

# RESTFul API's do 0 à Nuvem Com ASP.NET Core 2.0 e Docker

# Bem vindo

## Wi-Fi



 Iniciar sessão







# Quem sou eu?



## Leandro Costa



<http://www.erudio.com.br/>

YouTube <https://bit.ly/2lkHwoa>



<http://www.semeru.com.br/>



<https://hub.docker.com/u/leandrocgisi/>



<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





- ▶ Desenvolvedor na Hub Fintech;
- ▶ Graduado em Sistemas de Informação pelo UNIPAM - Centro Universitário de Patos de Minas;
- ▶ Pós graduado em Engenharia de Software pelo UNIPAM - Centro Universitário de Patos de Minas.



- ▶ Trabalhei em diferentes tamanhos de projetos nacionais e internacionais;
- ▶ Participei do desenvolvimento de software para setores como:
  - varejo,
  - farmaceutico,
  - atacadista,
  - marketing,
  - governo,
  - ERP
  - e fintechs;
- ▶ Participei de projetos Agile, "Fake Agile", Cascata, RUP e claro me deparei com muito Extremme Go Horse e confesso que tive que fazer algumas gambiarras ao longo da carreira..



## Cursos Grátis

- ▶ Curso De JavaServer Faces (JSF) Do Zero À Nuvem
- ▶ Curso Básico de Grails





ASP.NET Cre

Entity Framework



JavaServer™ Faces

spring



HIBERNATE

# As tecnologias



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Windows 10

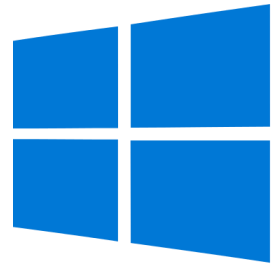


Linux



# Linux





# Windows 10



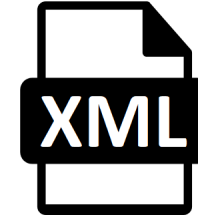
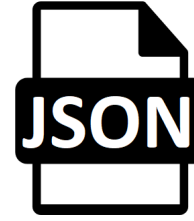
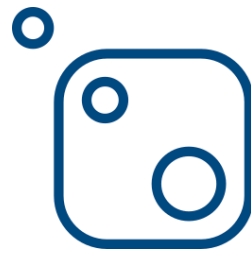
## Visual Studio



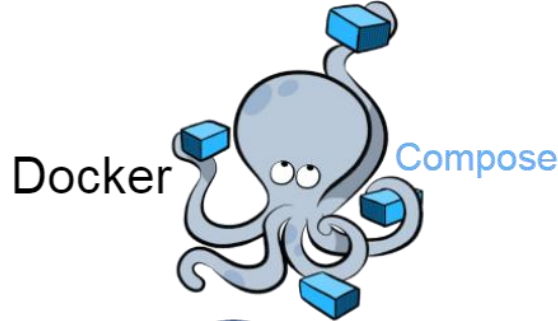
## PowerShell



REST API



EVOLVE



Docker

Compose

Entity Framework

ASP.NET Core



PowerShell





aurelia



# O Projeto



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# O Projeto



- ▶ A desenvolver uma API RESTFul do 0 absoluto
- ▶ As boas práticas a se adotar ao desenvolver API's
- ▶ Entenderá os conceitos teóricos que fundamentam o REST
- ▶ Como trabalhar com Postman
- ▶ Como fazer requests RESTful usando Postman

# O Projeto



- ▶ Entenderá o modelo de maturidade RESTful
- ▶ Os principais Verbos do REST
- ▶ Como usar parâmetros via query, path, header e body
- ▶ Paginação e versionamento de APIs



# O Projeto



- ▶ Disponibilizar download de arquivos na sua API
- ▶ Aprenderá na prática HATEOAS
- ▶ Documentar uma API com o Swagger
- ▶ Conceitos básicos de SQL e Migrations
- ▶ Técnicas de Autenticação REST com JWT

# O Projeto



- ▶ Aprenderão a usar alguns padrões de projetos
- ▶ Dividir a aplicação em diferentes camadas
- ▶ Terá noções básicas de arquitetura de software
- ▶ BONUS - Conceitos básicos de Docker
- ▶ BONUS - Conceitos básicos de Docker Compose
- ▶ BONUS - Como implantar o projeto na nuvem

# Seção 02:

## Fundamentos Teóricos Do REST



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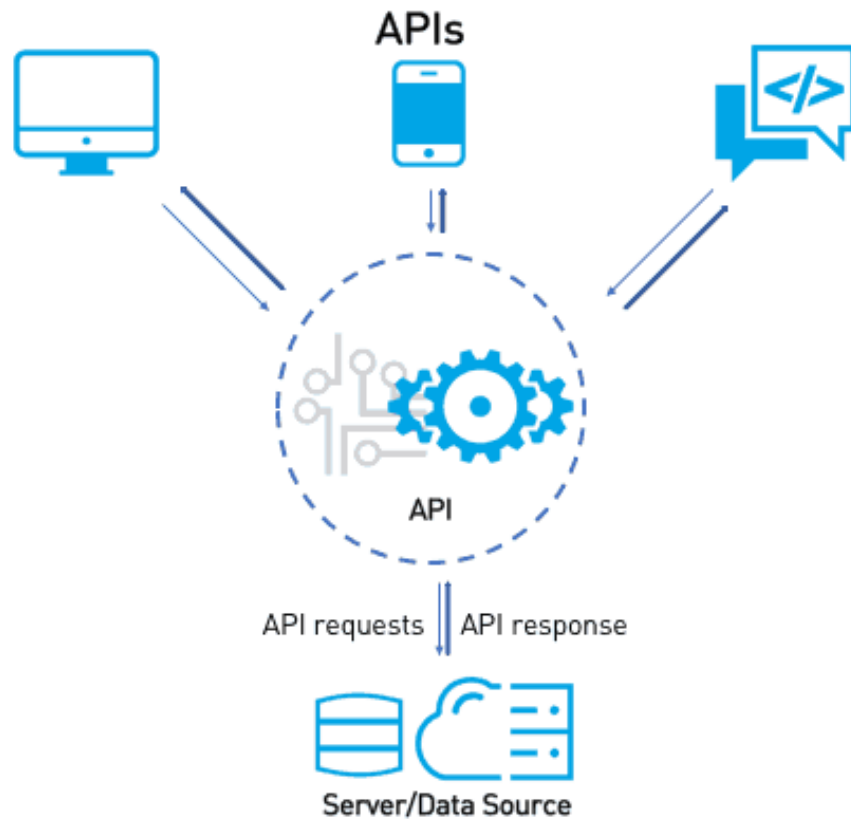


<https://hub.docker.com/u/leandrocgisi/>



<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





# Recapitulando

- ▶ O que são web-services?
- ▶ SOAP x REST
- ▶ Request e Response
- ▶ Tipos de parâmetros
- ▶ Status codes
- ▶ Verbos
- ▶ Níveis de maturidade
- ▶ HATEOAS
- ▶ Swagger
- ▶ Autenticação
- ▶ Versionamento
- ▶ Indo além
- ▶ Boas práticas



# Seção 03:

## Configuração Do Ambiente No Windows



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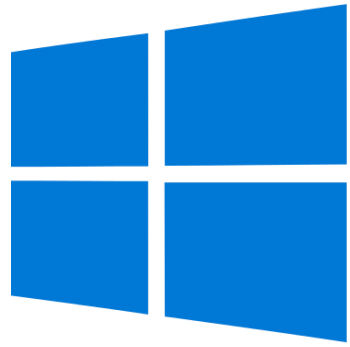


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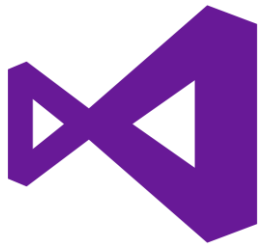


<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





# Windows 10



# Recapitulando

- ▶ Instalação do Visual Studio
- ▶ Instalação do GIT/Gitbash
- ▶ Instalação do MySQL
- ▶ Instalação do Heidi
- ▶ Instalação do Postman
- ▶ Instalação do Docker

# Seção 04:

## Configuração Do Ambiente No Linux



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<http://www.semeru.com.br/>



<https://hub.docker.com/u/leandrocgisi/>



<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





# Linux



POSTMAN



docker



# Recapitulando

- ▶ Instalando o Virtual Box
- ▶ Criação da Máquina Virtual
- ▶ Instalação do Ubuntu
- ▶ Instalação do Visual Studio Code
- ▶ Instalação do .NET Core 2.0
- ▶ Instalação do GIT
- ▶ Instalação do MySQL
- ▶ Instalação do MySQL Workbench
- ▶ Instalação do Postman
- ▶ Instalação do Docker
- ▶ Importação do projeto
- ▶ Executando e corrigindo erros no Linux

