



Ultimate ASP.NET Core Web API Development Guide

HELLO!

I am Trevor Williams

Software Engineer | Lecturer



Course Objectives

Build a REST API

- ▶ Understand the RESTful Standards and good practices
- ▶ Understand C# and .NET Core 6 Syntax and Workflows
- ▶ Understand Repository Pattern, Generics and Entity Framework
- ▶ Use **JWT** to secure API
- ▶ Understand Versioning, Caching and Refactoring



Learn Development Tools and Libraries

- ▶ Learn How To Use:
 - ▶ Git
 - ▶ Microsoft Azure
 - ▶ Visual Studio 2022
- ▶ **API Testing with PostMan and Swagger**

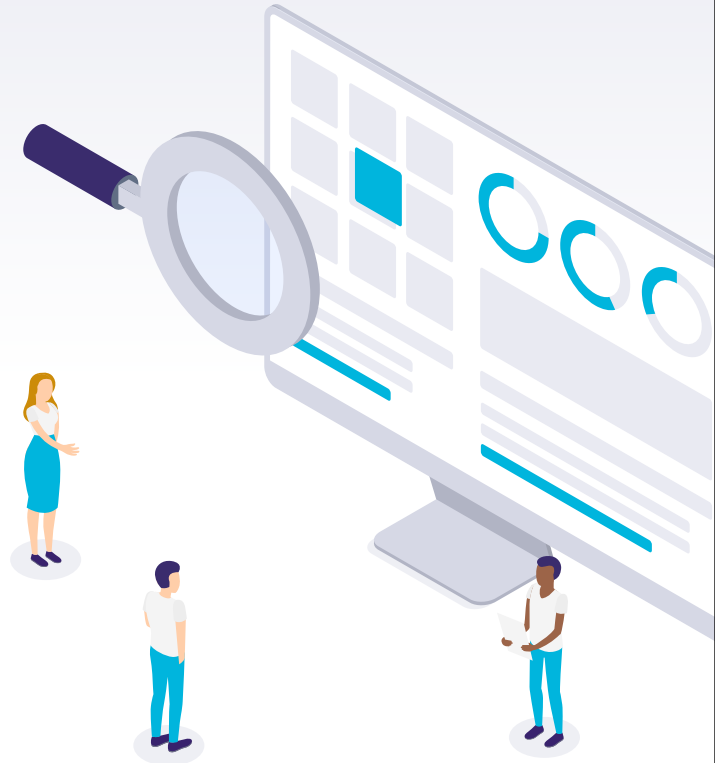
Visual Studio 2022 and .NET 6

What

A fully-featured, extensible, free IDE for creating modern applications for most devices and platforms.

Why

- ▶ Powerful Web Tools to allow development with ASP.NET, jQuery, Bootstrap, among other popular frameworks.
- ▶ Git Integration - Manage your source code in Git repos hosted by any provider, including GitHub.



Other Technologies

GitHub

- ▶ Source or Version Control is a system that records changes to files over time so that you can recall specific versions later

Microsoft Azure

Allow you to host .NET Web Applications.



Welcome!

Let's get Started



Azure DevOps

- ▶ Azure DevOps provides developer services for allowing teams to plan work, collaborate on code development, and build and deploy applications.
- ▶ Azure DevOps supports a collaborative culture and set of processes that bring together developers, project managers, and contributors to develop software.



Key Features

Use all the DevOps services or choose just what you need to complement your existing workflows



Azure Boards



Azure Pipelines



Azure Repos



Azure Test Plans



Azure Artifacts

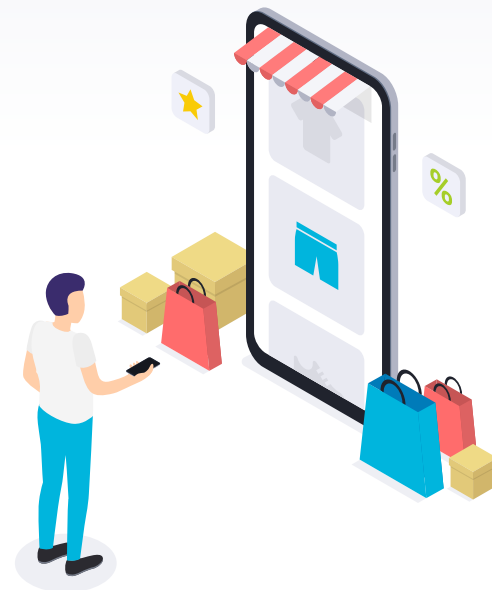
Other Technologies

Blazor WebAssembly

- ▶ Used to create a simple client app to interface with our Function App

Microsoft Azure

Allow you to host .NET Web Applications.



