

Layered Architecture

CSSE6400

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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

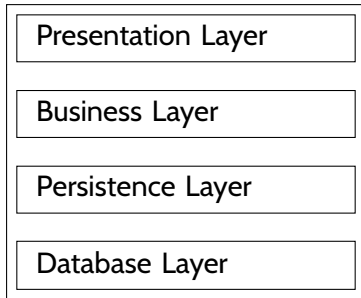


Figure: The *traditional* specialized components of a layered architecture.

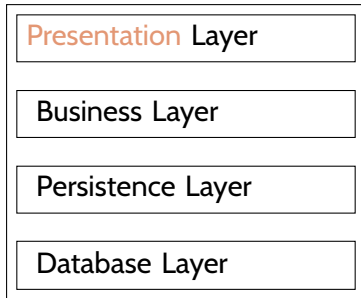


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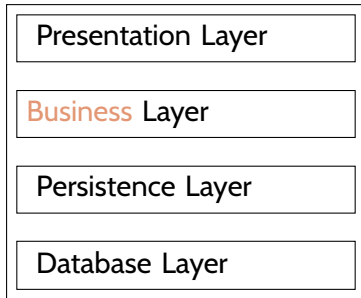


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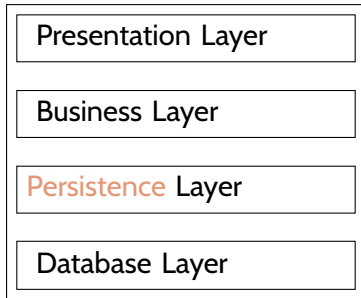


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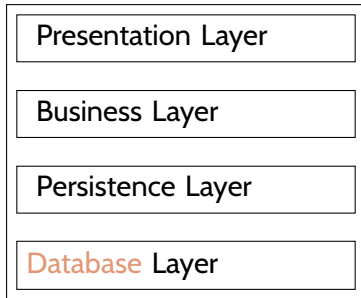


Figure: The *traditional* specialized components of a layered architecture.

```
» 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?

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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.