# Seção 05:

## Primeiros Passos



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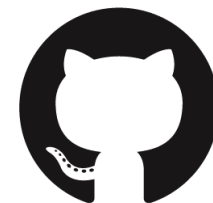
<https://github.com/leandrocgisi/RestWithASP-NETUdemy>



# First Steps



ASP.NET Core



**GitHub**

# Recapitulando

- ▶ Criação do Repositório no Github
- ▶ Clone na nossa máquina
- ▶ Scaffold da primeira aplicação
- ▶ Versionamento do código
- ▶ Noções básicas de GIT

# Seção 06:

## Implementando Uma Calculadora



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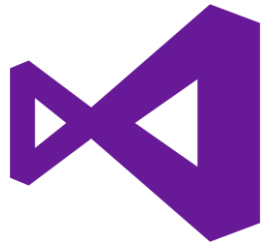


<https://hub.docker.com/u/leandrocgisi/>

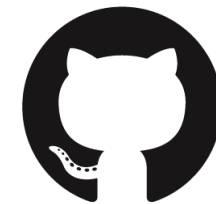


<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





ASP.NET Core



**GitHub**

# Recapitulando

- ▶ O verbo GET
- ▶ PATH e PATH Parameters
- ▶ Validação de entrada de dados
- ▶ OK Result e Bad Request (Status code 200 e 400)
- ▶ Git
- ▶ Postman

# Seção 07:

## Aprendendo Os Quatro Verbos Principais



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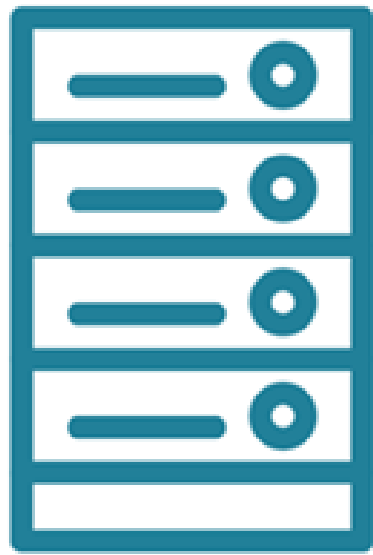
<https://hub.docker.com/u/leandrocgisi/>



<https://github.com/leandrocgisi/RestWithASP-NETUdemy>







GET



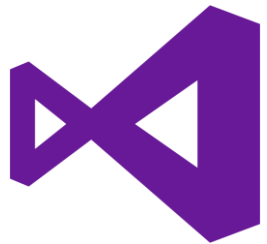
PUT



POST



DELETE



ASP.NET Core



REST<sup>API</sup>

# Recapitulando

- ▶ Git, .gitignore e store credentials
- ▶ Scaffold do CRUD de Persons
- ▶ GET e POST
- ▶ PUT e DELETE
- ▶ Separação de conceitos - SOC (Services)
- ▶ Postman

# Seção 08:

## Integrando A Aplicação Ao Banco De Dados



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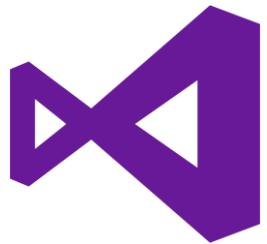


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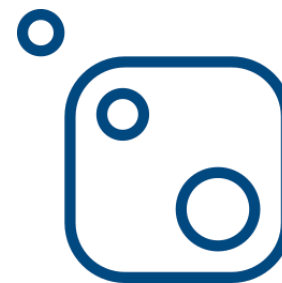
<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





ASP.NET Core

Entity Framework



# Recapitulando

- ▶ Heidi e MySQL
- ▶ SQL - Criação da base de dados, tabelas e alter table
- ▶ Nuget e Pomelo
- ▶ Entity Framework (Context e DbSet)
- ▶ Configuração da conexão appsettings
- ▶ URL de inicialização
- ▶ Injeção de dependências
- ▶ Tratamento de exceções
- ▶ LINQ
- ▶ Postman
- ▶ GET, POST, PUT e DELETE na prática

# Seção 09:

## Versionamento Da Nossa API



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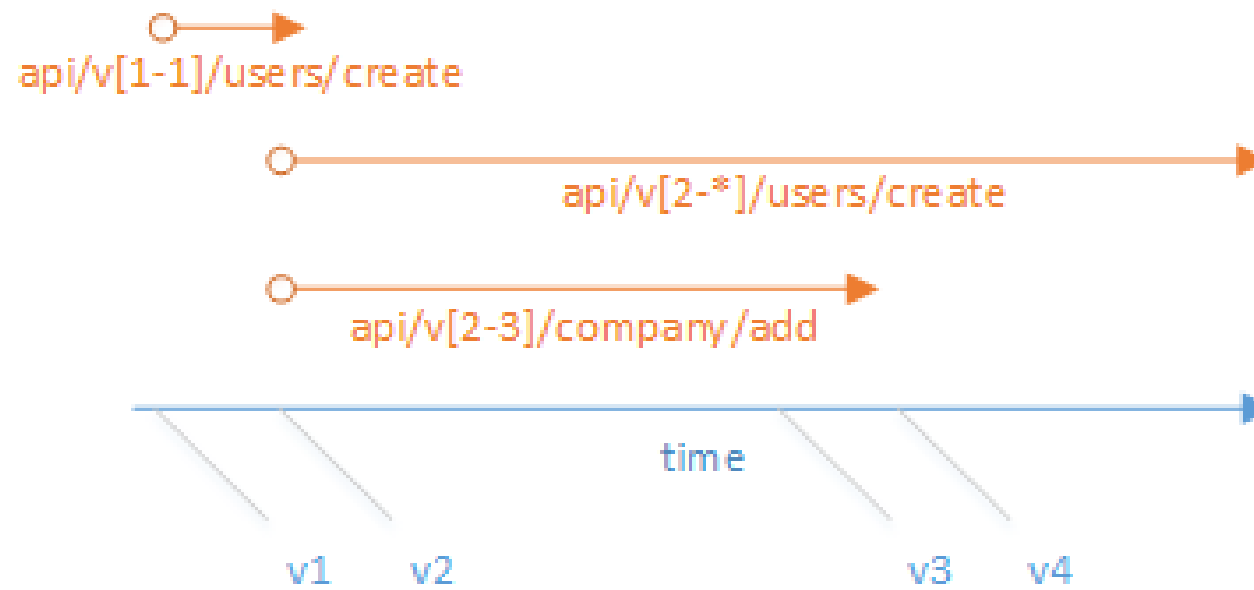


<https://hub.docker.com/u/leandrocgisi/>

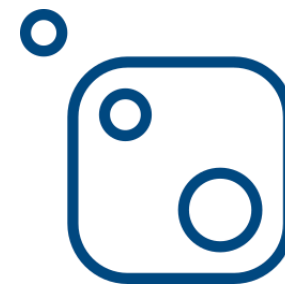


<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





ASP.NET Core



REST<sup>API</sup>

# Recapitulando

- ▶ ASP.NET Core Versioning
- ▶ Por onde começar
- ▶ Por convenção
- ▶ Por PATH/Route
- ▶ Por namespace



