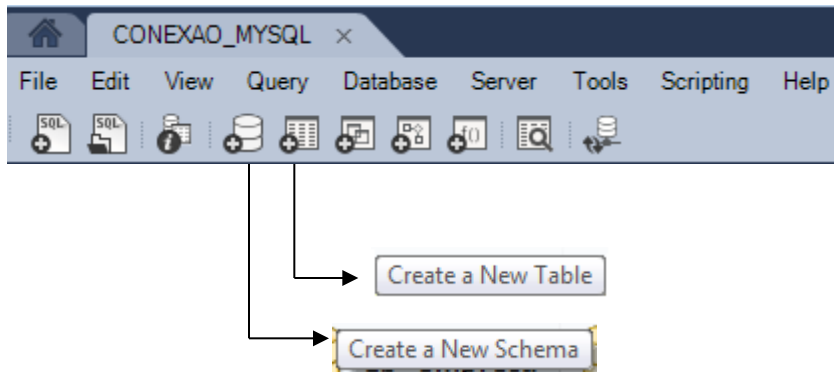
Column Name	Datatype	PK	NN	UQ	BIN	UN	ZF	AI	Default
codform	INT(11)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
codpeca	INT(11)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
quantidade	INT(11)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
valor_unit	FLOAT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

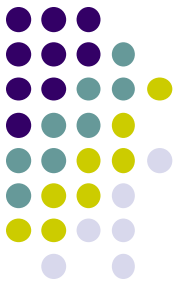
- Navegue também pela abas **Indexes** e **Foreign Keys**.



Barra de Ferramentas

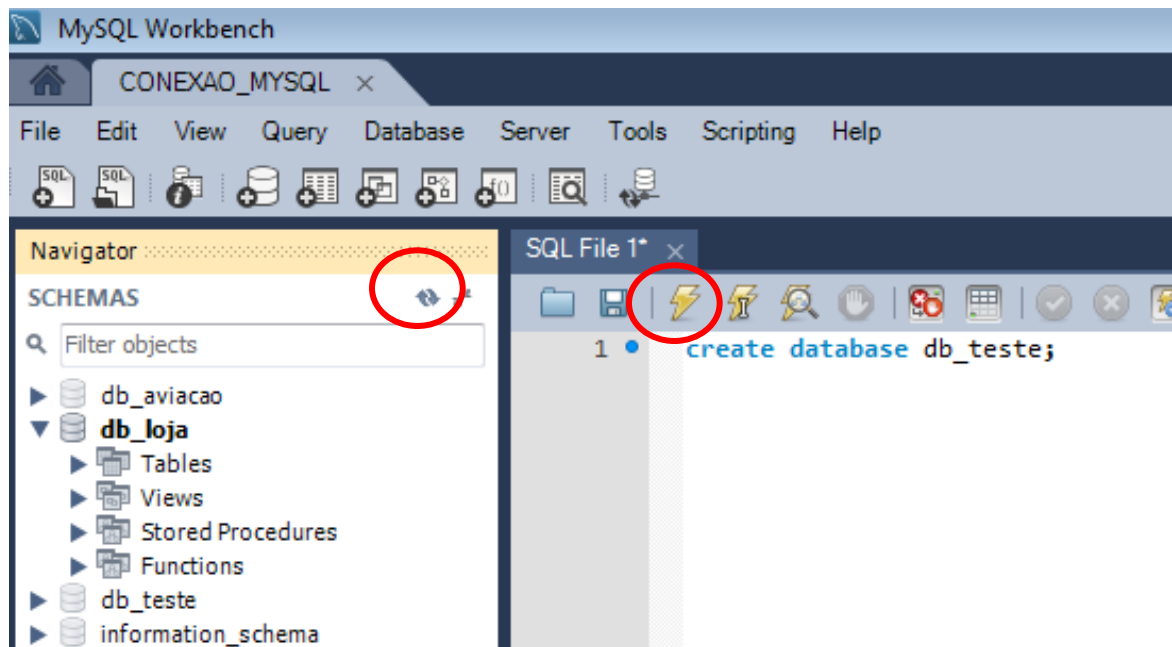
- Na barra de ferramentas temos os ícones para criar um novo schema e criar novas tabelas.