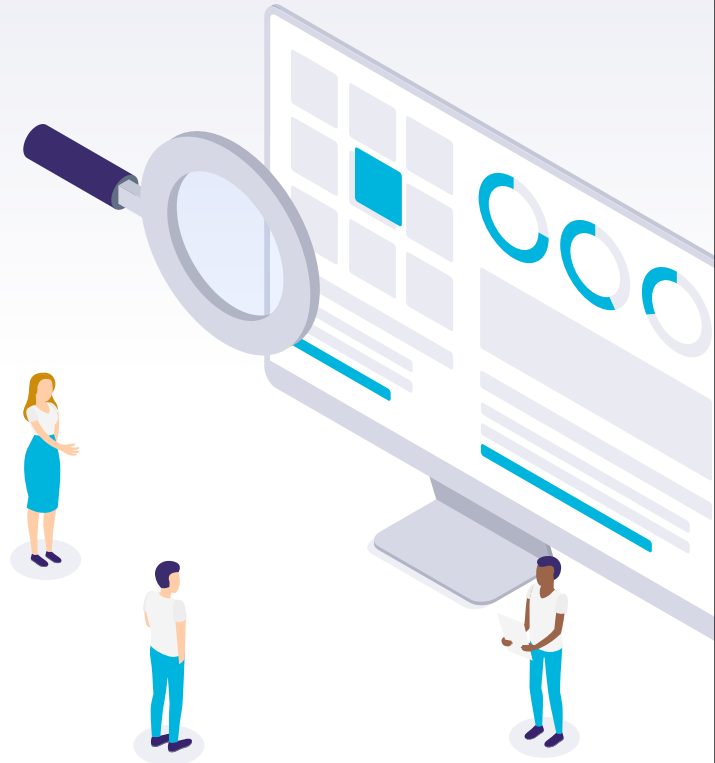
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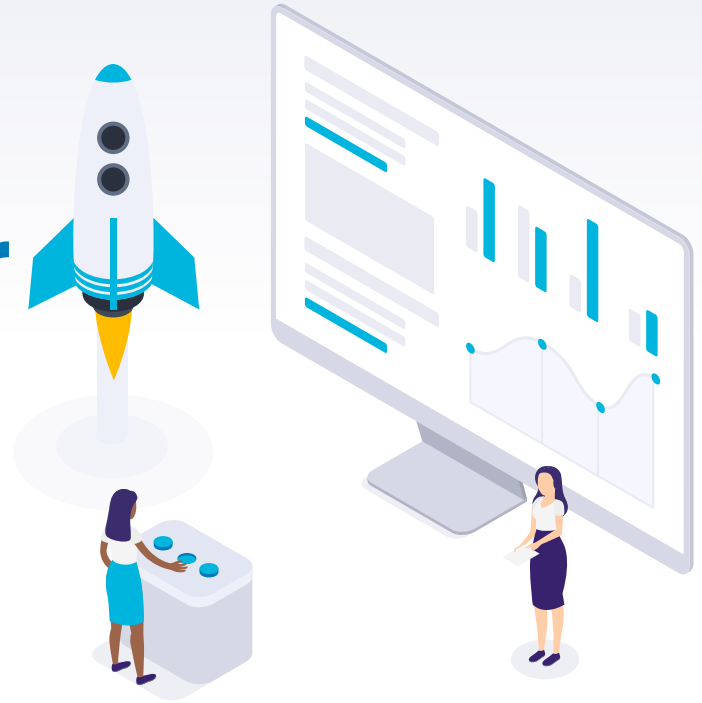
Why

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1

Why Learn .NET Core



Why Learn .NET Development

- ▶ Microsoft .NET is the platform that drives the business technology of many of the top corporations in the United States and many other countries.
- ▶ It is the predominant technology used to drive enterprise-scale business technology.



Why Learn .NET Development

- ▶ The .NET language of choice to learn is C#, the most widely used language today.
- ▶ It is a general purpose programming language that can handle almost any problem, from desktop to mobile to dynamic web applications.
- ▶ There is a high demand across the world for .NET developers in a variety of industries.