# Seção 10:

## Adotando Uma Arquitetura Em Camadas



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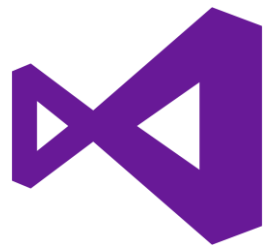
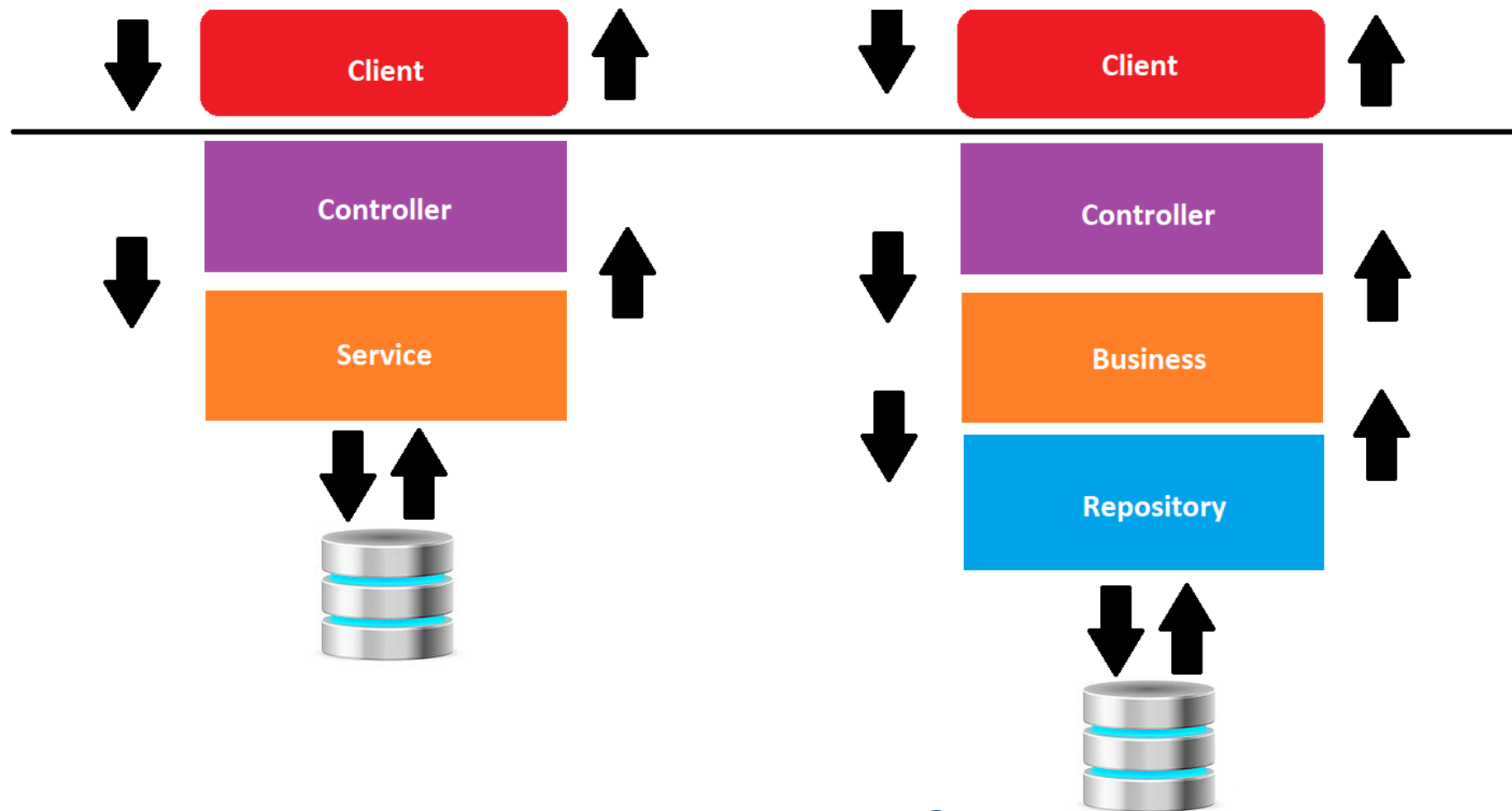


<https://hub.docker.com/u/leandrocgisi/>



<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





ASP.NET Core



REST API

# Recapitulando

- ▶ Overview Arquitetural
- ▶ Controller
- ▶ Service
- ▶ Repository

# Seção 11: Migrations



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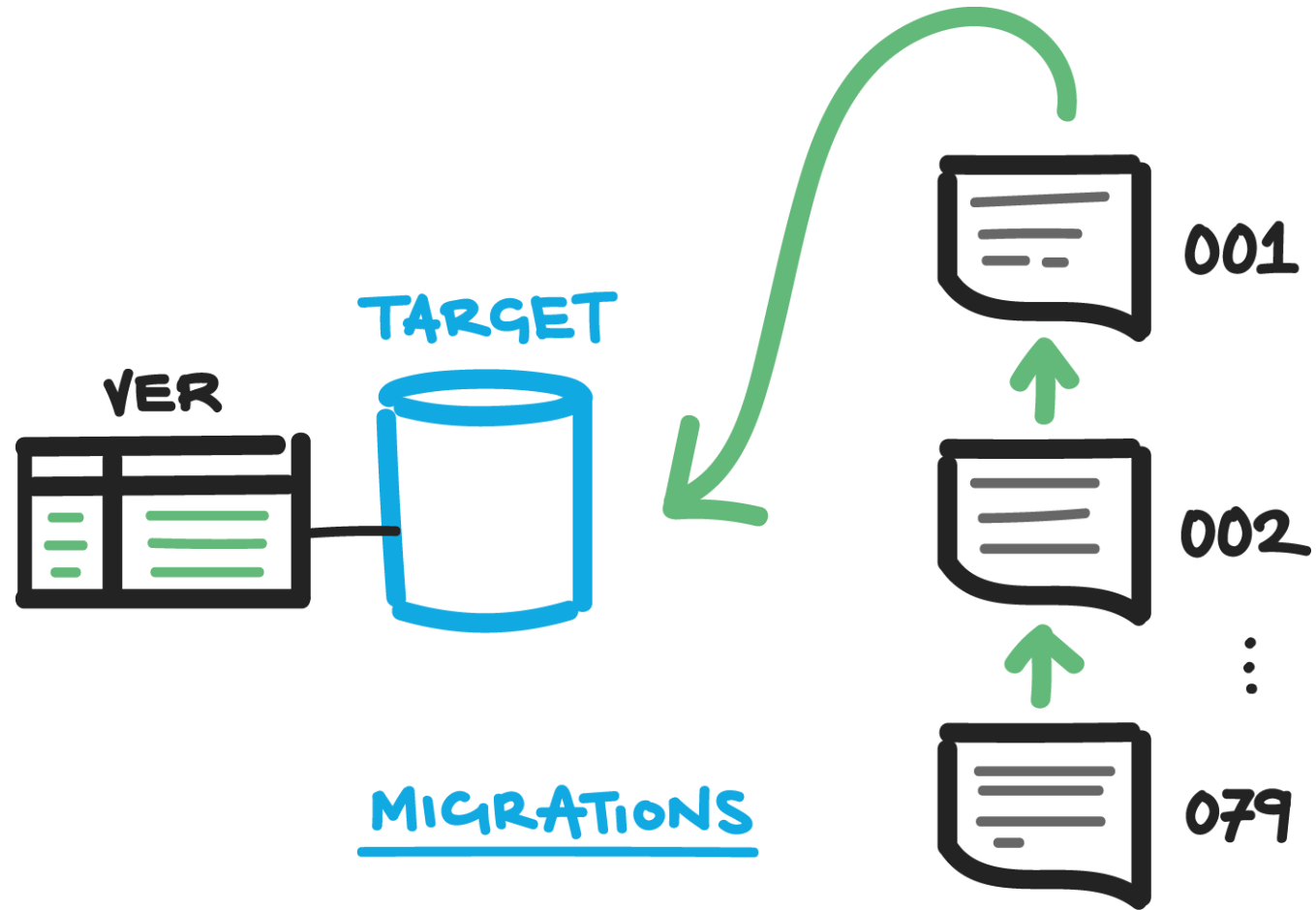


<https://hub.docker.com/u/leandrocgisi/>



<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





ASP.NET Core Entity Framework Core **EVOLVE**  

# Recapitulando

- ▶ Nuget
- ▶ Adição e configuração do Evolve no projeto
- ▶ MySQL Data Driver
- ▶ Refactory no Startup.cs
- ▶ Migrations
- ▶ Changelog
- ▶ Criação de novas tabelas

# Seção 12:

## Padrão De Projeto Generic Repository



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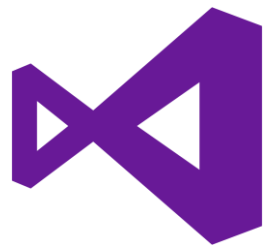
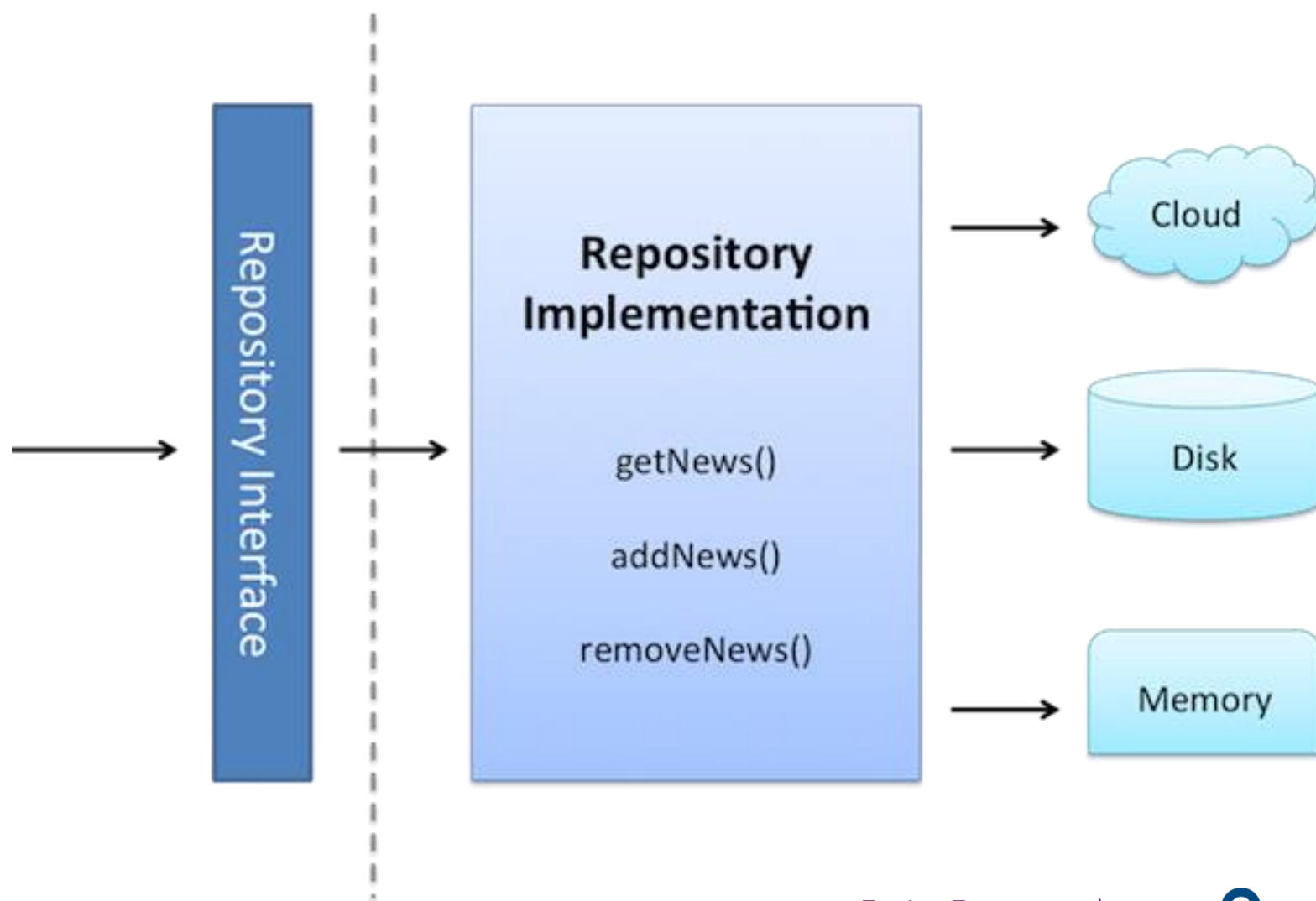


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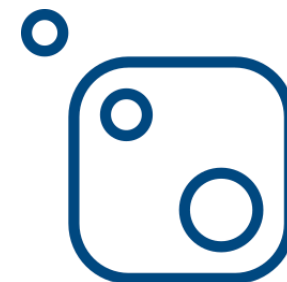
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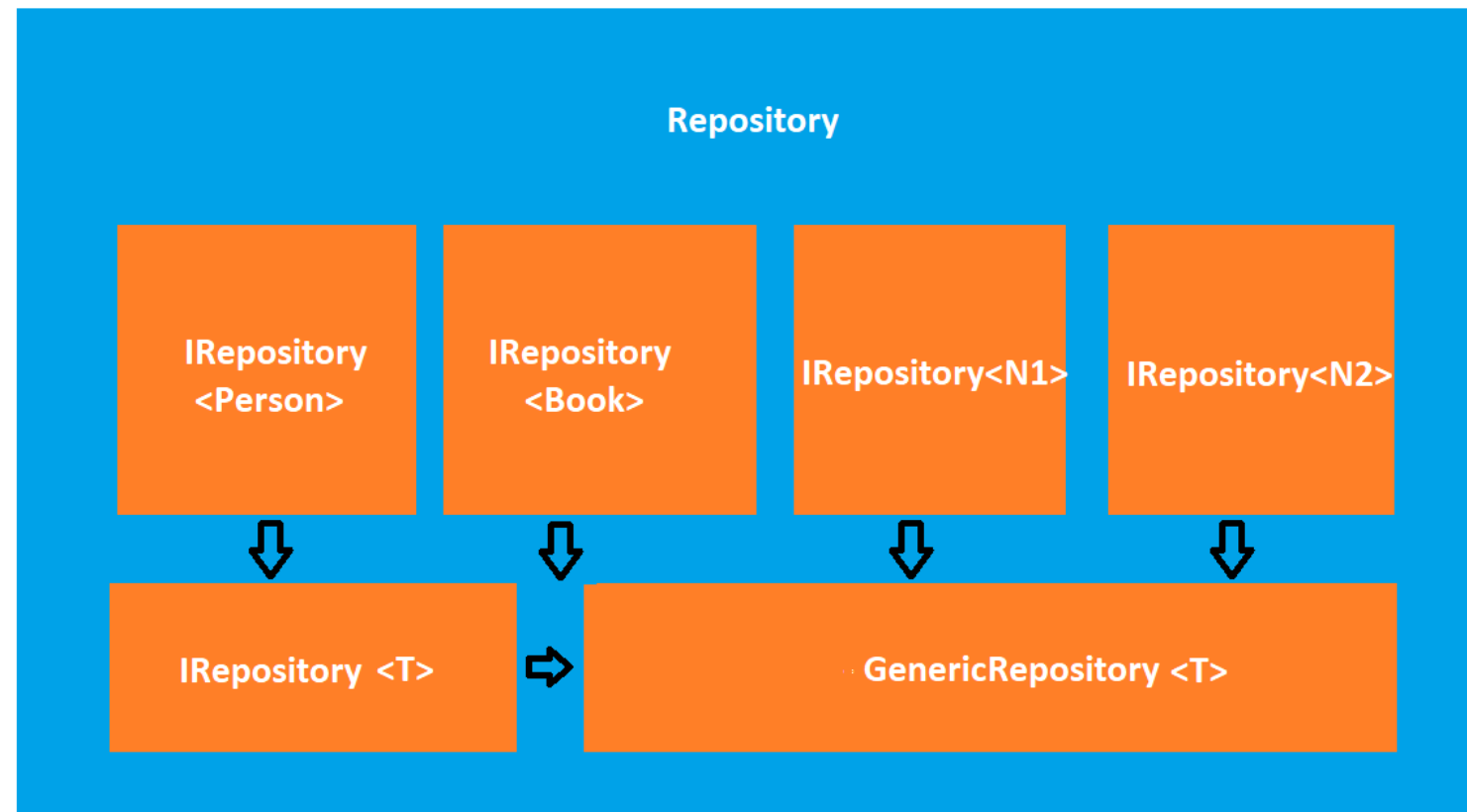
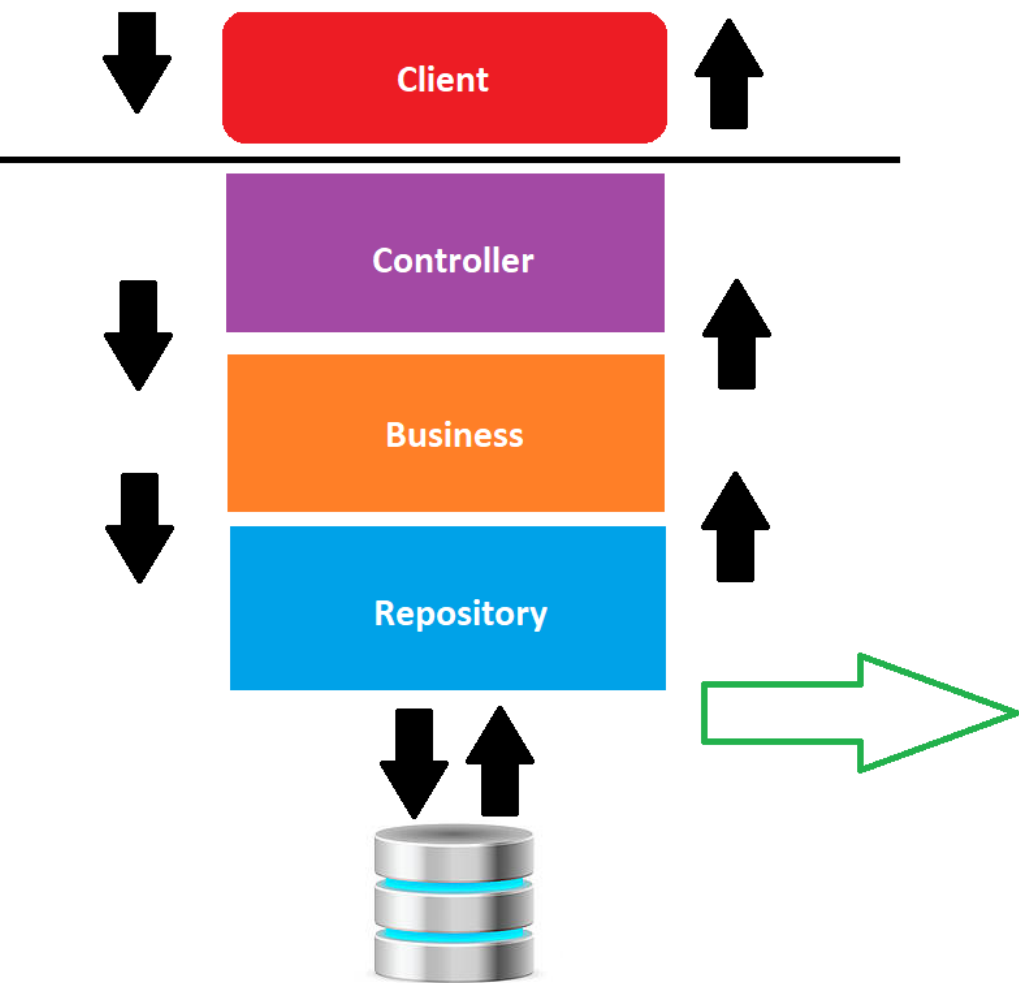