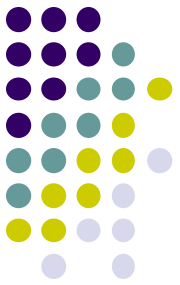




Aba SQL

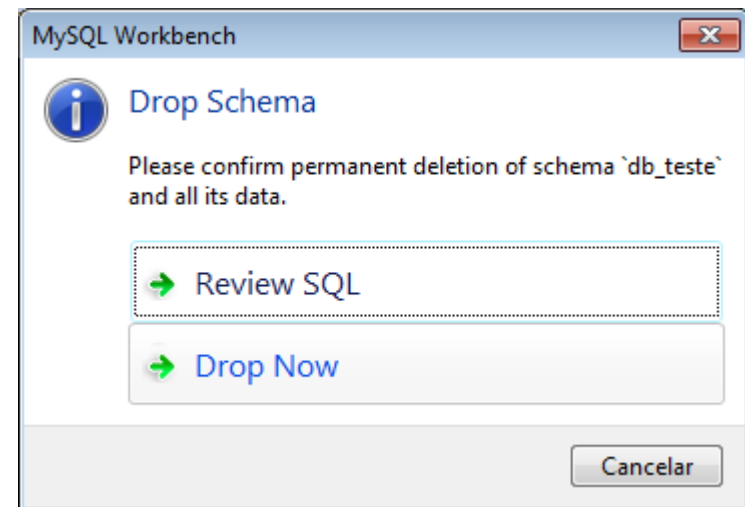
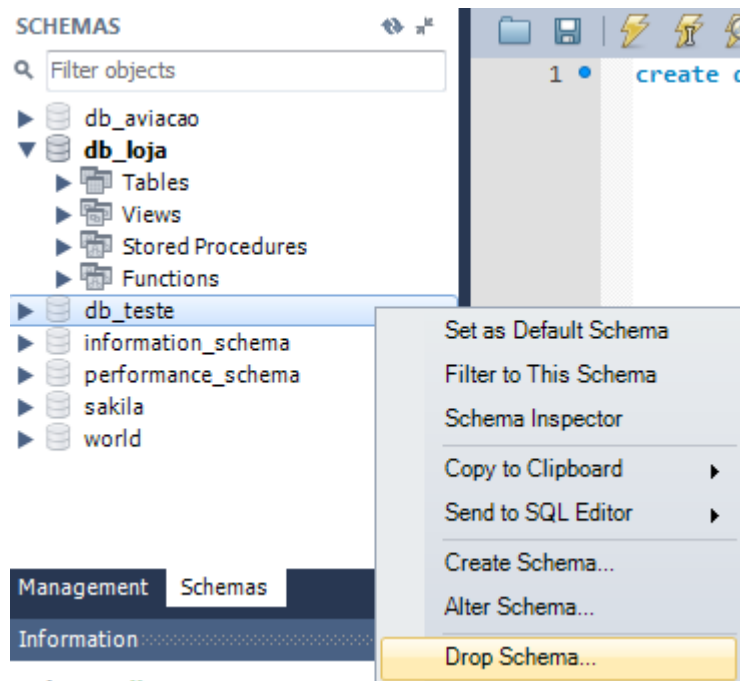
- Este espaço permite executar comandos em SQL (DDL ou DML).
- Por exemplo:
 - Digite o comando **create database db_teste** na aba SQL .
 - Execute o comando clicando sobre o botão em destaque.
 - Dê **refresh all** na aba **Schemas** para que o novo schema seja exibido.





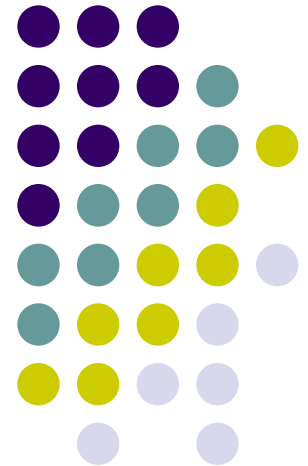
Excluir schema db_teste

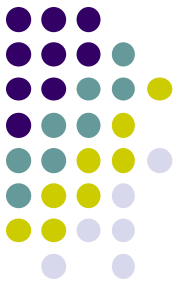
- Selecione o schema **teste** e clique no menu **Drop Schema**.
- Na tela seguinte clique no botão **Drop Now**.



