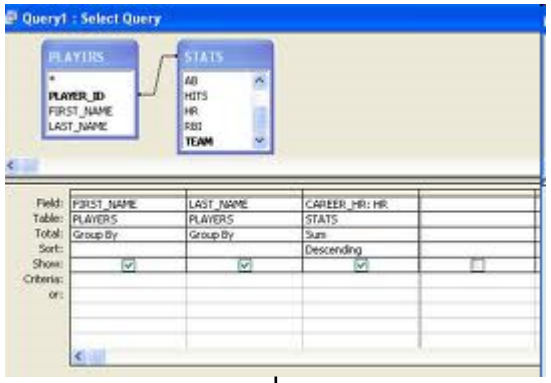
Programando em BD

Lubia Vinhas

Interfaces SGBD

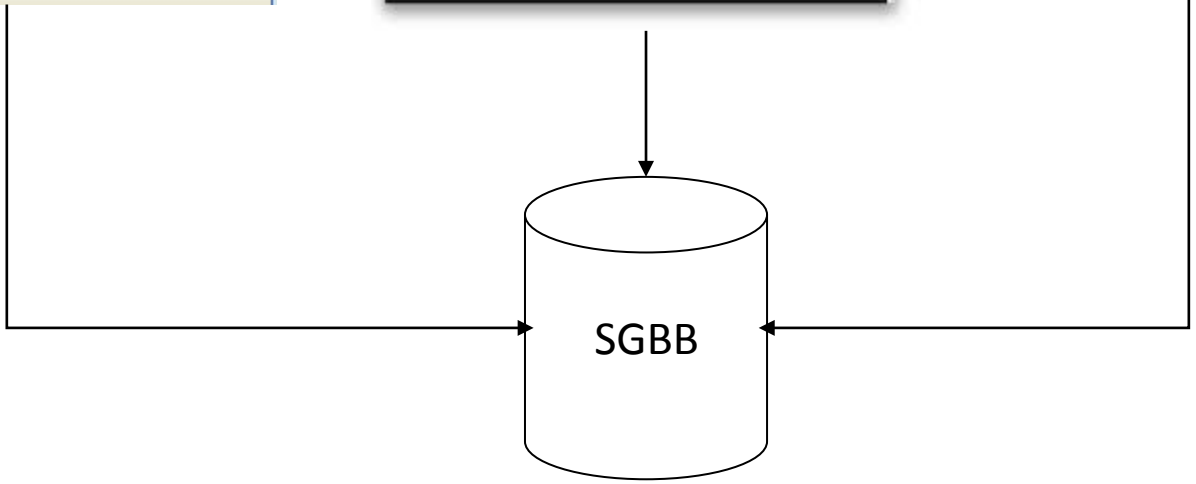
GUI



Prompt

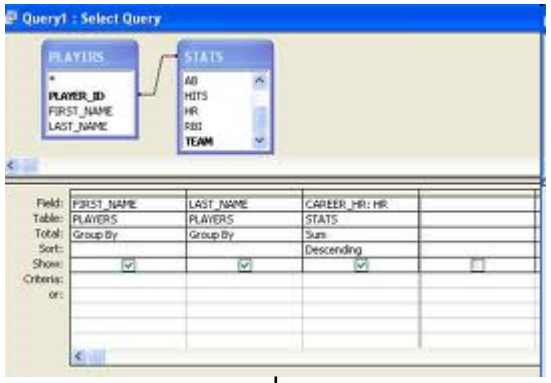
API

```
int main()
{
…
}
```



Interfaces SGBD

GUI



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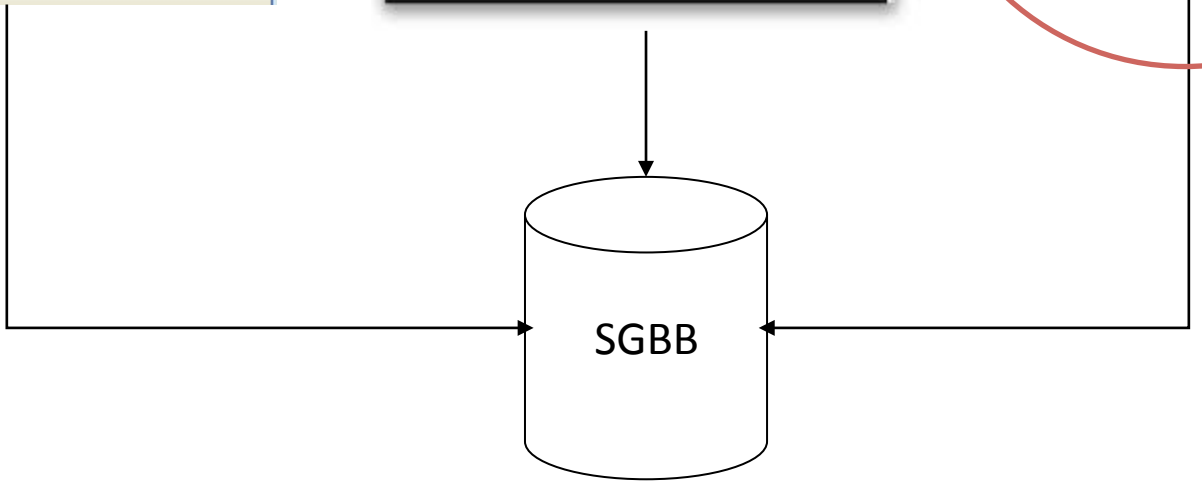
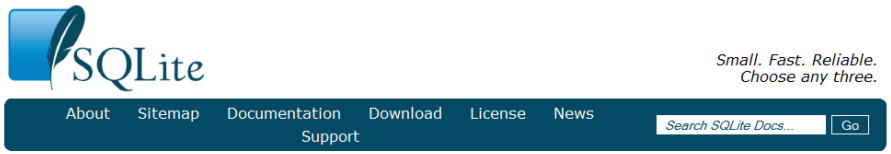


