



A hand-drawn diagram on a blue background. The text "computer vision solution" is written in white. The word "vision" is circled with a white oval. A dashed white arrow points from the top left towards the word "computer". Another dashed white arrow points from the top right towards the word "vision". The entire phrase is underlined with a white line.

computer vision solution

Identify common types of computer vision solution:

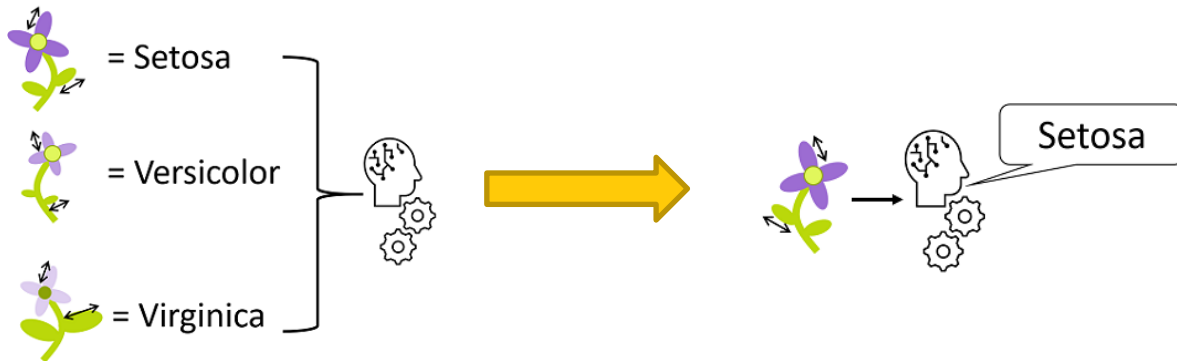
- Identify features of image classification solutions
- Identify features of object detection solutions
- Identify features of semantic segmentation solutions
- Identify features of optical character recognition solutions
- Identify features of facial detection, facial recognition, and facial analysis solutions

Scenario: Retrieval of handwritten text from a student's essay?

- A. Object detection
- B. Semantic Segmentation
- C. Optical Character recognition
- D. Facial detection

Image classification

- Classify object in an image, predict which category, or class, object belongs to.
- Digital images are made up of an array of pixel values, and these are used as features to train the model based on the known image classes.
- You can feed image to pre-build model, and model will be able to predict that image
- You can also build your own custom model



Car

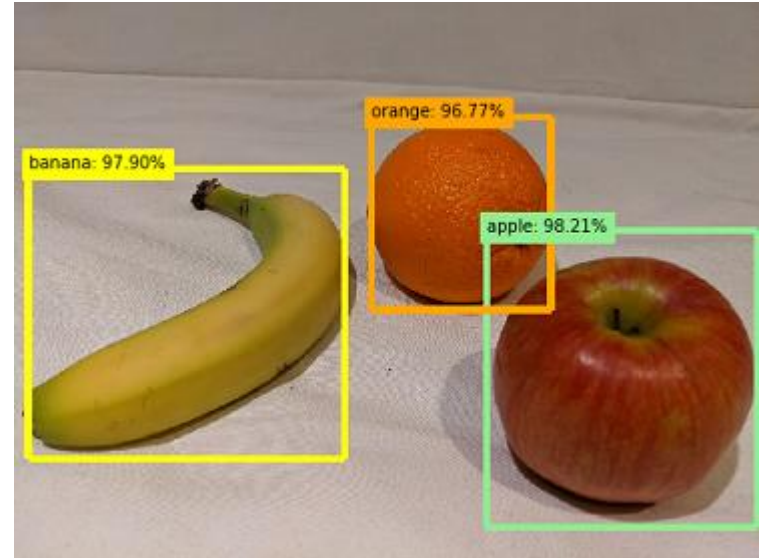
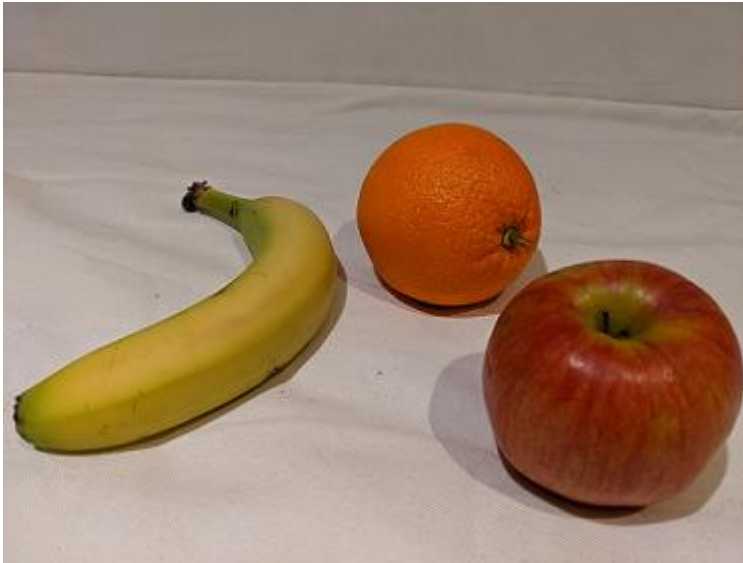
Image classification

