

Alexandria University, Faculty of Engineering

CSED 21

Programming 2 – OOP and Design Patterns

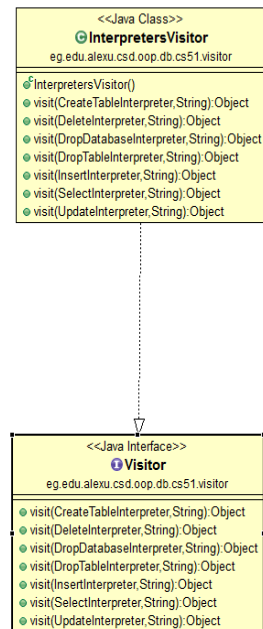
Assignment 3 - DBMS

Names:

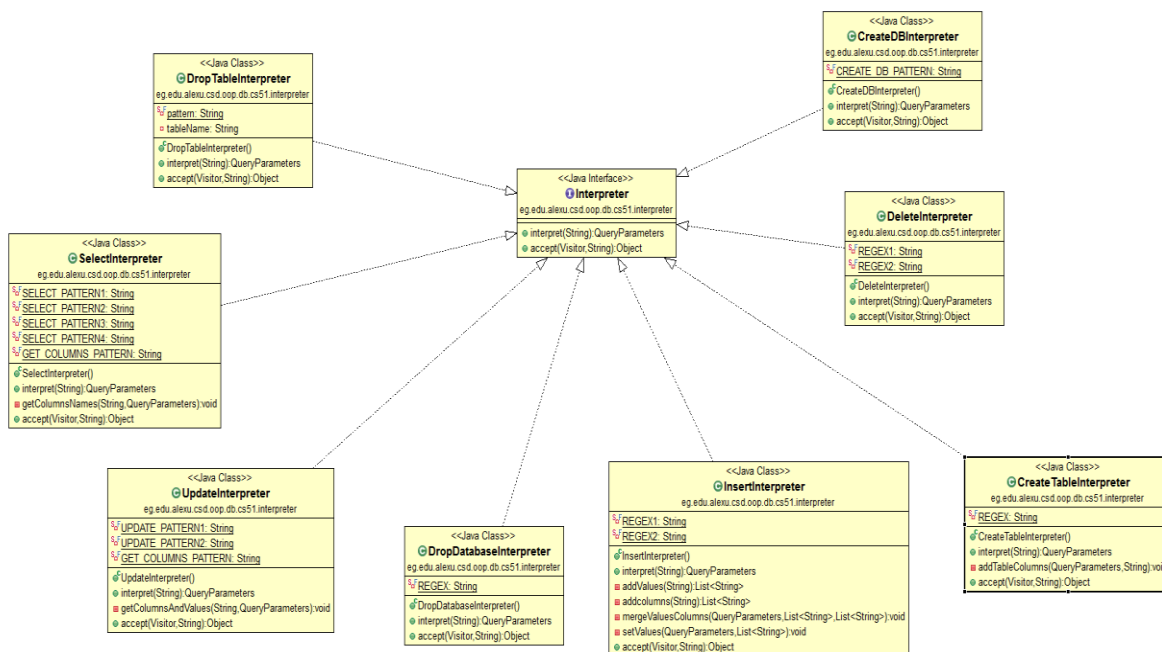
- 1) Mohamed mostafa ahmed Hassan elnashar (44).
- 2) Tarek Mohamed kamal (21).
- 3) Mostafa Nabil Mohamed(51).
- 4) Mohamed Salah Mahmoud (41).