ASP.NET Core

Entity Framework

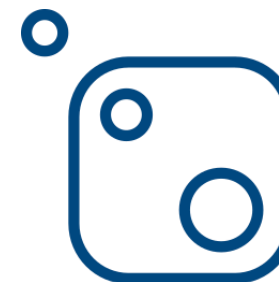






ASP.NET Core

Entity Framework  
Core



# Recapitulando

- ▶ Novo Controller
- ▶ Data Annotations
- ▶ Generic Repository
- ▶ Integrando o Generic Repository ao Business
- ▶ Injeção de dependências com tipos genéricos
- ▶ Ajustando problemas com a DataContract

# Seção 13:

## Padrão De Projeto Value Object (VO)



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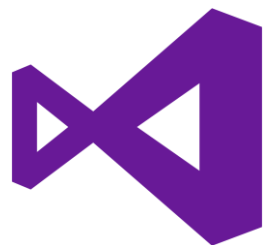
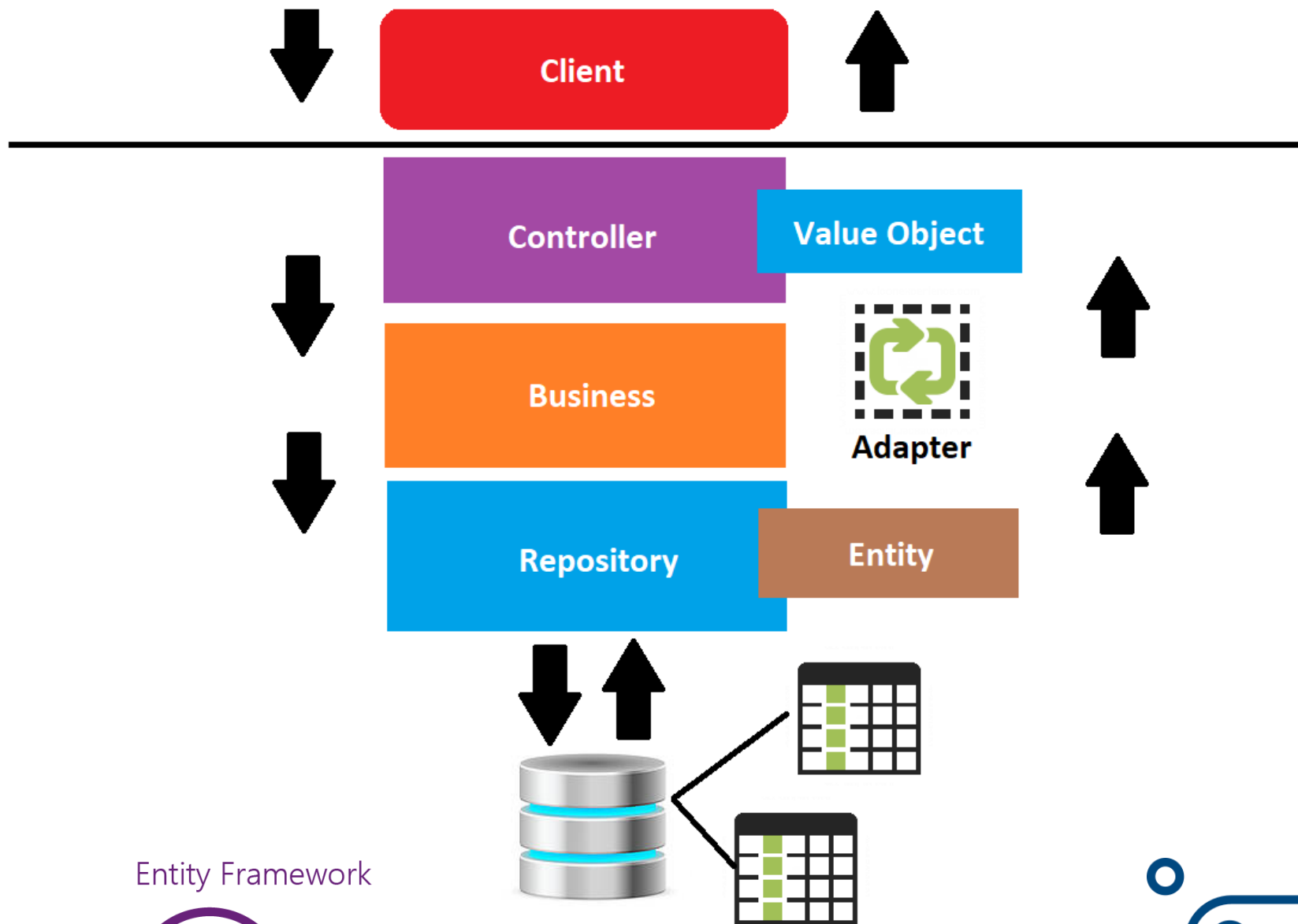


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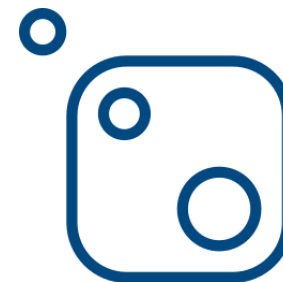


<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





ASP.NET Core



# Recapitulando

- ▶ Refactory
- ▶ O Padrão de Projetos Value Object (VO)
- ▶ Encapsulamento
- ▶ Segurança
- ▶ Separação de conceitos
- ▶ Adapters