Some potential uses for image classification might include:

- **Product identification** - performing visual searches for specific products in online searches or even, in-store using a mobile device.
- **Disaster investigation** - evaluating key infrastructure for major disaster preparation efforts. For example, aerial surveillance images may show bridges and classify them as such. Anything classified as a bridge could then be marked for emergency preparation and investigation.
- **Medical diagnosis** - evaluating images from X-ray or MRI devices could quickly classify specific issues found as cancerous tumors, or many other medical conditions related to medical imaging diagnosis.

Object Detection

Model is trained to recognize individual types of object in an image, and to identify their location in the image



Object Detection

Some sample applications of object detection include:

- Evaluating the safety of a building by looking for fire extinguishers or other emergency equipment.
- Creating software for self-driving cars or vehicles with lane assist capabilities.
- Medical imaging such as an MRI or x-rays that can detect known objects for medical diagnosis.



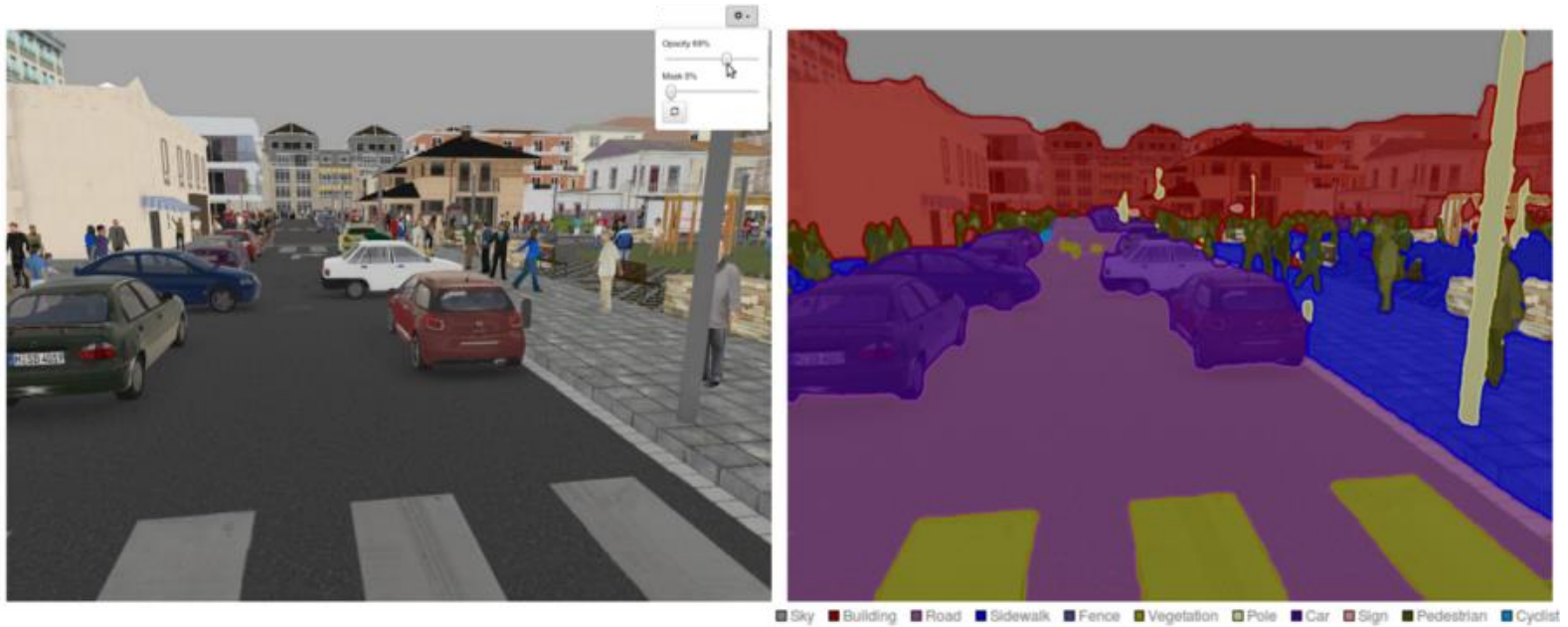
Difference?

Image classification is a machine learning based form of computer vision in which a model is trained to categorize images based on the primary subject matter they contain.

Object detection goes further than this to classify individual objects within the image, and to return the coordinates of a bounding box that indicates the object's location.

Semantic Segmentation

- Semantic segmentation associates each pixel in an image with a tagged object. Semantic segmentation answers the question "which pixels belong to which object?" and that paves the way towards complete scene understanding
- Use Case: Self-driving car



An example of semantic segmentation (Source: <https://blog.goodaudience.com/using-convolutional-neural-networks-for-image-segmentation-a-quick-intro-75bd68779225>)

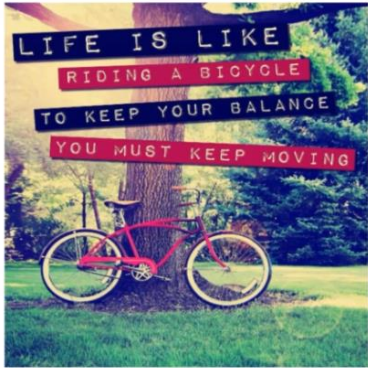
Image Classification vs Object detection vs semantic segmentation

Scenario

1. Returning bounding box coordinates for all identified animals in a photo: Classification vs Object detection vs segmentation
2. Pixel-level classification of an image content Classification vs Object detection vs segmentation
3. Retrieval of printed text from a scanned document Classification vs Object detection vs segmentation
4. Assessing the damage to a vehicle from a photograph is an example of Classification vs Object detection vs segmentation
5. Find people wearing a face mask in a room Classification vs Object detection vs segmentation

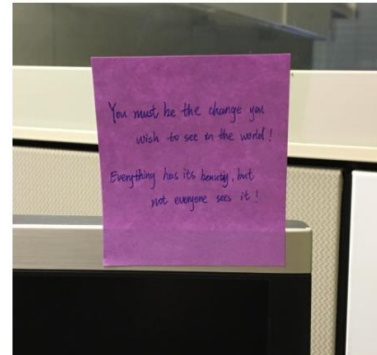
Optical Character Recognition

- **Optical character recognition (OCR)** is a process of extracting printed or handwritten text from the input images, PDF documents, and other sources of digitized text.
- OCR can recognize individual shapes as letters, numerals, punctuation, and other elements of text
- Uses of OCR
 - note taking
 - digitizing forms, such as medical records or historical documents
 - scanning printed or handwritten checks for bank deposits



Preview JSON

LIFE
IS
LIKE
RIDING
A BICYCLE
TO
KEEP
YOUR BALANCE
YOU MUST KEEP MOVING



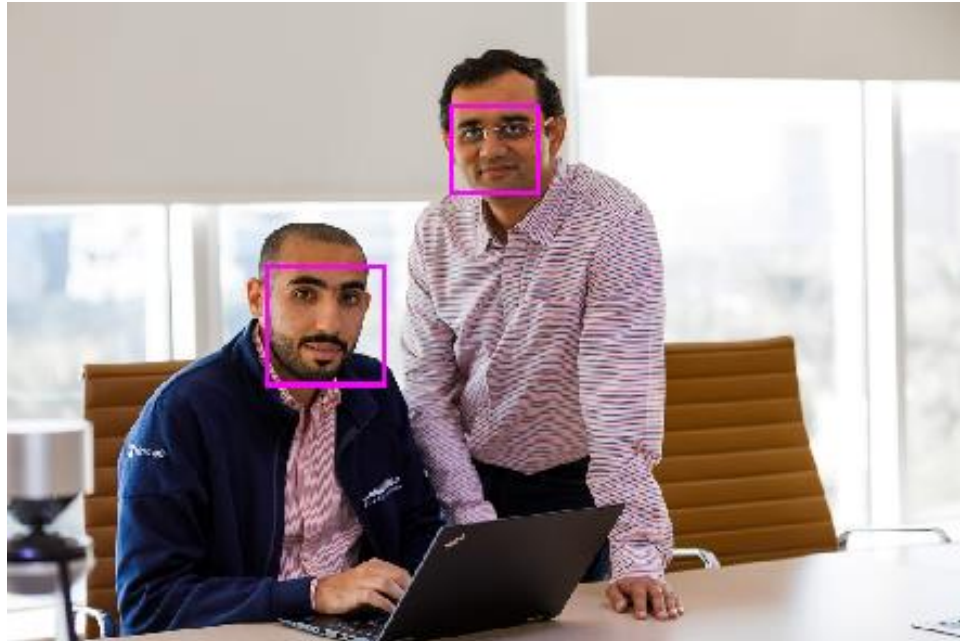
Preview JSON

You must be the change you wish to see in the world!
Everything has its beauty , but not everyone sees it !

Facial Detection, Recognition and Analysis

Facial Detection

Face detection involves identifying regions of an image that contain a human face, typically by returning bounding box coordinates that form a rectangle around the face, like this:



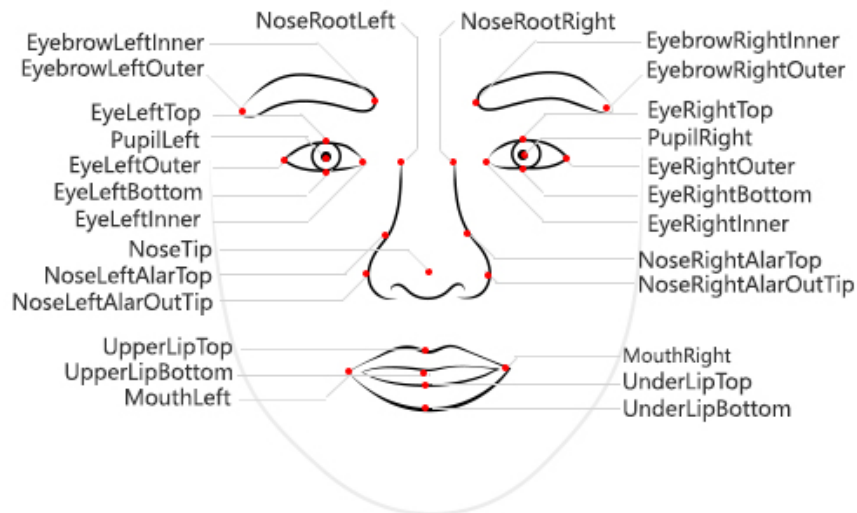
Facial Recognition

- A further application of facial analysis is to train a machine learning model to identify known individuals from their facial features.
- This usage is more generally known as facial recognition, and involves using multiple images of each person you want to recognize to train a model so that it can detect those individuals in new images on which it wasn't trained.

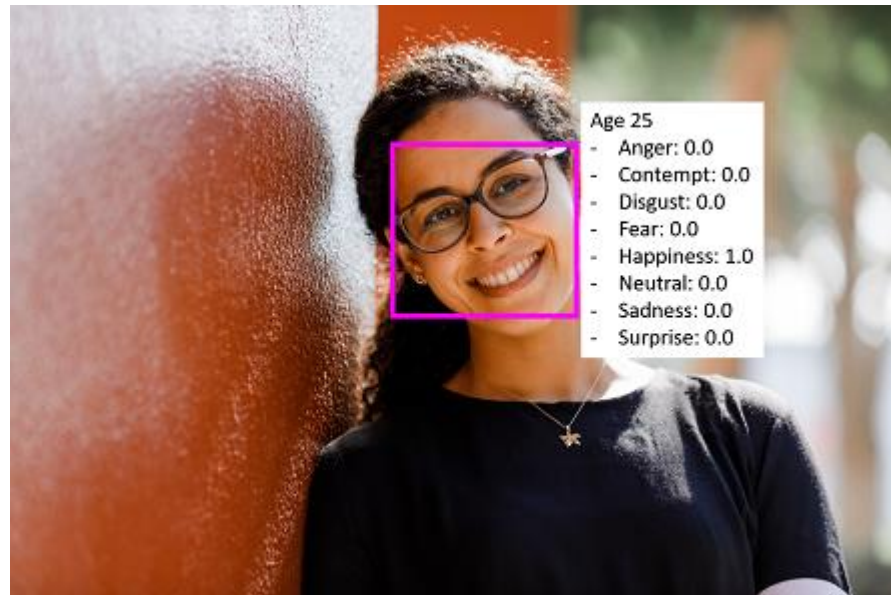


Facial Analysis

- Some algorithms can also return other information, such as facial landmarks (nose, eyes, eyebrows, lips, and others).
- These facial landmarks can be used as features with which to train a machine learning model from which you can infer information about a person, such as their perceived age or perceived emotional state.



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Uses of face detection and analysis

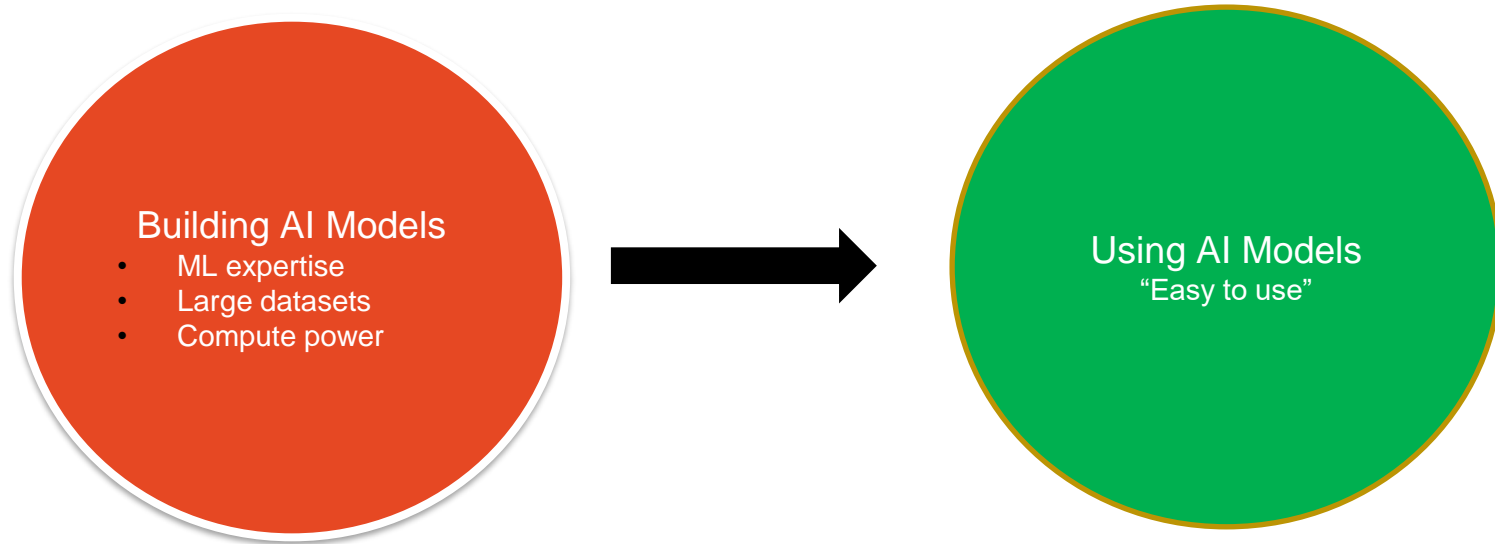
- **Security** – facial recognition can be used in building security applications, and increasingly it is used in smart phones operating systems for unlocking devices.
- **Social media** - facial recognition can be used to automatically tag known friends in photographs.
- **Intelligent monitoring** - for example, an automobile might include a system that monitors the driver's face to determine if the driver is looking at the road, looking at a mobile device, or shows signs of tiredness.
- **Advertising** - analyzing faces in an image can help direct advertisements to an appropriate demographic audience.
- **Missing persons** - using public cameras systems, facial recognition can be used to identify if a missing person is in the image frame.