Banco de Dados

Criação de Schema no
Workbench





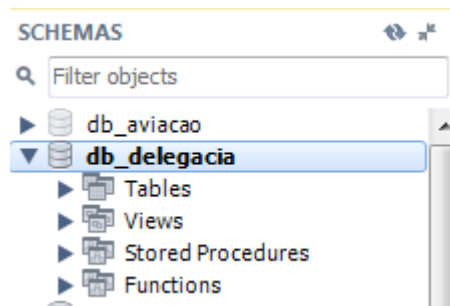
Praticando...

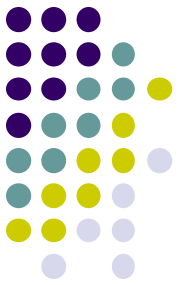
- Criar o schema **db_delegacia**

The screenshot shows an SQL editor window titled "SQL File 1*" with a toolbar containing icons for file operations and execution. The main text area contains the SQL command:

```
1 • create database db_delegacia;
```

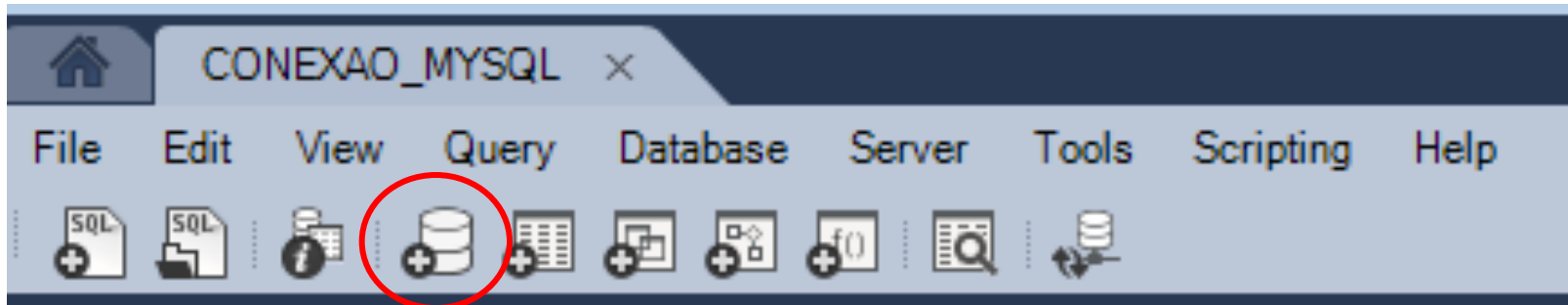
- Clique duas vezes sobre o **db_delegacia**, para torná-lo o schema em uso. O mesmo deve ficar em negrito.

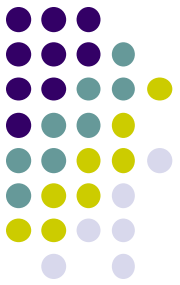




Praticando...

- A criação do schema **db_delegacia** também pode ser feita através do ícone em destaque abaixo.



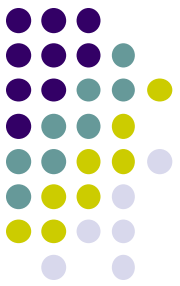


Praticando...