API para SGBD

- Uma API é uma biblioteca de código em alguma linguagem de programação de forma que você possa criar um programa que converse com o banco
- Pra isso você precisa de um ambiente de edição, compilação e linking para aquela linguagem

Exemplos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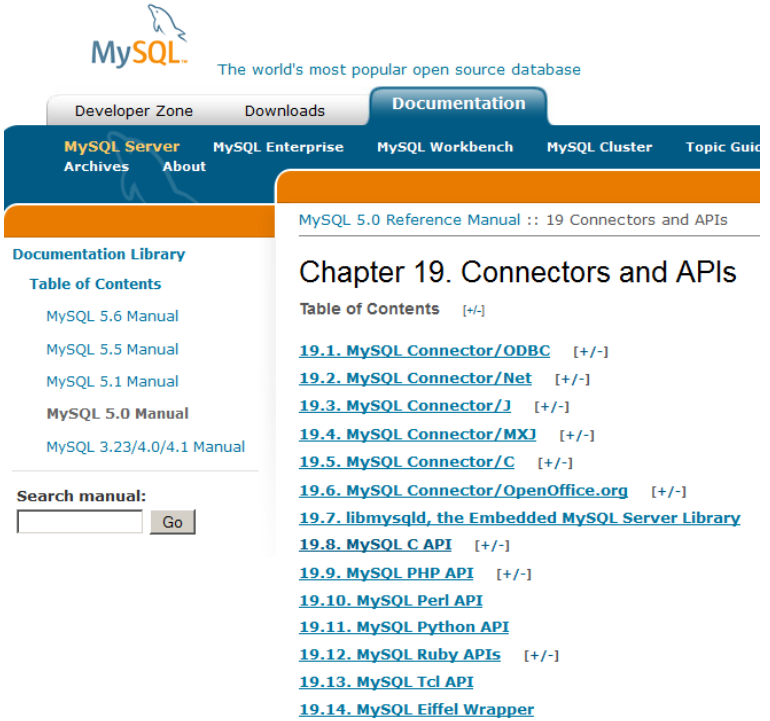
An Introduction To The SQLite C/C++ Interface
This article provides an overview and roadmap to the C/C++ interface to SQLite.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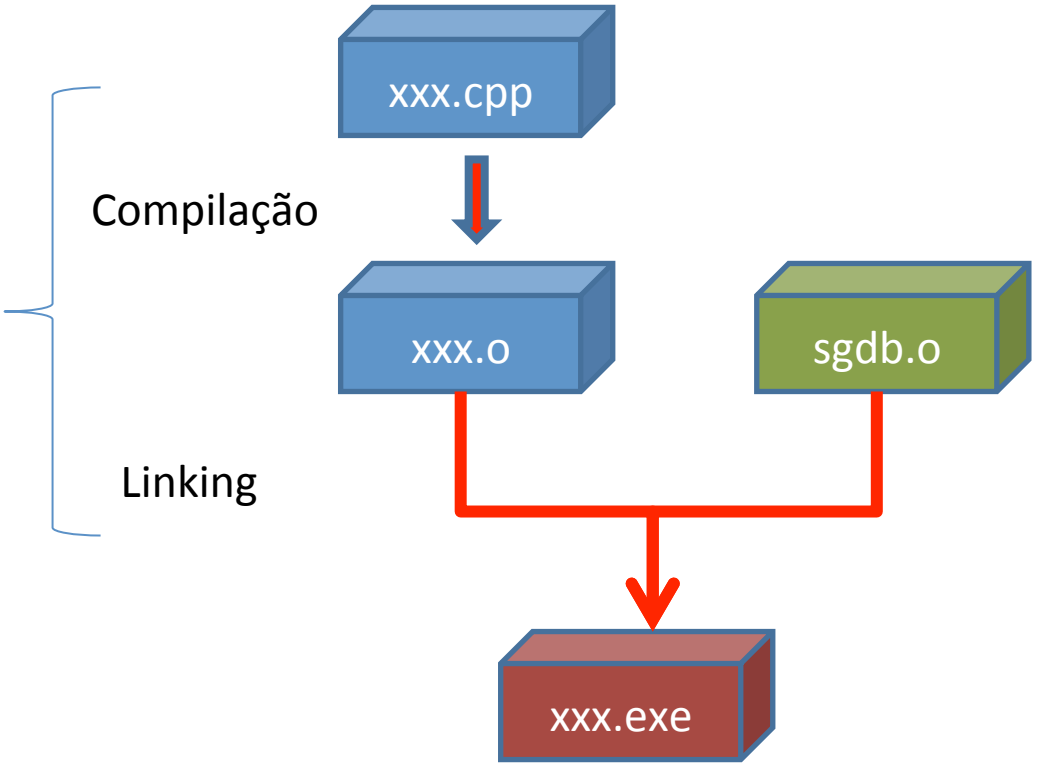
API para SGBD

