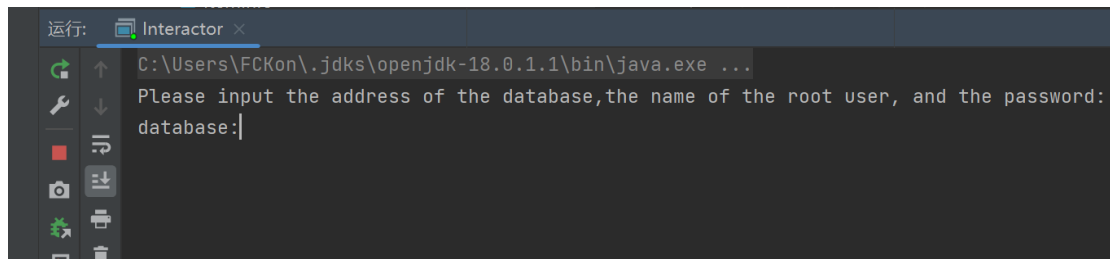


交互器所拥有的变量：一个 DataManagement 的对象，一个标准的读 CSV 文件的 readFile 方法，以及一个用来储存该 database 的路径。

除了连接数据库和用户登录以外，交互器的其他所有功能都是直接调用 DataManagement 的 API，也就是说交互器是一个纯粹的前端程序，其性能高度依赖于 DataManagement 的性能；

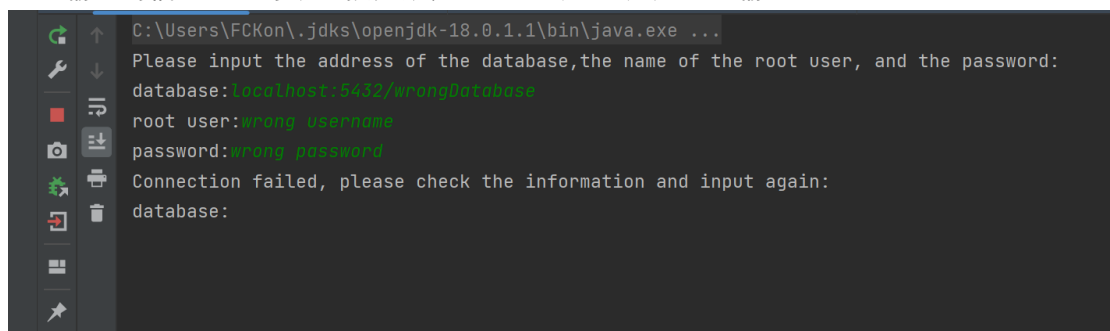
使用方法：

首先交互器会提示用户输入数据库的地址、超级用户的用户名和密码：



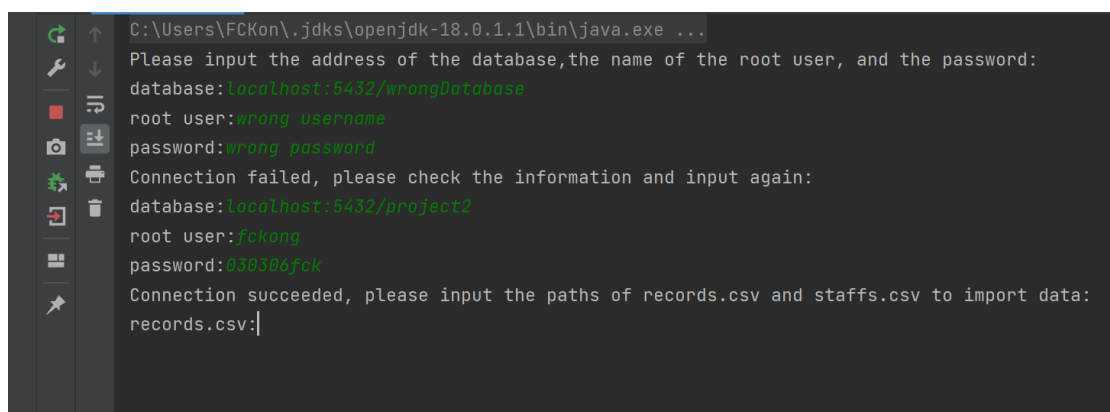
```
运行: Interactor x
C:\Users\FCKon\.jdk\openjdk-18.0.1.1\bin\java.exe ...
Please input the address of the database,the name of the root user, and the password:
database:|
```

如果输入的信息有误导致连接失败，交互器会提示用户重新输入：



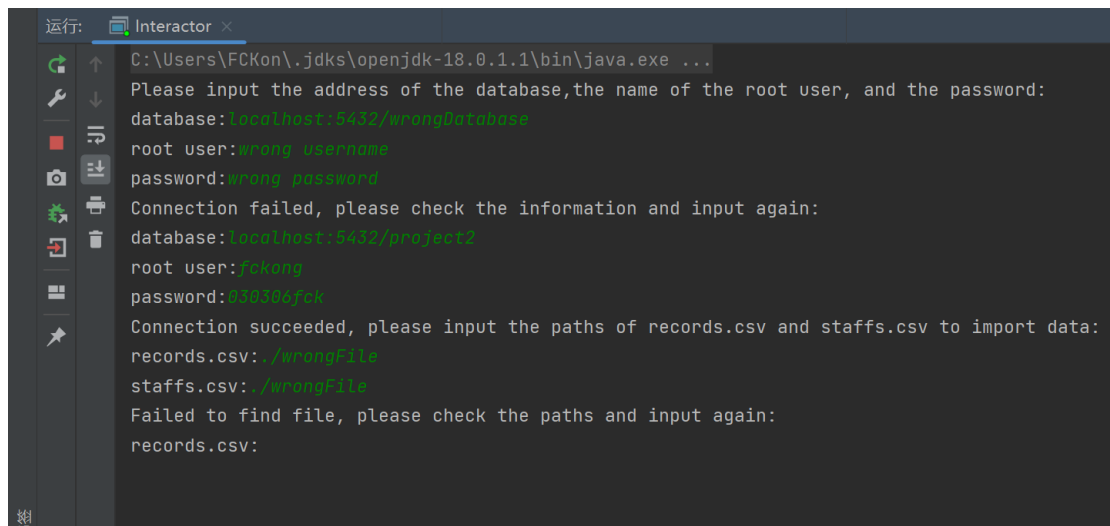
```
C:\Users\FCKon\.jdk\openjdk-18.0.1.1\bin\java.exe ...
Please input the address of the database,the name of the root user, and the password:
database:localhost:5432/wrongDatabase
root user:wrong_username
password:wrong_password
Connection failed, please check the information and input again:
database:
```

如果连接成功，交互器会接着提示用户输入 records.csv 和 staffs.csv 的路径以导入信息：



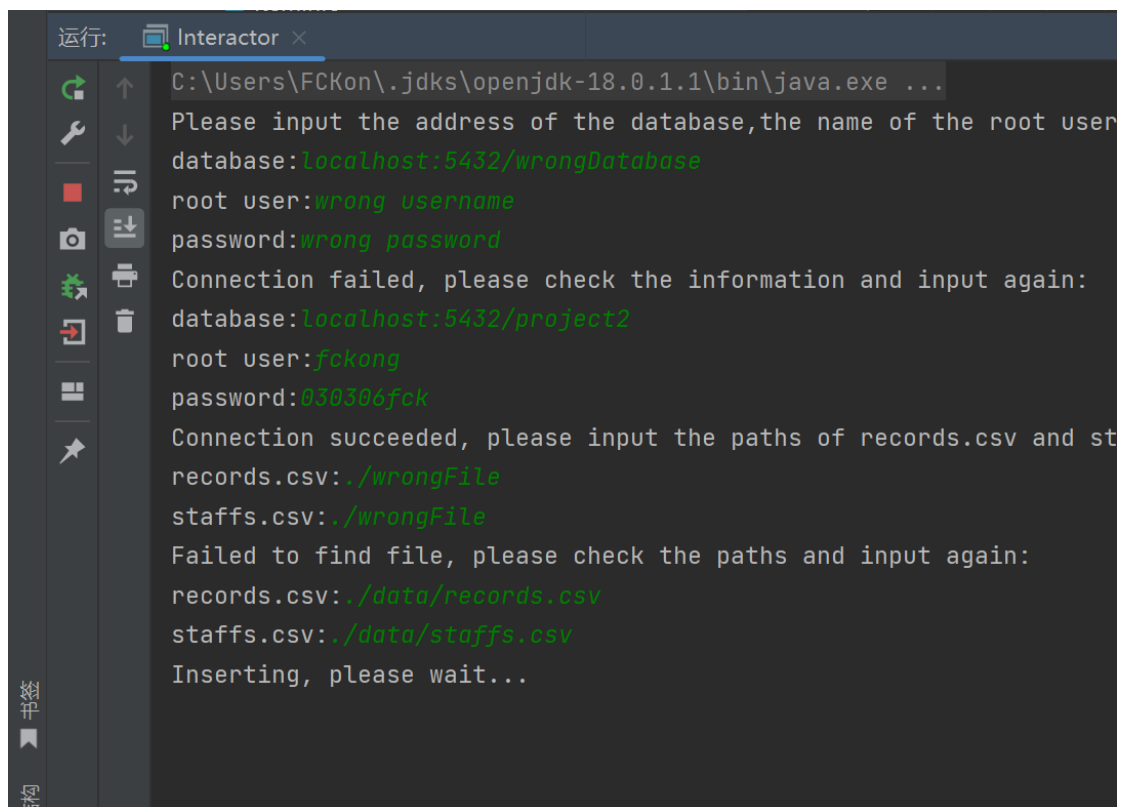
```
C:\Users\FCKon\.jdk\openjdk-18.0.1.1\bin\java.exe ...
Please input the address of the database,the name of the root user, and the password:
database:localhost:5432/wrongDatabase
root user:wrong_username
password:wrong_password
Connection failed, please check the information and input again:
database:localhost:5432/project2
root user:fckong
password:Q30306fck
Connection succeeded, please input the paths of records.csv and staffs.csv to import data:
records.csv:|
```