Questions – True/False?

1. Facial detection can determine whether a person is wearing glasses.
2. Facial detection requires a full-frontal image.

Azure Cognitive Services

AI Models - Hard to Build, easy to use



Building - Hard to Build



Building AI Models

- **Domain Experts** for feature selection and dataset preparation
- **Data Scientist** to choose ML architecture, train and tune models
- **Compute Resources** are expensive but key in real-world ML

Using - Easy to use



Using AI Models

- Domain experts and ML experts have done the hard work
- Users need little/no ML expertise
- Computational horse power not needed – pre trained models

What is Azure Cognitive Services

Microsoft Cognitive Services offers **pre-built ML models** for the most common use cases.

- Pre-build AI algorithms
- Easy to consume
- Platform-agnostic HTTP APIs



Computer Vision service

What is Computer Vision Service

Azure's Computer Vision service gives you access to advanced algorithms that process images and return information based on the visual features you're interested in.

- Tag visual features
- Detect objects
- Detect brands
- Categorize an image
- Describe an image
- Detect faces
- Detect image types
- Detect domain-specific content
- Detect the color scheme
- Generate a thumbnail
- Get the area of interest
- Moderate content in images
- Optical Character Recognition (OCR)

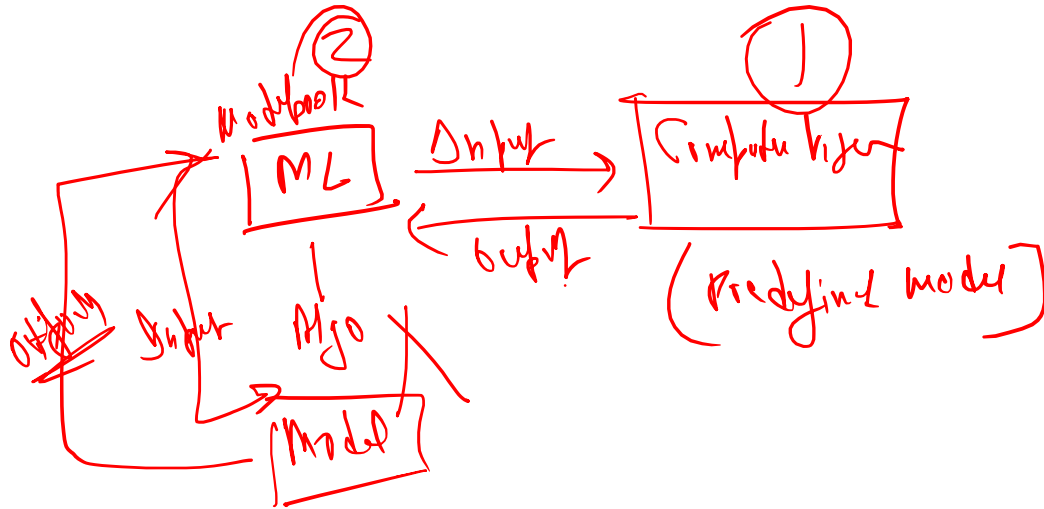
Questions: Computer Vision

True/False

- The Computer Vision service can moderate adult content - true
- The Computer Vision service can extract printed or handwritten text from images – true
- The Computer Vision service can translate text in an image - false
- Identify Landmark in an image - true
- identify dominant colors in online images to check if they influence the popularity of the featured product. - true