Ambiente:
editor,
compilador,
linker.
...



APIs para SGBD

- Objetos: quais são os objetos que representam os diferentes componentes do SBGD

- Funções: quais as funções sobre esses objetos

Exemplo: SQLite

- Objetos:

  `sqlite3` : representa uma conexão ao SGBD

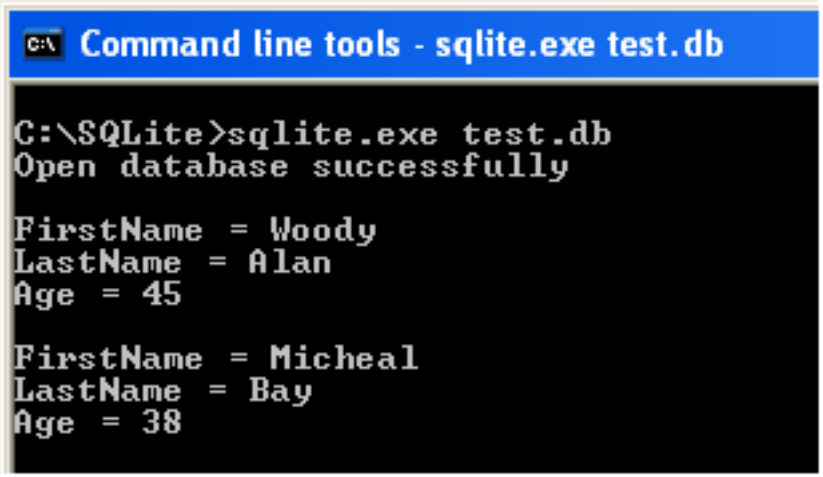
  `sqlite3_stmt`: representa um comando a ser submetido ao SGBD

- Funções:

  `sqlite3_open()`
  `sqlite3_prepare()`
  `sqlite3_step()`
  `sqlite3_column()`
  `sqlite3_finalize()`
  `sqlite3_close()`

Exemplo: SQLite C++

- `sqlite.cpp`



Exemplo: SQLite PHP

```php
<?php
$db = new SQLite3('mysqlitedb.db');

$db->exec('CREATE TABLE foo (bar STRING)');
$db->exec("INSERT INTO foo (bar) VALUES ('This is a test')");

$result = $db->query('SELECT bar FROM foo');
var_dump($result->fetchArray());
?>
```

```
  try {
    /*
    * Load the JDBC driver and establish a connection.
    */
    Class.forName("org.postgresql.Driver");
    String url = "jdbc:postgresql://localhost:5432/database";
    conn = DriverManager.getConnection(url, "postgres", "");
    /*
    * Add the geometry types to the connection. Note that you
    * must cast the connection to the pgsql-specific connection
    * implementation before calling the addDataType() method.
    */
    ((org.postgresql.PGConnection)conn).addDataType("geometry",Class.forName("org.postgis.PGgeometry"));
    ((org.postgresql.PGConnection)conn).addDataType("box3d",Class.forName("org.postgis.PGbox3d"));

    /*
    * Create a statement and execute a select query.
    */
    Statement s = conn.createStatement();
    ResultSet r = s.executeQuery("select geom,id from geomtable");
    while( r.next() ) {
      /*
      * Retrieve the geometry as an object then cast it to the geometry type.
      * Print things out.
      */
      PGgeometry geom = (PGgeometry)r.getObject(1);
      int id = r.getInt(2);
      System.out.println("Row " + id + ":");
      System.out.println(geom.toString());
    }
    s.close();
    conn.close();
  }
catch( Exception e ) {
  e.printStackTrace();
```