UNIVERSIDAD NACIONAL DE INGENIERIA | FACULTAD DE CIENCIAS

Unit 7:

Class Design Guidelines

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Content

Modeling Real-World Systems

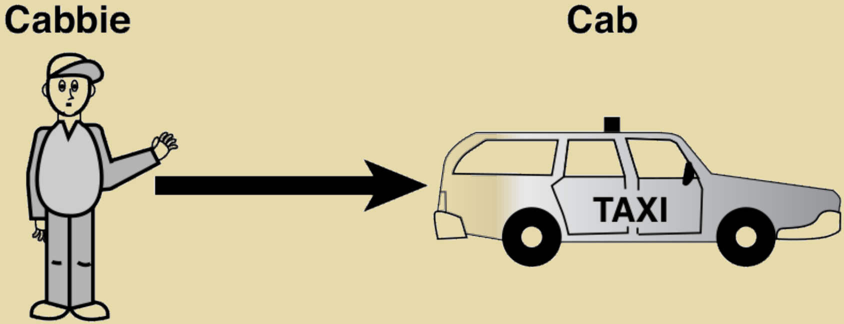

Figure: A cabbie and a cab are real-world objects.[1]

[1] Figure 5.1 of [1]

Identifying the Public Interfaces

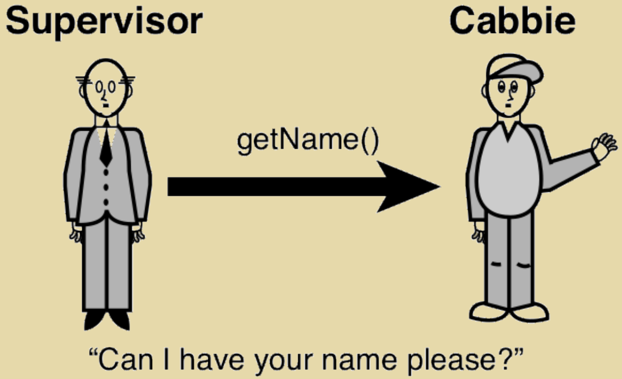

Figure: The public interface specifies how the objects interact.[2]

[2]Figure 5.2 of [1]

Identifying the Public Interfaces

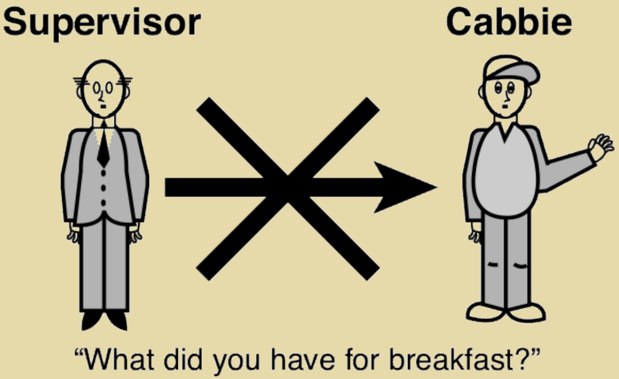

Figure: Objects don’t need to know some implementation details.[3]

[3]Figure 5.3 of [1]

Designing Robust Constructors

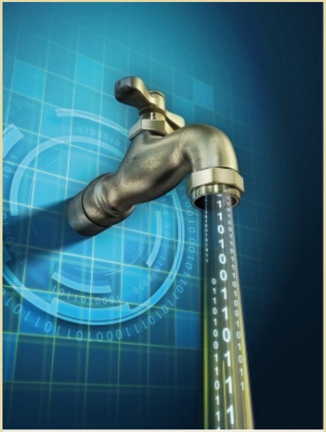

Figure: Memory leaks.

Designing Error Handling into a Class

- Documenting a Class and Using Comments
- Building Objects with the Intent to Cooperate

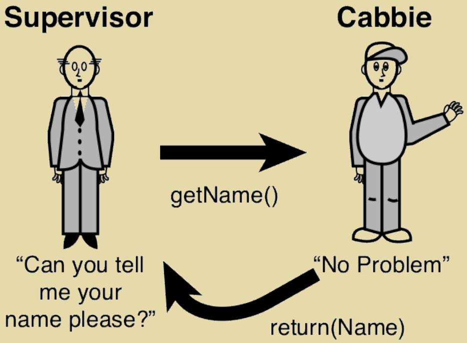

Figure: Objects should request information.[4]

[4] Figure 5.4 of [1]

Designing with Reuse in Mind

Figure: Indoor Herb Planter.

