Null Object and Special Case Patterns

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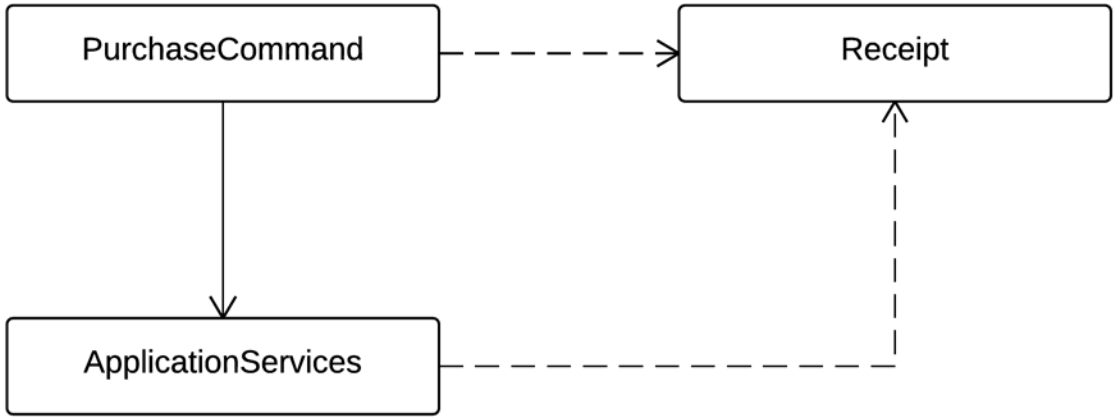
Null Object Pattern



