Aula 03 - JPA

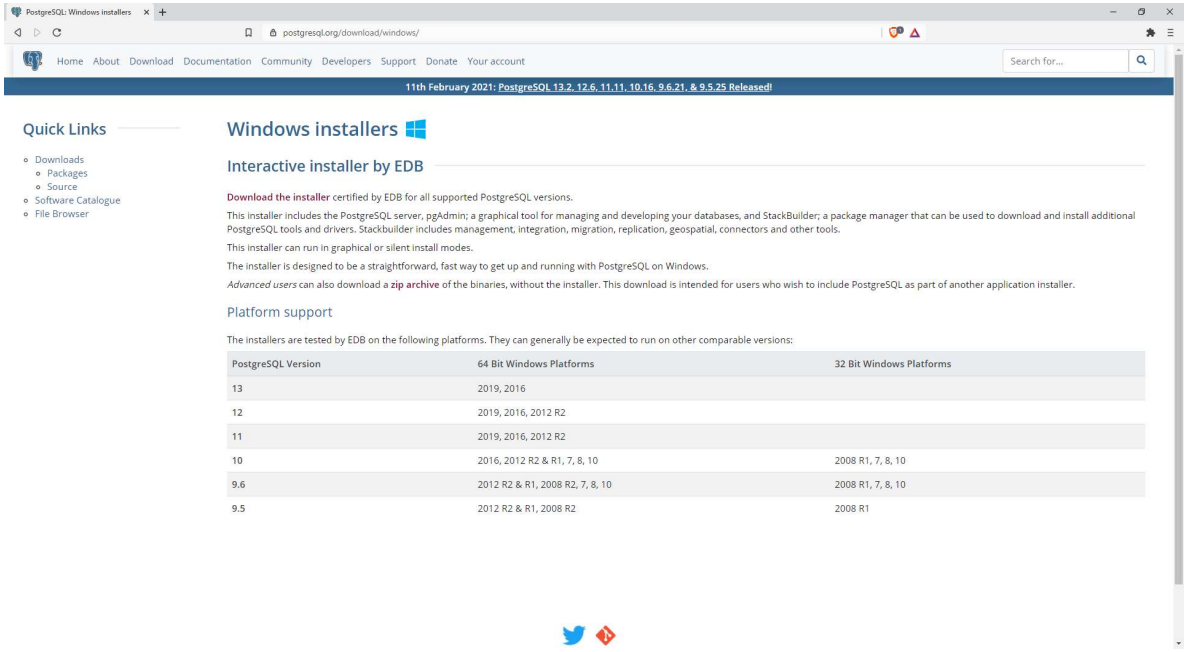
Prof. Glauco Todesco

Instalação – PostgreSQL – 12.6

https://www.postgresql.org/download/windows/

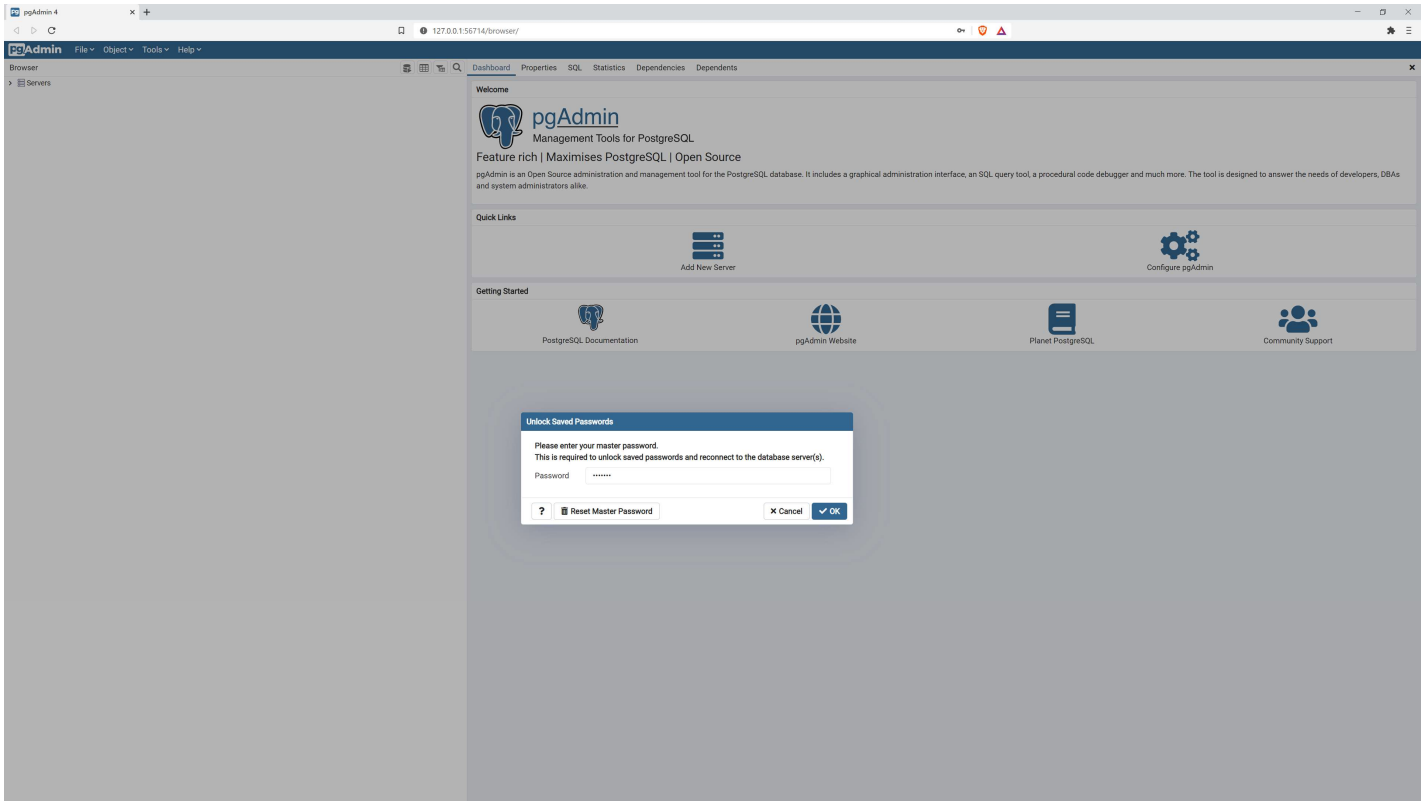