- Criar o schema **db_delegacia**

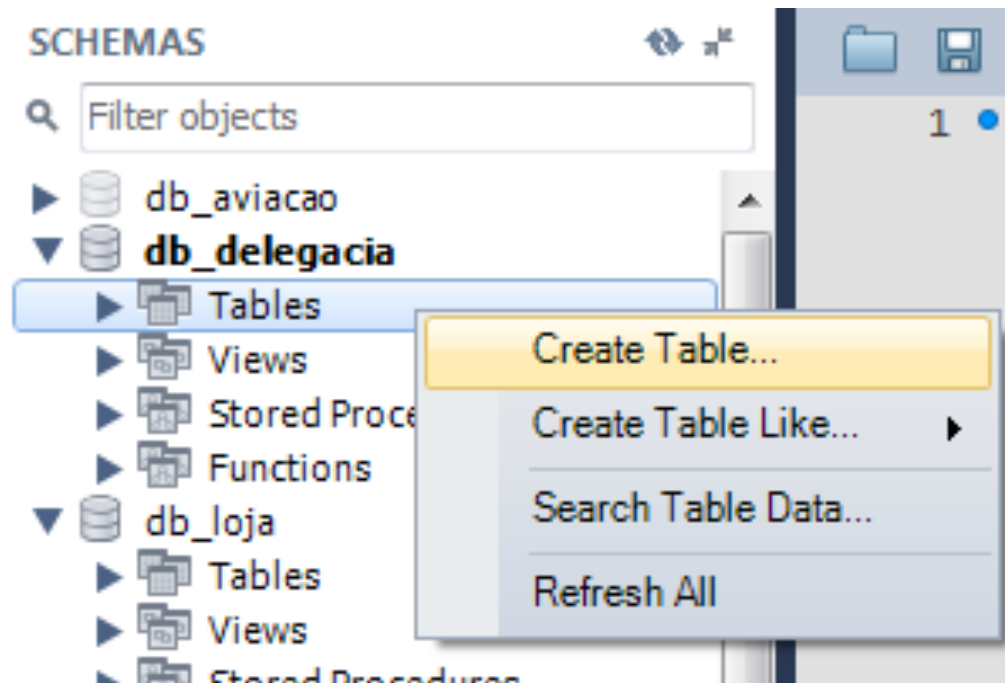
A screenshot of a SQL editor window. The title bar reads "SQL File 1* x". Below the title bar is a toolbar with various icons for file operations, execution, search, and navigation. The main text area shows a single line of SQL code: "1 • create database db_delegacia;".

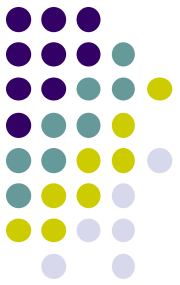
```
1 • create database db_delegacia;
```



Criando uma Tabela...

- Selecione o item **Tables** dentro do schema **db_delegacia**.
- Com o botão direito do mouse, clique no menu **Create Table**.





Criando uma Tabela...

- Na aba **new_table** digite o nome da tabela. No grid **Column Name** defina as colunas da tabela. Para finalizar clique em **Apply**.

Table Name: Schema: **db_delegacia**

Collation: Engine:

Comments:

Column Name	Datatype	PK	NN	UN	BIN	UN	ZF	AI	Default
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

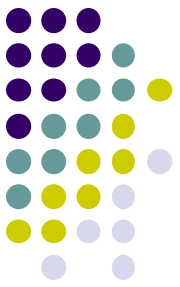
PK indica primary key.
NN indica que a coluna não pode ficar vazia (Not Null).

Column Name: Data Type:

Collation: Default:

Comments:

Primary Key Not Null Unique



Criando uma Tabela...

- Crie a tabela **vitima** (**cpf**, **nome**, **datanasc**). Após clicar em Apply, confira o SQL gerado e clique em Apply e Finish. Feche a aba da table vitima.

Table Name: vitima Schema: db_delegacia

Collation: Schema Default Engine: InnoDB

Comments:

Column Name	Datatype	PK	NN	UQ	BIN	UN	ZF	AI	Default
cpf	VARCHAR(11)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
nome	VARCHAR(45)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
datanascimento	DATE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Review the SQL Script to be Applied on the Database