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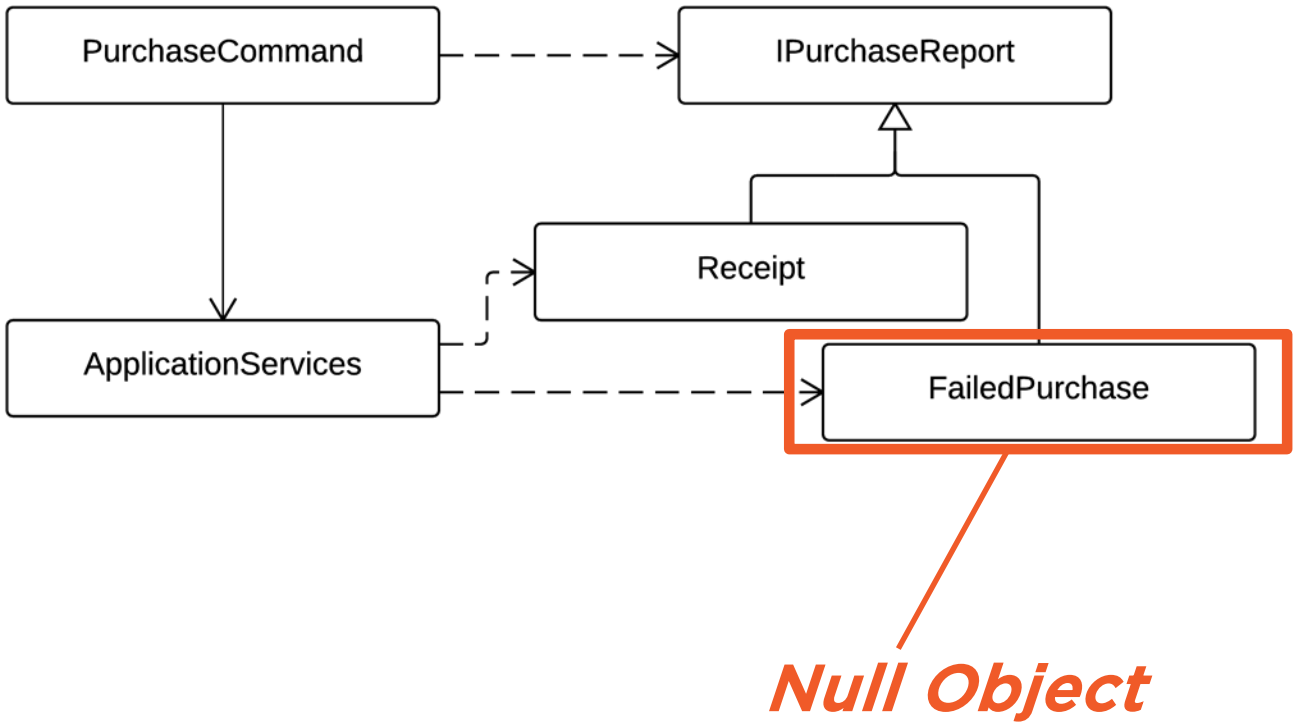
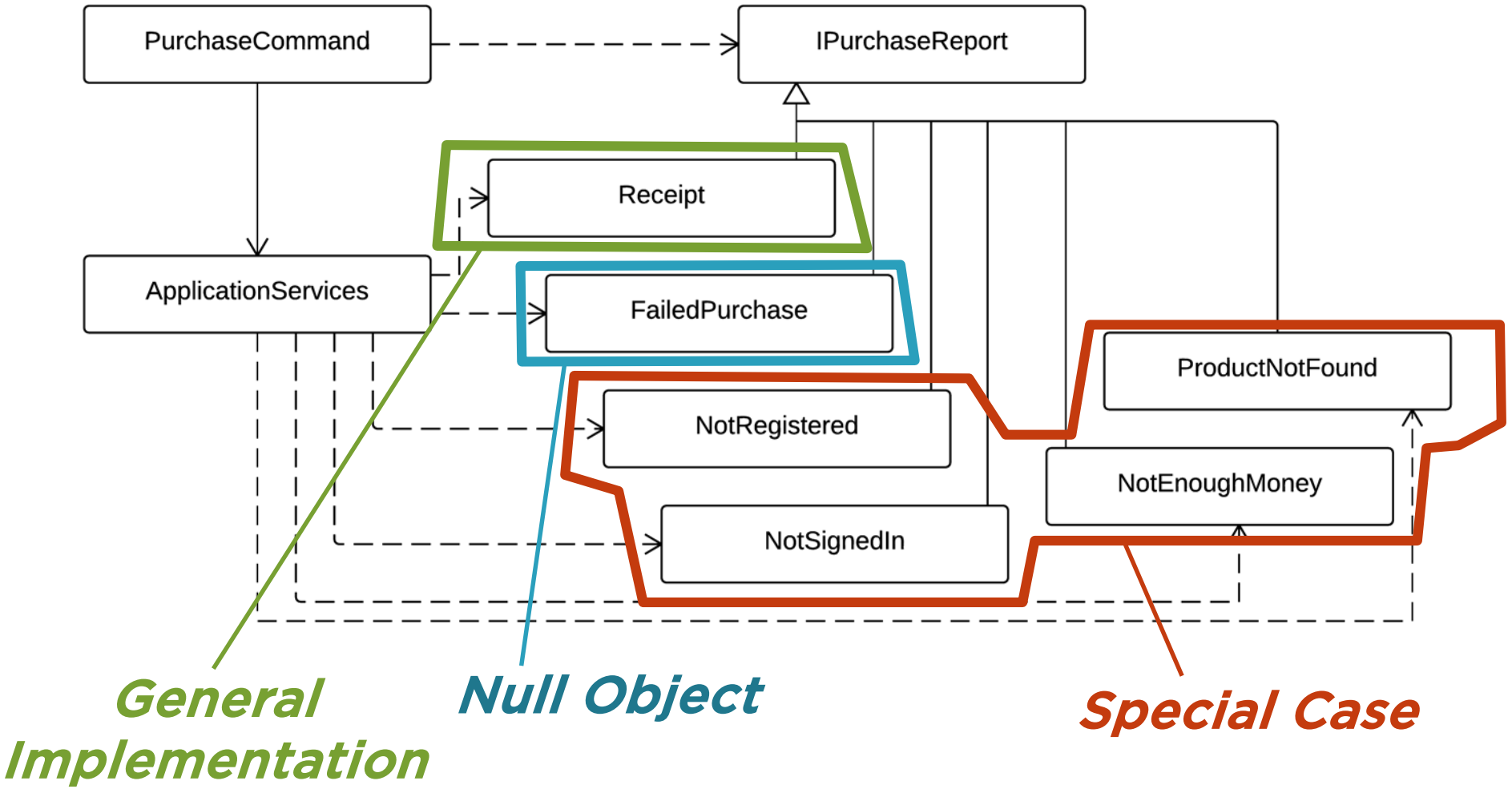