Password: 1234567

Não precisa instalar o Stack Builder



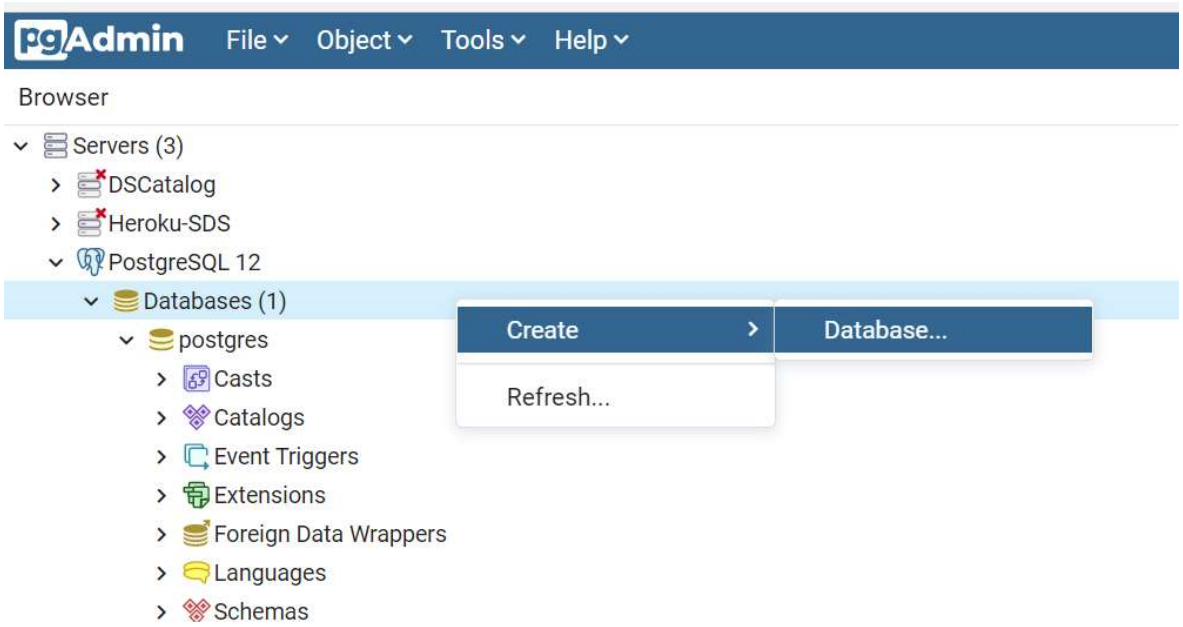
PostgreSQL 12.6

- Execute o pgAdmin4 (password: 1234567)