# Seção 14: Data Contract



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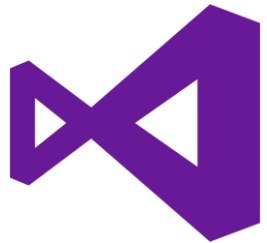
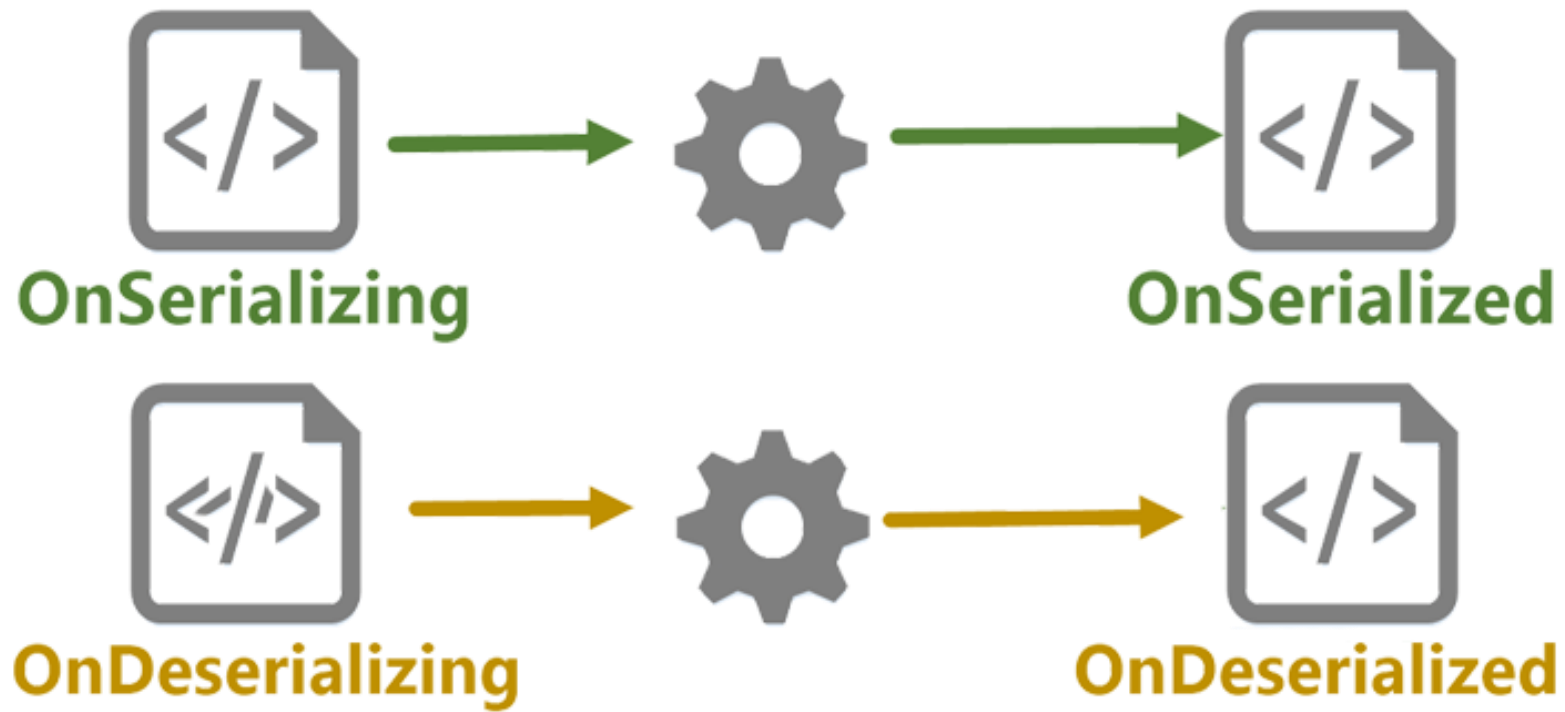


<https://hub.docker.com/u/leandrocgisi/>



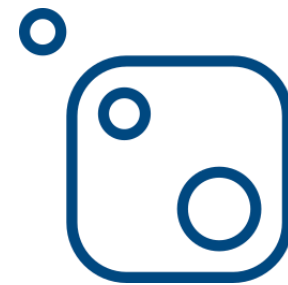
<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





ASP.NET Core

Entity Framework  
Core



# Recapitulando

- ▶ Data contract
- ▶ Name
- ▶ Order



# Seção 15:

## Content Negotiation



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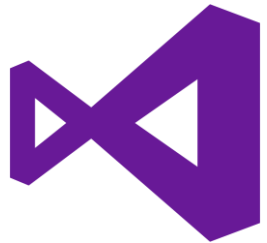
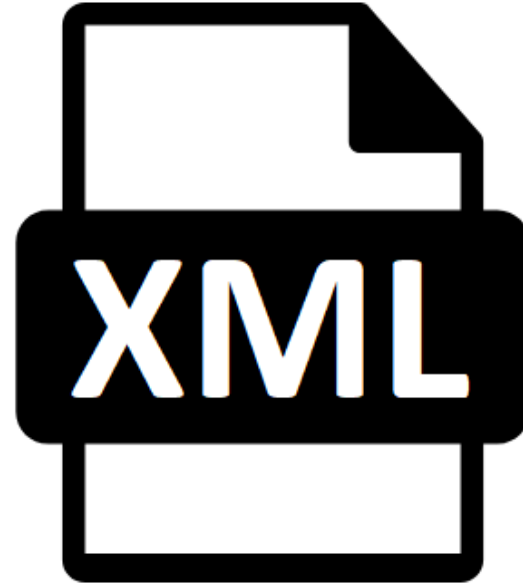
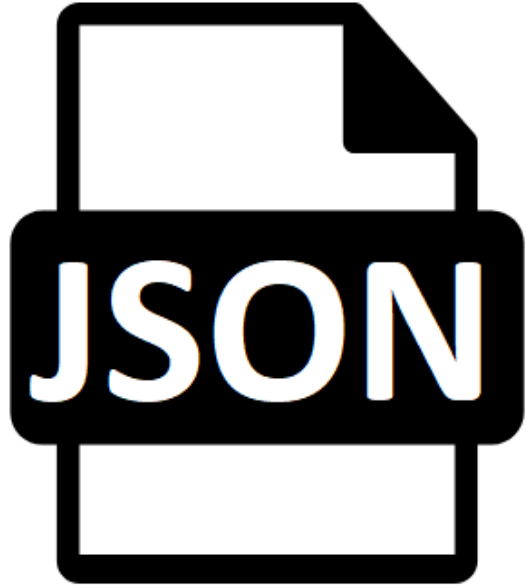


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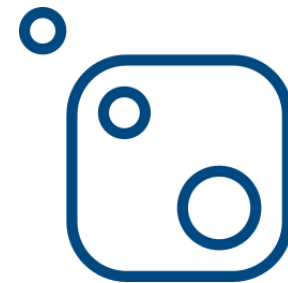
<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





ASP.NET Core

Entity Framework



# Recapitulando

- ▶ Content negotiation
- ▶ XML formatters
- ▶ Serializer formatters
- ▶ Media type
- ▶ Formatter mappings
- ▶ Header params

## Seção 16: HATEOAS



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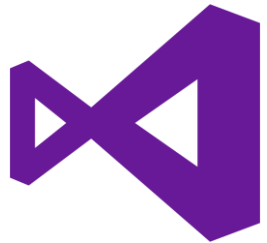


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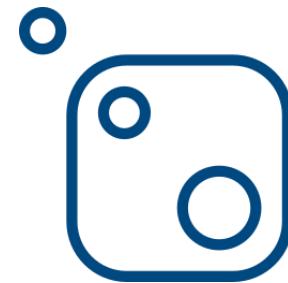
# HATEOAS

Hypermedia as the Engine of Application State



ASP.NET Core

Entity Framework



# Recapitulando

- ▶ O que é HATEOAS
- ▶ Content Enricher
- ▶ Hypermedia Filters
- ▶ Filter Options
- ▶ Ajustando o bug do Routes

# Seção 17: Swagger



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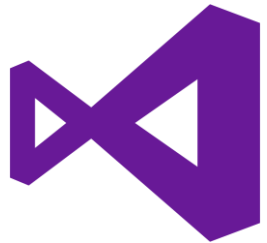


<https://hub.docker.com/u/leandrocgisi/>



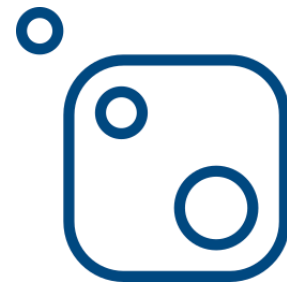
<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





ASP.NET Core

Entity Framework





# Recapitulando

- ▶ Documentação com Swagger
- ▶ Nuget e Swasbuckle ASP.NET Core
- ▶ Documentando os nossos controllers
- ▶ Importando Swagger collections no Postman

# Seção 18: Autenticação



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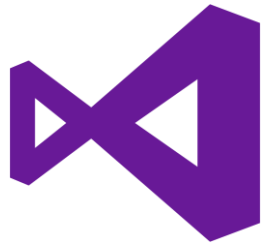


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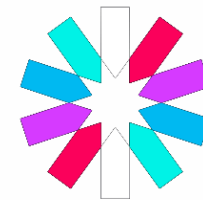
<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