Special Case Pattern

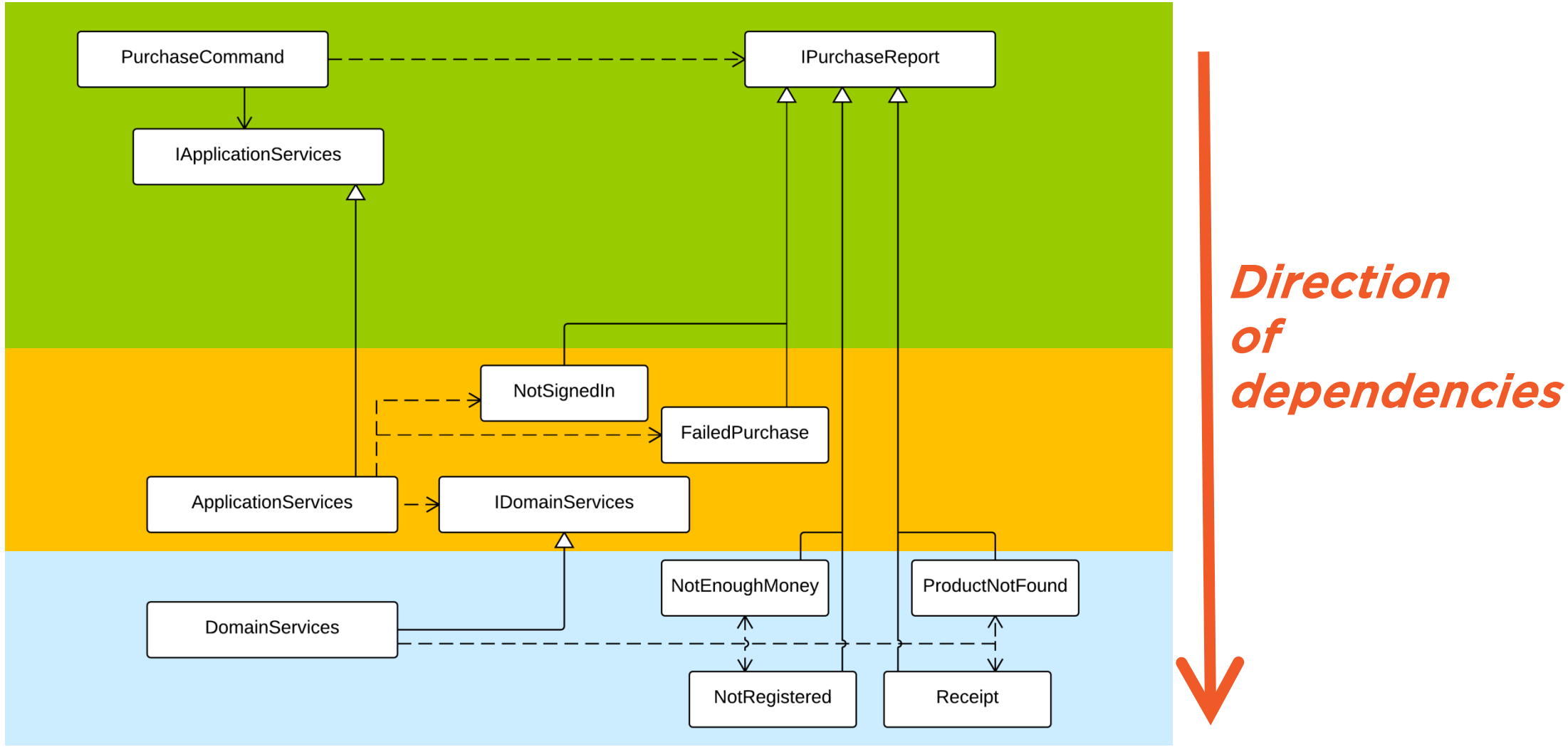


Null Object vs. Special Case

Electricity company dispatching bills

- Nonexistent customer
  - Nobody lives there, the bill won't be paid
  - Null Object
- Unknown person
  - Somebody rents the place
  - We don't care to know his name, but he will pay the bill
  - Special Case
- Foreign citizen
  - The person doesn't have SSN
  - We don't care to track this person's data, but he will pay the bill
  - Special Case

Where to Place Concrete Implementation?



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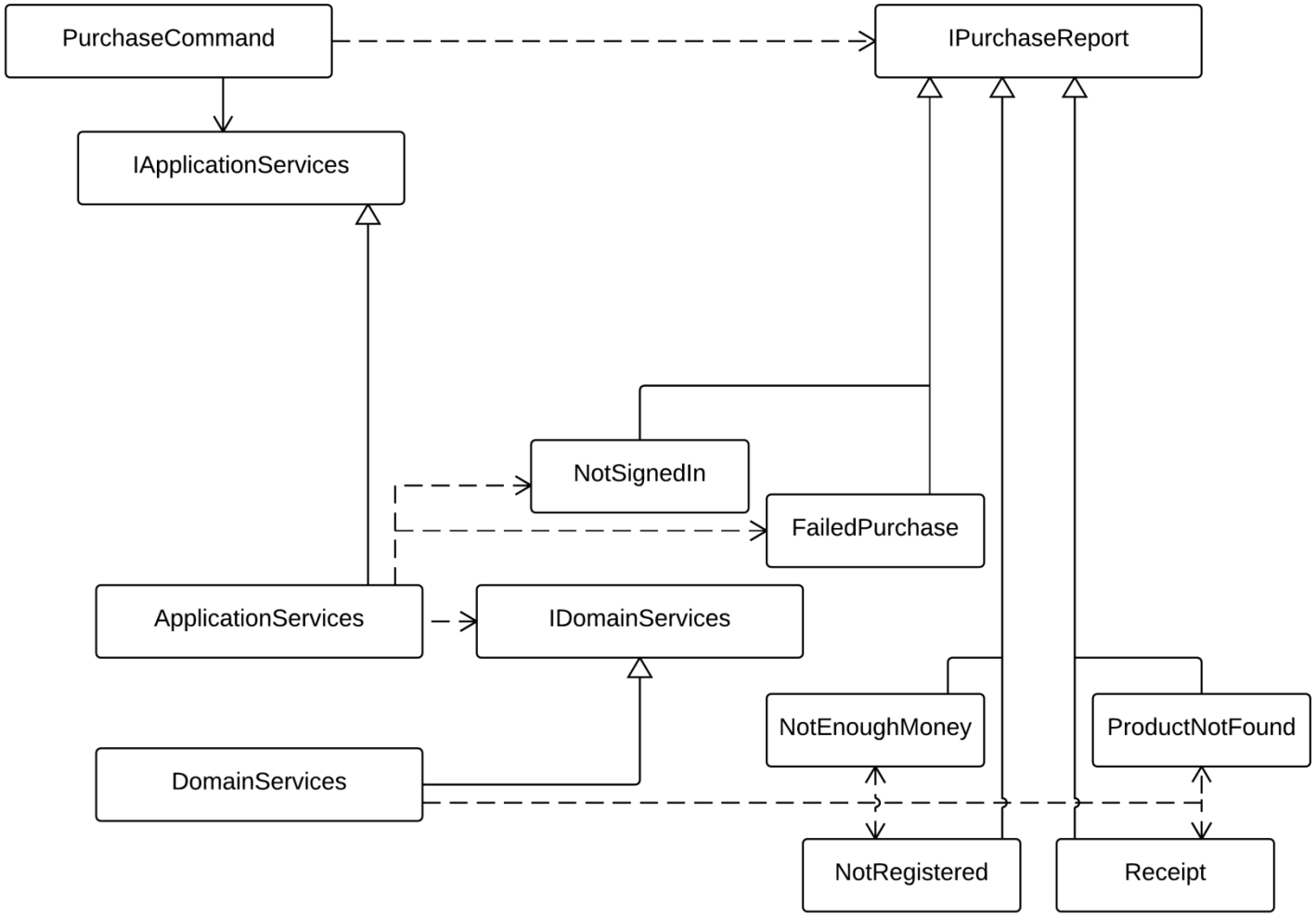

Dependency Inversion Principle:

High-level modules should not depend on low-level modules. Both should depend on abstractions.

Abstractions should not depend on details. Details should depend on abstractions.

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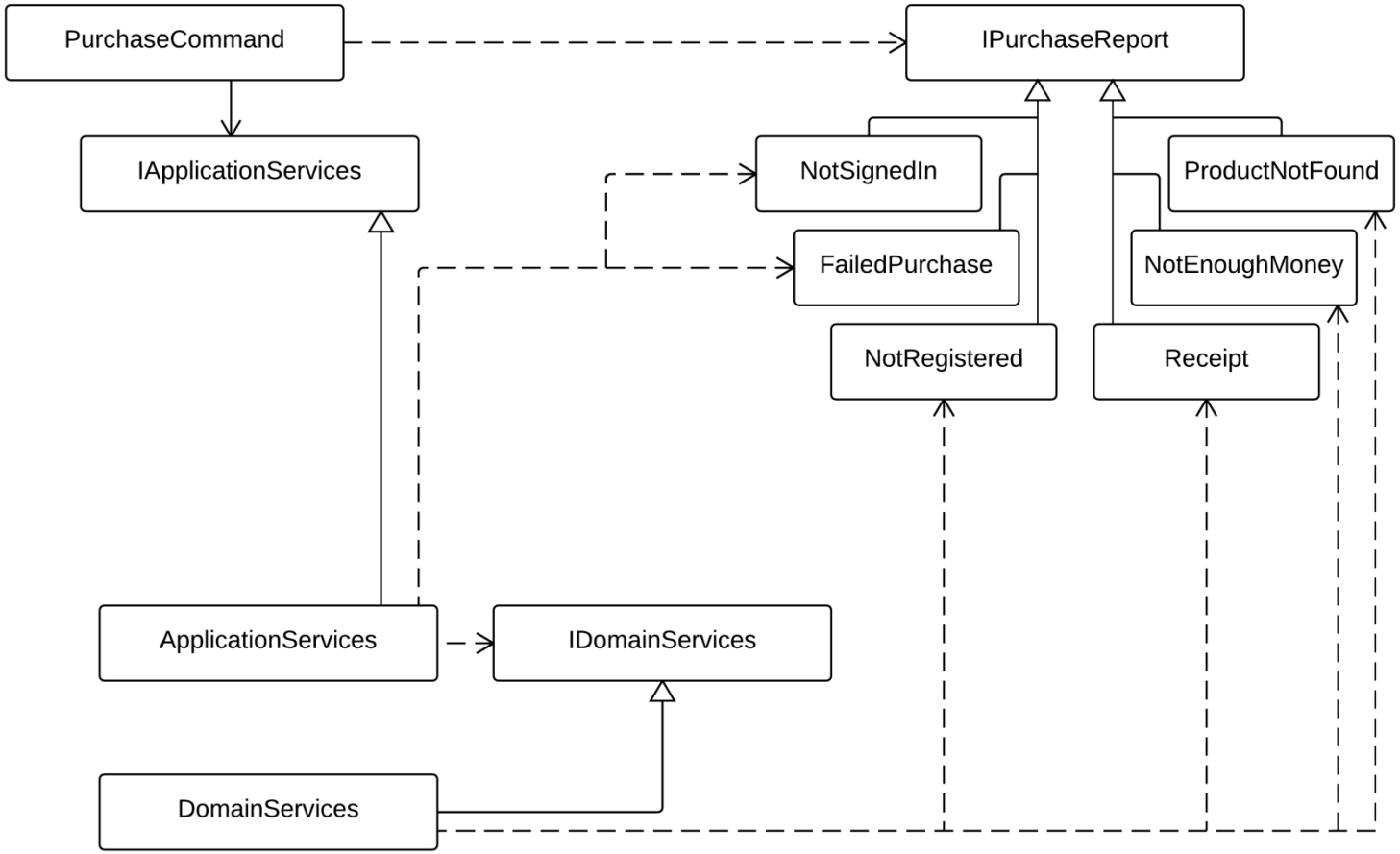