Crie um database

- Botão Direito em DataBase -> Create: jpa-samples



Criar um projeto Maven

- Ctrl + Shif + P
- Maven Project
- QuickStart JDK 8
  - Groupid: br.facens.jpa
  - ArtifactId: exemplos
  - Enter e Yes.
- Abra o projeto:
  - cd exemplos
  - code .

Adicionar Dependências (pom.xml)

```
<dependency>
        <groupId>org.postgresql</groupId>
        <artifactId>postgresql</artifactId>
        <version>42.2.19</version>
        <scope>runtime</scope>
</dependency>

<dependency>
        <groupId>org.eclipse.persistence</groupId>
        <artifactId>org.eclipse.persistence.jpa</artifactId>
        <version>2.7.8</version>
</dependency>
```

Configurar: persistence.xml

- Crie a pasta resource dentro da pasta main.
- Crie a pasta META-INF dentro da pasta resource.
- Crie dentro da pasta META-INF o arquivo **persistence.xml**

persistence.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<persistence version="2.1" xmlns="http://xmlns.jcp.org/xml/ns/persistence" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/persistence
http://xmlns.jcp.org/xml/ns/persistence/persistence_2_1.xsd">

  <persistence-unit name="PU_SAMPLES" transaction-type="RESOURCE_LOCAL">
    <properties>
          <property name="javax.persistence.schema-generation.database.action" value="create"/>
          <property name="javax.persistence.jdbc.url" value="jdbc:postgresql://localhost:5432/jpa-samples"/>
          <property name="javax.persistence.jdbc.user" value="postgres"/>
          <property name="javax.persistence.jdbc.password" value="1234567"/>
          <property name="javax.persistence.jdbc.driver" value="org.postgresql.Driver"/>
    </properties>
 </persistence-unit>

</persistence>
```

Crie uma classe Book

```
package br.facens.jpa.example01;

public class Book {
        private Long id;
        private String author;
        private double price;
        private String title;
 }
```

Adicione gets, sets, toString, hashCode e equals

Transformando a Classe em Entidade

- Marque a classe como @Entity
- Marque o atributo id como @Id
- Implemente a interface Serializable.

Inserindo uma linha no Banco:

- Crie a classe InsertBook com o método main:
- Dentro do main:
  1. Crie um EntityManagerFactory:

     ```
     EntityManagerFactory factory = Persistence.createEntityManagerFactory("PU_SAMPLES");
     ```

  2. Crie um EntityManager:

     ```
     EntityManager em = factory.createEntityManager();
     ```

Inserindo uma linha no Banco:

3. Crie um objeto Book com Dados:

```
Book b1 = new Book();
b1.setId(1l);
b1.setAuthor("Glauco Todesco");
b1.setPrice(10.22);
b1.setTitle("The Art of Java Programing");
```

4. Faça a persistência do objeto através do EntityManager:

```
em.persist(b1);
```

Inserindo uma linha no Banco:

5. Para sincronizar os objetos com o banco de dados é necessário ter uma transação e um commit:

```
em.getTransaction().begin();
em.getTransaction().commit();
```

6. Feche todas as conexões:

```
em.close();
factory.close();
```

Versão Final:

```java
public class InsertBook {
    public static void main(String[] args) {

        EntityManagerFactory factory = Persistence.createEntityManagerFactory("PU_SAMPLES");

        EntityManager em = factory.createEntityManager();

