

Intro to Blazing Web Accessibility

With Blazor and Microsoft
Cognitive Services

Dennie Declercq – NDC London 2021



Welcome to a positive lifestyle!



Welcome on my website about a positive lifestyle. Too many people have stress that results in Burn-out, boredom and depression. I want to give you 3 easy advices for a positive and happy lifestyle. On this site you find advice on:

- Optimism
- Passion
- Purpose

Feel free to browse around for inspiration.

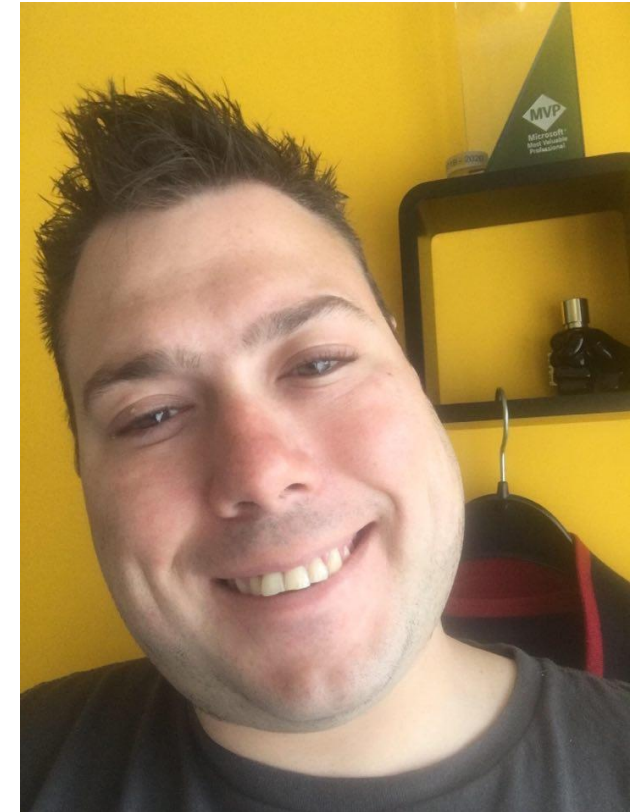
Introduction

- Introduction
- The Basics of Accessibility
- The Basics of Blazor
- The Basic of Cognitive Speech
- Introducing to The Future of Web Accessibility with Demo
- Step-By-Step Guide

Content

Who am I?

- Dennie Declercq
- DDSOft
- President / Developer
- @DennieDeclercq
- #DreamingIsBelieving



Why Blazor and Cognitive Services?