Demo: Computer Vision service

Demo: Computer Vision



Custom Vision service

What is Custom Vision Service

- This service lets you build and deploy your own image identifiers
- **Computer vision service:** Service provided, general purpose model
- **Custom vision service:** User provided, custom, domain specific model
- You will upload images, tag them and train model based on uploaded images
- Support two project types – Classification and Object detection
- Creates two resources: Training and Prediction



Question: Custom Vision Service

Question: You need to build a butterfly image classifier using your own set of images and labels. Which Azure cognitive service should you use?

- A. Video Indexer
- B. Custom Vision
- C. Computer Vision
- D. Bing Image Search

Question: Which two project types can you choose in the Custom Vision service?

- A. Semantic segmentation
- B. Facial Recognition
- C. Object Detection
- D. Classification
- E. K-Means Clustering



Demo: Custom Vision service

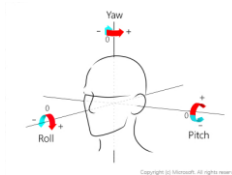
Face service

What is Face Service

- Azure Face cognitive services can be used to locate and analyze human faces in images or video content.
- **Computer Vision** can detect human faces and predict their age and gender.
- **Face service** can be used for a more detailed analysis: identify head pose, estimate gender, age and emotion, detect presence of facial hair or glasses, and even evaluate whether two faces belong to the same person.
- **Video Indexer** can be used to detect and identify faces in a video
- Azure Face service has a limitation on the size of input images. The image shouldn't be larger than 6 MB in any of the following formats: JPEG, PNG, GIF, and BMP.
- Two types of Operations
 - Face Detection
 - Face Recognition: Verify, Find similar, group and Identify people

Face Service - Face Detection

- **Face detection** is the action of locating human faces in an image and optionally returning different kinds of face-related data.
- **Attributes**
 - **Accessories.** Whether the given face has accessories. This attribute returns possible accessories including headwear, glasses, and mask, with confidence score between zero and one for each accessory.
 - **Age.** The estimated age in years of a particular face.
 - **Blur.** The blurriness of the face in the image. This attribute returns a value between zero and one and an informal rating of low, medium, or high.
 - **Emotion.** A list of emotions with their detection confidence for the given face. Confidence scores are normalized, and the scores across all emotions add up to one. The emotions returned are happiness, sadness, neutral, anger, contempt, disgust, surprise, and fear.
 - **Exposure.** The exposure of the face in the image. This attribute returns a value between zero and one and an informal rating of underExposure, goodExposure, or overExposure.
 - **Facial hair.** The estimated facial hair presence and the length for the given face.
 - **Gender.** The estimated gender of the given face. Possible values are male, female, and genderless.
 - **Glasses.** Whether the given face has eyeglasses. Possible values are NoGlasses, ReadingGlasses, Sunglasses, and Swimming Goggles.
 - **Hair.** The hair type of the face. This attribute shows whether the hair is visible, whether baldness is detected, and what hair colors are detected.
 - **Head pose.** The face's orientation in 3D space. This attribute is described by the pitch, roll, and yaw angles in degrees. The value ranges are -90 degrees to 90 degrees, -90 degrees to 90 degrees, and -90 degrees to 90 degrees, respectively. See the following diagram for angle mappings:
 - **Makeup.** Whether the face has makeup. This attribute returns a Boolean value for eyeMakeup and lipMakeup.
 - **Mask.** Whether the face is wearing a mask. This attribute returns a possible mask type, and a Boolean value to indicate whether nose and mouth are covered.
 - **Noise.** The visual noise detected in the face image. This attribute returns a value between zero and one and an informal rating of low, medium, or high.
 - **Occlusion.** Whether there are objects blocking parts of the face. This attribute returns a Boolean value for eyeOccluded, foreheadOccluded, and mouthOccluded.
 - **Smile.** The smile expression of the given face. This value is between zero for no smile and one for a clear smile.



Face Service - Face Recognition

Face recognition describes the work of comparing two different faces to determine if they're similar or belong to the same person..