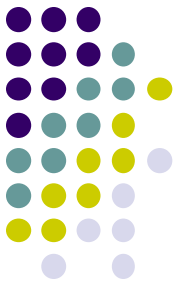
Online DDL

Algorithm: Default

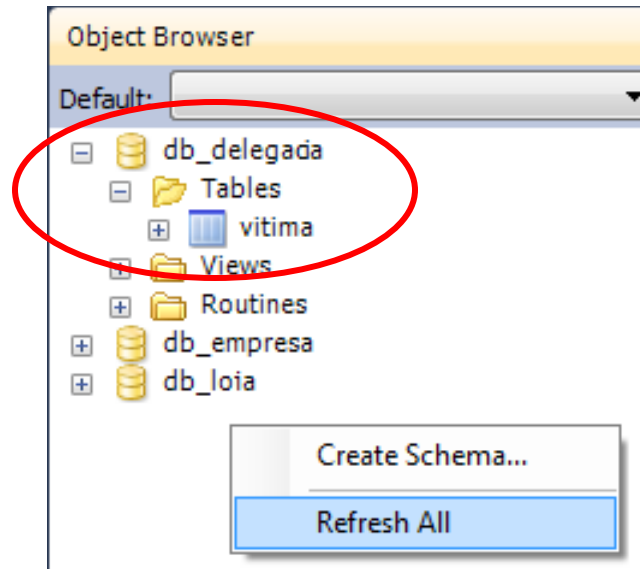
Lock Type: Default

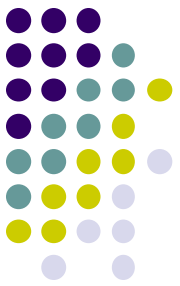
```
1 CREATE TABLE `db_delegacia`.`vitima` (  
2   `cpf` VARCHAR(11) NOT NULL,  
3   `nome` VARCHAR(45) NULL,  
4   `datanascimento` DATE NULL,  
5   PRIMARY KEY (`cpf`));  
6
```

Criando uma Tabela...



- Dê um refresh na aba **Schemas** para que a tabela seja mostrada.





Criando uma Tabela...

- Repita todos os passos para criar a tabela Crime.

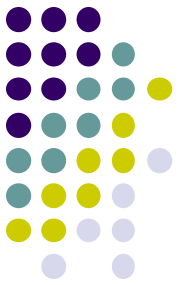
Table Name:	<input type="text" value="crime"/>	Schema:	db_delegacia					
Column Name	Datatype	PK	NN	UQ	BIN	UN	ZF	AI
cpfvitima	VARCHAR(11)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
cpfcriminoso	VARCHAR(11)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
data_crime	DATE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
descricao_crime	VARCHAR(100)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- **ATENÇÃO:** Após preencher as colunas da tabela, clique na aba foreign keys e acrescente as FK's. Por fim, clique no botão Apply.

Table Name:	<input type="text" value="crime"/>	Schema:	db_delegacia
Foreign Key Name	Referenced Table	Column	Referenced Column
<input checked="" type="checkbox"/> fk_vitima	`db_delegacia`.`vitima`	<input checked="" type="checkbox"/> cpfvitima	cpf
<input checked="" type="checkbox"/> fk_criminoso	`db_delegacia`.`criminoso`	<input type="checkbox"/> cpfcriminoso	
		<input type="checkbox"/> data_crime	
		<input type="checkbox"/> descricao_crime	

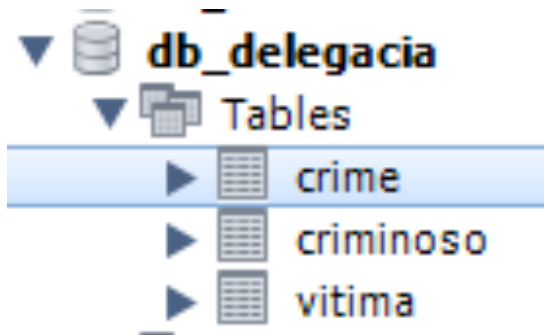
Foreign Key Name	Referenced Table
fk_vitima	`db_delegacia`.`vitima`
fk_criminoso	`db_delegacia`.`criminoso`

Column	Referenced Column
<input type="checkbox"/> cpfvitima	
<input checked="" type="checkbox"/> cpfcriminoso	cpf
<input type="checkbox"/> data_crime	
<input type="checkbox"/> descricao_crime	



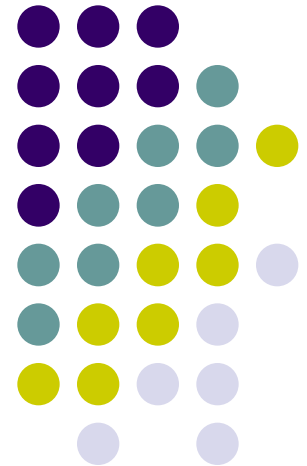
Visualizando db_delegacia

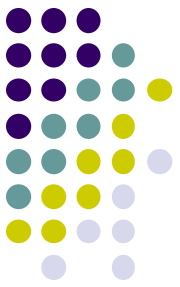
- Dê um **refresh all** na aba Schemas para atualizar o **db_delegacia** com todas as tabelas.