1) UML:

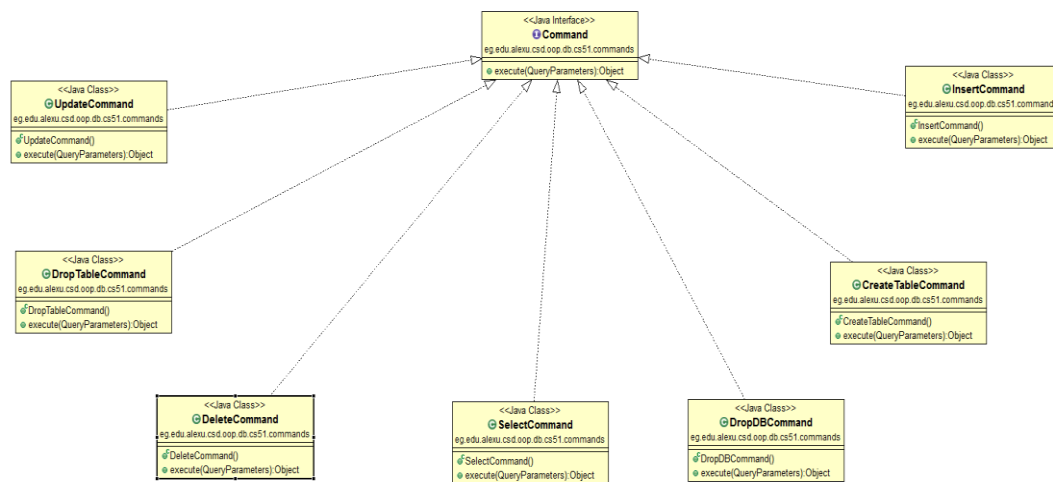
- visitor Design Pattern:



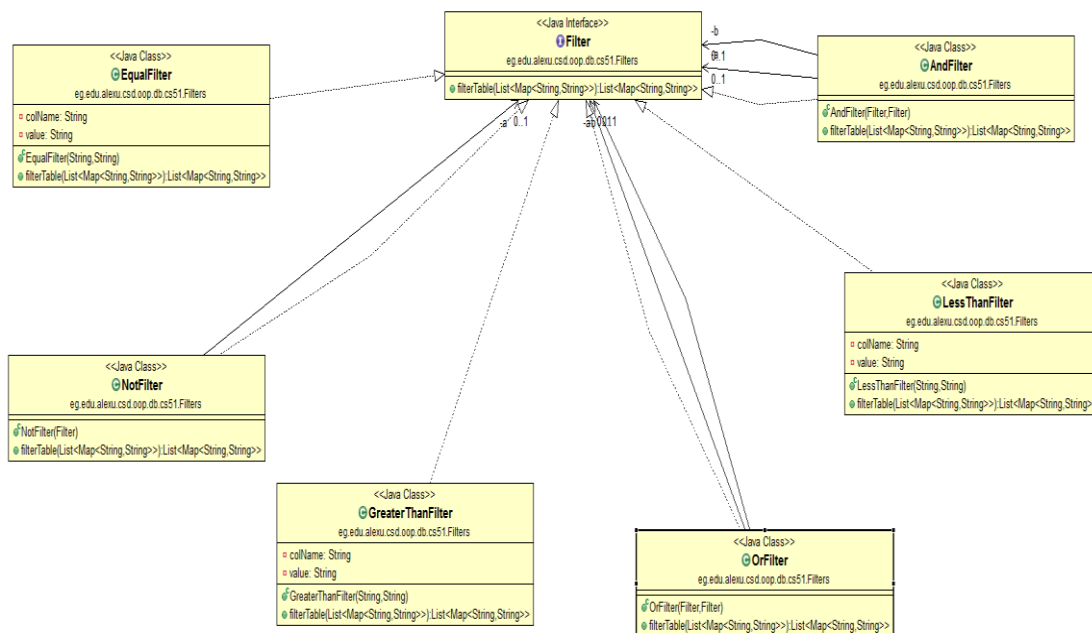
- Interpreter Design Pattern:



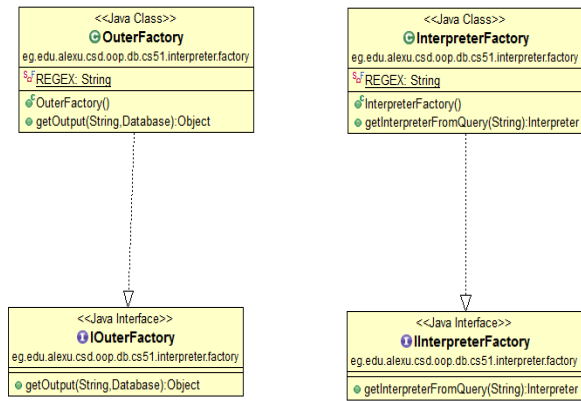
- Command Design Pattern:



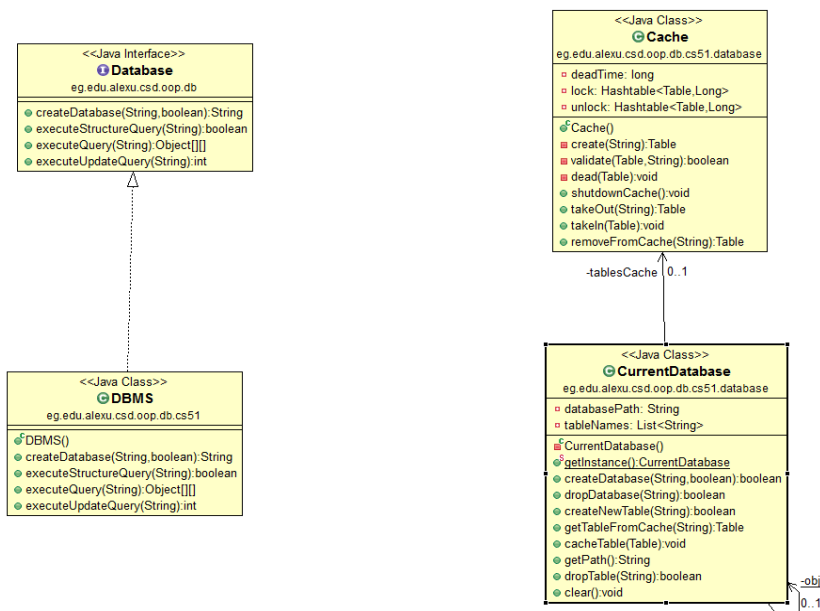
- Filter Design Pattern:



- Factory Design Pattern:



- Singleton and ObjectPool Design Pattern:



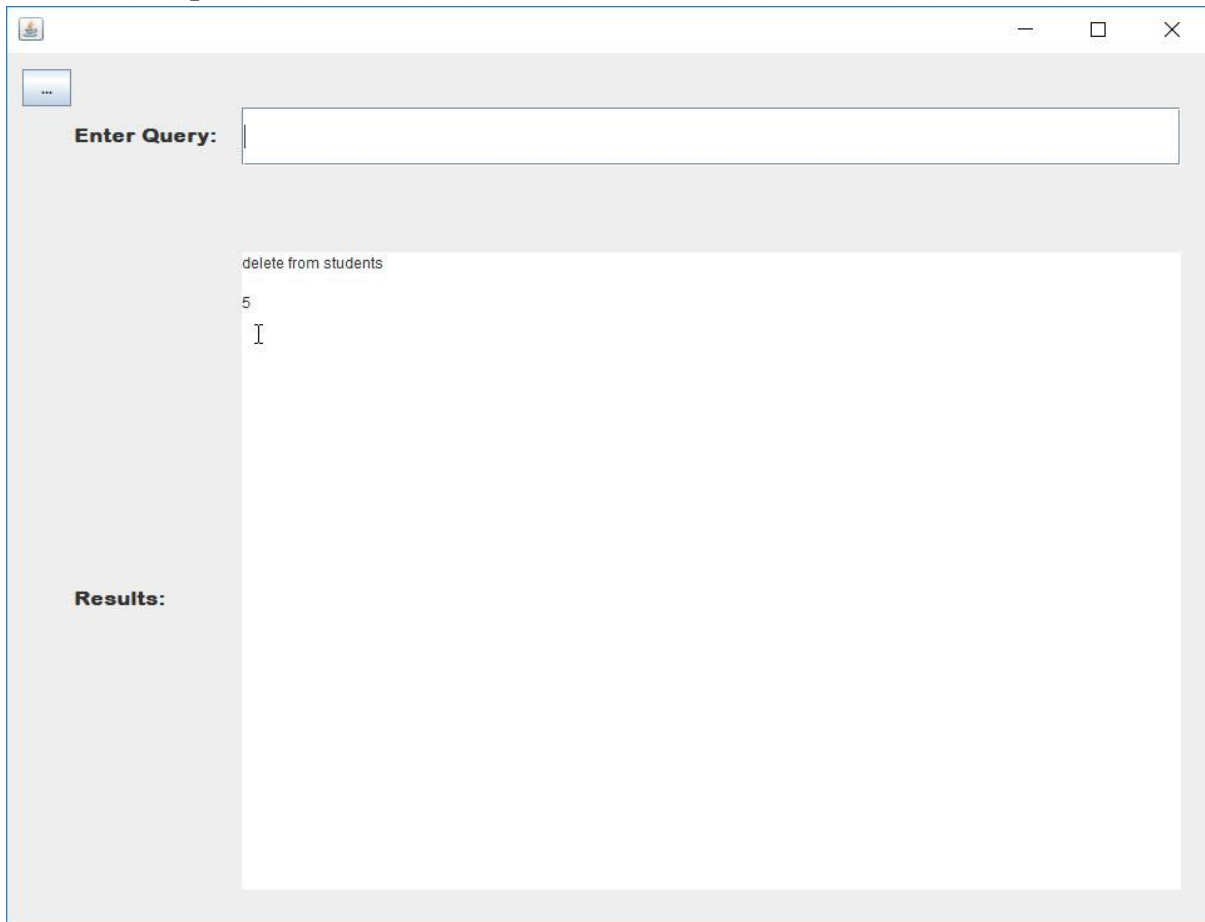
2) Design Description and Decisions:

- We used the singleton design pattern to represent the database folder as an object so only one dbms can use the database.
- The outer parser parses the beginning of the query and sends it to the appropriate function in the dbms.
- The execute functions in the dbms sends the query to the interpreter factory which chooses and returns the appropriate interpreter.
- The execute functions sends the visitor to the accept method in the interpreter.
- The interpreter interprets the query and extract the query parameter then the visitor sends the query parameters to the command that executes the query.

3) User Guide:

- Write the query in the text field and press enter to execute it.
- The results shows in the text area below.
- use w3school.com to know more about SQL queries.

4) Snapshots:

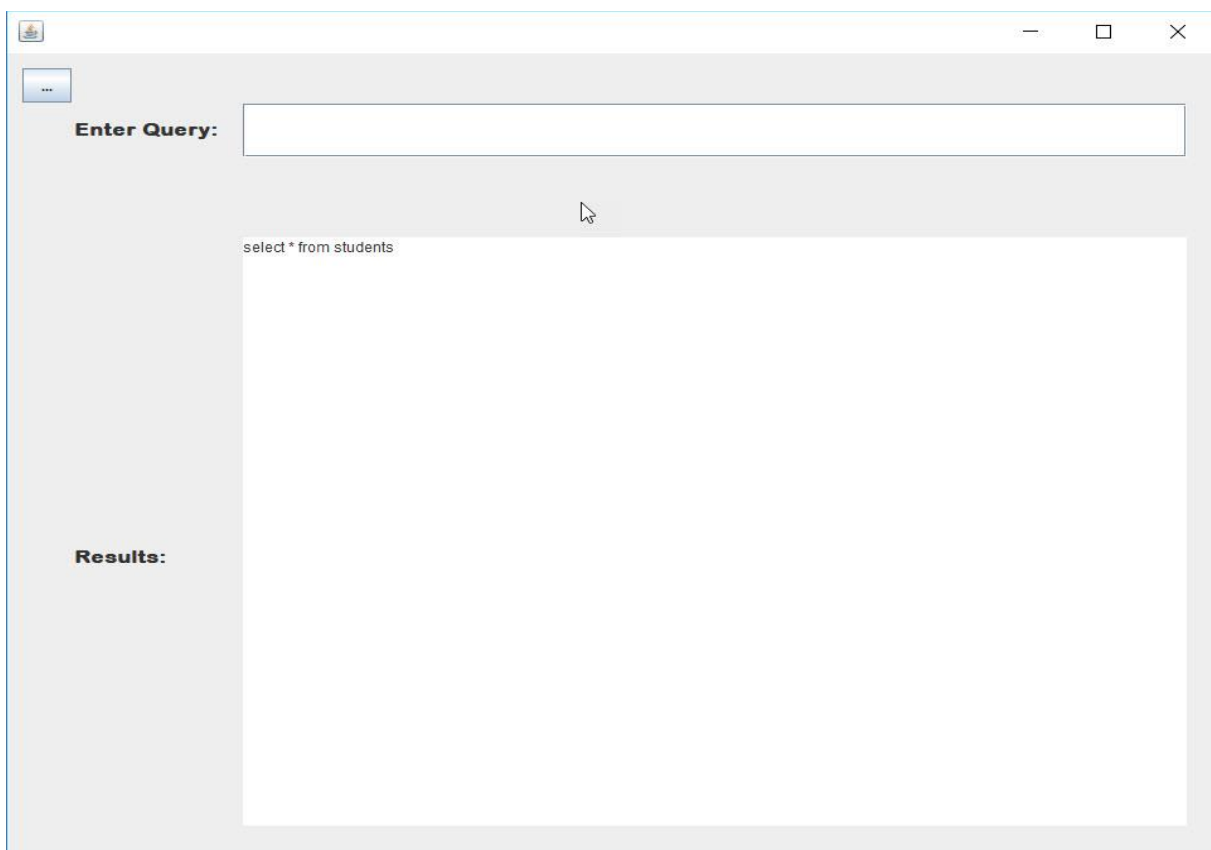


A screenshot of a database query interface. The window has a title bar with a small icon on the left and standard minimize, maximize, and close buttons on the right. Inside the window, there is a sidebar on the left with a button labeled "...". The main area is divided into two sections. The top section is labeled "Enter Query:" and contains a text input field. The bottom section is labeled "Results:" and contains a large text area. The text area contains the SQL query "delete from students" followed by a line number "5" and a cursor icon.

Enter Query:

Results:

```
delete from students
5
I
```





