

Azure Cognitive Services Crash Course

Reza Salehi

Pluralsight Author & MCT (Microsoft Certified Trainer Since 2008)

www.linkedin.com/in/rezasalehi2008



Azure Cognitive Services Crash Course

Reza Salehi

*Pluralsight Author & MCT (Microsoft Certified Trainer Since 2008)
www.linkedin.com/in/rezasalehi2008*



You are working on a software ...

```
17 string sInput;
18 int iLength, iN;
19 double dblTemp;
20 bool again = true;
21
22 while (again) {
23     iN = -1;
24     again = false;
25     getline(cin, sInput);
26     system("cls");
27     stringstream(sInput) >> dblTemp;
28     iLength = sInput.length();
29     if (iLength < 4) {
30         again = true;
31         continue;
32     } else if (sInput[iLength - 3] != '.') {
33         again = true;
34         continue;
35     } while (++iN < iLength) {
36         if (isdigit(sInput[iN])) {
37             continue;
38         } else if (iN == (iLength - 3)) {
39             continue;
40         }
41     }
42 }
```

**To understand and react to
inputs like a human!**

To understand and react to inputs like a human!



To understand and react to inputs like a human!



To understand and react to inputs like a human!



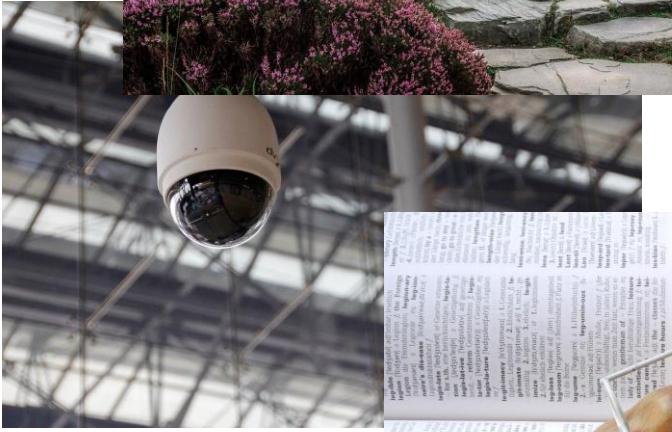
To understand inputs like a human



A close-up photograph of a person's hand holding a glowing LED light stick. The light stick is illuminated with a bright blue light at its tip, casting a glow on the surrounding area. The hand is positioned as if presenting or showing off the device.



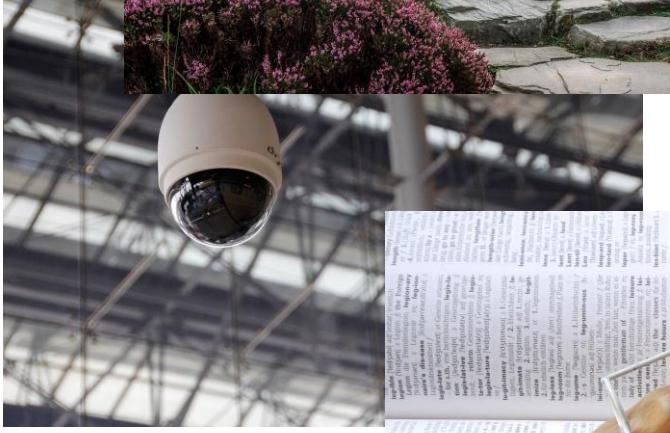
To in



bioRxiv preprint doi: <https://doi.org/10.1101/2021.05.10.443800>; this version posted May 10, 2021. The copyright holder for this preprint (which was not certified by peer review) is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. It is made available under a [CC-BY-ND 4.0 International license](https://creativecommons.org/licenses/by-nd/4.0/).



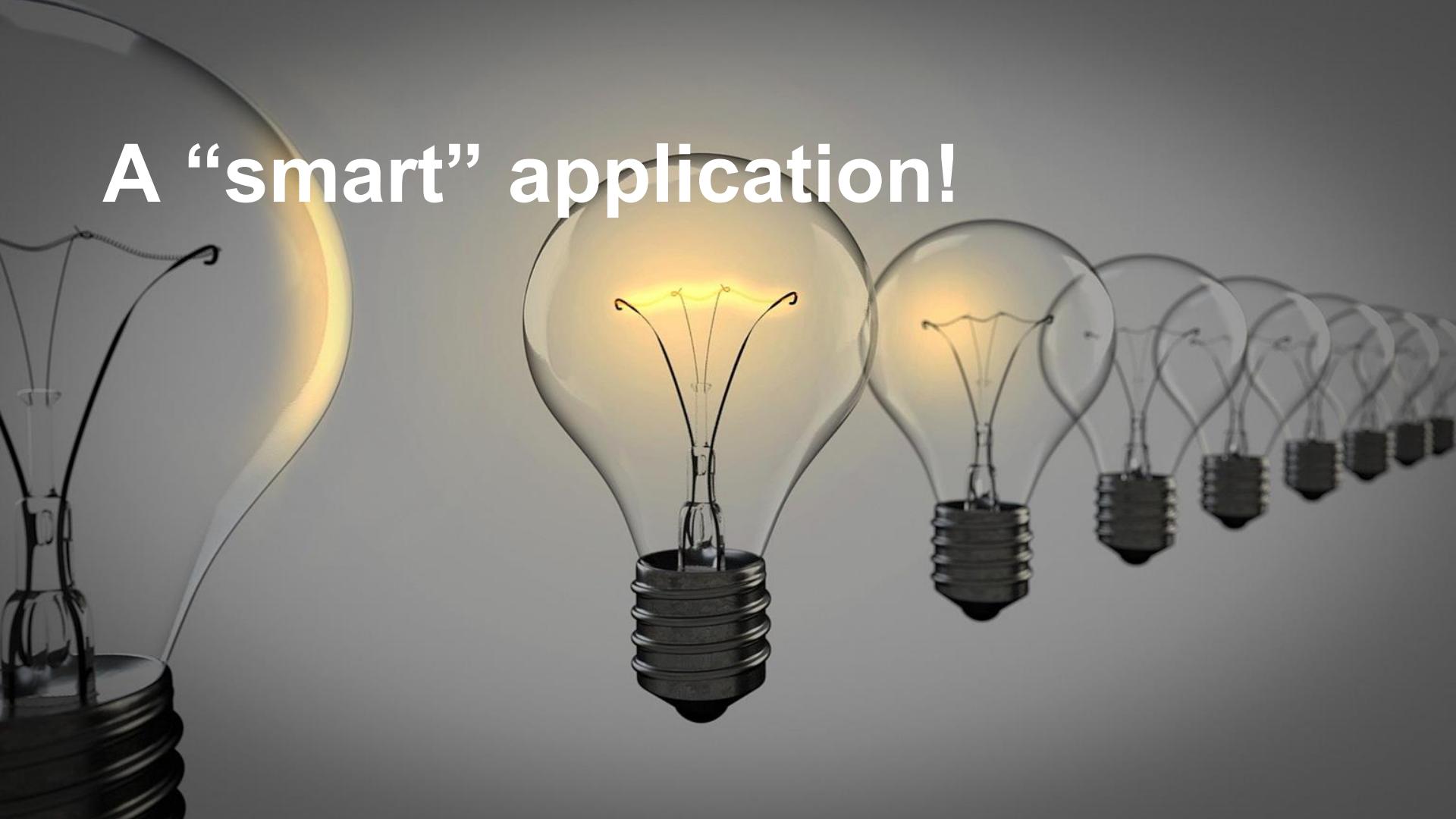
To in



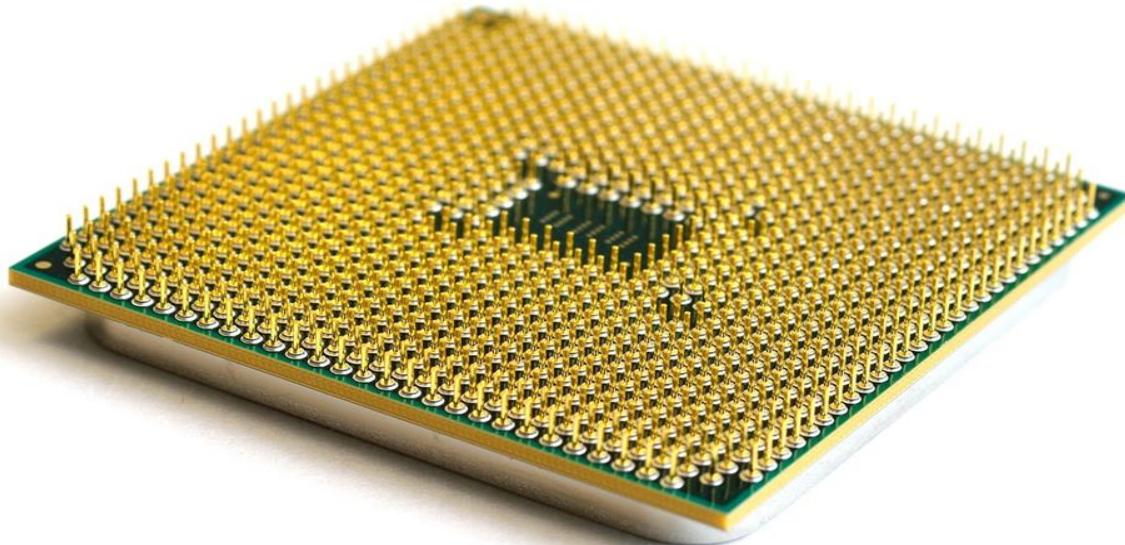
bioRxiv preprint doi: <https://doi.org/10.1101/2023.07.17.547277>; this version posted July 17, 2023. The copyright holder for this preprint (which was not certified by peer review) is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. It is made available under a [CC-BY-NC-ND 4.0 International license](#).



A “smart” application!

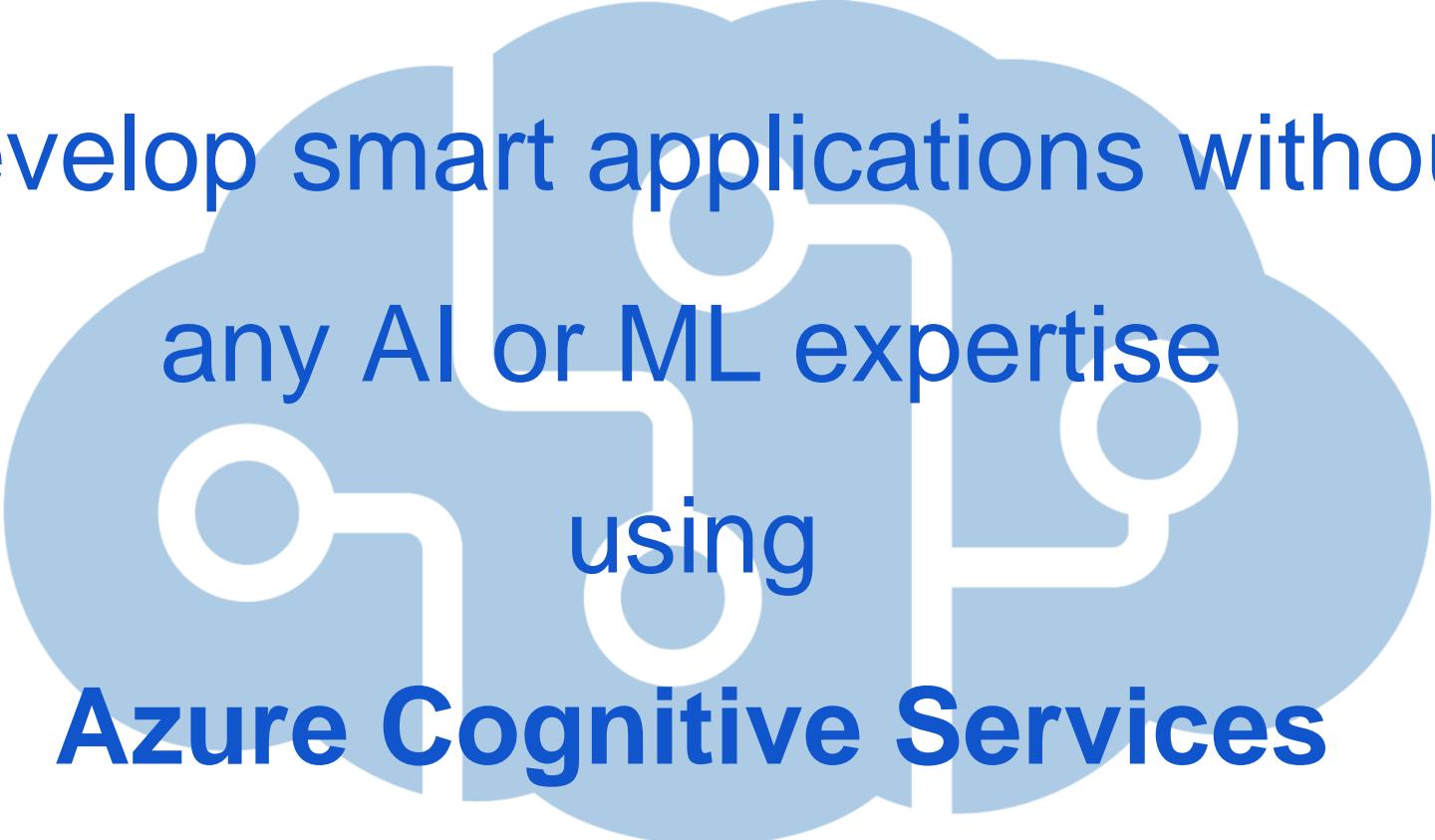


Machine Learning is your solution!