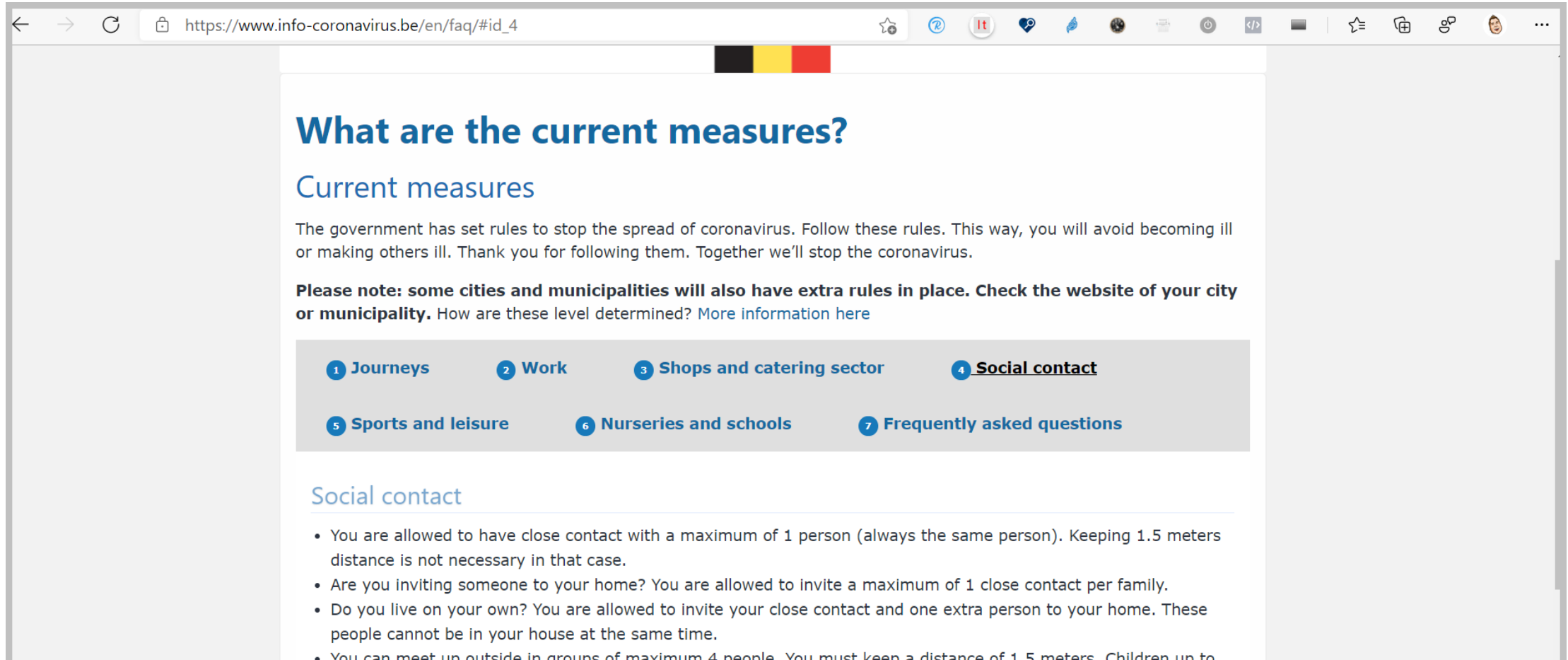
Blazor

- Don't like JavaScript
- Never 'had JS under control'

Cognitive Services

- Possibilities that weren't possible
- True horse power

2021: COVID19 – Inaccessibility - Exclusion



The screenshot shows a web browser window with the URL https://www.info-coronavirus.be/en/faq/#id_4. The page features a blue header with the title "What are the current measures?". Below this, a section titled "Current measures" explains that the government has set rules to stop the spread of coronavirus. A note states that some cities and municipalities have extra rules, with a link for more information. A navigation bar contains seven items: 1 Journeys, 2 Work, 3 Shops and catering sector, 4 Social contact (highlighted), 5 Sports and leisure, 6 Nurseries and schools, and 7 Frequently asked questions. The "Social contact" section is expanded, showing a list of rules regarding close contact, invitations to homes, and outdoor group meetings.

What are the current measures?

Current measures

The government has set rules to stop the spread of coronavirus. Follow these rules. This way, you will avoid becoming ill or making others ill. Thank you for following them. Together we'll stop the coronavirus.

Please note: some cities and municipalities will also have extra rules in place. Check the website of your city or municipality. How are these level determined? [More information here](#)

- 1 Journeys
- 2 Work
- 3 Shops and catering sector
- 4 Social contact**
- 5 Sports and leisure
- 6 Nurseries and schools
- 7 Frequently asked questions

Social contact

- You are allowed to have close contact with a maximum of 1 person (always the same person). Keeping 1.5 meters distance is not necessary in that case.
- Are you inviting someone to your home? You are allowed to invite a maximum of 1 close contact per family.
- Do you live on your own? You are allowed to invite your close contact and one extra person to your home. These people cannot be in your house at the same time.
- You can meet up outside in groups of maximum 4 people. You must keep a distance of 1.5 meters. Children up to

The basics of Accessibility

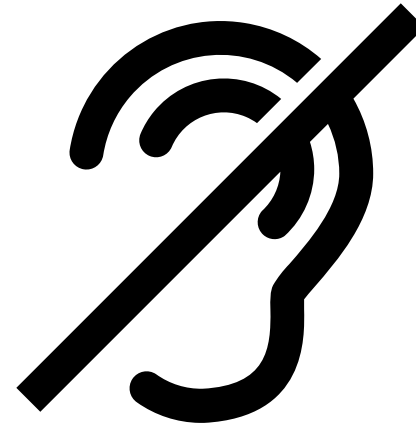
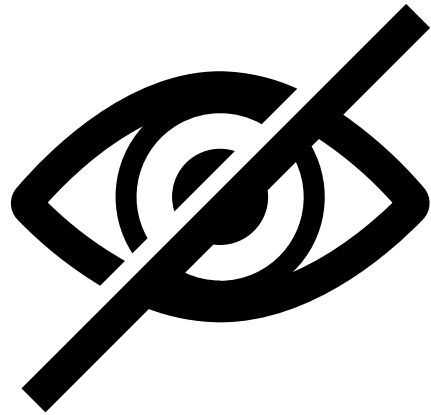


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Difficulties

- Learning Disability
 - Reading
 - Understanding / Cognition
 - Structure
- Autism / Autism Spectrum Disorder
 - Structure
 - Confirmation
- Dyslexia
 - Reading
- Mental Health
 - Structure (sometimes)
 - Confirmation

Oh yes...



