

Layered Architecture

CSSE6400

Richard Thomas

February 28, 2022

Ogres are like onions.

Ogres have layers, onions have layers...

You get it? We both have layers.

- Shrek

In the beginning...

There was the big ball of mud [1]

```
1 import gui
2 import database

4 button = gui.make_button("Click me to add to counter")
5 button.onclick(e =>
6     database.query("INSERT INTO clicks (time) VALUES {{e.time}}"))
```

Problem

Any change can affect any other part of the software.

“Solution”

Layered architecture

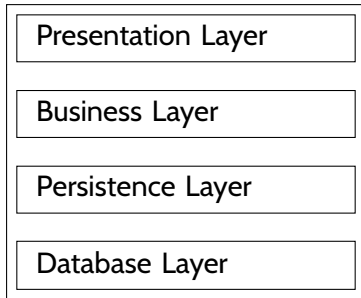


Figure: The *traditional* specialized components of a layered architecture.

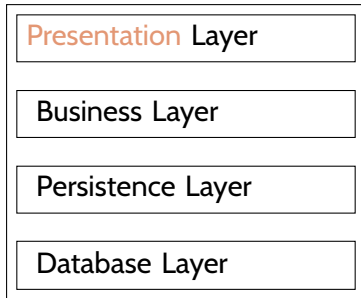


Figure: The *traditional* specialized components of a layered architecture.

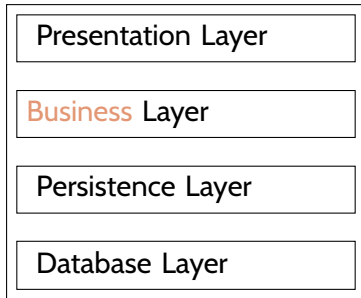


Figure: The *traditional* specialized components of a layered architecture.

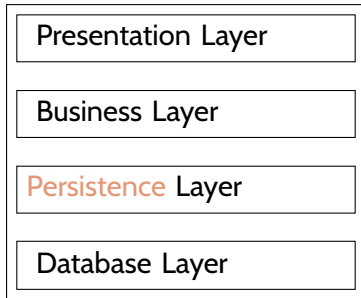


Figure: The *traditional* specialized components of a layered architecture.

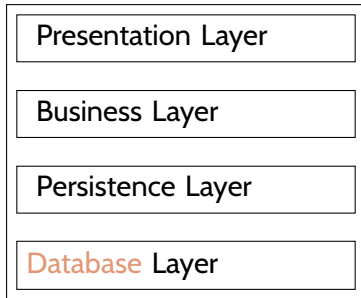


Figure: The *traditional* specialized components of a layered architecture.

```
» cat presentation.code
```

```
1 import gui
```

```
2 import business
```

```
4 button = gui.make_button("Click me to add to counter")
```

```
5 button.onclick(business.click)
```

```
» cat business.code
```

```
1 import persistence
```

```
3 def click():
```

```
4     persistence.click_counts.add(1)
```

```
» cat persistence.code
```

```
1 import db

3 class ClickCounter:
4     clicks = 0

6     def constructor():
7         clicks = db.query("SELECT COUNT(*) FROM clicks")

9     def get_click():
10        return clicks

12    def add(amount):
13        db.query("INSERT INTO clicks (time) VALUES {{time.now}}")

15 click_counts = ClickCounter()
```

Question

Can you identify an example of layered architecture?

Question

Can you identify an example of layered architecture?

Answer

Pick any website.

References

[1] Brian Foote and Joseph Yoder.

Big ball of mud.

Pattern languages of program design, 4:654–692, 1997.