如果输入的文件路径有误，交互器会提示用户重新输入：



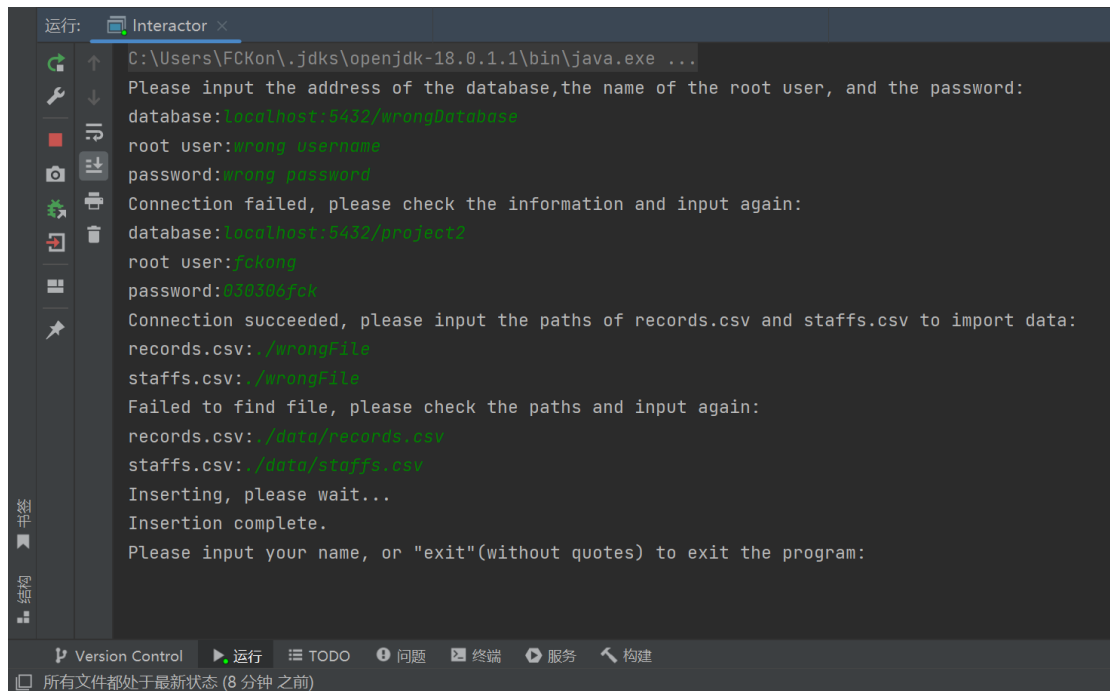
```
运行: Interactor x
C:\Users\FCKon\.jdk\openjdk-18.0.1.1\bin\java.exe ...
Please input the address of the database,the name of the root user, and the password:
database:localhost:5432/wrongDatabase
root user:wrong_username
password:wrong_password
Connection failed, please check the information and input again:
database:localhost:5432/project2
root user:fckong
password:030306fck
Connection succeeded, please input the paths of records.csv and staffs.csv to import data:
records.csv:./wrongFile
staffs.csv:./wrongFile
Failed to find file, please check the paths and input again:
records.csv:
```

如果输入的路径正确，程序会读取文件并将内容加载到数据库：



```
运行: Interactor x
C:\Users\FCKon\.jdk\openjdk-18.0.1.1\bin\java.exe ...
Please input the address of the database,the name of the root user
database:localhost:5432/wrongDatabase
root user:wrong_username
password:wrong_password
Connection failed, please check the information and input again:
database:localhost:5432/project2
root user:fckong
password:030306fck
Connection succeeded, please input the paths of records.csv and st
records.csv:./wrongFile
staffs.csv:./wrongFile
Failed to find file, please check the paths and input again:
records.csv:./data/records.csv
staffs.csv:./data/staffs.csv
Inserting, please wait...
```