A screenshot of a database query interface, similar to the one above. The window has a title bar with a small icon on the left and standard minimize, maximize, and close buttons on the right. Inside the window, there is a sidebar on the left with a button labeled "...". The main area is divided into two sections. The top section is labeled "Enter Query:" and contains a text input field. The bottom section is labeled "Results:" and contains a large text area. The text area contains the SQL query "select * from students" followed by a line number "8" and a cursor icon.

Enter Query:

Results:

```
select * from students
8
```


— □ ×


**Enter Query:**

```
delete from students where name = "mostafa" or age = 21;
```

Results:

```
2
```

— □ ×

**Enter Query:**

```
select * from students
```

Results:

```
5 tarek m7att raml 20
5 nashar m7att masr 20
7 reham smouha 25
7 hany smouha 25
7 magdy smouha 25
```

Enter Query:

...

```
select id, name, age from students
```

```
7 mostafa 25
```

```
5 tarek 20
```

```
5 nashar 20
```

```
5 sala7 21
```

```
7 reham 25
```

```
7 hany 25
```

```
7 magdy 25
```

```
5 nehaha 25
```

Results:

Enter Query:

...

```
select * from students
```

```
7 mostafa smouha 25
```

```
5 tarek m7att raml 20
```

```
5 nashar m7att masr 20
```

```
5 sala7 betash 21
```


```
7 reham smouha 25
```

```
7 hany smouha 25
```

```
7 magdy smouha 25
```

```
5 nehaha m7att masr 25
```


Results:

Enter Query:

...

Results:


```
select * from students  
  
5 mostafa smouha 20  
5 tarek m7att raml 20  
5 nashar m7att masr 20  
5 sala7 betash 21  
5 reham smouha 21  
5 hany smouha 22  
5 magdy smouha 19  
5 nehaha m7att masr 25
```

Enter Query:

...

Results:

```
update students set id = 7 , age = 25 where adress = "smouha";  
  
4
```



...

Enter Query:

I

create database school

true

Results: