DI Why?

Getting a Grip on Dependency Injection

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Typical Introduction

```
private void BuildMainWindow()
{
    var builder = new ContainerBuilder();

    builder.RegisterType<SQLReader>().As<IPersonReader>()
        .SingleInstance();

    builder.RegisterSource(
        new AnyConcreteTypeNotAlreadyRegisteredSource());

    IContainer Container = builder.Build();

    Application.Current.MainWindow =
        Container.Resolve<PeopleViewerWindow>();
}
```

What Is Dependency Injection?

- Dependency Injection is a software design pattern that allows a choice of component to be made at run-time rather than compile time.
  - Wikipedia 2012

What Is Dependency Injection?

- Dependency injection is a software design pattern that allows the removal of hard-coded dependencies and makes it possible to change them, whether at run-time or compile-time.
  - Wikipedia 2013

What Is Dependency Injection?

- Dependency injection is a software design pattern that implements inversion of control and allows a program design to follow the dependency inversion principle. The term was coined by Martin Fowler.
  - Wikipedia 2014

What Is Dependency Injection?

- In software engineering, dependency injection is a software design pattern that implements inversion of control for software libraries, where the caller delegates to an external framework the control flow of discovering and importing a service or software module. Dependency injection allows a program design to follow the dependency inversion principle where modules are loosely coupled. With dependency injection, the client part of a program which uses a module or service doesn't need to know all its details, and typically the module can be replaced by another one of similar characteristics without altering the client.

  - Wikipedia 2015

What Is Dependency Injection?

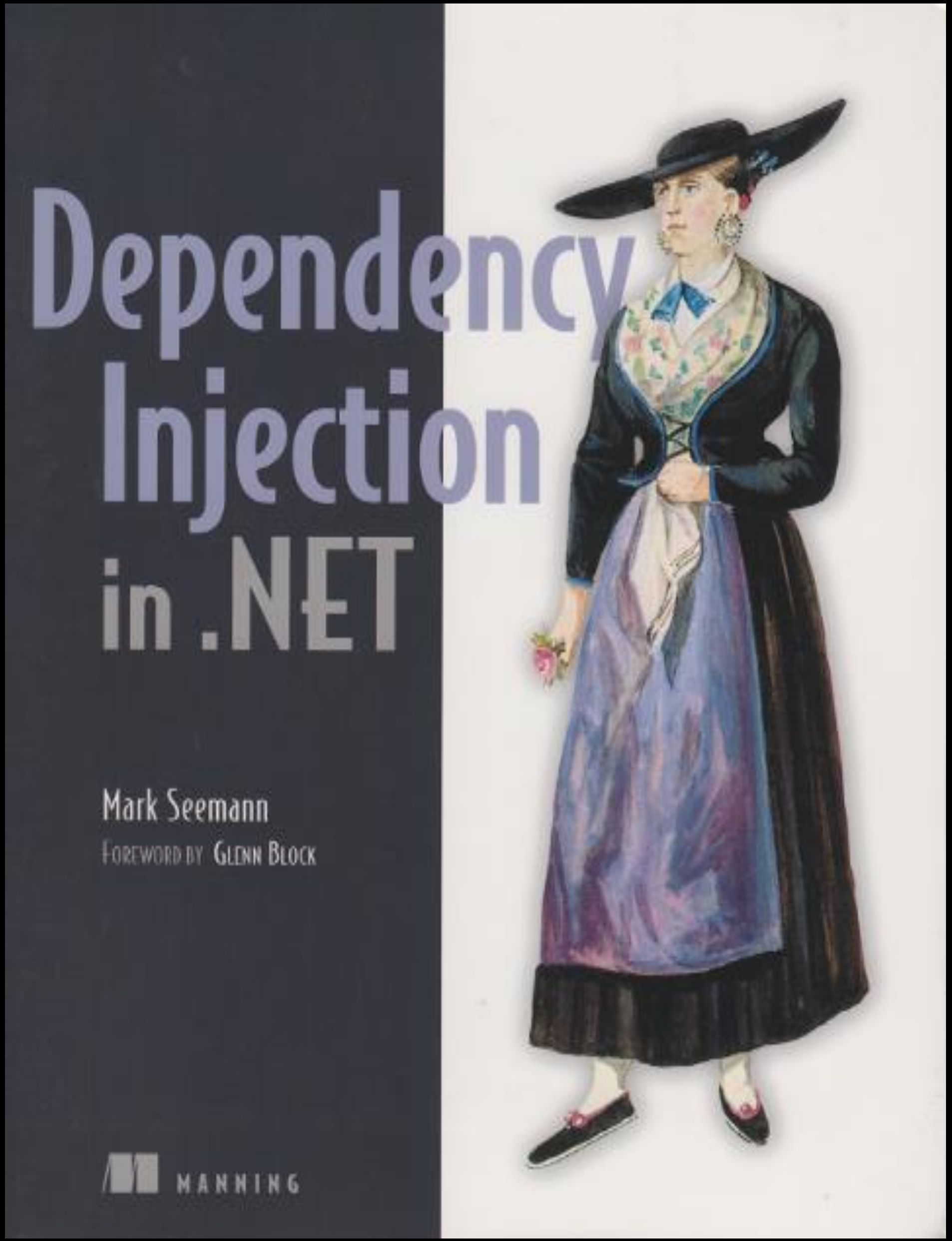
- In software engineering, dependency injection is a software design pattern that implements inversion of control for resolving dependencies. A dependency is an object that can be used (a service). An injection is the passing of a dependency to a dependent object (a client) that would use it. The service is made part of the client's state.[1] Passing the service to the client, rather than allowing a client to build or find the service, is the fundamental requirement of the pattern.
  - Wikipedia 2016

What Is Dependency Injection?

- Dependency Injection is a set of software design principles and patterns that enable us to develop loosely coupled code.
    - Mark Seeman

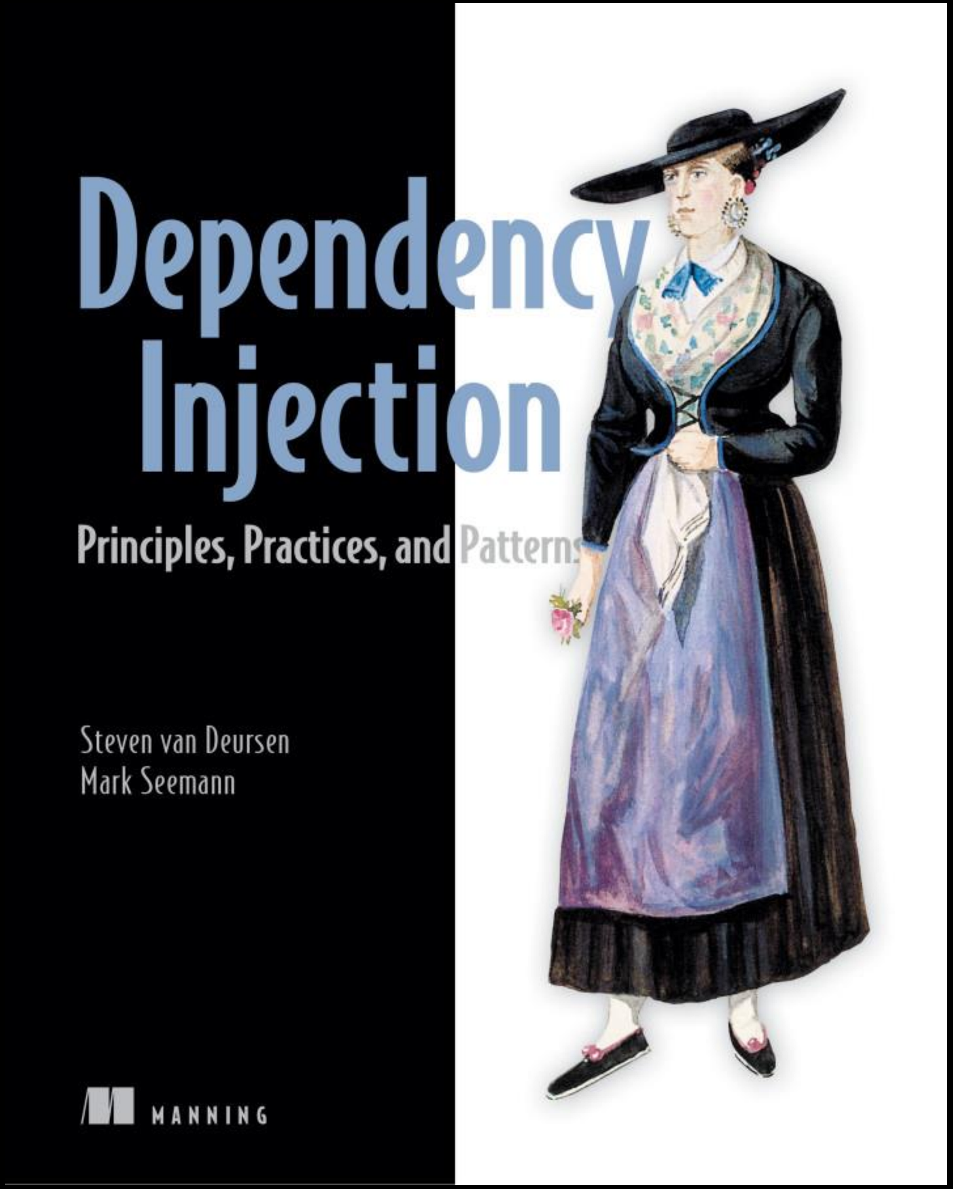
Dependency Injection
in .NET

- Mark Seeman



Dependency Injection
Principles, Practices, and Patterns

- Steven von Deursen
- Mark Seeman



Dependency Injection

Principles, Practices, and Patterns

Steven van Deursen

Mark Seemann

MANNING

Primary Benefits

- Extensibility*
- Late Binding
- Parallel Development
- Maintainability
- Testability*

- Adherence to S.O.L.I.D. Design Principles.

*Topics we'll touch on today

Dependency Injection Concepts

- DI Design Patterns
  - Constructor Injection*
  - Property Injection*
  - Method Injection
  - Ambient Context
  - Service Locator

- Object Composition*

- DI Containers
  - Unity
  - Castle Windsor
  - Ninject*
  - Autofac
  - StructureMap
  - Spring.NET
  - and others

*Topics we'll touch on today

Application Layers

View

- MainWindow

View Model

- MainWindowViewModel

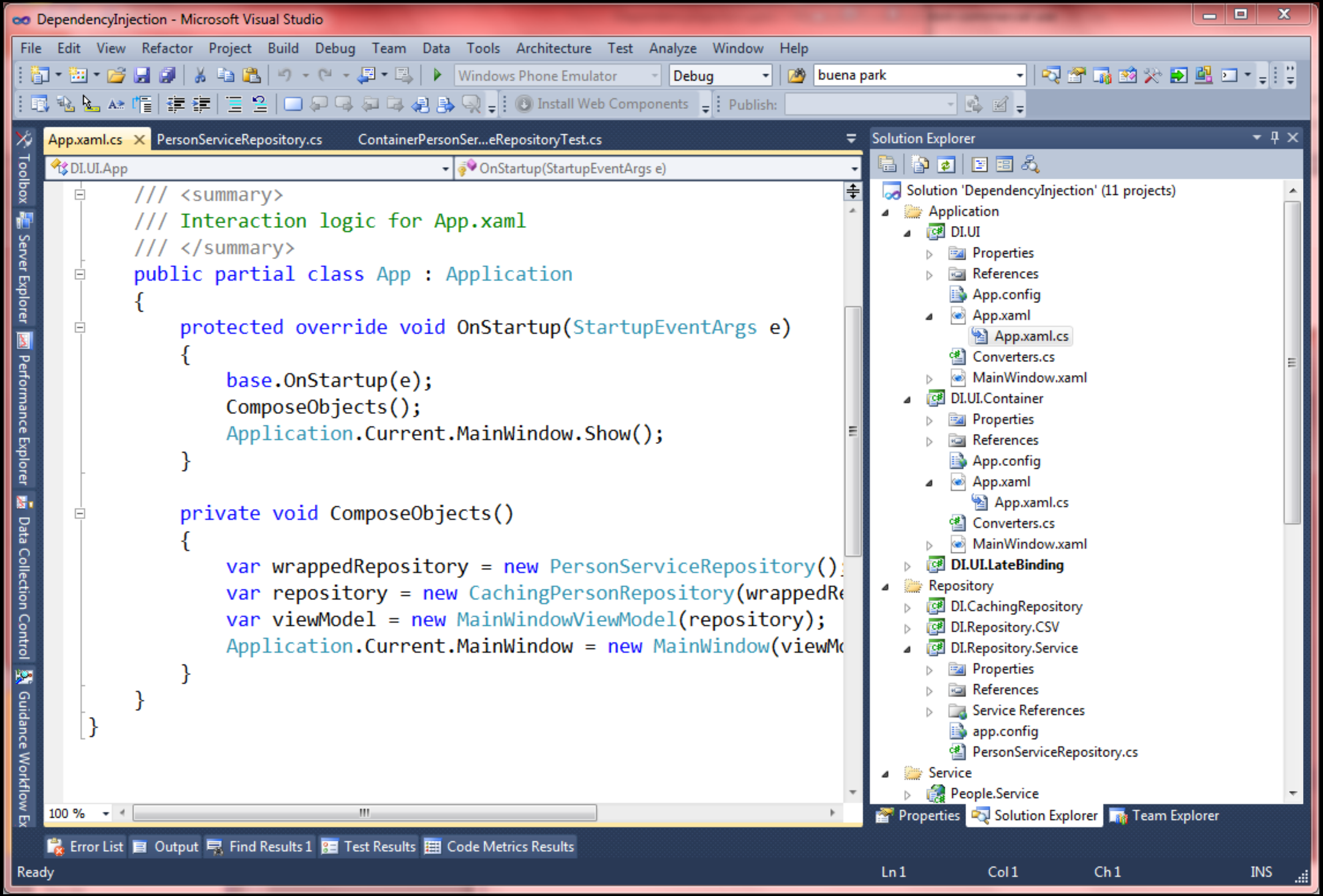
Repository

- PersonServiceRepository

Service

- PersonService

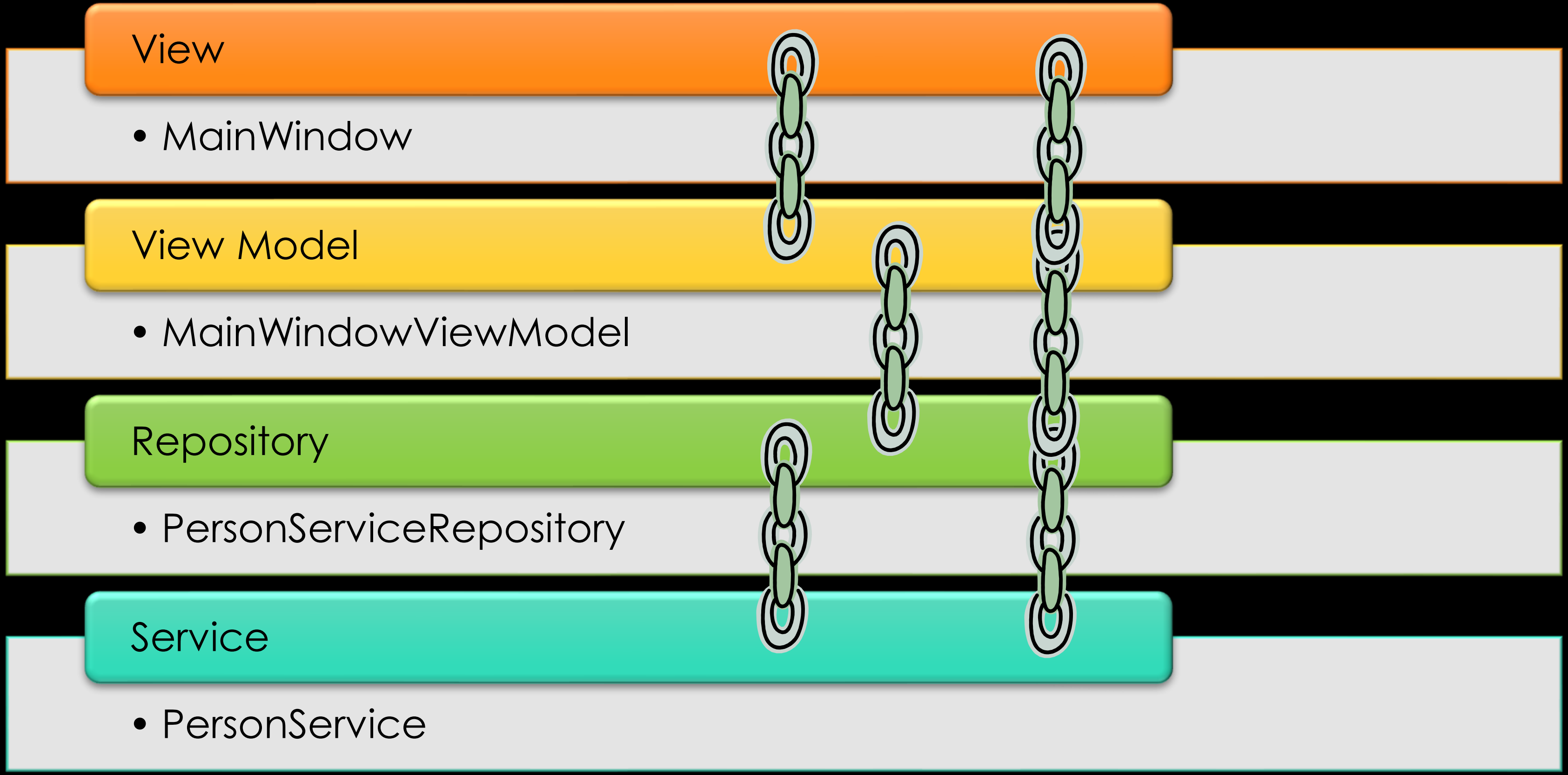
Look At The Code



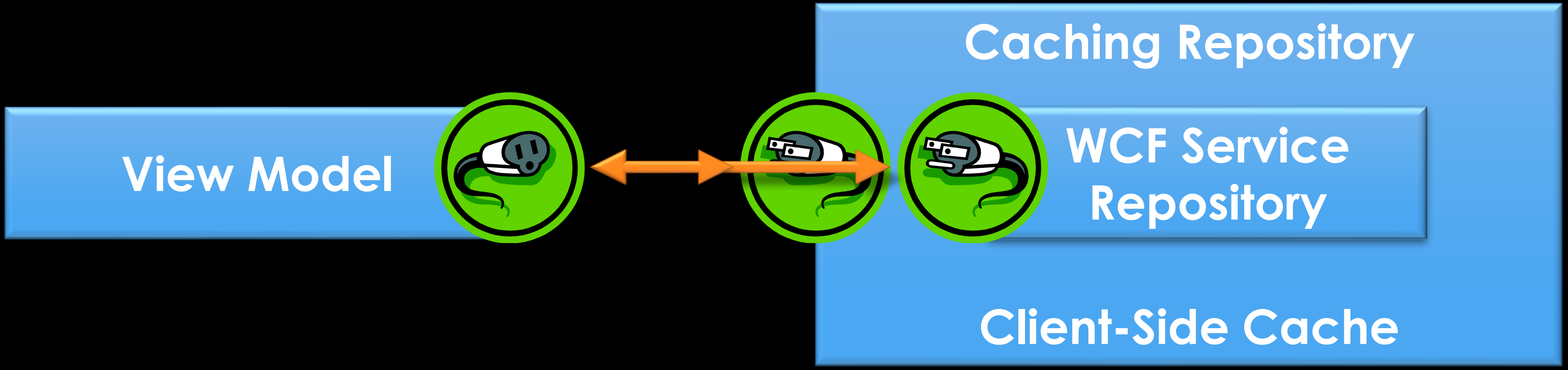
```
/// <summary>
/// Interaction logic for App.xaml
/// </summary>
public partial class App : Application
{
    protected override void OnStartup(StartupEventArgs e)
    {
        base.OnStartup(e);
        ComposeObjects();
        Application.Current.MainWindow.Show();
    }

    private void ComposeObjects()
    {
        var wrappedRepository = new PersonServiceRepository();
        var repository = new CachingPersonRepository(wrappedRe
        var viewModel = new MainWindowViewModel(repository);
        Application.Current.MainWindow = new MainWindow(viewMc
    }
}
}
```

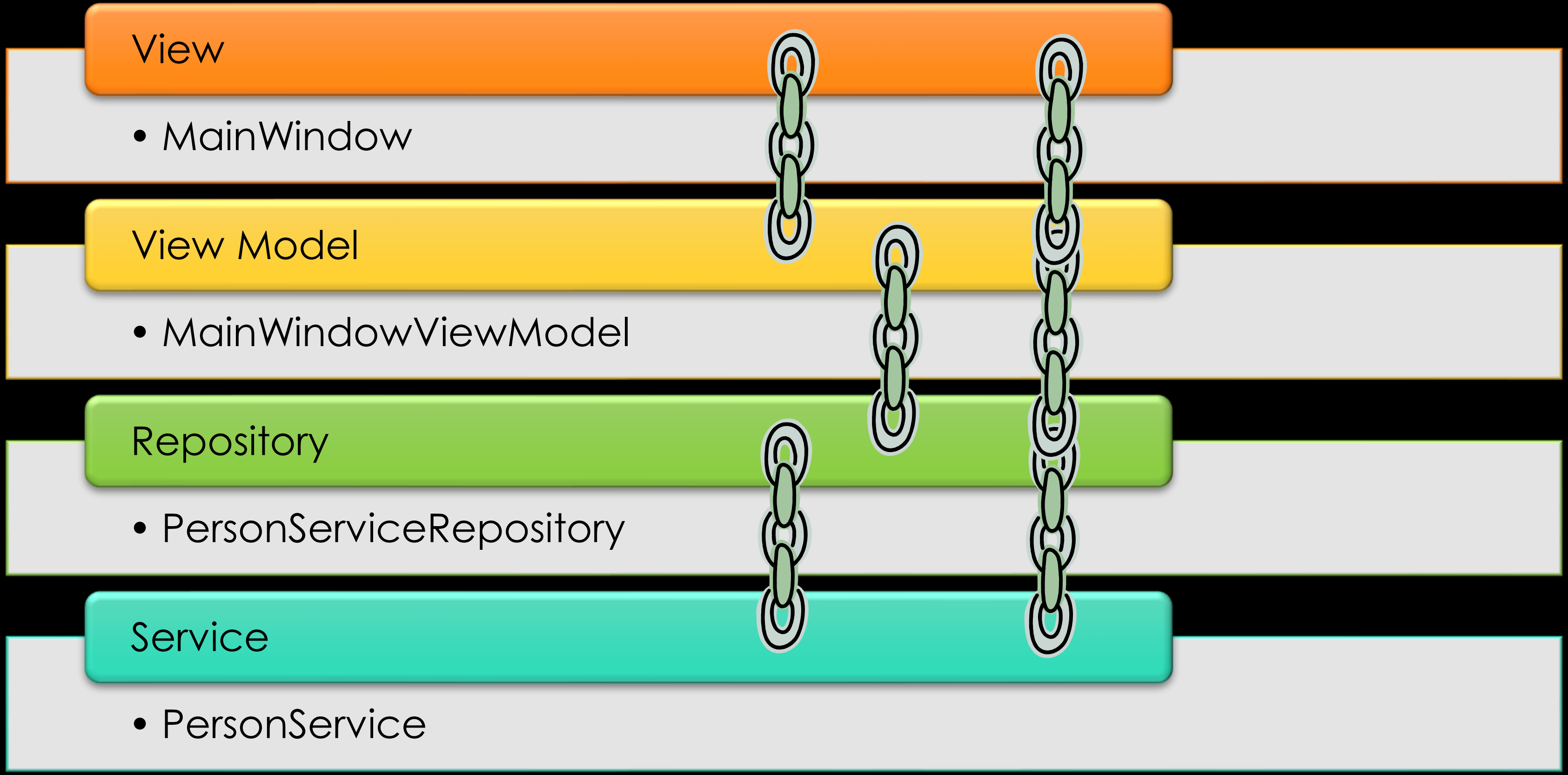
Tight Coupling



Creating a Caching Repository



Loose(r) Coupling



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Thank You!

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