Banco de Dados

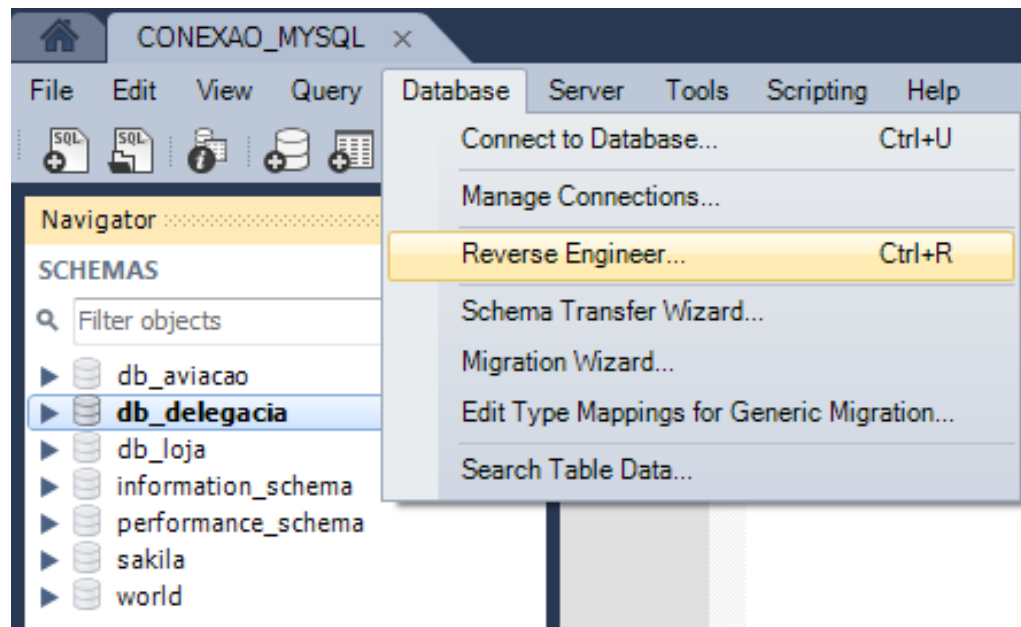
Engenharia Reversa

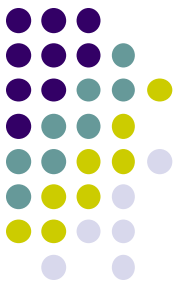




Engenharia Reversa

- Através do Workbench é possível gerar o diagrama de entidade e relacionamento de uma base de dados (schema) existente. Essa funcionalidade é chamada de Engenharia Reversa.
- Para praticar, selecione o database db_delegacia. Em seguida, clique no menu Database – item Reverse Engineer.





Engenharia Reversa

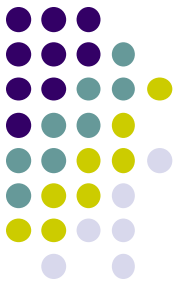
- Clique no botão **Next** nas próximas duas telas apresentadas. Digite a senha do usuário root, caso seja solicitada.