        Book b1 = new Book();
        b1.setId(1l);
        b1.setAuthor("Glauco Todesco");
        b1.setPrice(10.22);
        b1.setTitle("The Art of Java Programming");

        em.persist(b1);

        em.getTransaction().begin();
        em.getTransaction().commit();

        em.close();
        factory.close();
    }
}
```

Execução:

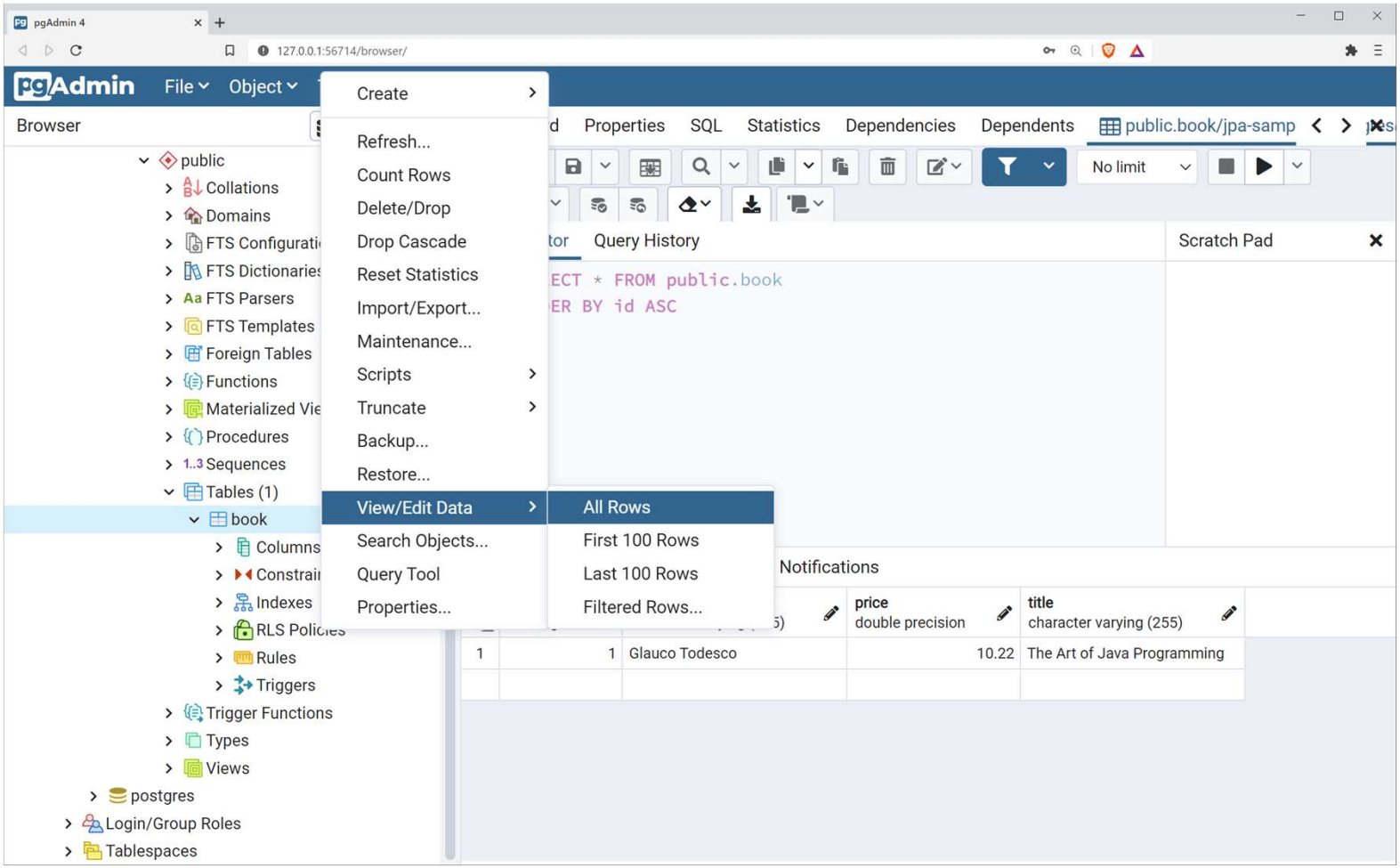
- Ao executar o arquivo teremos um erro (teste)
- É necessário adicionar a entidade no persistence.xml

```
<persistence-unit name="PU_SAMPLES" transaction-type="RESOURCE_LOCAL">

        <class>br.facens.jpa.example01.Book</class>

        <properties>
```

Veja no Banco de Dados o resultado:



Executando um Select com JQPL

- JPQL = Java Persistence Query Language

```
EntityManagerFactory factory = Persistence.createEntityManagerFactory("PU_SAMPLES");

EntityManager em = factory.createEntityManager();

List <Book> list = em.createQuery("SELECT o FROM Book o", Book.class).getResultList();

for(Book b : list){
    System.out.println(b);
}

em.close();
factory.close();
```