- And the well known Accessibility too
 - Blindness/ Vision loss
 - Auditory disability
 - Motoric restrictions

The Power of Text-To-Speech in Mobile apps



No, No, No Narrator or Voice Over

Narrator / Voice Over

- Blind / Vision Loss



- How does it work?
- ➔ Reads sequentially whole screen

Text-To-Speech

- Learning Disability
- Dyslexia



- How does it work?
- ➔ Click a control and read aloud

The Basics of Blazor



What is Blazor?

- Microsoft's Brand New PWA/ Frontend language
- 2 Flavors:
 - Blazor Server Side (Hosted as .NET/ .NETCore Web App)
 - Blazor Web Assembly
- Affordable solution:
 - Azure Storage with Azure Static Web Apps

Getting started with Blazor

- VS 2019
- VS Code

Create a new Blazor app

.NET 5.0



Blazor Server App

A project template for creating a Blazor server app that runs server-side inside an ASP.NET Core app and handles user interactions over a SignalR connection. This template can be used for web apps with rich dynamic user interfaces (UIs).



Blazor WebAssembly App

A project template for creating a Blazor app that runs on WebAssembly. This template can be used for web apps with rich dynamic user interfaces (UIs).

Authen

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[Change](#)

Advanc

☒ Config

☐ Enable

(Requi

Linux

Author: M

Source: Te

[Get additional project templates](#)

Exploring the Razor Syntax

```
@page "/counter"
```

```
<h1>Counter</h1>
```

```
<p>Current count: @currentCount</p>
```

```
<button class="btn btn-primary" @onclick="IncrementCount">Click me</button>
```

```
@code {
```

```
    private int currentCount = 0;
```

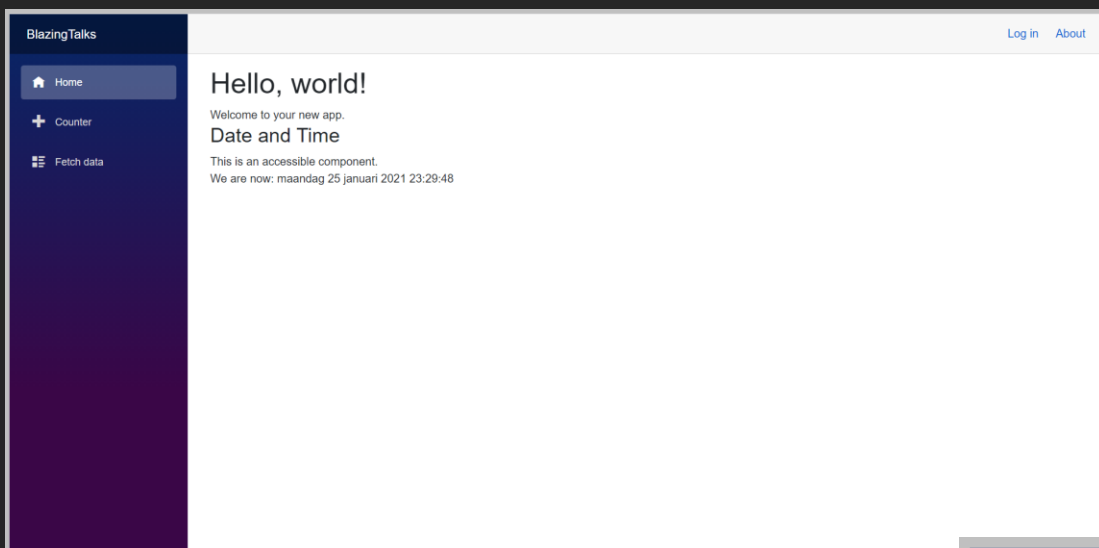
```
    private void IncrementCount()
```

```
{
```

```
        currentCount++;
```

```
}
```

Razor components



```
@page "/"
```

```
<h1>Hello, world!</h1>
```

```
Welcome to your new app.
```

```
<AccessibleComponent />
```

```
<h3>Date and Time</h3>
```

```
<p>
```

```
    This is an accessible component. <br />
```

```
    We are now: @DateTimeString
```

```
</p>
```

```
@code {
```

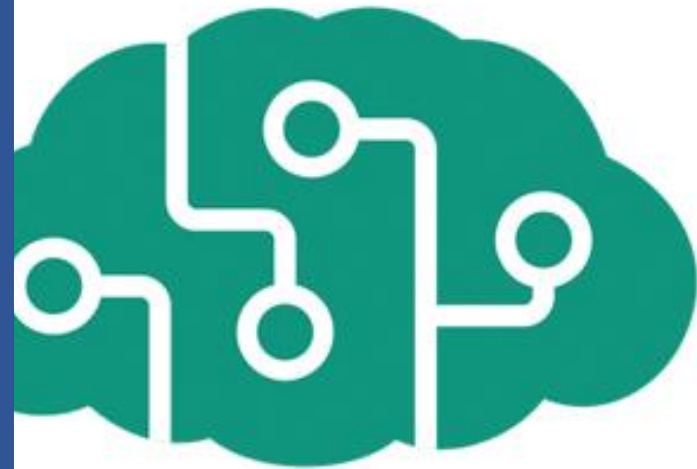
```
    string DateTimeString = DateTime.Today.ToLongDateString() + " " + DateTime.UtcNow.ToLongTimeString();
```

```
}
```


Demo: Introduction to Blazor

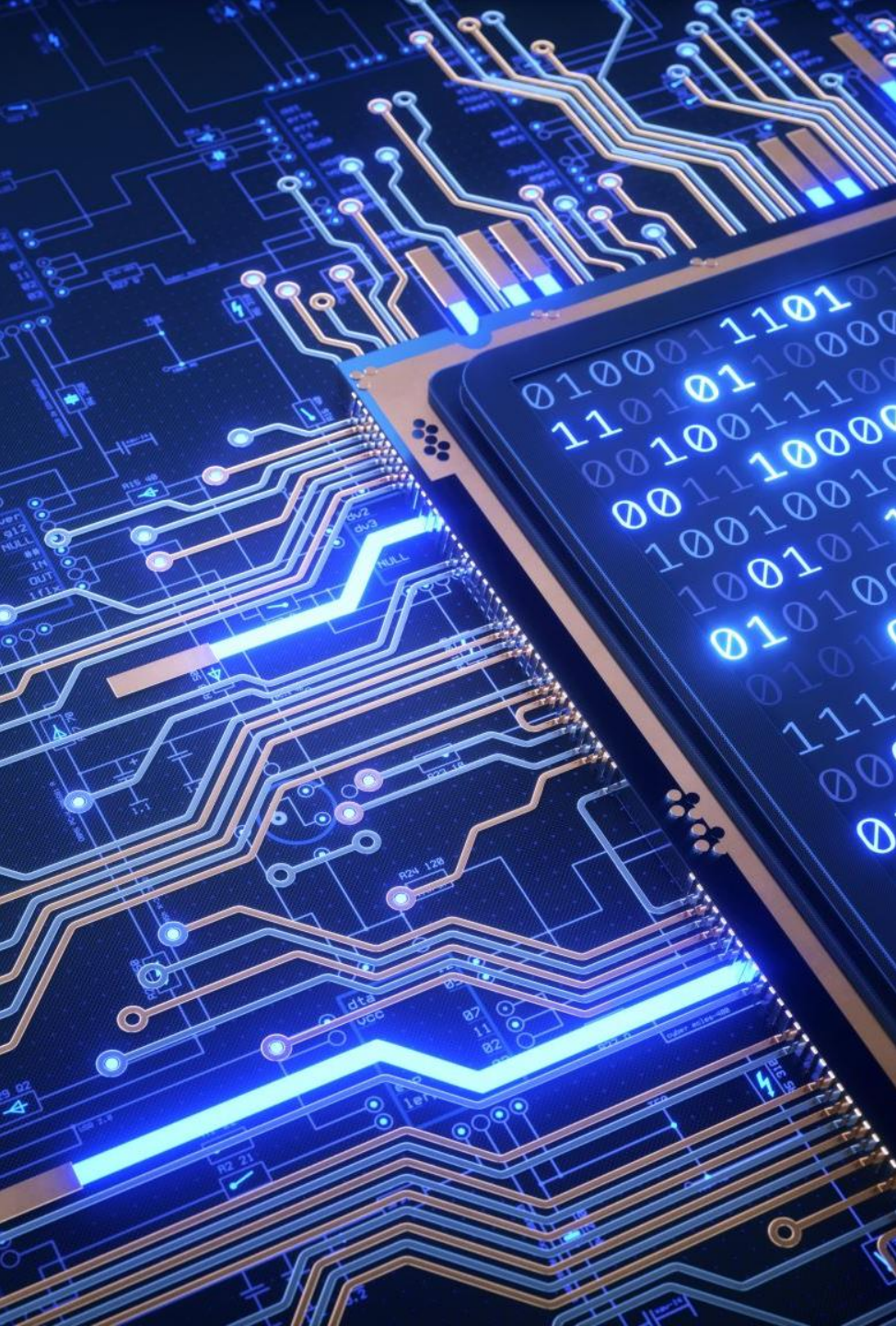
The bottom of the slide features a decorative graphic consisting of two overlapping blue rectangular blocks. The block on the left is a solid medium blue. The block on the right is a slightly darker blue and is positioned behind the first one, creating a layered effect. The bottom-right corner of the right block is cut off at a 45-degree angle.

The Basics of Cognitive Services



Microsoft

Cognitive Services



What is Microsoft Cognitive Services?

- Microsoft's AI platform
- Azure
- Pay as you go
- Developer focussed
- API Calls

SOME SERVICES:

AI + Machine Learning > Cognitive Services



Bing Autosuggest

Microsoft

Help users complete queries faster by adding intelligent type-ahead capabilities



Bing Custom Search

Microsoft

Create a custom search engine with ad-free results



Bing Entity Search

Microsoft

Recognize and classify named entities, and find search results based on them



Bing Search

Microsoft

Enable safe, ad-free search for your users with Bing, a leading search engine



Bing Spell Check

Microsoft

Help users identify and fix word breaks, slang, names, homonyms, and brands



Computer Vision

Microsoft

An AI service that analyzes content in images



Content Moderator

Microsoft

An AI service that detects unwanted content



Custom Vision

Microsoft

An AI service and end-to-end platform for applying computer vision to your specific scenario



Face

Microsoft

An AI service that analyzes faces in images



Speaker Recognition

Microsoft

An AI service that enables you to identify individual speakers or use speech as a means of verification



Speech

Microsoft

An AI service that enables you to embed human-like speech capabilities into your apps



QnA Maker

Microsoft

An AI service that enables you to create a bot from your data in minutes



Text Analytics

Microsoft

An AI service that enables you to unlock insights from natural language text using sentiment



Translator Text

Microsoft

An AI service that enables you to easily translate text between more than 60 languages



Personalizer

Microsoft

An AI service that delivers a personalized user experience



Language Understanding

Microsoft

Teach your apps to understand commands from your users



Ink Recognizer (Preview)

Microsoft

An AI service that recognizes digital ink content, such as handwriting, shapes, and document layout



Immersive Reader (preview)

Microsoft

An AI service that helps users read and comprehend text



Form Recognizer (preview)

Microsoft

The AI service that extracts information from documents



Anomaly Detector (preview)

Microsoft

An AI service that helps you foresee problems before they occur



Cognitive Services

Microsoft

Connect powerful AI to your apps



DEMO: Creating a Cognitive Service on Azure



Speech Service

- Text-to-speech
- Custom Voice



DEMO: Speech API

The bottom of the slide features two horizontal blue bars. The first bar is a solid medium blue rectangle. The second bar is a slightly lighter blue rectangle that starts to the right of the first bar's end, creating a staggered, layered effect.

Introducing The Future of Web Accessibility

[Home](#)[Optimism](#)[Passion](#)[Purpose](#)

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Warning



Demo

[Home](#)[Optimism](#)[Passion](#)[Purpose](#)

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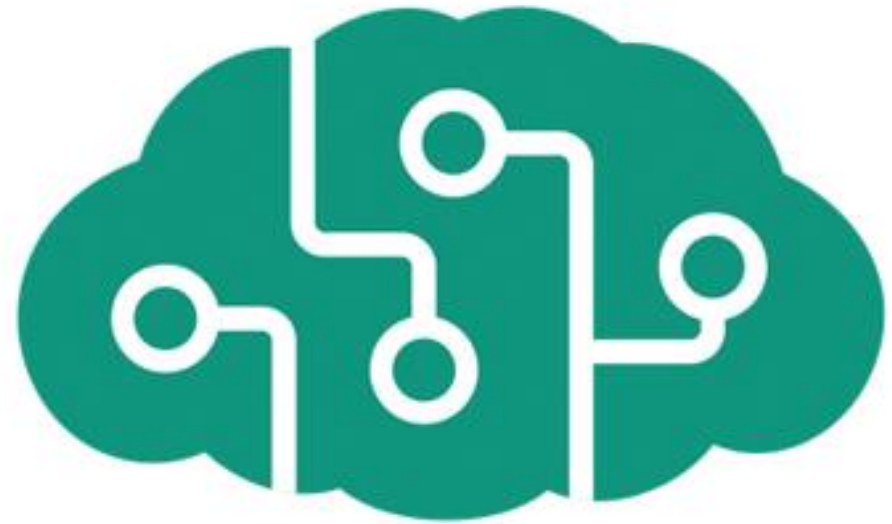
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Step-By-Step Guide to Implement

Microsoft Cognitive Speech



 Microsoft
Cognitive Services

Creating a Speech Service

[Home](#) > [New](#) > [Marketplace](#) >

Speech



Microsoft



Speech

 [Save for later](#)

Microsoft

Create

Overview

[Plans](#)

[Usage Information + Support](#)

Transcribe audible speech into readable, searchable text. Add real-time speech to your apps and services using the programming languages you already know.

NuGet Package

Microsoft.CognitiveServices.Speech

Browse

Installed

Updates

Search (Ctrl+L)



Include prerelease



Microsoft.CognitiveServices.Speech by Microsoft

Microsoft Cognitive Services Speech SDK

Microsoft.CognitiveServices.Speech
Microsoft Cognitive Services Speech SDK

Keys.cs

Public Static Class with connection keys to Microsoft Cognitive Services

0 references

```
public static class KEYSDEMO
{
    public static string Key1 = "";
    public static string Region = "northeurope";
}
```

CSSpeechService.cs

- Code To call speech API

```
public async Task SynthesisToSpeakerAsync(string text)
{
    // Creates an instance of a speech config with specified subscription key and service region.
    // Replace with your own subscription key and service region (e.g., "westus").
    var config = Microsoft.CognitiveServices.Speech.SpeechConfig.FromSubscription(KEYS.Key1, KEYS.Region);

    // Creates a speech synthesizer using the default speaker as audio output.
    using (var synthesizer = new SpeechSynthesizer(config))
    {
        using (var result = await synthesizer.SpeakTextAsync(text))
        {
            if (result.Reason == ResultReason.SynthesizingAudioCompleted)
            {
                // ... (code to play audio) ...
            }
        }
    }
}
```


JavaScript in Host.cshtml

- Select HTML element:
 - Heading
 - Paragraph
 - ...

```
<script>  
    window.getElementText = (element, text)  
    {  
        text = element.innerText;  
        return text;  
    }  
</script>
```

PageCode



`@inject`
`IJSRuntime`

`+ next`
`Slides`

Adding References to Elements

- Elements:
 - Headings
 - Paragraphs
 - ..
- Add: @Ref="RefName" <EL @ref="RefName">Content</EL>
- In @Code block:
 - Private ElementReferene RefName

```
<h1 @ref="PageHead">Passion</h1>
```

```
private ElementReference PageHead;
```

ReadAloud method

```
private async Task<bool> ReadAloud(ElementReference el  
    infoFromJs = await JSRuntime.InvokeAsync<string>(      
        "getElementText", elementRef);      
    await speech.SynthesisToSpeakerAsync(infoFromJs);      
    return true;
```

EventHandlers

```
private async Task<bool> ReadHead()  
{  
    await ReadAloud(PageHead);  
    return true;  
}
```

Walking over the Demo Solution (again)



Be aware of Basic HTML Accessibility

- Alt
- Usage of Headings
- Color contrast
- Aria
- Aria-hidden

Wrap up

The bottom of the slide features two horizontal blue bars. The first bar is a solid medium blue and spans the width of the slide. The second bar is a slightly lighter shade of blue, positioned to the right of the first bar, creating a layered or 3D effect.



Thanks || Q&A

-
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 - @DennieDeclercq
 - #DreamingIsBelieving