The screenshot shows a dialog box titled "Reverse Engineer Database" with a sidebar on the left and a main content area on the right. The sidebar contains the following menu items: "Connection Options", "Connect to DBMS", "Select Schemas", "Retrieve Objects", "Select Objects", "Reverse Engineer", and "Results". The main content area is titled "Set Parameters for Connecting to a DBMS" and contains the following fields and controls:

- Stored Connection:** A dropdown menu with "CONEX" selected. To its right is the text "Select from saved connection settings".
- Connection Method:** A dropdown menu with "Standar" selected. To its right is the text "Method to use to connect to the RDBMS".
- Parameters:** A tabbed interface with three tabs: "Parameters" (selected), "SSL", and "Advanced".
- Hostname:** A text input field containing "localhost". To its right is a "Port:" label and a text input field containing "3306". To the right of the port field is the text "Name or IP a".
- Username:** A text input field containing "root". To its right is the text "Name of the".
- Password:** A text input field. To its right are two buttons: "Store in Vault ..." and "Clear". To the right of the "Clear" button is the text "The user's pa".

At the bottom of the dialog box, there are three buttons: "Back", "Next", and "Cancel". The "Next" button is highlighted in blue.

Engenharia Reversa



- Na tela abaixo, selecione o db_delegacia e clique no botão **Next**. Digite a senha do usuário root, caso seja solicitado e clique em **Next**.

The image displays two sequential screenshots of the 'Reverse Engineer Database' application interface.

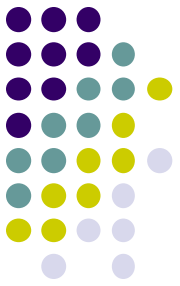
First Screenshot: Select Schemas to Reverse Engineer

- Left Panel (Navigation):** A vertical list of options: Connection Options, Connect to DBMS, **Select Schemas** (highlighted), Retrieve Objects, Select Objects, Reverse Engineer, and Results.
- Main Area:** Titled 'Select Schemas to Reverse Engineer'. It features a database icon and the instruction 'Select the schemas below you want to include:'. Below this is a list of schemas with checkboxes:
 - db_aviacao
 - db_delegacia
 - db_loja
 - sakila
 - world
- Bottom:** 'Back' and 'Next' buttons.

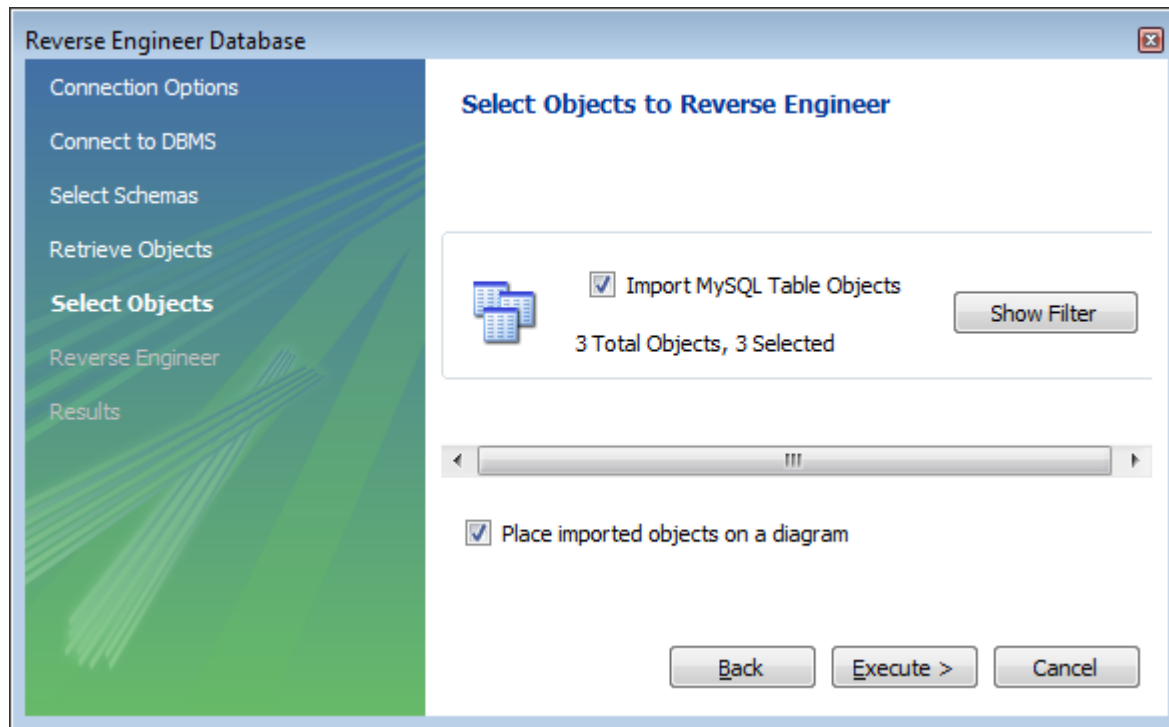
Second Screenshot: Retrieve and Reverse Engineer Schema Objects