Publish Your App

- ▶ Users need access
- ▶ Internal or External
- ▶ Options
 - ▶ Domain Hosting
 - ▶ Internal Server
 - ▶ Cloud Hosting (Azure, etc.)
- ▶ Continuous Integration and Deployment
 - ▶ GitHub Actions
 - ▶ Azure DevOps

Get Ready To Rumble!



A picture is worth a thousand words

A complex idea can be conveyed with just a single still image, namely making it possible to absorb large amounts of data quickly.



Want big impact?
Use big image.



And tables to compare data

	A	B	C
Yellow	10	20	7
Blue	30	15	10
Orange	5	24	16



Maps

Find more maps at slidescarnival.com/extra-free-resources-icons-and-maps





89,526,124

Whoa! That's a big number, aren't you proud?

89,526,124\$

That's a lot of money

185,244 users

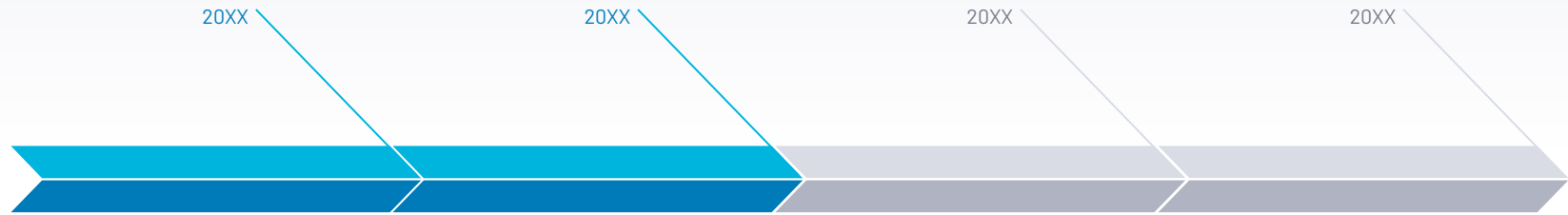
And a lot of users

100%

Total success!



Our process is easy



Lorem Ipsum

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- ▶ **REST** is an acronym for **RE**presentational **S**tate **T**ransfer
- ▶ Architectural style for distributed hypermedia systems
- ▶ A Web API (or Web Service) conforming to the REST architectural style is a REST API.





Let's review some concepts

Uniform

By applying the principle of generality to the components interface, we can simplify the overall system architecture and improve the visibility of interactions.

Layered

The layered system style allows an architecture to be composed of hierarchical layers by constraining component behavior.

Stateless

The server cannot take advantage of any previously stored context information on the server.

Resources

For example, a REST resource can be a document or image, a temporal service, a collection of other resources, or a non-virtual object (e.g., a person).

Cacheable

If the response is cacheable, the client application gets the right to reuse the response data later for equivalent requests and a specified period.

Self-Descriptive

The client does not need to know if a resource is an employee or a device. It should act based on the media type associated with the resource.

HTTP Methods

GET

- Use GET requests to retrieve resource representation/information only – and not modify it in any way.

G

PUT

Use PUT APIs primarily to update an existing resource (if the resource does not exist, then API may decide to create a new resource or not).

P

- Use POST APIs to create new subordinate resources

POST

P

As the name applies, DELETE APIs delete the resources (identified by the Request-URI).

DELETE

D

HTTP Responses

1xx Status Codes

Communicates transfer protocol-level information.



2xx: Success

Indicates that the client's request was accepted successfully.



3xx: Redirection

Indicates that the client must take some additional action in order to complete their request.

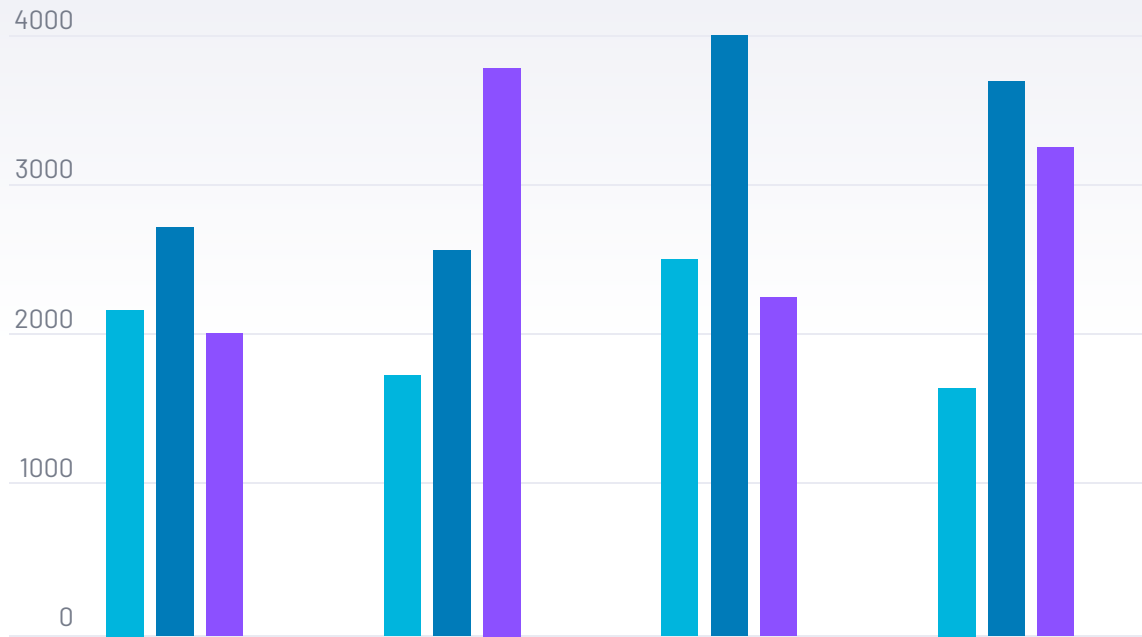
4xx: Client Error

This category of error status codes points the finger at clients.



5xx: Server Error

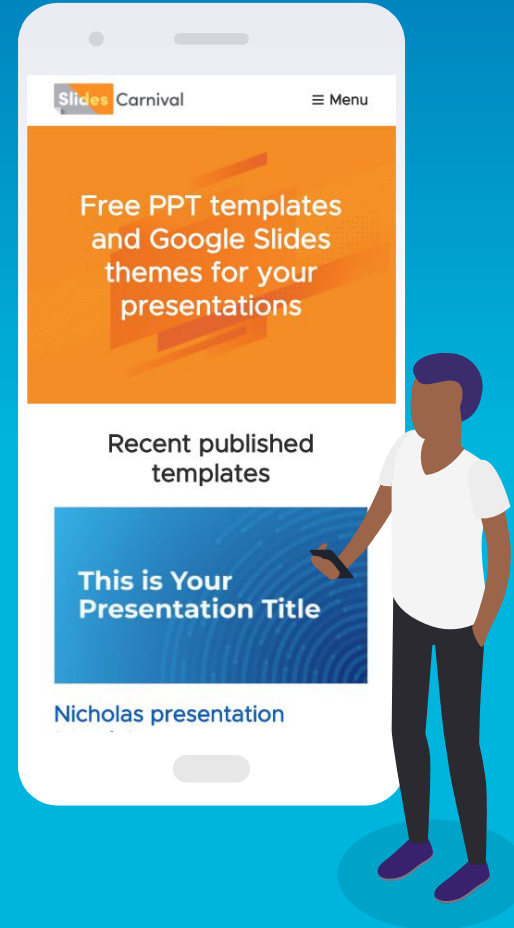
The server takes responsibility for these error status codes.



You can insert graphs from Excel or Google Sheets

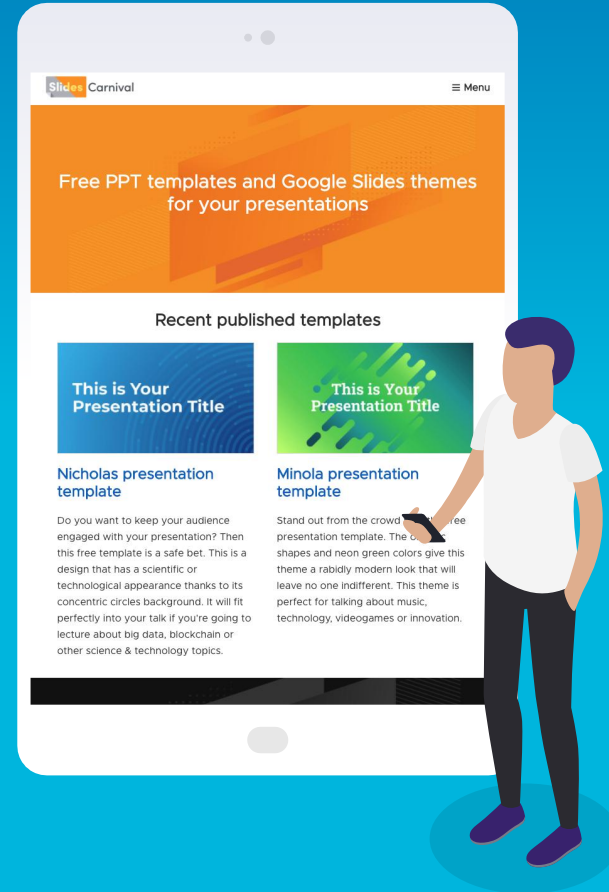
Mobile project

Show and explain your web, app or software projects using these gadget templates.



Tablet project

Show and explain your
web, app or software
projects using these
gadget templates.



Credits

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- ▶ Presentation template by [SlidesCarnival](#)
- ▶ Illustrations by [Sergei Tikhonov](#)
- ▶ Photographs by [Unsplash](#)

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- Titles: Raleway
- Body copy: Barlow

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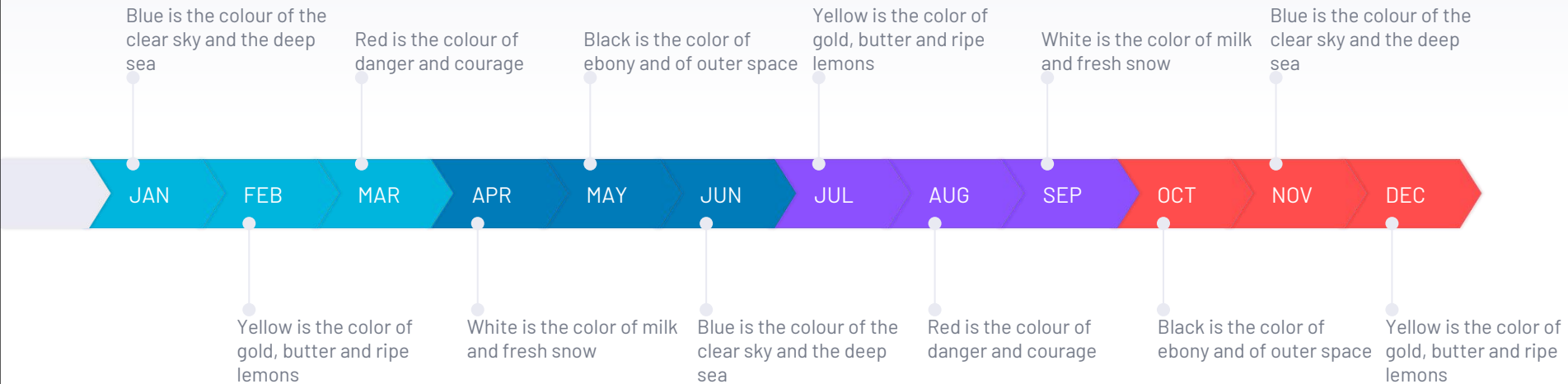
A blue triangle pointing to the right, containing the number 2.

2

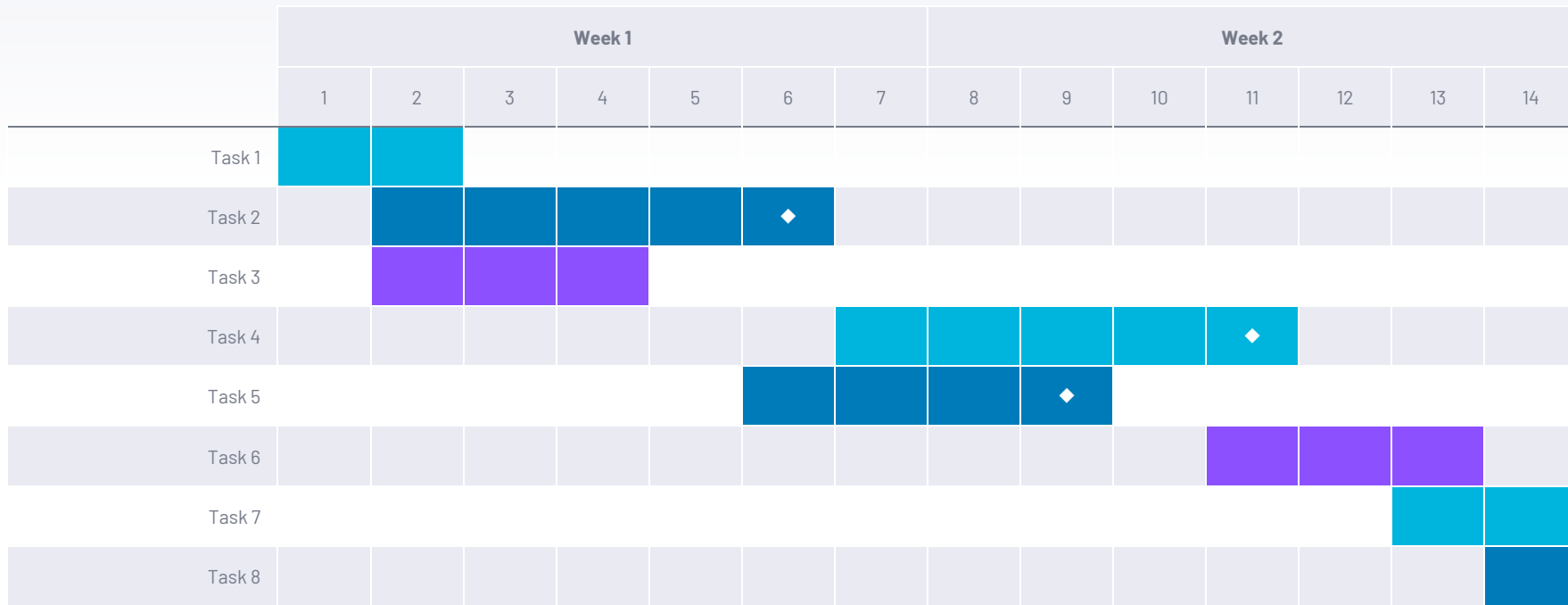
Extra Resources

For Business Plans, Marketing Plans,
Project Proposals, Lessons, etc

Timeline



Gantt chart



Types of API Security

Network Level

- IP Whitelisting
- IP Blacklisting

N

Basic Authentication

Authenticate with each call to the API

B

- Issue an access key to client app.

Api Key Access

A

Issue an encoded token with a limited lifetime and reissue a new one when needed.

JSON Web Tokens (JWT)

J

Roadmap

Blue is the colour of the
clear sky and the deep
sea



Red is the colour of
danger and courage



Black is the color of
ebony and of outer space



Yellow is the color of gold,
butter and ripe lemons



White is the color of milk
and fresh snow



Blue is the colour of the
clear sky and the deep
sea



<div>Key Partners Insert your content</div> <div></div>	<div>Key Activities Insert your content</div> <div></div>	<div>Value Propositions Insert your content</div> <div></div>	<div>Customer Relationships Insert your content</div> <div></div>	<div>Customer Segments Insert your content</div> <div></div>
	<div>Key Resources Insert your content</div> <div></div>		<div>Channels Insert your content</div> <div></div>	
<div>Cost Structure Insert your content</div> <div></div>			<div>Revenue Streams Insert your content</div> <div></div>	

Funnel





Team Presentation



Imani Jackson

JOB TITLE

Blue is the colour of the clear
sky and the deep sea



Marcos Galán

JOB TITLE

Blue is the colour of the clear
sky and the deep sea



Ixchel Valdía

JOB TITLE

Blue is the colour of the clear
sky and the deep sea

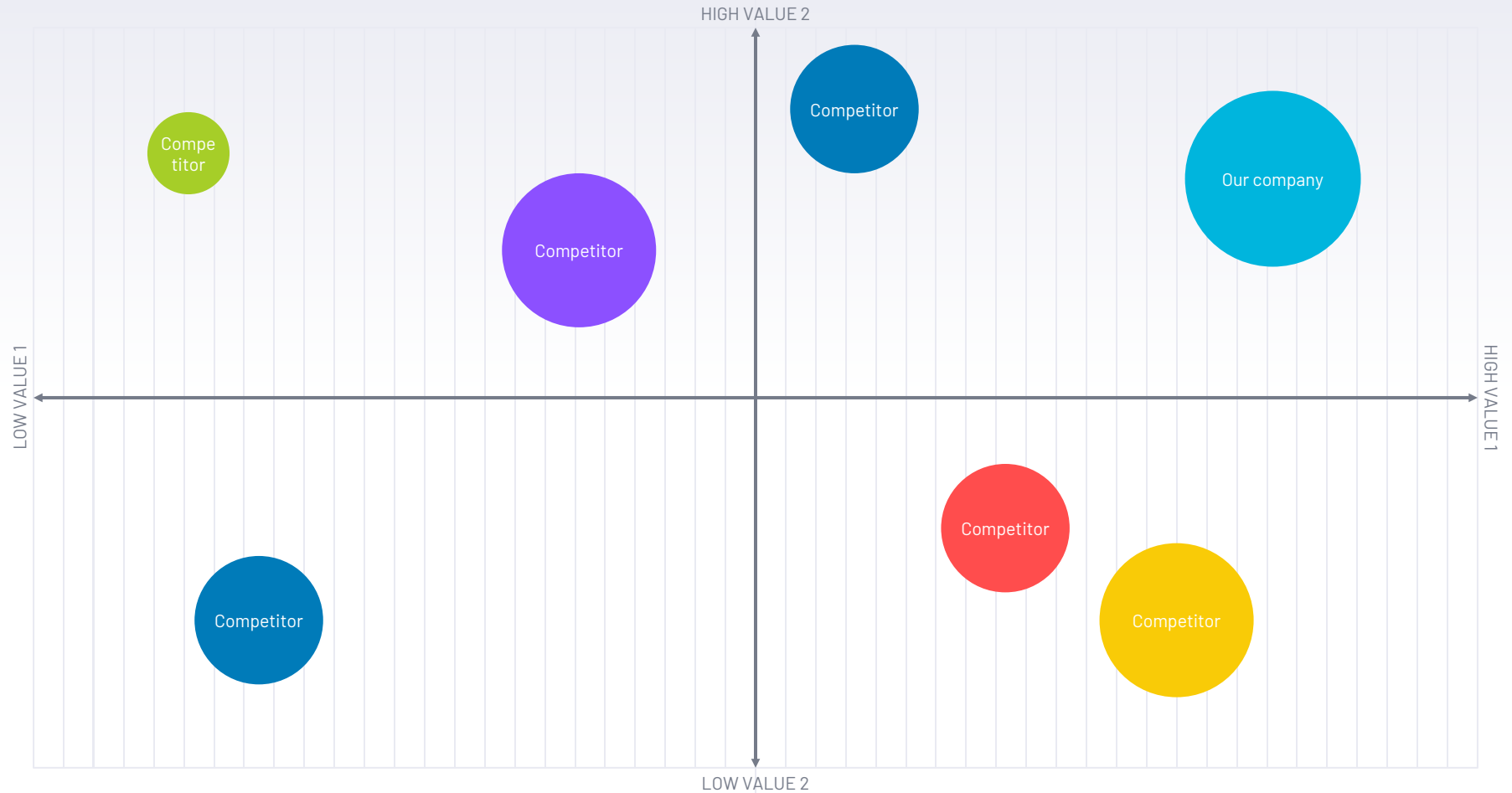


Nils Årud

JOB TITLE

Blue is the colour of the clear
sky and the deep sea

Competitor Matrix



Weekly Planner

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
09:00 - 09:45	Task	Task	Task	Task	Task	Task	Task
10:00 - 10:45	Task	Task	Task	Task	Task	Task	Task
11:00 - 11:45	Task	Task	Task	Task	Task	Task	Task
12:00 - 13:15	✓ Free time	✓ Free time	✓ Free time	✓ Free time	✓ Free time	✓ Free time	✓ Free time
13:30 - 14:15	Task	Task	Task	Task	Task	Task	Task
14:30 - 15:15	Task	Task	Task	Task	Task	Task	Task
15:30 - 16:15	Task	Task	Task	Task	Task	Task	Task

Extra resources

Illustrations created by [Sergei Tikhonov](#).

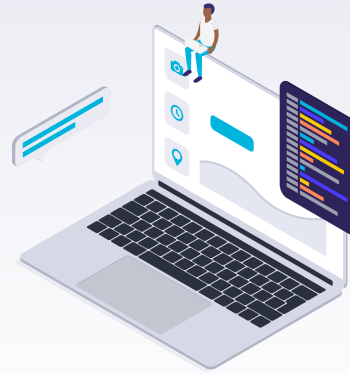
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Other Technologies

We will interact with quite a few Azure Services along the journey.