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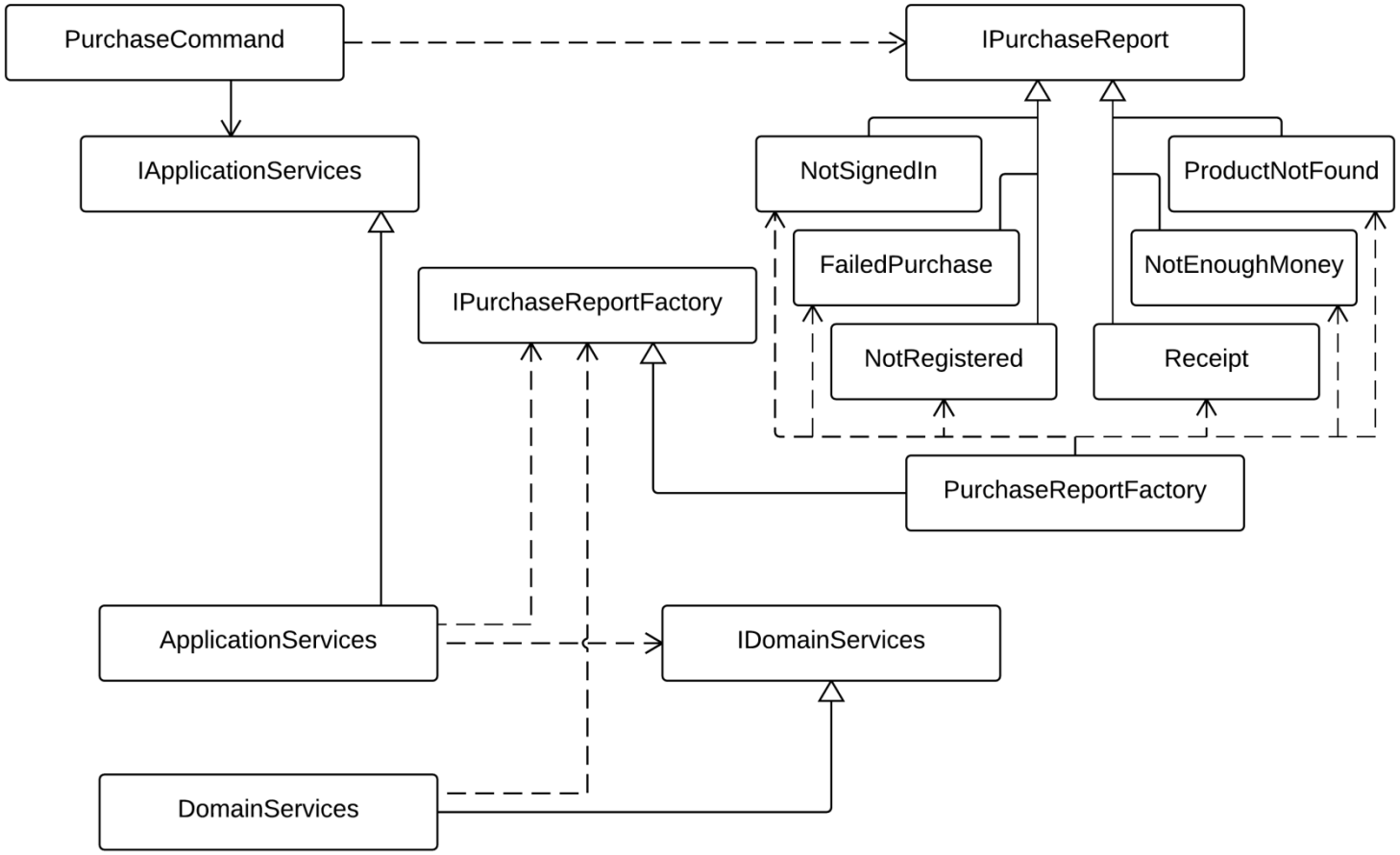