加载完成后就到了程序最主要的部分，首先程序会提示用户输入用户名或输入“exit”退出程序，输入用户名后再提示输入密码：



```
运行: Interactor x
C:\Users\FCKon\.jdk\openjdk-18.0.1.1\bin\java.exe ...
Please input the address of the database,the name of the root user, and the password:
database:localhost:5432/wrongDatabase
root user:wrong_username
password:wrong_password
Connection failed, please check the information and input again:
database:localhost:5432/project2
root user:fckong
password:Q30306fck
Connection succeeded, please input the paths of records.csv and staffs.csv to import data:
records.csv: ./wrongFile
staffs.csv:./wrongFile
Failed to find file, please check the paths and input again:
records.csv: ./data/records.csv
staffs.csv:./data/staffs.csv
Inserting, please wait...
Insertion complete.
Please input your name, or "exit"(without quotes) to exit the program:
```

这里程序会检测两种错误，是否存在用户以及用户密码是否正确：

```
Please input your name, or "exit"(without quotes) to exit the program:Diangun
Please input your password:1145141919810
Staff "Diangun" doesn't exist, login failed.
Please input your name, or "exit"(without quotes) to exit the program:Xia Lichen
Please input your password:1145141919810
Wrong password, login failed.
Please input your name, or "exit"(without quotes) to exit the program:|
```

如果输入了错误的信息导致登陆失败，交互器会一直提示重新输入直到登录成功。登录成功后，交互器会根据登录角色的 staff_type 自动分配相应权限，并根据权限来允许用户进行权限限制内的操作，这也就意味着使用交互器操作 DataManagement 不会出现因权限错误而无法得到结果/无法进行修改的情况，使得判断运行结果更加便捷。如图，这里的 Xia Lichen 是一位 SUSTC Department Manager，用她的账户登录后交互器自动根据 SUSTC Department Manager 的权限分配了能进行的操作：

```
Please input your name, or "exit"(without quotes) to exit the program:Xia Lichen
Please input your password:248442857068449968
Welcome, SUSTC department manager Xia Lichen.
you can perform the following operations:
[1] Look for the number of companies that joined SUSTC;
[2] Look for the number of cities logged in SUSTC;
[3] Look for the number of couriers who joined SUSTC;
[4] Look for the number of ships logged in SUSTC;
[5] Look for the item's full information according to its name;
[6] Look for the ship's full information according to its name;
[7] Look for the container's full information according to its code;
[8] Look for the staff's full information according to his/her name;
[9] Log out.
Please input to select an operation:(1~9)
```

此时交互器会提示用户输入一个数字来进行相应的操作。

一次操作不管得到了什么结果，不管成功还是失败，不管输入信息是否合法，交互器都会提示用户重新输入一个数字来选择进行哪项操作。

如果这项操作无需输入（如上图中的 1~4），则可以直接得到结果：

```
[2] Look for the number of cities logged in SUSTC;  
[3] Look for the number of couriers who joined SUSTC;  
[4] Look for the number of ships logged in SUSTC;  
[5] Look for the item's full information according to its name;  
[6] Look for the ship's full information according to its name;  
[7] Look for the container's full information according to its code;  
[8] Look for the staff's full information according to his/her name;  
[9] Log out.  
Please input to select an operation:(1~9) 1  
12 companies have joined SUSTC.  
you can perform the following operations:  
[1] Look for the number of companies that joined SUSTC;  
[2] Look for the number of cities logged in SUSTC;  
[3] Look for the number of couriers who joined SUSTC;  
[4] Look for the number of ships logged in SUSTC;  
[5] Look for the item's full information according to its name;  
[6] Look for the ship's full information according to its name;  
[7] Look for the container's full information according to its code;  
[8] Look for the staff's full information according to his/her name;  
[9] Log out.  
Please input to select an operation:(1~9) |
```

如果这项操作需要输入，则在输入数字之后还要根据提示输入相应的信息才可以得到结果：

```
[7] Look for the container's full information according to its code;
[8] Look for the staff's full information according to his/her name;
[9] Log out.
Please input to select an operation:(1~9) 6
Please input the name of the ship:d88549f6
Information of ship "d88549f6":
Ship owner: Wal-Mart Stores
Sailing or not: Not sailing
you can perform the following operations:
[1] Look for the number of companies that joined SUSTC;
[2] Look for the number of cities logged in SUSTC;
[3] Look for the number of couriers who joined SUSTC;
[4] Look for the number of ships logged in SUSTC;
[5] Look for the item's full information according to its name;
[6] Look for the ship's full information according to its name;
[7] Look for the container's full information according to its code;
[8] Look for the staff's full information according to his/her name;
[9] Log out.
Please input to select an operation:(1~9)
```