You have NO
ML expertise!





Develop smart applications without
any AI or ML expertise
using
Azure Cognitive Services

Azure Cognitive Services



Decision

Build apps that surface recommendations for informed and efficient decision-making.



Vision

Recognize, identify, caption, index, and moderate your pictures, videos, and digital ink content.



Speech

Convert speech into text and text into natural-sounding speech.
Translate from one language to another and enable speaker verification and recognition.



Search

Add Bing Search APIs to your apps and harness the ability to comb billions of webpages, images, videos, and news with a single API call.

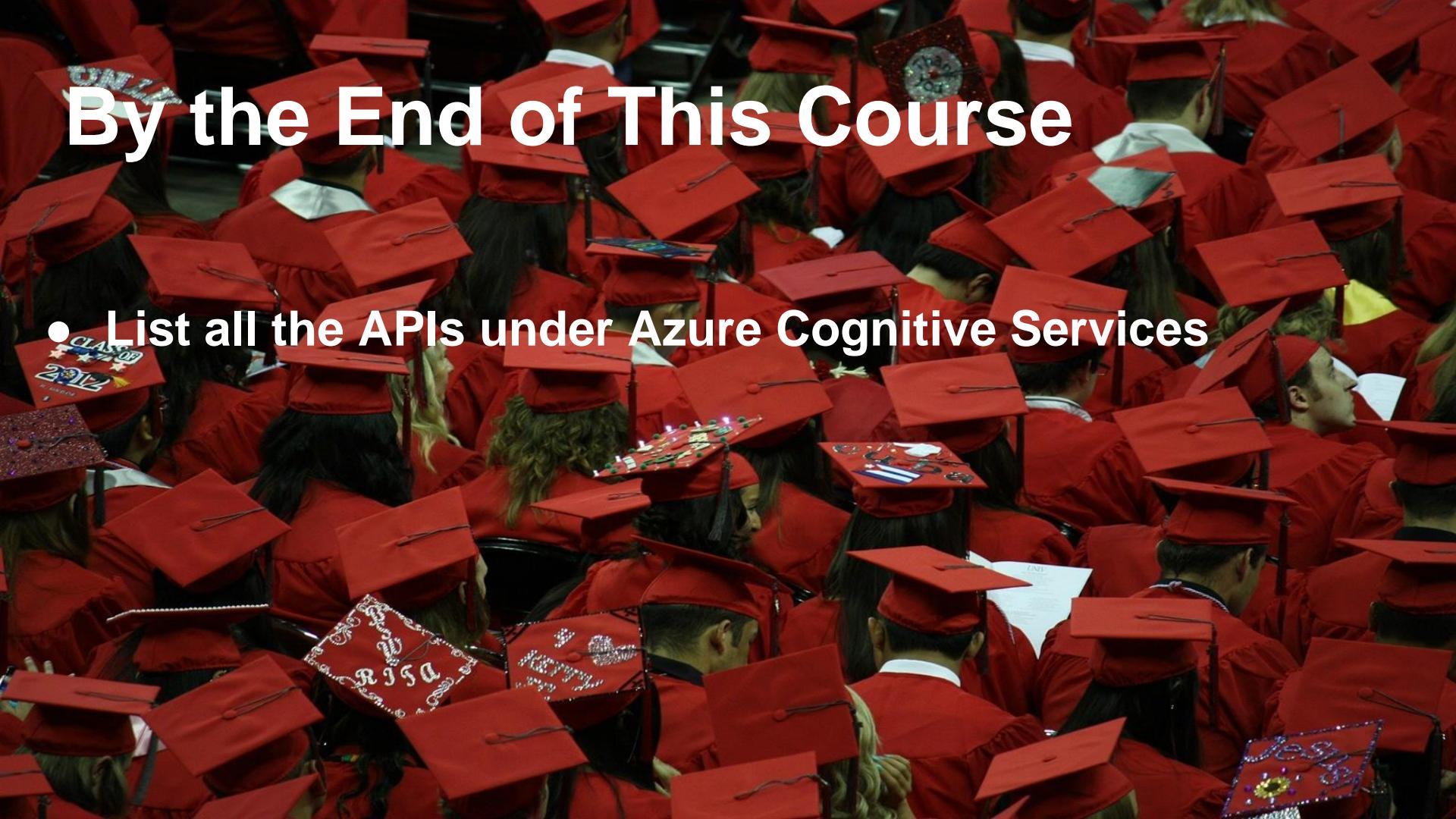


Language

Allow your apps to process natural language with pre-built scripts, evaluate sentiment and learn how to recognize what users want.

A dense crowd of graduates wearing red caps and gowns. Many caps have decorative tassels and some have personal items attached. The scene is filled with rows of people, suggesting a graduation ceremony.

By the End of This Course



By the End of This Course

- List all the APIs under Azure Cognitive Services

By the End of This Course

- List all the APIs under Azure Cognitive Services
- Can Azure Cognitive Services help my project?

By the End of This Course

- List all the APIs under Azure Cognitive Services
- Can Azure Cognitive Services help my project?
- You understand the use case for each API

By the End of This Course

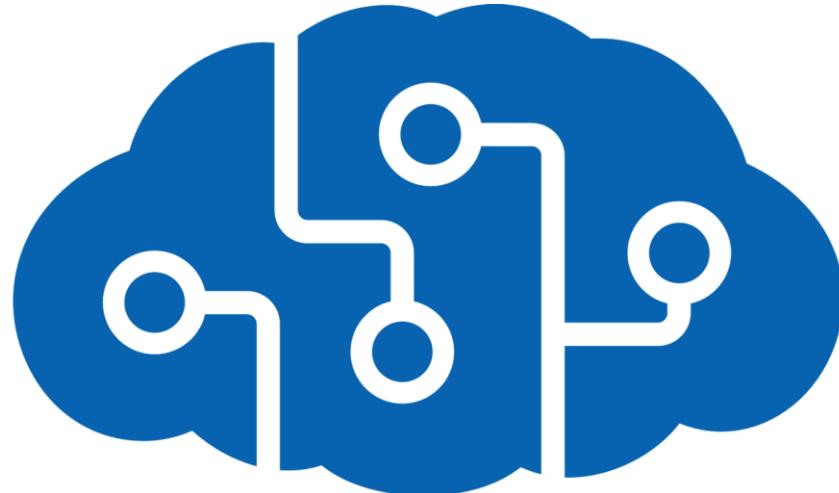
- List all the APIs under Azure Cognitive Services
- Can Azure Cognitive Services help my project?
- You understand the use case for each API
- You will gain hands-on experience with real-life demos



Let's Get Started!

Course Overview

What are Azure Cognitive Services?



What are Azure Cognitive Services?

- Services available to help developers build intelligent applications.
- Without having direct ML, AI or data science skills or knowledge.
- Easily provisioned and consumed.

Find the Cats



Machine Learning Process

1. Collect training datasets; 1000+ cat and not-cat photos
2. Cleanup the collected training data
3. Choose the right ML model for your use case
4. Train the model and verify the result
5. Deploy the ready-to-use model
6. Start using the model in your application



Azure Cognitive Services Process

1. Provision an Azure Computer Vision service
2. Start using the service in your application
 - a. Microsoft has trained the models for you
 - b. These models can be customized if needed

Azure Cognitive Services



Decision

Build apps that surface recommendations for informed and efficient decision-making.



Vision

Recognize, identify, caption, index, and moderate your pictures, videos, and digital ink content.



Speech

Convert speech into text and text into natural-sounding speech.
Translate from one language to another and enable speaker verification and recognition.



Search

Add Bing Search APIs to your apps and harness the ability to comb billions of webpages, images, videos, and news with a single API call.



Language

Allow your apps to process natural language with pre-built scripts, evaluate sentiment and learn how to recognize what users want.

azure.microsoft.com/en-ca/services/cognitive-services/?ef_id=Cj0KCQjwka_1BRCPARIsAMIUUmEoDbZVsmVI-4wZm_c_u_lg7gmZEWNQr9e995Z4OzCajFgXZHUrzRl8aAoU5EAlw_wcB:G:s&OCID=AID2000061_SEM_Cj0KCQjwka_1BRCPARIsAMIUUmEoDbZ...

Overview Features APIs Customer stories Documentation FAQs [Free account >](#)

specific AI capabilities on the market. vision, speech and language.

Azure Cognitive Services

Decision

Make smarter decisions faster

Language

[Anomaly detector](#) PREVIEW

Identify potential problems early on.

Speech

[Content moderator](#)

Vision

Detect potentially offensive or unwanted content.

Web search

[Personaliser](#)

Create rich, personalised experiences for every user.

See how customers are applying Cognitive Services

Chat with sales

Azure Cognitive Services

- Computer Vision
- Face
- Custom Vision
- Video Indexer
- Form Recognizer (p)
- Ink Recognizer (p)
- Content Moderator
- Anomaly Detector (p)
- Personalizer
- Speech Services
- Speaker Recognition (p)
- Text Analytics
- Translator Text
- QnA Maker - Knowledge
- Language Understanding (LUIS)
- Immersive Reader (p)
- Bing Web Search
- Bing Visual Search
- Bing Entity Search
- Bing Image Search
- Bing Video Search
- Bing News Search
- Bing Autosuggest
- Bing Spell Check
- Bing Custom Search

By the End of This Course

By the End of This Course:

- You will know if Azure Cognitive Services can solve your AI task; and
- You can choose the best Cognitive Service for your project
- Using hands-on, real-life demos.

Azure Cognitive Services

- Computer Vision
- Face
- Custom Vision
- Video Indexer
- Form Recognizer (p)
- Ink Recognizer (p)
- Content Moderator
- Anomaly Detector (p)
- Personalizer
- Speech Services
- Speaker Recognition (p)
- Text Analytics
- Translator Text
- QnA Maker - Knowledge
- Language Understanding (LUIS)
- Immersive Reader (p)
- Bing Web Search
- Bing Visual Search
- Bing Entity Search
- Bing Image Search
- Bing Video Search
- Bing News Search
- Bing Autosuggest
- Bing Spell Check
- Bing Custom Search

Azure Cognitive Services

- Computer Vision
- Face
- Custom Vision
- Video Indexer
- Form Recognizer (p)
- Ink Recognizer (p)
- Content Moderator
- Anomaly Detector (p)
- Personalizer
- Speech Services
- Speaker Recognition (p)
- Text Analytics
- Translator Text
- QnA Maker - Knowledge
- Language Understanding (LUIS)
- Immersive Reader (p)
- Bing Web Search
- Bing Visual Search
- Bing Entity Search
- Bing Image Search
- Bing Video Search
- Bing News Search
- Bing Autosuggest
- Bing Spell Check
- Bing Custom Search

Marketplace - Microsoft Azure

portal.azure.com/#blade/Microsoft_Azure_Marketplace/MarketplaceOffersBlade/selectedMenuItemId/CognitiveServices_MP/dontDiscardJourney/true/launchingContext/%7B"source"%3A"Resources%20Microsoft.CognitiveService

Microsoft Azure

Search resources, services, and docs (G+/)

Create a resource

Home

Dashboard

All services

FAVORITES

Resource groups

Storage accounts

Application gateways

Web Application Firewall...

Azure Sentinel

Key vaults

Function App

Network security groups

SQL databases

Virtual machines

Cognitive Services

Azure Active Directory

All services > Cognitive Services > Marketplace

Marketplace

My Saved List

Recently created

Service Providers

Categories

Get Started

AI + Machine Learning

Analytics

Blockchain

Compute

Containers

Databases

Developer Tools

DevOps

Search the Marketplace

Pricing : All

Operating System : All

Publisher

Bot Service

 **Web App Bot**
Microsoft
An Azure Bot Service Bot deployed to an Azure App Service Web App.

 **Bot Channels Registration**
Microsoft
Your own Bot hosted where you want, registered with the Azure Bot Service.

Cognitive Services

 **Bing Autosuggest**

 **Bing Custom Search**

 **Bing Entity Search**

 **Bing Search**

Cognitive Services

Microsoft



Cognitive Services

[Save for later](#)

Microsoft

[Create](#)

Cognitive Services is a product bundle that enables customers to access multiple services with a single API key.

Product features:

Access to Vision, Language, Search, and Speech services using a single API

Quickly connect services together to achieve more insights into your content

Easily integrate with other services like Azure Search

Legal Notice

Microsoft will use data you send to Bing Search Services to improve Microsoft products and services. Where you send personal data to this service, you are responsible for obtaining sufficient consent from the data subjects. The Data Protection Terms in the Online Services Terms do not apply to Bing Search Services.

Please refer to the [Online Services Terms](#) for details. Microsoft offers [policy controls](#) that may be used to disable new deployments.

[Create a resource](#)[Home](#)[Dashboard](#)[All services](#)[FAVORITES](#)[App Services](#)[Storage accounts](#)[Azure Cosmos DB](#)[Resource groups](#)[Cognitive Services](#)[Security Center](#)[Key vaults](#)[Cost Management + Billing](#)[Managed databases](#)[SQL databases](#)[Virtual networks](#)[Azure Database Migration ...](#)[Virtual machines](#)[Recovery Services vaults](#)

Azure Cognitive Services

Vision



Cognitive Services Vision APIs

Cognitive Services Vision APIs

Makes it possible to identify and analyze content within images and videos.

Cognitive Services Vision APIs

1. Computer Vision
2. Face
3. Custom Vision
4. Video Indexer
5. Form Recognizer (preview)
6. Ink Recognizer (preview)

Vision: Computer Vision

Vision: Computer Vision



Vision: Computer Vision



Even though I'm writing notes
at an angle, I can still get
the correct words recognized.

Vision: Computer Vision



Even though I'm making notes
at an angle, I can still get
the correct words recognized.



Vision: Computer Vision



Even though I'm making notes
at an angle, I can still get
the correct words recognized.

Vision: Computer Vision

1. Image classification & identification

Vision: Computer Vision

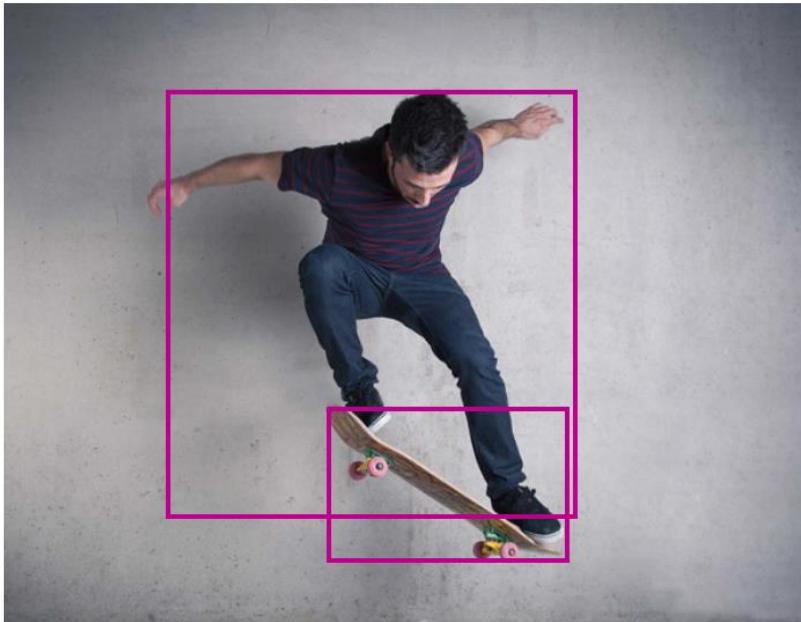
1. Image classification & identification
 - a. Scene and activity recognition



FEATURE NAME:	VALUE
Objects	[]
Tags	[{"name": "sunset", "confidence": 0.99986833}, {"name": "sky", "confidence": 0.999828}, {"name": "outdoor", "confidence": 0.99377954}, {"name": "cloud", "confidence": 0.9606838}, {"name": "orange", "confidence": 0.9401598}, {"name": "sun", "confidence": 0.839982}, {"name": "setting", "confidence": 0.763793468}, {"name": "yellow", "confidence": 0.629006863}, {"name": "beach", "confidence": 0.600885332}, {"name": "backlighting", "confidence": 0.5996277}, {"name": "afterglow", "confidence": 0.5374739}, {"name": "sunrise", "confidence": 0.5149861}, {"name": "clouds", "confidence": 0.210447937}]
Description	{"tags": ["sunset", "outdoor", "orange", "water", "sun", "beach"]}

Vision: Computer Vision

1. Image classification & identification
 - a. Scene and activity recognition



FEATURE NAME:	VALUE
Objects	[{ "rectangle": { "x": 238, "y": 299, "w": 177, "h": 117 }, "object": "Skateboard", "confidence": 0.903 }, { "rectangle": { "x": 118, "y": 63, "w": 305, "h": 321 }, "object": "person", "confidence": 0.955 }]
Tags	[{ "name": "skating", "confidence": 0.999951541 }, { "name": "snowboarding", "confidence": 0.990067363 }, { "name": "sports equipment", "confidence": 0.9774853 }, { "name": "person", "confidence": 0.9605776 }, { "name": "roller skating", "confidence": 0.945730746 }, { "name": "boardsport", "confidence": 0.9242261 }, { "name": "man", "confidence": 0.9188208 }, { "name": "outdoor", "confidence": 0.9107821 }, { "name": "riding", "confidence": 0.900007248 }, { "name": "skiing", "confidence": 0.894337356 }, { "name": "footwear", "confidence": 0.8788208 }, { "name": "sport", "confidence": 0.86974 }, { "name": "skateboarder", "confidence": 0.86974 }]

Vision: Computer Vision

1. Image classification & identification
 - a. Scene and activity recognition
 - b. Celebrity and landmark recognition



```
{  
  "categories": [  
    {  
      "name": "people_",
      "score": 0.86328125,
      "detail": {
        "celebrities": [
          {
            "name": "Satya Nadella",
            "faceRectangle": {
              "left": 240,
              "top": 294,
              "width": 135,
              "height": 135
            },
            "confidence": 0.99984323978424072
          }
        ],
        "landmarks": null
      }
    },
    "adult": null,
    "tags": [
      {
        "name": "person",
        "confidence": 0.99956607818603516
      }
    ]
  ]
}
```

Vision: Computer Vision

1. Image classification & identification
 - a. Scene and activity recognition
 - b. Celebrity and landmark recognition



FEATURE	VALUE
NAME:	
Objects	[{ "rectangle": { "x": 78, "y": 268, "w": 44, "h": 62 }, "object": "building", "confidence": 0.653 }, { "rectangle": { "x": 384, "y": 51, "w": 66, "h": 312 }, "object": "building", "confidence": 0.737 }, { "rectangle": { "x": 39, "y": 315, "w": 107, "h": 128 }, "object": "building", "confidence": 0.543 }, { "rectangle": { "x": 246, "y": 263, "w": 61, "h": 198 }, "object": "building", "confidence": 0.694 }, { "rectangle": { "x": 473, "y": 297, "w": 127, "h": 165 }, "object": "building", "confidence": 0.847 }]
Tags	[{ "name": "sky", "confidence": 0.9986011 }, { "name": "outdoor", "confidence": 0.9967468 }, { "name": "tower", "confidence": 0.979019642 }, { "name": "building", "confidence": 0.9587357 }, { "name": "city", "confidence": 0.9352679 }, { "name": "cloud", "confidence": 0.8818442 }, { "name": "black and white", "confidence": 0.8818442 }]

Vision: Computer Vision

1. Image classification & identification
 - a. Scene and activity recognition
 - b. Celebrity and landmark recognition
 2. Optical character recognition (OCR)
- a. Printed
 - b. Handwritten

Preview	JSON
Sorry!	["Sorry!"]
Have a nice day!	["Have a nice day!"]
Oops!	["Oops!"]
nice day !	["nice day !"]
See you soon !	["See you soon !"]
Bye !	["Bye !"]

Vision: Computer Vision

1. Image classification & identification
 - a. Scene and activity recognition
 - b. Celebrity and landmark recognition
2. Optical character recognition (OCR)
 - a. Printed
 - b. Handwritten
3. Generate smart thumbnails



Vision: Computer Vision



Vision: Computer Vision



Vision: Computer Vision

1. Image classification & identification

- a. Scene and activity recognition**
- b. Celebrity and landmark recognition**

2. Optical character recognition (OCR)

- a. Printed**
- b. Handwritten**

3. Generate smart thumbnails

Vision: Face

Vision: Face



Vision: Face

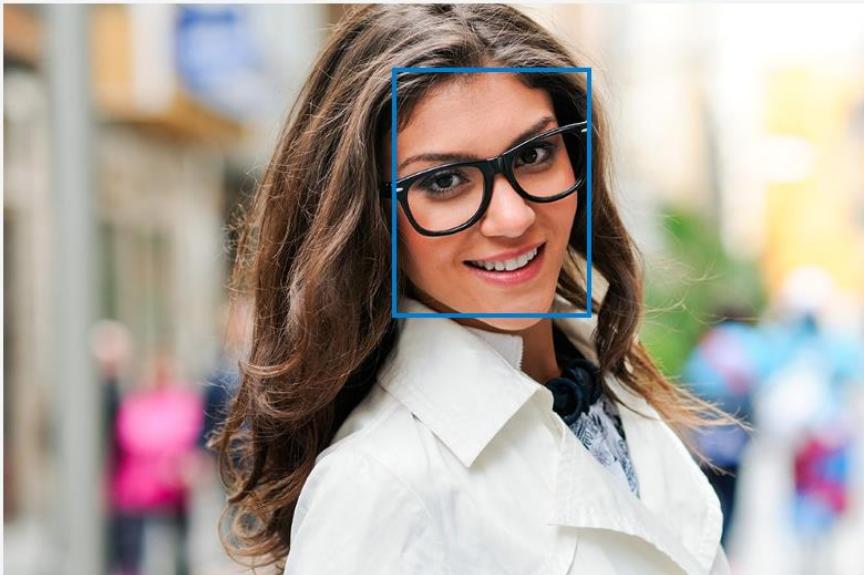


Vision: Face

1. Face detection
2. Face verification
3. Face identification
4. Face grouping
5. Similar face search

Vision: Face: Face Detection

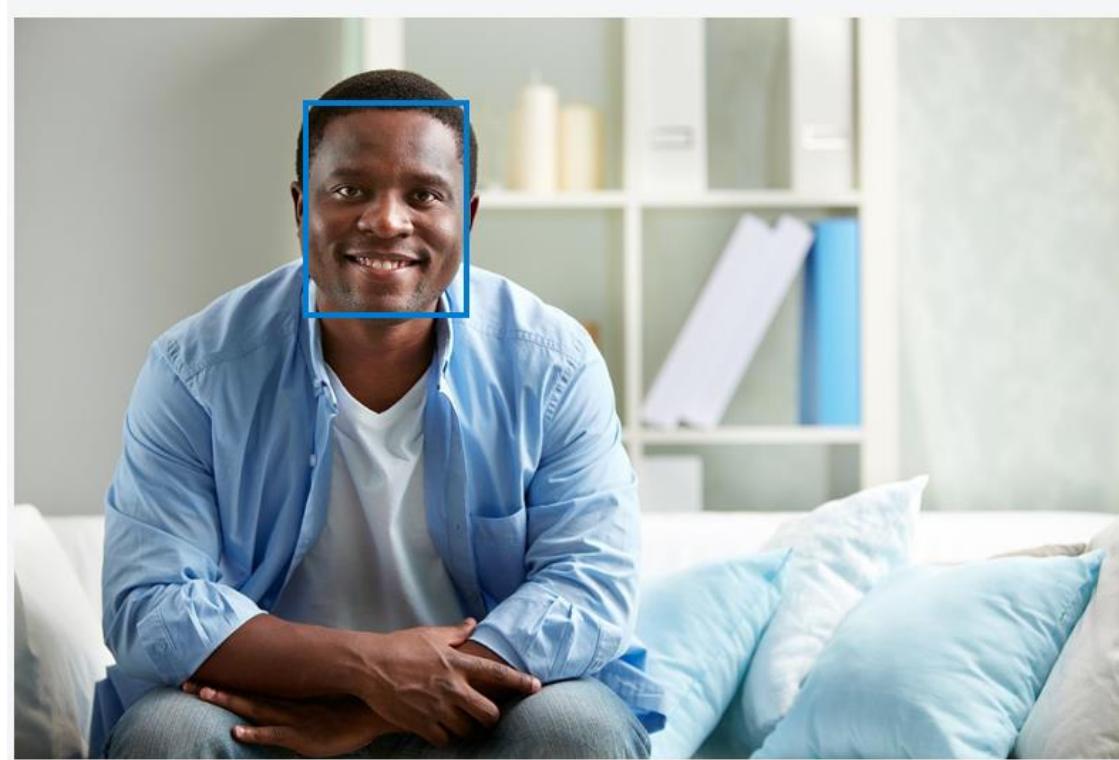
Detect one or more human faces.



```
Detection result:  
detection_02  
JSON:  
[  
 {  
   "faceId": "5dcafba1-edb7-41a2-8168-ae073d05b6ce",  
   "faceRectangle": {  
     "top": 76,  
     "left": 446,  
     "width": 226,  
     "height": 284  
   },  
   "faceAttributes": null,  
   "faceLandmarks": null  
 }]
```