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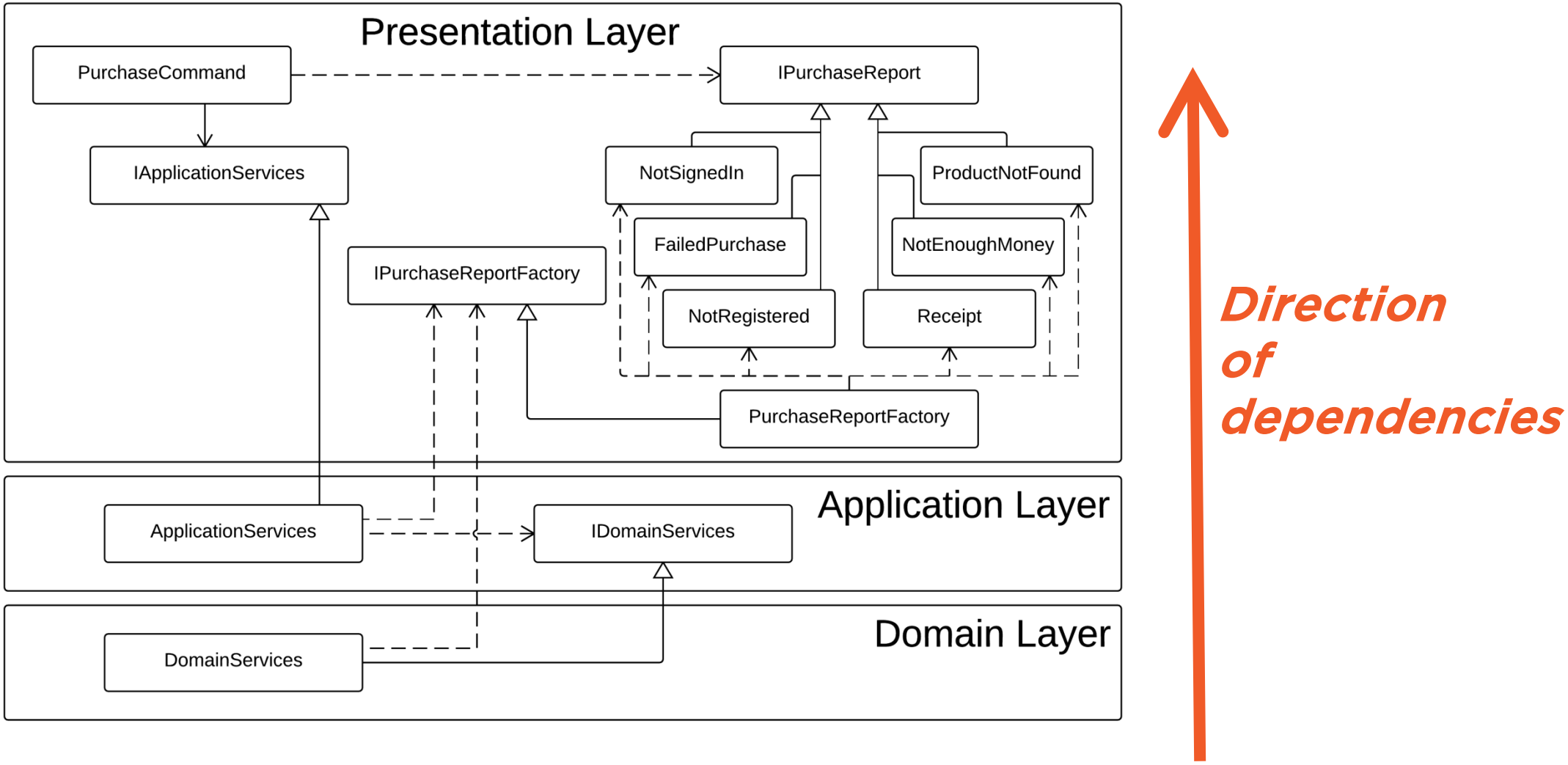


Summary

Using Null Object and Special Case to remove null references

Simplifies control flow on the client

- No branching when null reference is received

Special Case carries additional information back to the client

Control flow is flat

- There is no branching
- All operations flow through the same sequence of steps
- Information required to complete operation is carried by the returned object

Summary

The layering problem

- Introduced abstract factory

Factory class hides concrete implementations

- This reduces coupling between modules (layers in this case)
- All modules only depend on abstractions

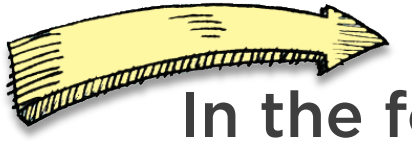
What Comes Next?

Working with collections

- Introducing LINQ to Objects simplifies control flow

When Null Object and Special Case are not applicable...

- There is no valid object to return from a method
- Do not fall back to using null references!
- There are better solutions that rely on collections



In the following module: Map-Reduce pattern in domain logic