Designing with Extensibility in Mind

- Making names descriptive
- Abstracting out nonportable code
- Providing a way to copy and compare objects
- keeping the scope as small as possible
- A class should be responsible for itself

Designing with Extensibility in Mind

Abstracting out nonportable code

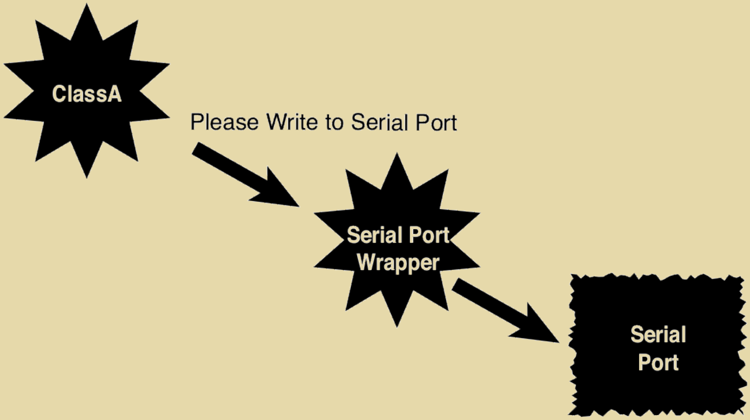

Figure: A serial port wrapper.[5]

[5]Figure 5.5 of [1]

Designing with Extensibility in Mind

A class should be responsible for itself

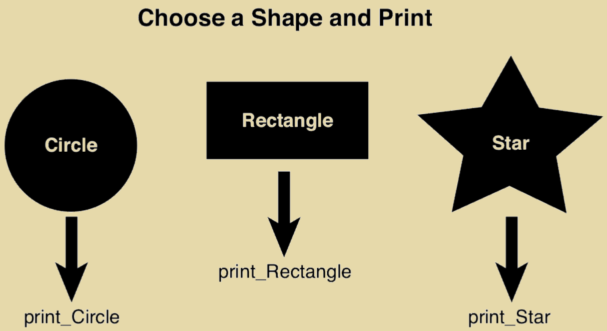

Figure: A non-OO example of a print scenario.[6]

[6] Figure 5.6 of [1]

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Designing with Extensibility in Mind

A class should be responsible for itself

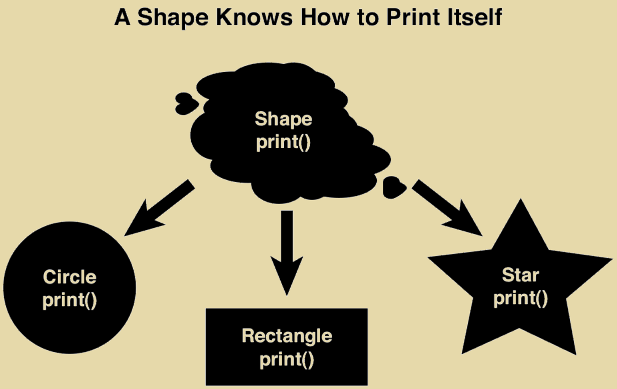

Figure: A OO example of a print scenario.[7]

[7]Figure 5.7 of [1]

Designing with Maintainability in Mind

- Low coupling level
- Using iteration in the development process
- Testing the interface

Designing with Maintainability in Mind

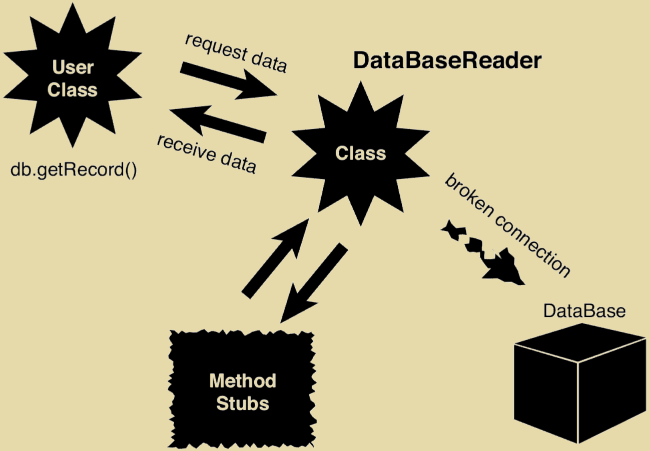

Figure: Using stubs.[8]

[8]Figure 5.8 of [1]

Using Object Persistence

There are three primary storage devices to consider:

- Flat file system
- Relational database
- OO database[9]

[9]Page 101 of [1].

Using Object Persistence

Serializing and marshaling objects

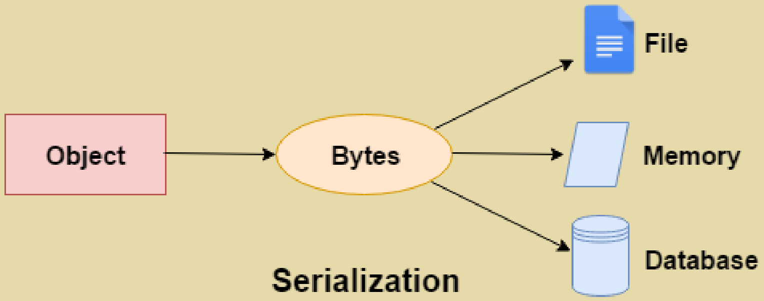

Figure:
The process of converting an object into a byte stream so that it can be saved to memory.

References

WEISFELD, M.
The Object-Oriented Thought Process, 4th ed.
Developer's Library. Addison-Wesley Professional, 2013.