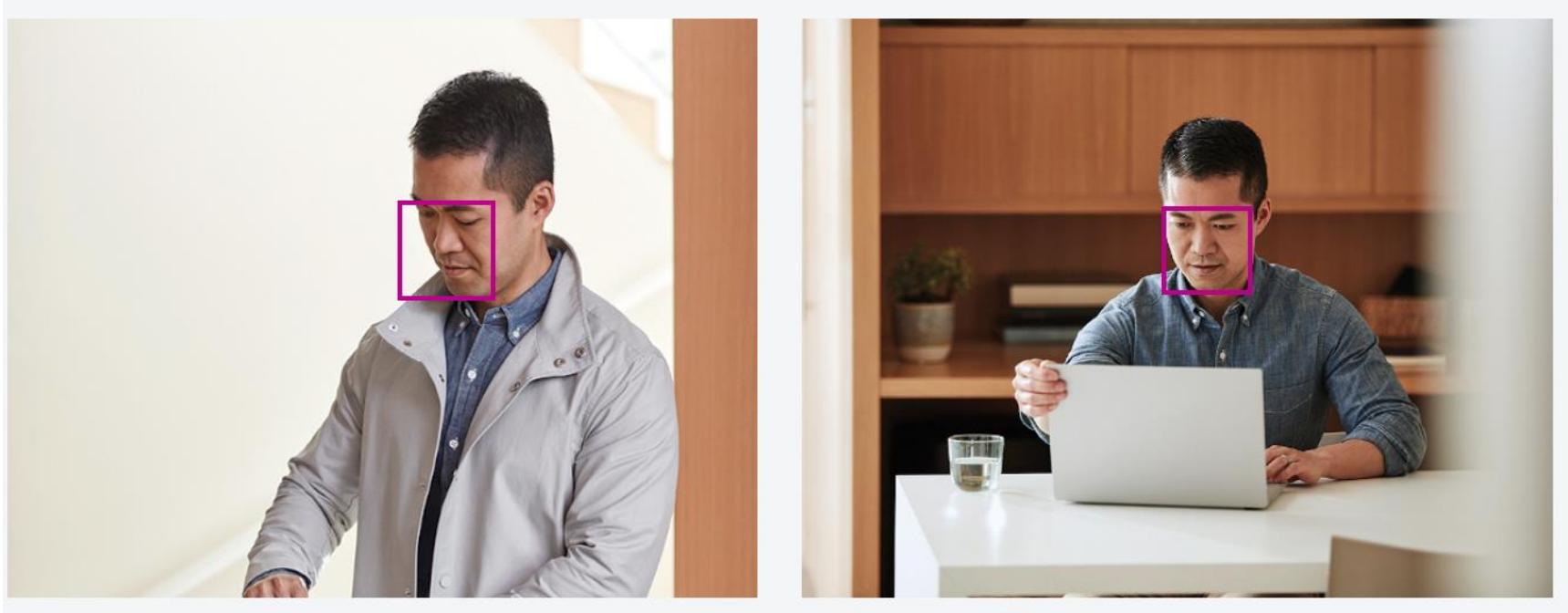
Vision: Face: Face Detection

1. Age
2. Emotion
3. Gender
4. Pose
5. Smile
6. Facial hair
7. Landmarks



Vision: Face: Verification

Likelihood that two faces belong to the same person.



Vision: Face: Id, Search and Grouping

Face identification

Face API enables you to search, identify, and match faces in your private repository of up to 1 million people.



Similar face search

Easily find similar-looking faces. Given a collection of faces and a new face as a query, this API will return a collection of similar faces.



Face grouping

Organize many unidentified faces together into groups, based on their visual similarity.



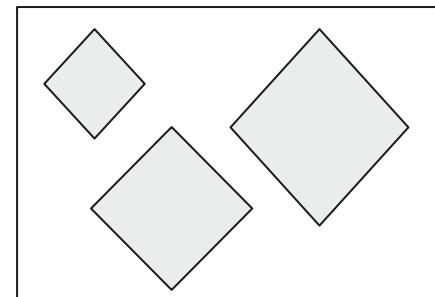
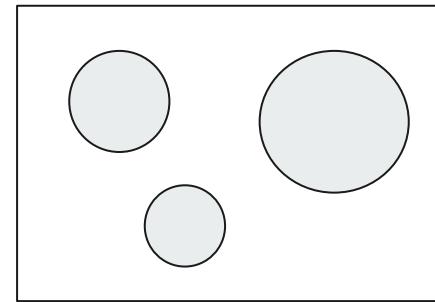
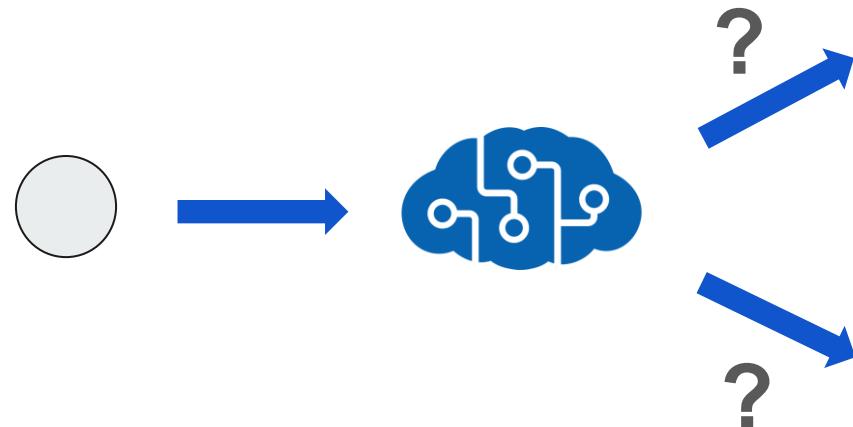
Vision: Custom Vision

Vision: Custom Vision

Easily create a customized model to classify images for your unique use case.

Vision: Custom Vision

Easily create a customized model to classify images for your unique use case.



Vision: Custom Vision

Easily create a customized model to classify images for your unique use case.



Vision: Custom Vision

Easily create a customized model to classify images for your unique use case.



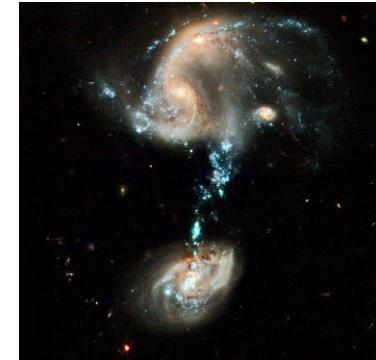
Sugar Maple



Japanese Maple

Vision: Custom Vision

Easily create a customized model to classify images for your unique use case.



Vision: Custom Vision

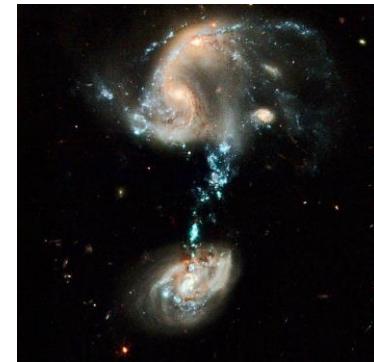
Easily create a customized model to classify images for your unique use case.



Elliptical Galaxies



Spiral Galaxies



Irregular Galaxies

Vision: Custom Vision

Provisioning steps:

1. Upload Images
2. Train
3. Test
4. Deploy
5. Active learning

Vision: Video Indexer

Vision: Video Indexer

1. Automatically extracts metadata from video and audio
2. Metadata
 - a. Spoken words,
 - b. Written text,
 - c. Faces, speakers, celebrities, emotions,
 - d. Topics, brands, and scenes

Vision: Video Indexer

1. Improve video searchability
2. Extract fresh content from the video
3. Pass the extracted text/content to other Azure Cognitive Services (Language, etc.)

Vision: Form Recognizer (Preview)

Extracts text, key/value pairs, and tables from documents

The screenshot displays the Microsoft Azure Form Recognizer interface. On the left, a sample document titled "Contoso" is shown, featuring an invoice for Project 2. The document includes header information like "Bill To: Contoso, Ltd", contact details ("Phone: 432-555-0189", "Fax: 432-555-0123", "Email: contoso@example.com"), and invoice details ("Invoice #: 3-456-2", "Invoice Date: 4/14/2019"). Below this is a table of items with columns for Item #, Description, Qty, Unit Price, Discount, and Price. On the right, the results are presented in two tabs: "Preview" (selected) and "JSON". The "Preview" tab shows a list of key-value pairs corresponding to the document's content. The "JSON" tab shows the data in a structured JSON format.

Key-value pairs

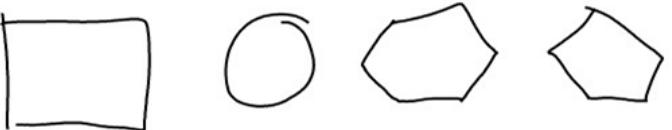
Bill To: Contoso, Ltd
Phone: 432-555-0189
Invoice #: 3-456-2
Fax: 432-555-0123
Invoice Date: 4/14/2019
Email: contoso@example.com
Invoice For: Project 2
Item # Description Qty Unit Price Discount Price
24567 Invoice 3-456-2 Data 1 39 \$ 5.00 \$ - \$ 195.00
24568 Invoice 3-456-2 Data 2 40 4.00 5.00 155.00
24569 Invoice 3-456-2 Data 3 30 6.00 7.00 173.00
24570 Invoice 3-456-2 Data 4 40 7.00 - 280.00
24571 Invoice 3-456-2 Data 5 10 4.00 - 40.00
24572 Invoice 3-456-2 Data 6 5 8.00 - 40.00
24573 Invoice 3-456-2 Data 7 70 6.00 - 420.00
24574 Invoice 3-456-2 Data 8 25 4.00 - 100.00
24575 Invoice 3-456-2 Data 9 5 7.00 3.00 \$2.00
Invoice Subtotal: 2,014.00
Tax Rate: 8.75%

Vision: Ink Recognizer (Preview)

Extracts handwriting and common shapes in documents

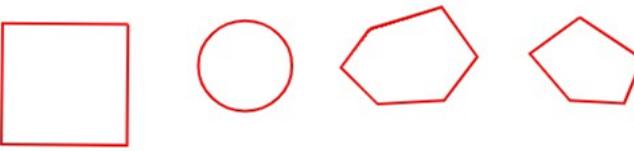
Ink Recognizer Cognitive Service supports

- Written text
- Simple shapes
- Mixed contents

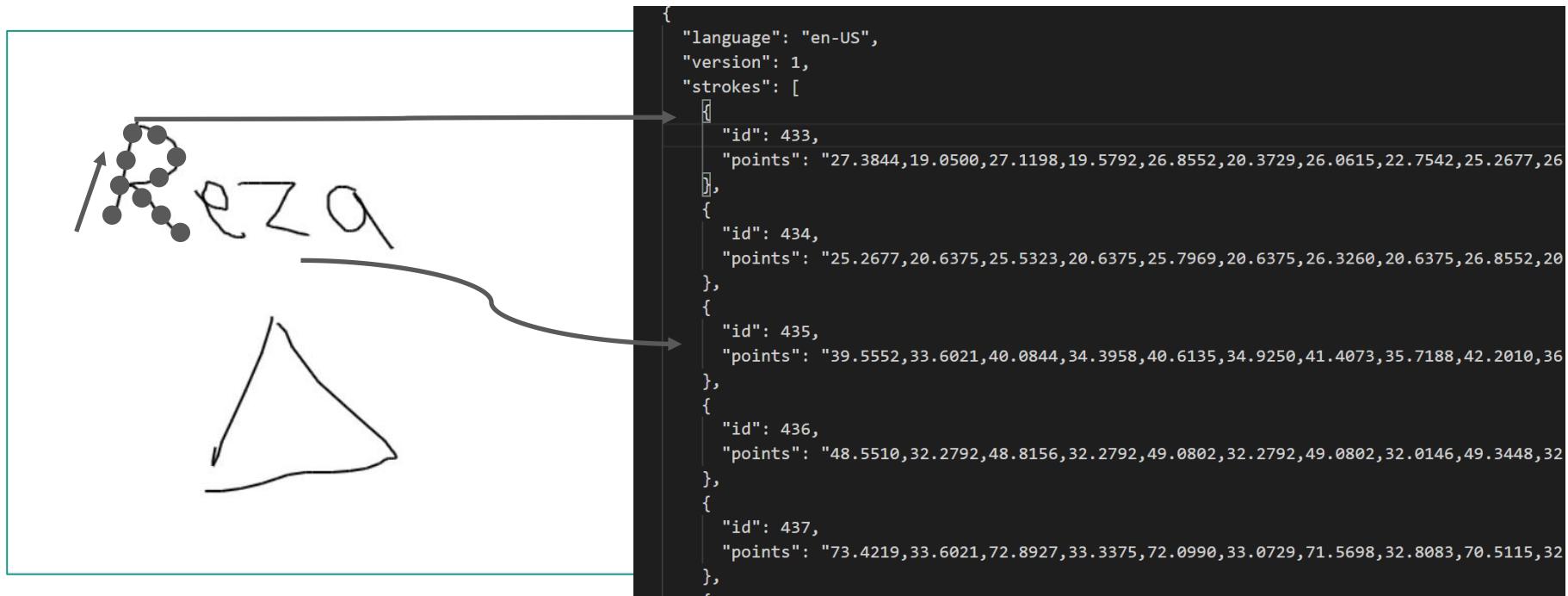


Ink Recognizer Cognitive Service supports

- Written text
- Simple shapes
- Mixed contents



Vision: Ink Recognizer (Preview)



```
{  
  "language": "en-US",  
  "version": 1,  
  "strokes": [  
    {  
      "id": 433,  
      "points": "27.3844,19.0500,27.1198,19.5792,26.8552,20.3729,26.0615,22.7542,25.2677,26  
    },  
    {  
      "id": 434,  
      "points": "25.2677,20.6375,25.5323,20.6375,25.7969,20.6375,26.3260,20.6375,26.8552,20  
    },  
    {  
      "id": 435,  
      "points": "39.5552,33.6021,40.0844,34.3958,40.6135,34.9250,41.4073,35.7188,42.2010,36  
    },  
    {  
      "id": 436,  
      "points": "48.5510,32.2792,48.8156,32.2792,49.0802,32.2792,49.0802,32.0146,49.3448,32  
    },  
    {  
      "id": 437,  
      "points": "73.4219,33.6021,72.8927,33.3375,72.0990,33.0729,71.5698,32.8083,70.5115,32  
    }  
  ]  
}
```

Azure Cognitive Services

Speech



Cognitive Services Speech APIs

Convert spoken language into text or produce natural sounding speech from text.

Cognitive Services Speech APIs

- Speech to Text
- Text to Speech
- Speech Translation
- Speaker Recognition (preview)

Speech: Speech to Text



Speech: Speech to Text

- Speech-to-text transcription
 - Voice assistant
 - Intent
 - Translation
 - Conversation/call center transcription

Speech: Text to Speech



Speech: Text to Speech

- Text to Speech
 - Build apps and services that speak naturally
 - Choose dozens of voices
 - Lifelike voices, not robotic!
 - Customizable via SSML (Speech Synthesis Markup Language)
 - Create your OWN custom voice via Speech Studio

Speech: Text to Speech: SSML

```
<speak version="1.0"
      xmlns="https://www.w3.org/2001/10/synthesis"
      xml:lang="en-US">
  <sentence>
    The phone number is one eight hundred <break strength="weak" />
    five five five <break time="500ms" /> one two three four.
  </sentence>
</speak>
```

Speech: Speech Translation

- Add end-to-end, real-time, speech translations

Speech: Speech Translation

- Add end-to-end, real-time, speech translations



Speech: Speech Translation

- Add end-to-end, real-time, speech translations



Speech: Speech Translation

- Add end-to-end, real-time, speech translations



Speech: Speech Translation

- Add end-to-end, real-time, speech translations



Speech: Speech Translation

- Add end-to-end, real-time, speech translations

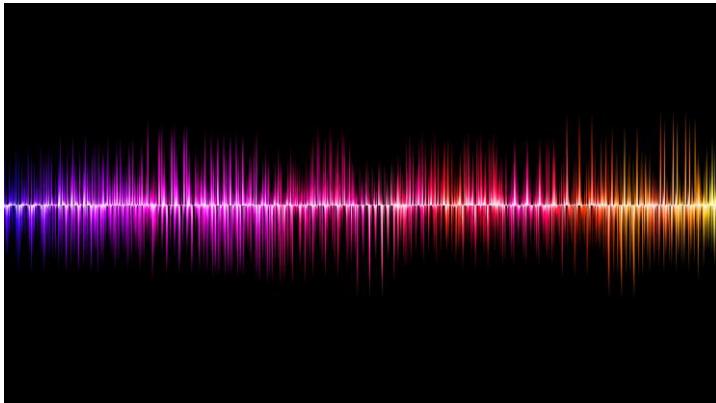


Speech: Speaker Recognition (preview)

- Identify who is speaking
 - Determine the identity of an unknown speaker.

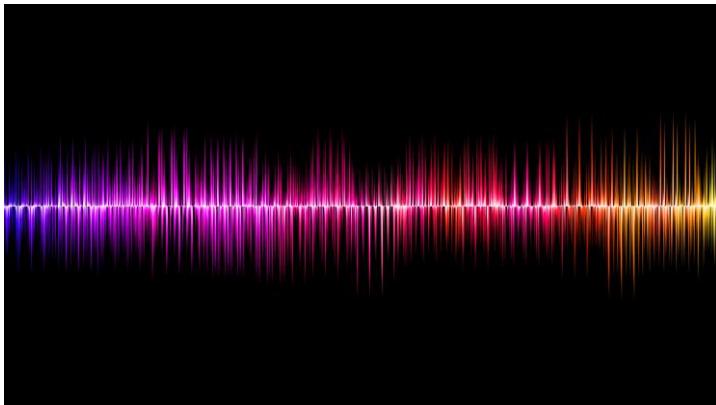
Speech: Speaker Recognition (preview)

- Speaker verification



Speech: Speaker Recognition (preview)

- Speaker verification



Speech: Speaker Recognition (preview)

- Speaker verification
- Speaker identification



Text JSON

President Jimmy Carter
is the one identified speaking in the selected audio.

▷ Audio 1

▷ Audio 2

▷ Audio 3

▷ Audio 4

▷ Audio 5

□ Stop

Azure Cognitive Services

Language



Cognitive Services Language

Helps your app to understand the meaning of unstructured text.

Cognitive Services Language

- Text Analytics
- Translator Text
- QnA Maker (A.K.A. Knowledge)
- Language Understanding (LUIS)
- Immersive Reader (preview)

Language: Text Analytics

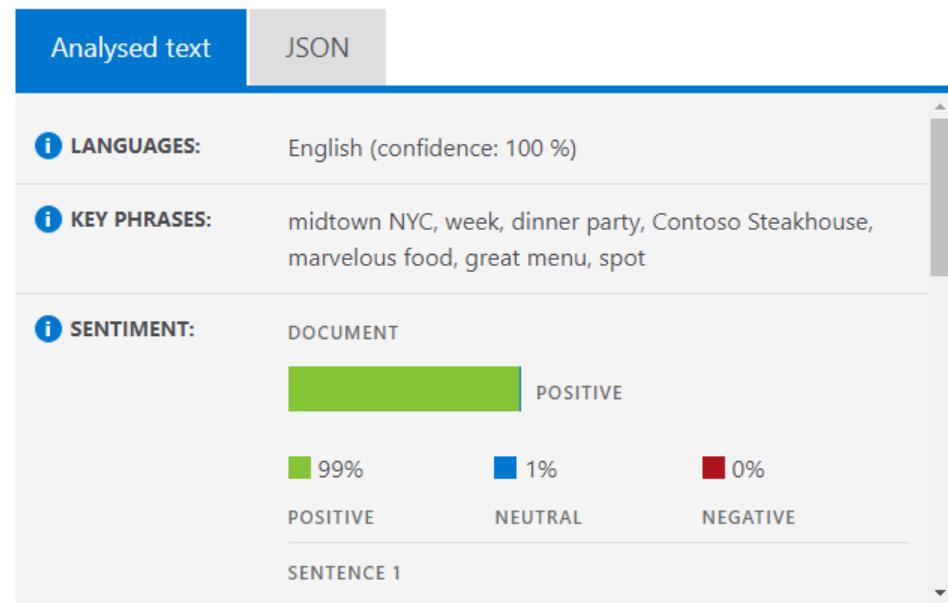
Extract information from your text

- Sentiment analysis
- Key phrase extraction
- Language detection
- Named Entity Recognition

Language: Text Analytics

We went to Contoso Steakhouse located at midtown NYC last week for a dinner party, and we adore the spot! They provide marvelous food and they have a great menu.

Analysing



Language: Text Analytics

We went to Contoso Steakhouse located at midtown NYC last week for a dinner party, and we adore the spot! They provide marvelous food and they have a great menu.

Analysing

Analysed text JSON

NAMED ENTITIES: Contoso Steakhouse [Organization]
Steakhouse [Location]
midtown NYC [Location]
NYC [Location-GPE]
last week [DateTime-DateRange]
dinner party [Event]

PII ENTITIES: **Type:** Organization
Value: Contoso Steakhouse

LINKED ENTITIES: We went to Contoso Steakhouse located at midtown NYC
last week for a dinner party, and we adore the spot! They

Language: Translator Text

- Language detection
- Text translation
- Text transliteration
- Customizable translation (industry/domain specific)
 - Using unstructured documentation such as manuals

Language: Translator Text: Transliteration

The screenshot shows a POST request to <https://api.cognitive.microsofttranslator.com/transliterate?api-version=3.0&language=ja&fromScript=J...>. The Body tab is selected, showing raw JSON input:

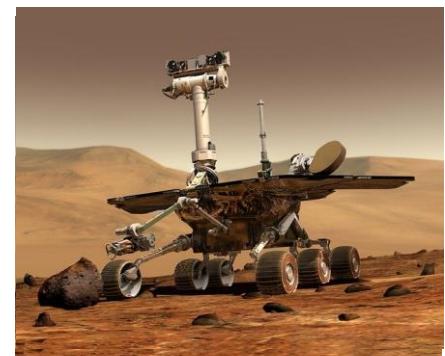
```
[{"Text": "こんにちは"}]
```

The response status is 200 OK, with a time of 71ms and a size of 419 B. The JSON response is:

```
{ "text": "Kon'nichiwa", "script": "Latn" }
```

Language: Translator Text: Custom Translation

- Provide industry-specific translations



Language: QnA Maker

- Creates a question-and-answer layer over your data
- QnA extraction from unstructured text
 - FAQ documents
 - Product manuals
 - URLs, PDF, Word, Excel, CSV
- Manually add questions and answers
- Integration with the Azure Bot service

Language: LUIS (Language Understanding)

Great for creating voice assistants

Enables contextual language understanding

- Turn off the living room light
- Read my calendar

Language: LUIS (Language Understanding)

Great for creating voice assistants

Enables contextual language understanding

- Turn off the living room light

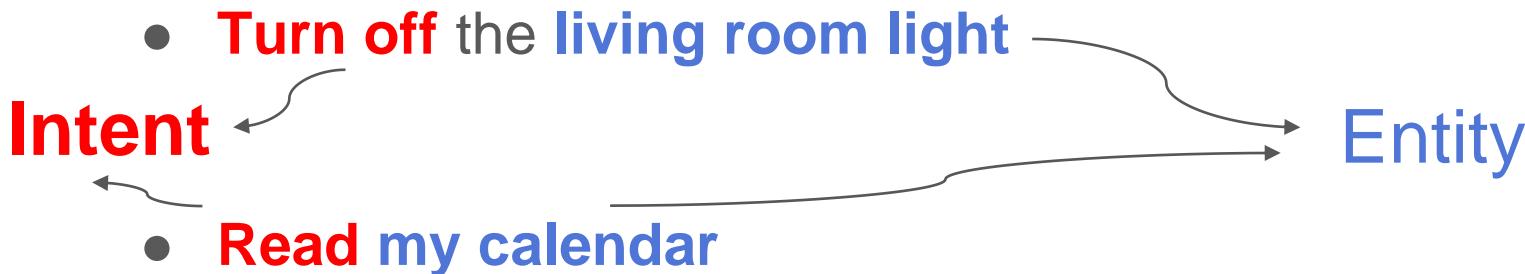
Intent

- Read my calendar

Language: LUIS (Language Understanding)

Great for creating voice assistants

Enables contextual language understanding



Language: Immersive Reader

- Helps with text reading and comprehension in web apps
- Helps users of any age and reading ability with:
 - Reading aloud (text to speech),
 - Translating languages,
 - Focusing attention through highlighting.

Language: Immersive Reader

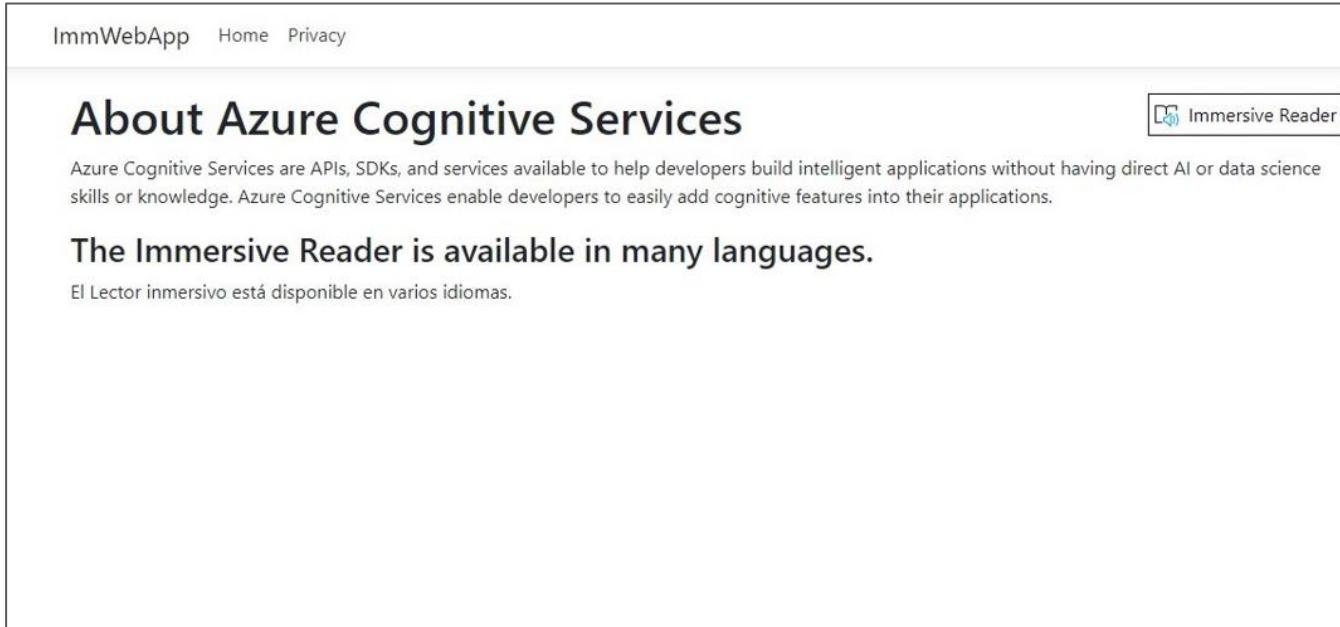
ImmWebApp Home Privacy

About Azure Cognitive Services

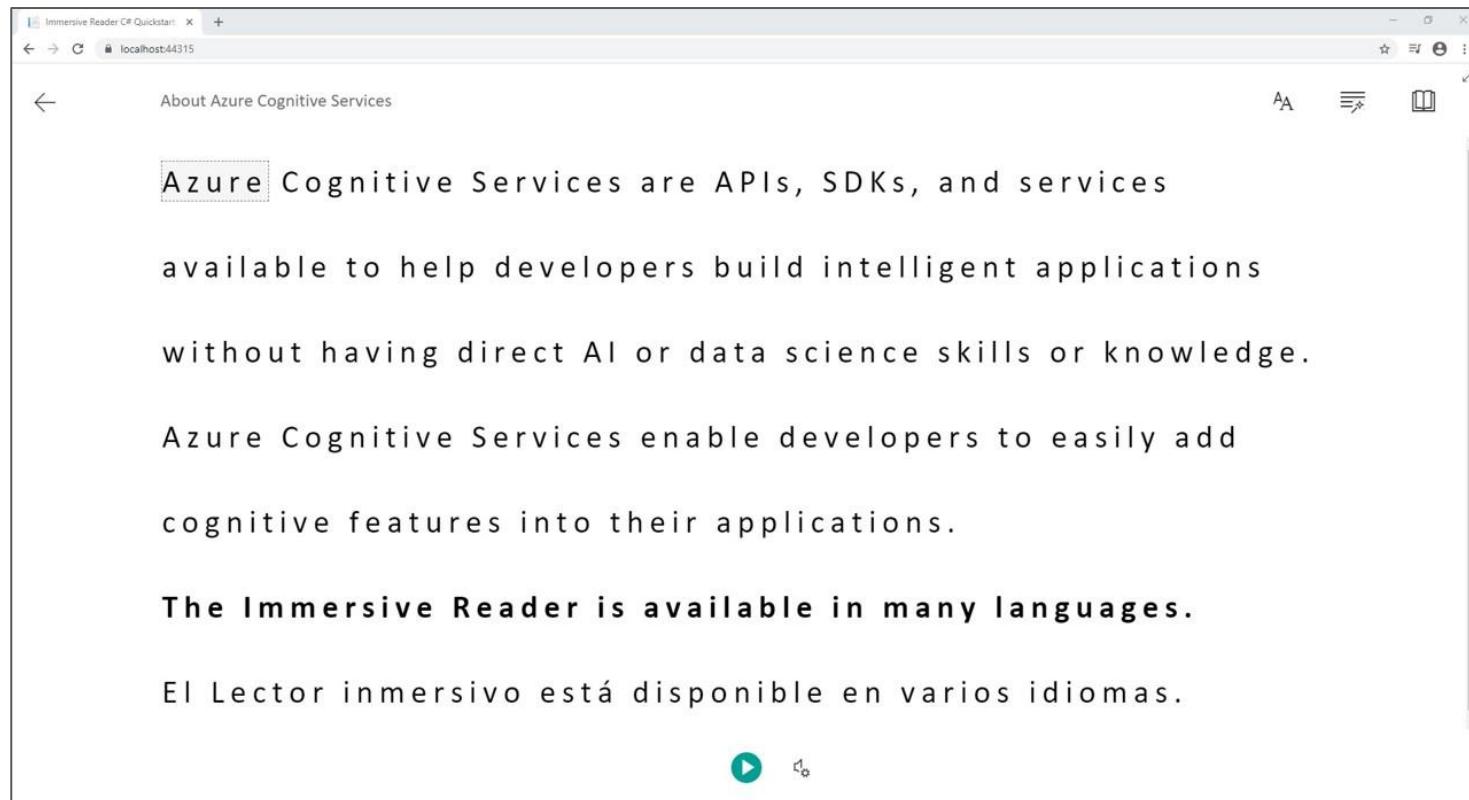
Azure Cognitive Services are APIs, SDKs, and services available to help developers build intelligent applications without having direct AI or data science skills or knowledge. Azure Cognitive Services enable developers to easily add cognitive features into their applications.

The Immersive Reader is available in many languages.

El Lector immersivo está disponible en varios idiomas.



Language: Immersive Reader



A screenshot of a web browser window titled "Immersive Reader C# Quickstart". The URL in the address bar is "localhost:44315". The page content is titled "About Azure Cognitive Services". The text on the page is as follows:

Azure Cognitive Services are APIs, SDKs, and services available to help developers build intelligent applications without having direct AI or data science skills or knowledge.

Azure Cognitive Services enable developers to easily add cognitive features into their applications.

The Immersive Reader is available in many languages.

El Lector inmersivo está disponible en varios idiomas.

At the bottom of the browser window, there are two small circular icons: a play button and a refresh/circular arrow icon.

Language: Immersive Reader

The screenshot shows a web browser window titled "Immersive Reader C# Quickstart" at "localhost:44315". The main content area displays a page about Azure Cognitive Services. The text on the page reads:

Azure Cognitive Services are APIs, SDKs, and services available to help developers build intelligent applications without having direct AI or data science skills or knowledge. Azure Cognitive Services enable developers to easily add cognitive features into their applications.

The Immersive Reader is available in many languages.

Below this, there is a section in Spanish: "El Lector inmersivo está disponible en varios idiomas."

To the right of the content area is a sidebar containing various readability settings:

- Text Size:** A slider set to 42, with options for 1A, 2A, and 3A.
- Increase Spacing:** A toggle switch that is turned on.
- Font:** A list with three items: Calibri (selected), Sitka, and Comic Sans.
- Themes:** A grid of 12 color themes, each consisting of a small colored square followed by "Aa". The first theme (black background) is selected.
- Fewer colors:** A link to a dropdown menu.
- Show Current Font/Size:** A button with a magnifying glass icon.
- Microsoft:** The Microsoft logo.

Language: Immersive Reader

Immersive Reader C# Quickstart | +
localhost:44315

About Azure Cognitive Services

A A   

Azure Cognitive Services are APIs, SDKs, and services available to help developers build intelligent applications without having direct science skills or knowledge. Azure Cognitive Services help developers to easily add cognitive features into their applications.

The Immersive Reader is available in many languages.

El Lector inmersivo está disponible en varios idiomas.

Language: Immersive Reader

The screenshot shows a Microsoft Edge browser window titled "Immersive Reader C# Quickstart" displaying the URL "localhost:44315". The page content is about Azure Cognitive Services, presented in several paragraphs. Each word is annotated with its part of speech: nouns (green), verbs (red), adjectives (blue), and adverbs (orange). The first paragraph reads:

adj. adj. n. v. n. n. n.
Azure Cognitive Services are APIs, SDKs, and services

The second paragraph continues:

adj. v. n. v. adj. n.
available to help developers build intelligent applicatio

The third paragraph starts:

v. adj. n. n. n. n.
without having direct AI or data science skills or knowle

The fourth paragraph begins:

adj. adj. n. v. n. adv. v.
Azure Cognitive Services enable developers to easily ad

The fifth paragraph is:

adj. n. n.
cognitive features into their applications.

The sixth paragraph is:

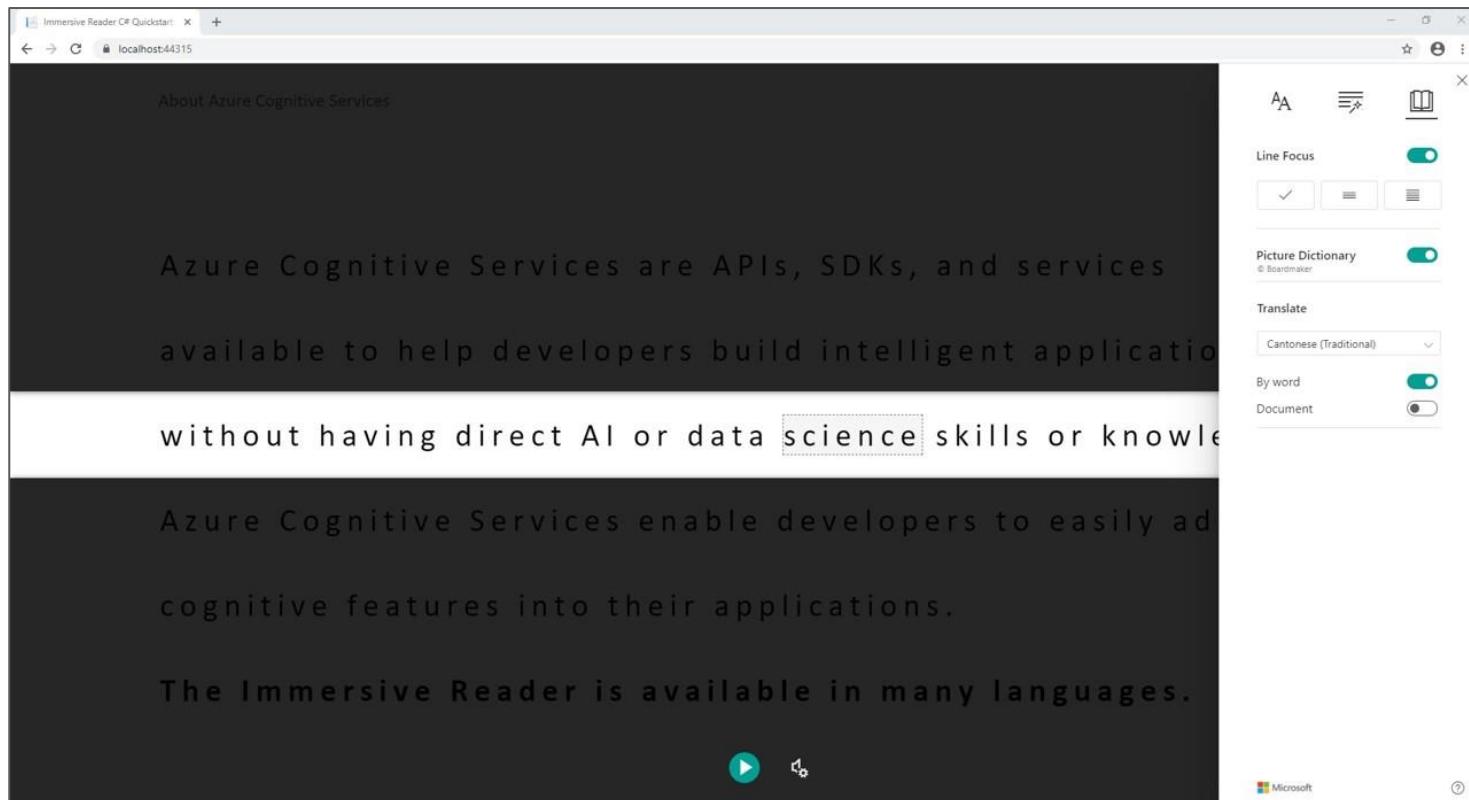
adj. n. v. adj. n.
The Immersive Reader is available in many languages.

The seventh paragraph is:

n. adj. v. adj. n.
El Lector inmersivo está disponible en varios idiomas.

On the right side of the interface, there is a toolbar with icons for text size, font style, and other readability options. Below the toolbar, there are two sections: "Syllables" and "Parts of Speech". The "Syllables" section has a toggle switch that is off. The "Parts of Speech" section contains four groups, each with a checked checkbox and a corresponding color-coded square: nouns (green), verbs (red), adjectives (blue), and adverbs (orange). Below these groups is a "Show labels" checkbox which is also checked.

Language: Immersive Reader



Azure Cognitive Services

Decision



Cognitive Services Decision APIs

Helps your app to quickly make decisions:

- Content Moderator
- Anomaly Detector (preview)
- Personalizer

Decision: Content Moderator

Decision: Content Moderator

- Filter possible profanity and undesirable text
- Detect potential offensive and unwanted images
- Moderate adult and racy content in videos
- Identify PII (Personally identifiable information)
- Many companies prefer to have a human in the loop
 - Human review tool

Decision: Content Moderator

- **Text**
 - Filter possible profanity and undesirable text
 - Find personally identifiable information (PII)
 - Name, email, phone, SSN, etc.
 - Auto-correction
 - qu!ck => quick , # * ! , etc.

Decision: Content Moderator

- **Image**
 - Detect potential offensive and unwanted images
 - OCR to detect text
 - Find personally identifiable information (PII)
 - Faces

Decision: Anomaly Detector (Preview)

- Enables you to monitor and detect abnormalities in your time series data using machine learning.
- A time series is a series of data points indexed in time order.

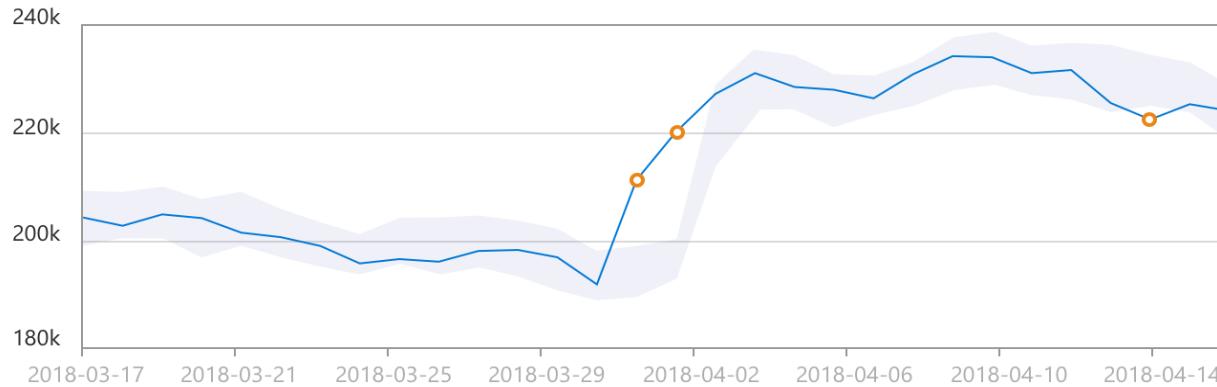


Image by Microsoft

Decision: Anomaly Detector (Preview)

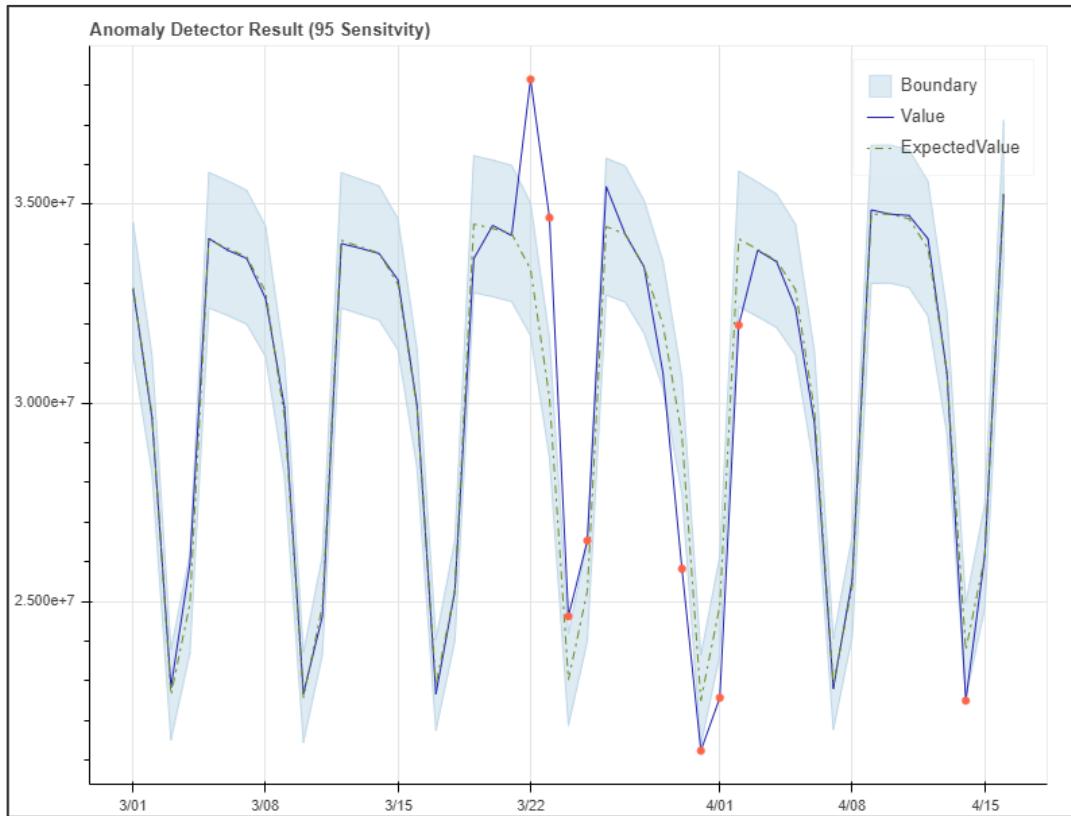


Image by Microsoft

Decision: Anomaly Detector (Preview)

Anomaly Detection is critical; you have seconds to respond!

- Plane engine RPM drops below the normal
- Power plant core temperature exceeds the allowed limit
- Stock prices drop below the expected limit
- Access from a new network to an Azure SQL Database
- ...

Decision: Anomaly Detector (Preview)

Anomaly Detection has two modes:

- Stream (last data point)
- Batch (all data points in the dataset)

Decision: Personalizer

Choose the best experience to show to your users; learning from their real-time behavior.

- Optimize ad placement on a website
- Personalized “recommended item” on a shopping website
- Personalize what article is highlighted on a news website

Azure Cognitive Services

Web Search



Cognitive Services Web Search

Cognitive Services Web Search

Enable apps and services to leverage the power of a Web-scale, ad-free search engine using Bing.

Not to be confused with **Azure Search**

Cognitive Services Web Search

- Bing Web Search
- Bing Visual Search
- Bing Entity Search
- Bing Image Search
- Bing Video Search
- Bing News Search
- Bing Autosuggest
- Bing Spell Check
- Bing Custom Search

Cognitive Services Web Search

- <https://azure.microsoft.com/en-us/services/cognitive-services/bing-web-search-api/>
- <https://azure.microsoft.com/en-us/services/cognitive-services/bing-visual-search/>
- <https://azure.microsoft.com/en-us/services/cognitive-services/bing-entity-search-api/>
- <https://azure.microsoft.com/en-us/services/cognitive-services/bing-image-search-api/>
- <https://azure.microsoft.com/en-us/services/cognitive-services/bing-video-search-api/>
- <https://azure.microsoft.com/en-us/services/cognitive-services/bing-news-search-api/>
- <https://azure.microsoft.com/en-us/services/cognitive-services/autosuggest/>
- <https://azure.microsoft.com/en-us/services/cognitive-services/spell-check/>
- <https://azure.microsoft.com/en-us/services/cognitive-services/bing-custom-search/>

Web Search: Bing Web Search

Azure Cognitive Services 

Preview JSON

Examples

burrito recipes

new movies

seattle seahawks

ted talks

weather today

Market

en-us (English-United States) ▾

SafeSearch

Strict ▾

Freshness

Month ▾

Microsoft Azure - Wikipedia
https://en.wikipedia.org/wiki/Microsoft_Azure
Microsoft Azure (formerly Windows Azure /'æzər/) is a cloud computing service created by Microsoft for building, testing, deploying, and managing applications and services through Microsoft-managed data centers. It provides software as a service (SaaS), platform as a service (PaaS) and infrastructure as a service (IaaS) and supports many different programming languages, tools, and ...

Blockchain Service | Microsoft Azure
<https://azure.microsoft.com/en-us/services/blockchain-service>
Azure Blockchain Service is integrated with both Visual Studio Code and Azure DevOps. Using the Visual Studio Code extension, write, test, debug, and deploy your contracts locally to a private chain or to public blockchain networks. Automatically generate and execute tests within the extension.

Azure Quickstart Templates
<https://azure.microsoft.com/en-us/resources/templates>
Azure Bot Service Intelligent, serverless bot service that scales on demand; Machine Learning Build, train, and deploy models from the cloud to the edge; Azure Databricks Fast, easy, and collaborative Apache Spark-based analytics platform; Azure Cognitive Search AI-powered cloud search service for mobile and web app development; See more

Videos for Azure Cognitive Services

Web Search: Image Search

Image Type

All Animated Gif Clip Art Line Photo

andromeda galaxy

Examples

abstract art

cute animals

celebrations

nature wallpapers

sunssets

Market

en-us (English-United States)