- Left Panel (Navigation):** A vertical list of options: Connection Options, Connect to DBMS, Select Schemas, **Retrieve Objects** (highlighted), Select Objects, Reverse Engineer, and Results.
- Main Area:** Titled 'Retrieve and Reverse Engineer Schema Objects'. It contains the following text:
 - 'The following tasks will now be executed. Please monitor the execution. Press Show Logs to see the execution logs.'
 - Two checked checkboxes:
 - Retrieve Objects from Selected Schemata
 - Check Results
 - 'Retrieval Completed Successfully Finished.'
- Bottom:** 'Show Logs', 'Back', 'Next', and 'Cancel' buttons.

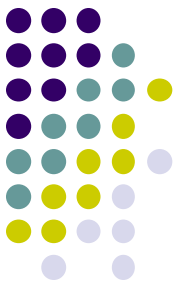
Engenharia Reversa



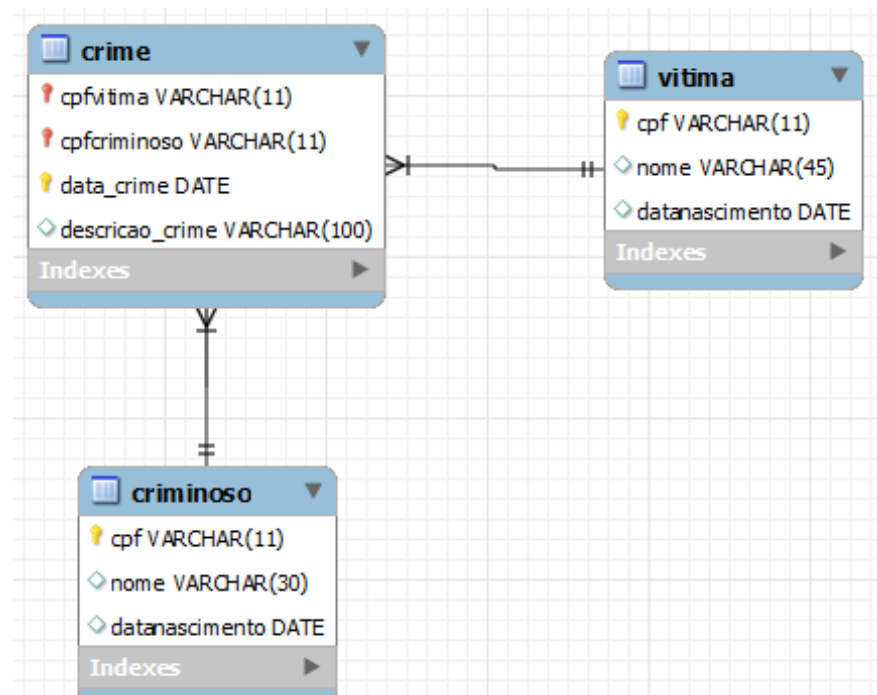
- Nas próximas telas clique nos botões **Execute**, **Next** e **Finish**, a medida que forem sendo apresentados.

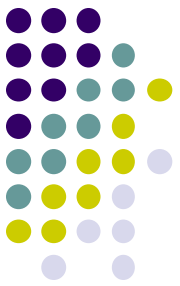


Engenharia Reversa



- Ao final uma aba com o DER de db_delegacia será apresentado. Save o modelo como DER_db_delegacia. Este arquivo fica disponível na tela principal do Workbench.
- Esse recurso é útil para gerar uma documentação lógica de um banco de dados já existente.





Praticando...

- Através do Workbench, crie o database **db_bancario** com as tabelas ilustradas no modelo lógico abaixo. Concluída esta tarefa, realize a engenharia reversa deste database.