Section Overview

- ▶ Discuss Agile vs Waterfall

Setup Azure DevOps Account

Discuss Azure DevOps main features



Agile Methodology



Waterfall Methodology





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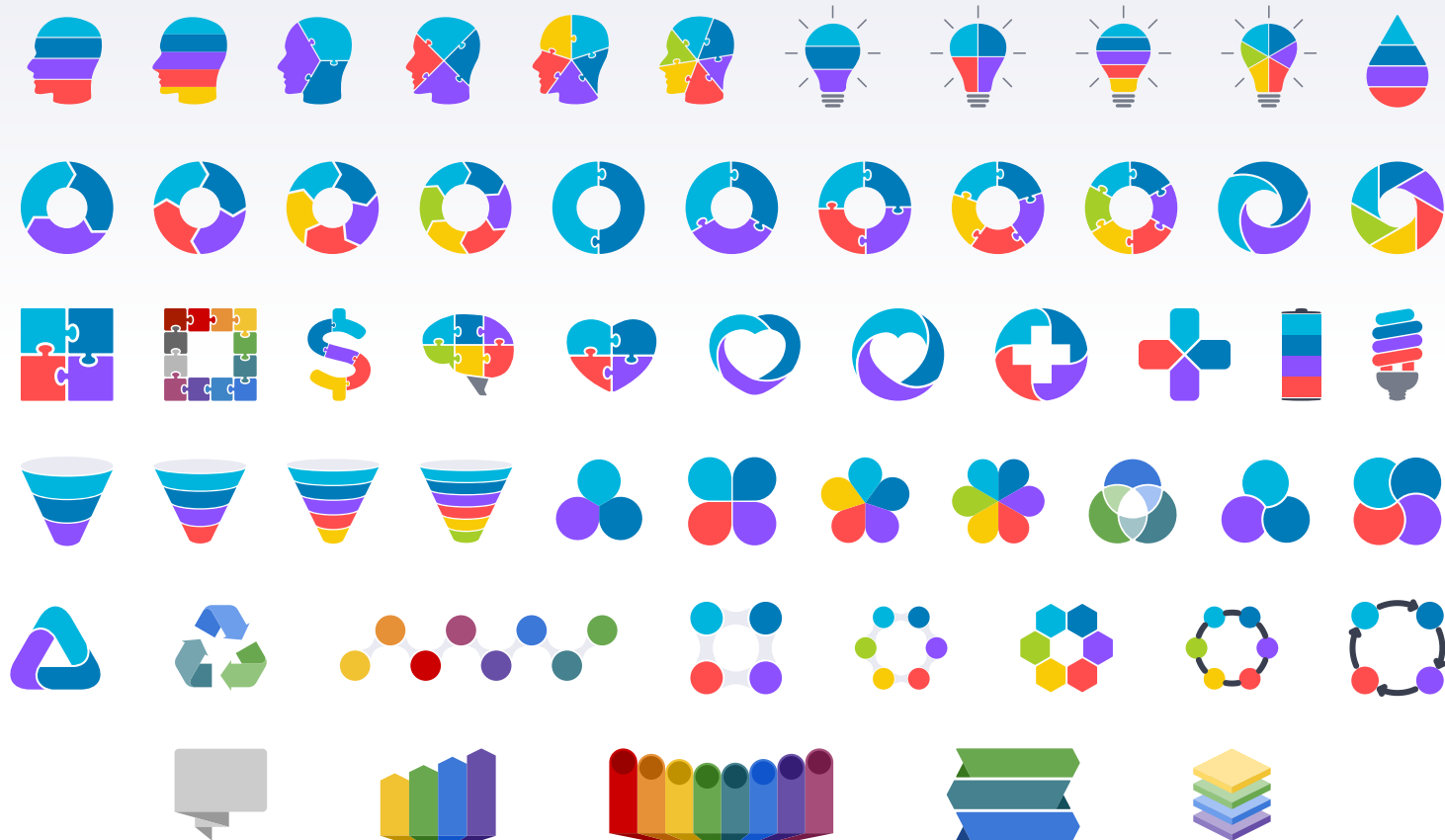
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Diagrams and infographics



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