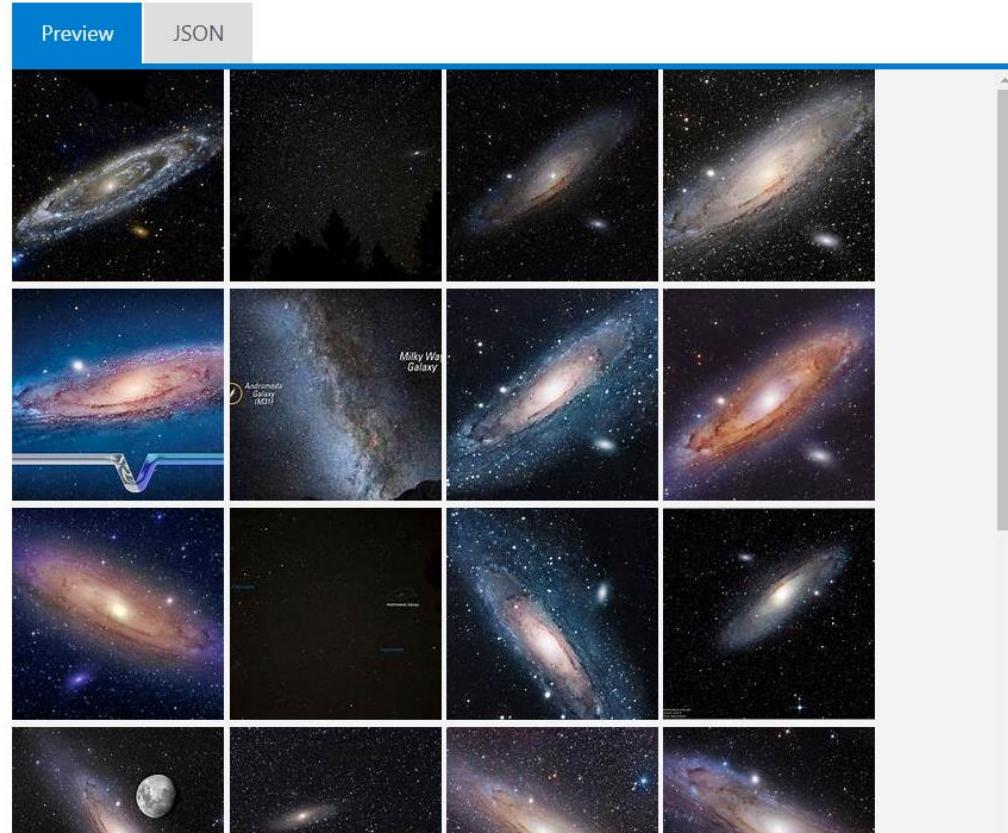
SafeSearch

Strict

Freshness

(unspecified)

Color



Web Search: Video Search

Preview

JSON

Examples

Adele songs

aerial skyline

nature timelapse

recipes

viral videos

Market

en-us (English-United States)

SafeSearch

Strict

Freshness

(unspecified)



Aerial Of The Manhattan Skyline



Aerial Of Hudson River And Manhattan Skyline



Spectacular Aerial Views of London's Skyline



Dallas Drone Aerial Skyline

Web Search: Visual Search



Preview JSON



Parmelee Wingback Chair & Reviews | Birch Lane

USD 295.79



Noble House Fargo Mid Century Fabric Arm Chair, Teal ...

USD 130.98



Noble House Kirby Upholstered Club Chair, Dark Blue ...

USD 194.98



 Microsoft

Web Search: News Search

🔍

PreviewJSON

Examples

- european football
- financial markets
- Hollywood updates
- science updates
- top stories
- world news

Market

en-us (English-United States)

SafeSearch

Strict

Freshness

(unspecified)

Microsoft: 150 million people are using passwordless logins each month
Microsoft said today that the number of people who use its passwordless login solutions has now reached 150 million, up from 100 million reported last November at the Ignite conference. The number covers users of online services like Azure,

Microsoft rolls out its Reply All Storm Protection feature to Office365 worldwide
Microsoft on Sunday announced that it will be rolling out its Reply All Storm Protection feature for Office 365 worldwide. The feature had been announced back in 2019 at Microsoft's Microsoft Ignite 20

Microsoft adds protection against Reply-All email storms in Office 365
Topic Microsoft rolled out this week a new feature to Office 365 customers to help their IT staff detect and stop "Reply-All email storms." The term refers to situations when employees use the Reply-All option in mass-mailed emails,

Microsoft releases new Yammer preview
Microsoft has released a preview version of its updated Yammer collaboration application, ahead of a full release expected in July. Microsoft announced that its social networking tool for use within organisations would be getting new features during its Ignite conference in 2019.

Microsoft is saving you from Reply All hellstorms with this new Exchange feature
Microsoft is rolling out a new feature that will reduce the impact reply all storms have on

Web Search: Autosuggest

A screenshot of a web search interface, likely from the Azure portal or a similar service. The top navigation bar includes a search bar with the text "Azure Cognitive" and a magnifying glass icon, followed by two tabs: "Preview" (which is highlighted in blue) and "JSON". Below the search bar, there are two dropdown menus: "Market" set to "en-in (English-India)" and a language dropdown also set to "en-in (English-India)". A large, semi-transparent overlay window titled "Market" is displayed, listing several search suggestions related to "Azure Cognitive". The suggestions are: "azure cognitive services", "azure cognitive", "azure cognitive search", "azure cognitive api", "azure cognitive pricing", "azure cognitive ocr", "azure cognitive toolkit", and "azure cognitive faq".

Azure Cognitive 🔍

Preview JSON

Market

en-in (English-India)

- azure cognitive services
- azure cognitive
- azure cognitive search
- azure cognitive api
- azure cognitive pricing
- azure cognitive ocr
- azure cognitive toolkit
- azure cognitive faq

Web Search: Bing Spell Check

Proof

Our engineers developed this four you!

Submit

Preview JSON

Our engineers developed this for you!

Web Search: Bing Entity Search

Satya Nadella 

Preview JSON

Examples

Satya Nadella

Seattle Seahawks

Yosemite National Park

El Gaucho Bellevue

Coffee 98004

Restaurants near me

Market en-us (English-United States) ▾

Optional parameters

Latitude 37.77

Longitude -122.4194

Radius (meters) 5000



Satya Nadella

Satya Narayana Nadella is an Indian American business executive. He is the chief executive officer of Microsoft, succeeding Steve Ballmer in 2014. Before becoming CEO, he was the executive vice president of Microsoft's cloud and enterprise group, responsible for building and running the company's computing platforms.

WikipediaText under CC-BY-SA license

[See more on Bing >](#)

Web Search: Custom Search

Custom Config
dynamics.microsoft.com

dynamics customer care 

Examples

- dynamics 365
- dynamics customer care**
- dynamics partners
- dynamics pricing
- dynamics for retail

Market
en-us (English-United States)

SafeSearch
Strict

Preview **JSON**

Subscription, Billing, and technical questions for your existing Dynamics 365 Customer Engagement application. Get technical support through Lifecycle Services for your existing Dynamics 365 Retail, Dynamics 365 Human Resources, and ...

Contact Microsoft - Support for Dynamics | Microsoft Dynamics
<https://dynamics.microsoft.com/en-in/contact-us>

Send us a contact request, call us, or start an online chat session—your choice. Have a Dynamics 365 expert contact you. Find Microsoft contact information, technical support and services, and easy-to-access documentation for all Dynamics 365 solutions. Ask questions, search for answers, and participate in discussions in the Dynamics 365 ...

Virtual Agent for Customer Service | Microsoft Dynamics 365
<https://dynamics.microsoft.com/en-us/ai/virtual-agent-for-customer-service>

Virtual Agent for Customer Service Dynamics 365 Virtual Agent for Customer Service One package combining Power Virtual Agents and Dynamics 365 Customer Service Insights enabling customer service teams to easily identify and automate common support issues using intelligent chatbots – all without having to write code.

Customer Service | Microsoft Dynamics 365
<https://dynamics.microsoft.com/he-il/customer-service/capabilities>

Empower your Dynamics 365 with Customer Care on 25 Social + 10 Messaging Channels. למודע נספף. Tenfold Next Generation CTI for Dynamics 365. תחן Tenfold. Azure for Web Apps. Tenfold Cloud-Based Next Generation CTI for Dynamics 365 Customer Service and Sales.

Customer Insights | Microsoft Dynamics 365
<https://dynamics.microsoft.com/en-us/ai/customer-insights>

Dynamics 365 Customer Insights Use an intuitive and flexible customer data platform (CDP) to unlock insights and power personalized customer experiences. Unify all your customer data across the full range of sources to get a single view of customers in real time.

Web Search: Custom Search

- Define the parts of the web you want to draw from
- Predefine automatic query suggestions for your content within selected domains
- Promote or filter results to drive the outcome you want
- Control ranking, pinning, blocking, boosting, and demoting sites
- Is Ad-free, commercial-grade service
- Get statistics from custom search queries

Demo

- Bing Web Search
- Bing Image Search
- Bing Autosuggest
- Bing Spell Check



Congratulations!



By the End of This Course

List all the APIs under Azure Cognitive Services

Can Azure Cognitive Services help my project?

You understand the use case for each API

You will gain hands-on experience with real-life demos

What is Next?

- Can I use Azure Cognitive Services to solve my business need?
- **Yes:** Great!
- **No:** Machine Learning (ML)

Machine Learning Process

1. Collect training datasets; 1000+ cat and not-cat photos
2. Cleanup the collected training data
3. Choose the right ML model for your use case
4. Train the model and verify the result
5. Deploy the ready-to-use model
6. Start using the model in your application



Azure Machine Learning | Micros x +

azure.microsoft.com/en-ca/services/machine-learning/

Microsoft Azure

Contact Sales Search My account Portal Reza

Overview Solutions Products Documentation Pricing Training Marketplace Partners Support Blog More [Free account >](#)

Home / Services / Azure Machine Learning

Azure Machine Learning

Enterprise-grade machine learning service for building and deploying models faster

[Start for free >](#)



Product home Product overview Features Pricing Documentation Getting started Customer stories Announcements FAQs

Accelerate the end-to-end machine learning life cycle

Empower developers and data scientists with a wide range of productive experiences for building, training and deploying machine learning models faster. Accelerate time to market and foster team collaboration with industry-leading MLOps – DevOps for machine learning. Innovate





Exam AI-100: Designing and Implementing an Azure AI Solution

In response to the coronavirus (COVID-19) situation, Microsoft is implementing several temporary changes to our training and certification program. [Learn more](#).

Candidates for this exam analyze the requirements for AI solutions, recommend appropriate tools and technologies, and implements solutions that meet scalability and performance requirements.

Candidates translate the vision from solution architects and work with data scientists, data engineers, IoT specialists, and AI developers to build complete end-to-end solutions. Candidates design and implement AI apps and agents that use Microsoft Azure Cognitive Services and Azure Bot Service. Candidates can recommend solutions that use open source technologies.

Candidates understand the components that make up the Azure AI portfolio and the available data storage options.

Candidates implement AI solutions that use Cognitive Services, Azure bots, Azure Search, and data storage in Azure. Candidates understand when a custom API should be developed to meet specific requirements.

Part of the requirements for: [Microsoft Certified: Azure AI Engineer Associate](#)

Related exams: none

Important: See details

[Go to Certification Dashboard](#)

Schedule exam

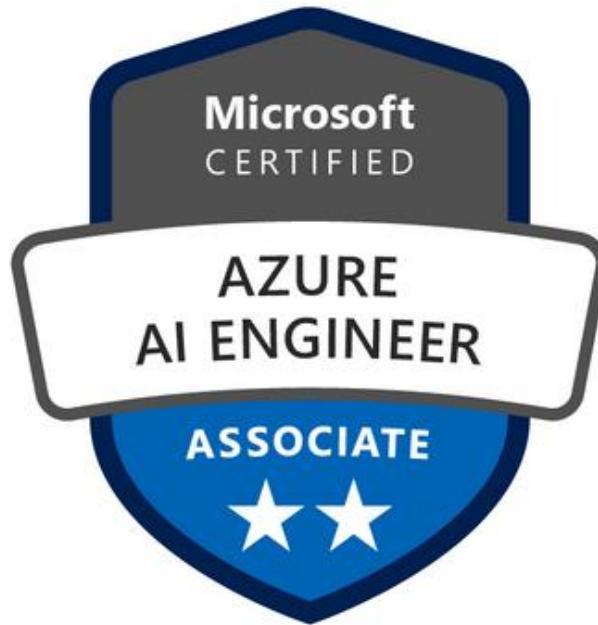
Exam AI-100

- docs.microsoft.com/en-us/learn/certifications/exams/ai-100
- Analyze solution requirements (25-30%)
- Design AI solutions (40-45%)
- Implement and monitor AI solutions (25-30%)

Exam AI-100

- Good understanding of Azure Cognitive Services
- Understanding of Azure Machine Learning
- Overall understanding of Azure services and architecture
- Hands-on experience, there are labs in the exam!

Microsoft Certified: Azure AI Engineer Associate





Microsoft Certified: Azure AI Engineer Associate

In response to the coronavirus (COVID-19) situation, Microsoft is implementing several temporary changes to our training and certification program. [Learn more.](#)

Azure AI Engineers use Cognitive Services, Machine Learning, and Knowledge Mining to architect and implement Microsoft AI solutions involving natural language processing, speech, computer vision, bots, and agents.

Job role: AI Engineer

Required exams: AI-100

Important: See details

[Go to Certification Dashboard](#)

Certification details

[Take one exam](#)

[Earn the certification](#)

Course Resources

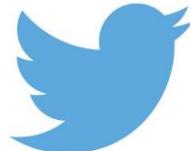
<https://github.com/zaalion/uy-cognitve-services-crash-course>

Author: Reza Salehi

linkedin.com/in/rezasalehi2008



twitter.com/zaalion





Thank You !



Sky's the limit !