ASP.NET Core

Entity Framework



JWT

# Recapitulando

- ▶ Configurações de Segurança
- ▶ Novas Migrations
- ▶ UserRepository
- ▶ LINQ
- ▶ Login Controller
- ▶ Configurações no Startup.cs
- ▶ Token -JWT
- ▶ Environments no Postman
- ▶ Bearer Token
- ▶ Autorization via Header Param

# Seção 19: O Verbo PATH



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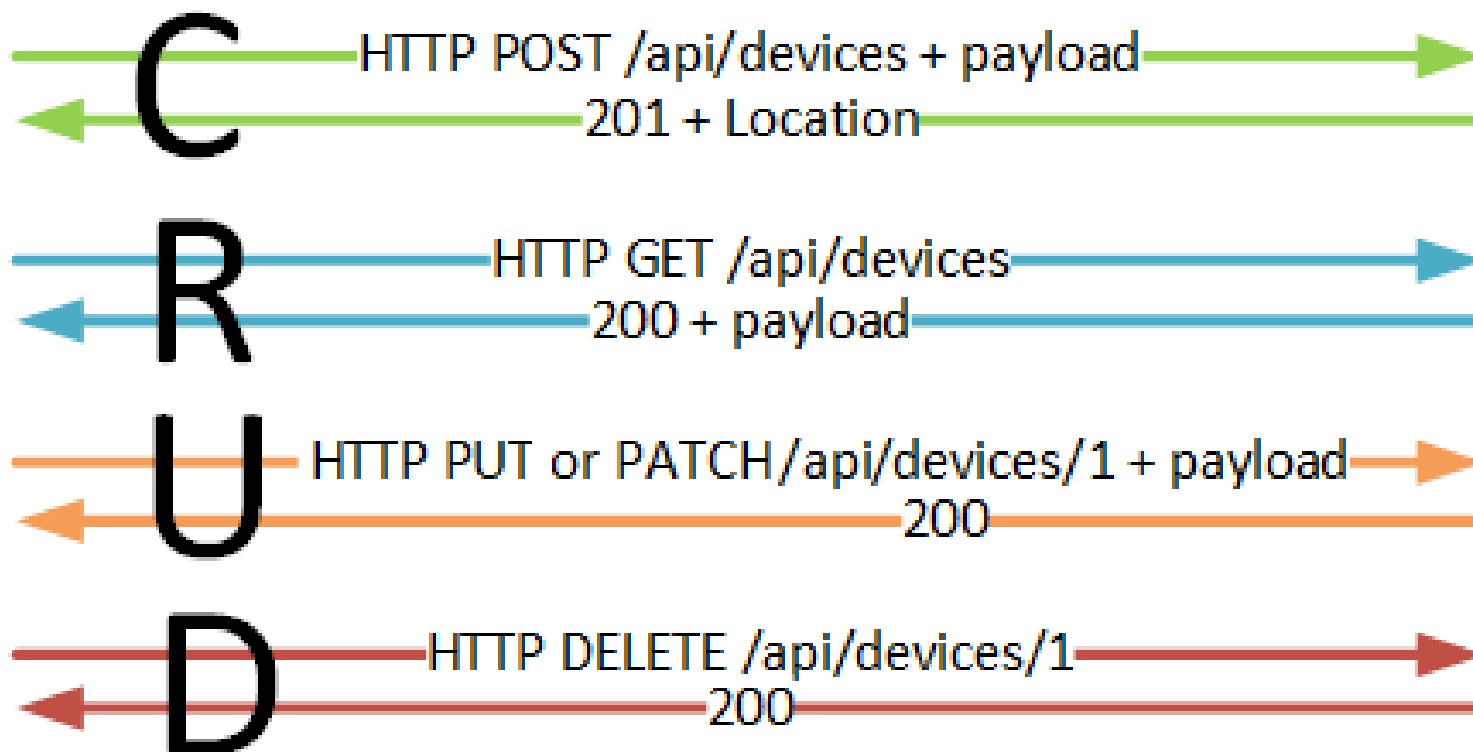


<https://hub.docker.com/u/leandrocgisi/>



<https://github.com/leandrocgisi/RestWithASP-NETUdemy>



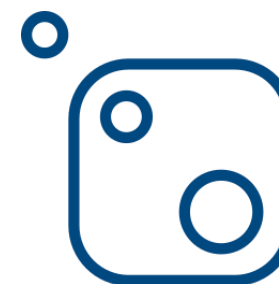


REST  
SERVER



ASP.NET Core

Entity Framework



# Recapitulando

- ▶ PATCH x PUT
- ▶ Quando usar PATCH
- ▶ Adição de novos itens à collection no Postman

# Seção 20:

## Query Params E Busca Paginada



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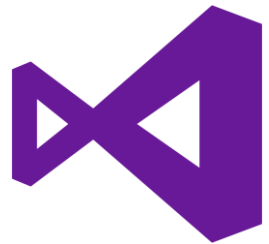
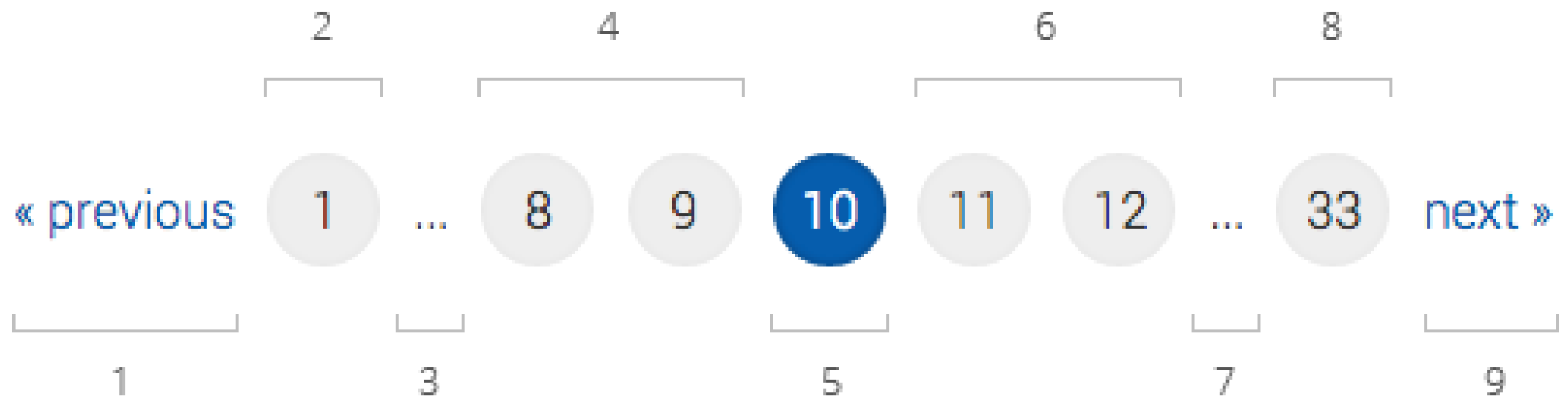
<https://hub.docker.com/u/leandrocgisi/>



<https://github.com/leandrocgisi/RestWithASP-NETUdemy>







ASP.NET Core

Entity Framework



# Recapitulando

- ▶ Query Params
- ▶ Path Params
- ▶ Repositório específico
- ▶ SQL - Queries
- ▶ LINQ
- ▶ Equals e contains