如果由于输入信息不合法等原因导致操作失败,交互器会提示用户操作失败然后要求用户重新输入一个数字来选择一个操作:

```
[6] Look for the ship's full information according to its name;
[7] Look for the container's full information according to its code;
[8] Look for the staff's full information according to his/her name;
[9] Log out.
Please input to select an operation:(1~9) 6
Please input the name of the ship:wrongShip
Cannot find the ship with name "wrongShip".
you can perform the following operations:
[1] Look for the number of companies that joined SUSTC;
[2] Look for the number of cities logged in SUSTC;
[3] Look for the number of couriers who joined SUSTC;
[4] Look for the number of ships logged in SUSTC;
[5] Look for the item's full information according to its name;
[6] Look for the ship's full information according to its name;
[7] Look for the container's full information according to its code;
[8] Look for the staff's full information according to his/her name;
[9] Log out.
Please input to select an operation:(1~9)
```

如果用户输入了除了数字 1~9 以外的内容,交互器会提示非法输入,然后要求用户重新输入一个数字来选择一个操作:

```
[5] Look for the item's full information according to its name;  
[6] Look for the ship's full information according to its name;  
[7] Look for the container's full information according to its code;  
[8] Look for the staff's full information according to his/her name;  
[9] Log out.  
Please input to select an operation:(1~9) 114514  
Invalid input.  
you can perform the following operations:  
[1] Look for the number of companies that joined SUSTC;  
[2] Look for the number of cities logged in SUSTC;  
[3] Look for the number of couriers who joined SUSTC;  
[4] Look for the number of ships logged in SUSTC;  
[5] Look for the item's full information according to its name;  
[6] Look for the ship's full information according to its name;  
[7] Look for the container's full information according to its code;  
[8] Look for the staff's full information according to his/her name;  
[9] Log out.  
Please input to select an operation:(1~9) |
```

如果输入代表登出（Log out）的操作，交互器会重新要求输入用户名和密码：

```
you can perform the following operations:  
[1] Look for the number of companies that joined SUSTC;  
[2] Look for the number of cities logged in SUSTC;  
[3] Look for the number of couriers who joined SUSTC;  
[4] Look for the number of ships logged in SUSTC;  
[5] Look for the item's full information according to its name;  
[6] Look for the ship's full information according to its name;  
[7] Look for the container's full information according to its code;  
[8] Look for the staff's full information according to his/her name;  
[9] Log out.  
Please input to select an operation:(1~9) 9  
You have successfully logged out.  
Please input your name, or "exit"(without quotes) to exit the program:
```

此时我们再使用类型为 Company Manager 的用户 Yu Bao 来进行登录，可以看到交互器为其分配的操作也变成了 Company Manager 可用的操作：

```
[6] Look for the ship's full information according to its name;  
[7] Look for the container's full information according to its code;  
[8] Look for the staff's full information according to his/her name;  
[9] Log out.  
Please input to select an operation:(1~9) 9  
You have successfully logged out.  
Please input your name, or "exit"(without quotes) to exit the program:Yu Bao  
Please input your password:2113353997898296736  
Welcome, company manager Yu Bao.  
you can perform the following operations:  
[1] Look for the import tax rate of a certain city and item class;  
[2] Look for the export tax rate of a certain city and item class;  
[3] Notify to the database that an item is packed into a container;  
[4] Notify to the database that a container is loaded to a ship;  
[5] Notify to the database that a ship is sailing;  
[6] Notify to the database that an item is unloaded from its container and ship;  
[7] Notify to the database that an item is waiting for import checking;  
[8] Log out.  
Please input to select an operation:(1~8)
```

此次登出之后，我们在用户名这里输入 exit，程序结束运行：

```
you can perform the following operations:  
[1] Look for the import tax rate of a certain city and item class;  
[2] Look for the export tax rate of a certain city and item class;  
[3] Notify to the database that an item is packed into a container;  
[4] Notify to the database that a container is loaded to a ship;  
[5] Notify to the database that a ship is sailing;  
[6] Notify to the database that an item is unloaded from its container and ship;  
[7] Notify to the database that an item is waiting for import checking;  
[8] Log out.  
Please input to select an operation:(1~8) 8  
You have successfully logged out.  
Please input your name, or "exit"(without quotes) to exit the program:exit  
  
进程已结束,退出代码0
```