# Seção 21:

## Trabalhando Com Arquivos



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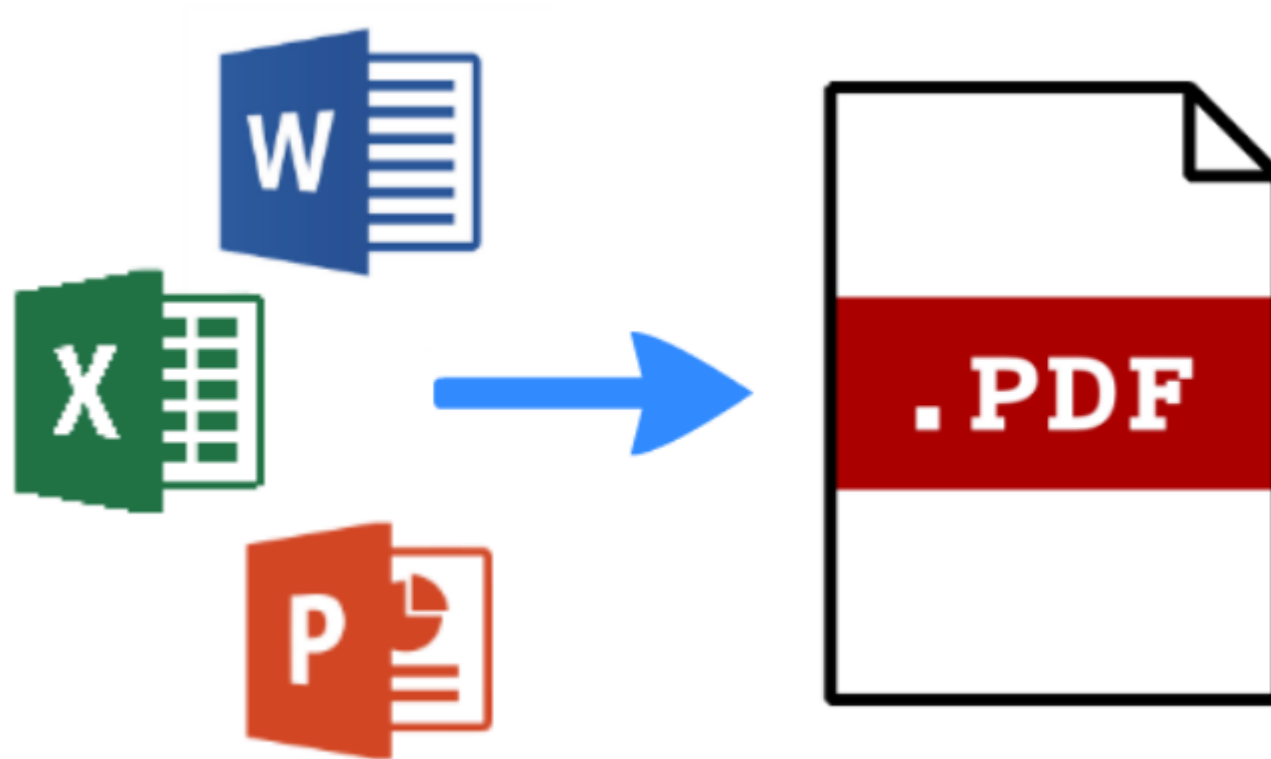


<https://hub.docker.com/u/leandrocgisi/>



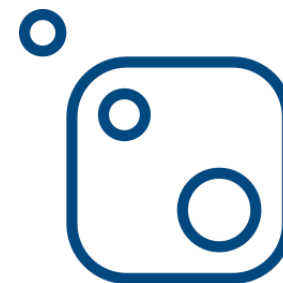
<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





ASP.NET Core

Entity Framework  
Core



# Recapitulando

- ▶ Directory
- ▶ System.IO
- ▶ Byte Array
- ▶ File Controller
- ▶ Setando Byte Array na Response
- ▶ Testes no Postman

## Seção 22: Adicionando Suporte Ao Docker



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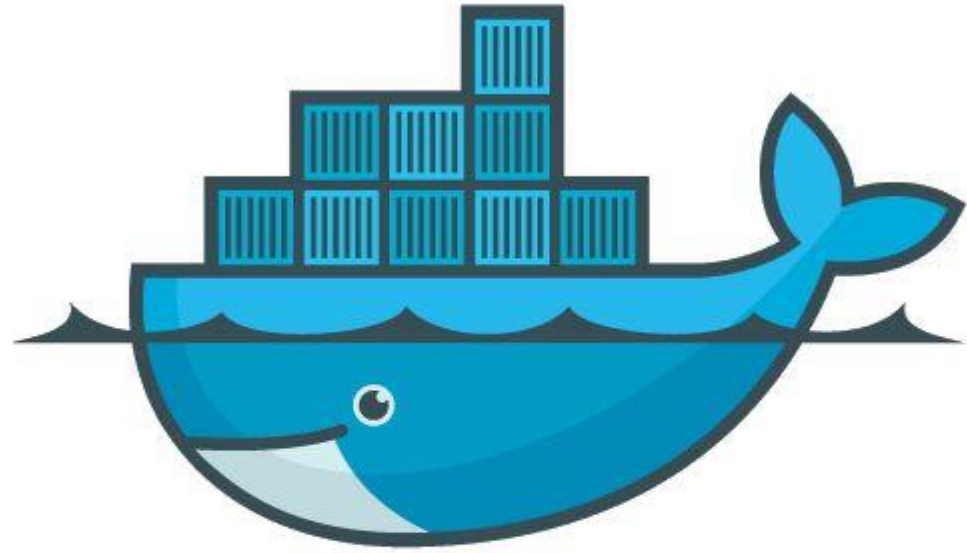


<https://hub.docker.com/u/leandrocgisi/>

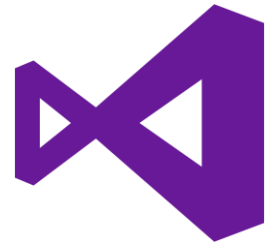
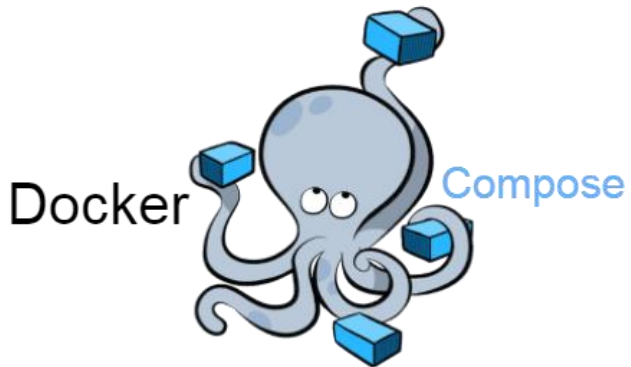


<https://github.com/leandrocgisi/RestWithASP-NETUdemy>





# docker



ASP.NET Core



PowerShell

# Recapitulando

- ▶ Adicionando suporte ao Docker no projeto
- ▶ Dockerfiles
- ▶ O Compose
- ▶ Compose.yml
- ▶ Imagens
- ▶ Commands
- ▶ Environments
- ▶ Volumes
- ▶ Portas
- ▶ Conexões
- ▶ Timezones
- ▶ Restauração da base via SQL dump
- ▶ Docker na linha de comando
- ▶ Tornando o projeto multiplataforma



# Recapitulando

- ▶ Restaurando a base com Shell Script
- ▶ Comandos do Docker
- ▶ Comandos do Docker Compose
- ▶ Executando o projeto no Docker Toolbox
- ▶ Rodando no Visual Studio em Máquina com HyperV
- ▶ Rodando no Powershell em Máquina com HyperV
- ▶ Troubleshoot
- ▶ Visualizando logs do container
- ▶ Acessando o container via SSH

# Seção 23:

## Deploy Na Azure



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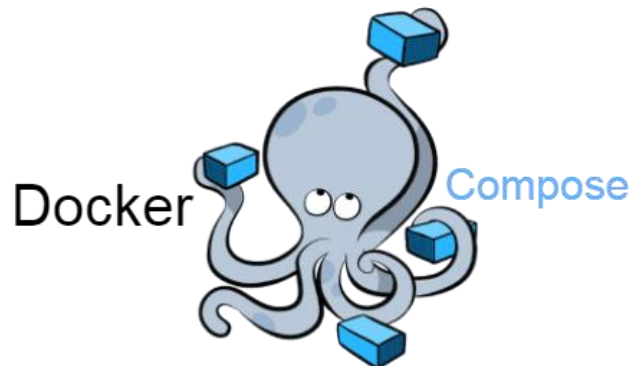
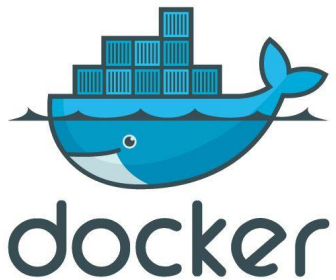


<https://hub.docker.com/u/leandrocgisi/>



<https://github.com/leandrocgisi/RestWithASP-NETUdemy>

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ASP.NET Core



PowerShell

# Recapitulando

- ▶ Criando uma conta no DockerHub
- ▶ Criando uma conta no Microsoft Azure
- ▶ Acessando o portal Azure
- ▶ Logando no DockerHub via Powershell
- ▶ Enviando imagens para o DockerHub
- ▶ Criando recursos no Microsoft Azure
- ▶ Implantação no Microsoft Azure
- ▶ Conexões com a base de dados
- ▶ Ajustes na base de dados
- ▶ Visualizando os logs do contêiner
- ▶ Habilitando Integração Contínua - CI
- ▶ Testando no Postman

## Seção 24: Conclusão



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