- The **Verify** operation takes a face and determines if it belongs to the same person as another face. Addresses the question, "Are these two images the same person?"
- The **Find Similar** operation takes a face you have detected and extracts faces that look alike from a list of faces that you provide. Find Similar returns a subset of the faces in the list. This operation is useful for doing a face search by image.
- The **Group** operation creates several smaller groups from a list of faces based on the similarities of the faces. Also supports differentiating by another factor such as expression
- The **Identify** operation takes one or more face(s) and matches them to people. The Identify operation returns a list of possible matches with a confidence score between 0 and 1, with 1 being the most confident. Answers the question, "Can this detected face be matched to any enrolled face in a database?"

Question: Face Service

Question: Find the right operation for below requirement.

- A. Evaluate whether two faces belong to the same person
- B. Extract faces that look alike from a list of faces
- C. Divide a set of faces based on similarities

Question: Which two Azure cognitive services can be used to analyze faces within an image? Allows you to specify the labels for an image?

- A. Form Recognizer
- B. Computer Vision
- C. Personalizer
- D. Face
- E. Text Analytics

Question: Face Service

Question: Please select all Azure Cognitive Face service functions.

- A. Face Detection
- B. Objects Detection
- C. Find similar faces
- D. Person Identification
- E. Brand Identification
- F. Face Verification
- G. Image Analysis

Question: You need to identify a person using 8 MB image files in PNG format. Can you use the Person Identification function of Azure Face service for this purpose?

- A. Yes
- B. No

Question: Face Service

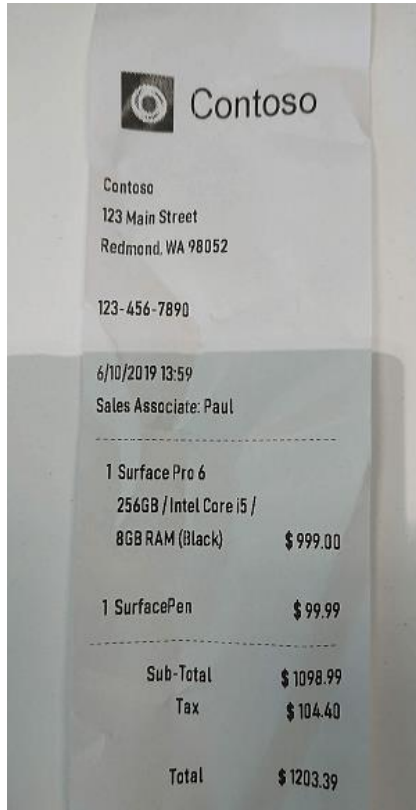
Question: Please select all face emotion attributes that Azure Cognitive Face service provides information for.

- A. hate
- B. fear
- C. smile
- D. contempt
- E. sparkle
- F. surprise
- G. neutral

Correct Answers: B, D, F, and G.

Form Recognizer

Why we need Form Recognizer Service



- We can use optical character recognition (OCR) technologies to extract the text contents from the digitized documents.
- But what after that? We still needs to review the extracted text to make sense of the information it contains.
- Form recognizer = Read text (OCR) + Interpret the information the contain

What is Form Recognizer

- Form recognizer service can be used to automate the processing of data in documents such as forms, invoices, and receipts.

Form Recognizer features

- **Layout API** - Extract text, selection marks, and tables structures, along with their bounding box coordinates, from documents.
- **Custom models** - Extract text, key/value pairs, selection marks, and table data from forms. These models are trained with your own data, so they're tailored to your forms.
- **Prebuilt models** - Extract data from unique document types using prebuilt models. Currently available are the following prebuilt models
 - Invoices
 - Sales receipts
 - Business cards
 - Identification (ID) cards
- Prebuilt model available only in English
- Custom model can be trained in Spanish, Chinese, Dutch, French, German, Italian and Portuguese
- Images must be JPEG, PNG, BMP, PDF, or TIFF formats
- File size must be less than 50 MB

Form Recognizer- Layout API

INVOICE

DATE
Oct 21, 2020

INVOICE NO
1726

ADATUM CORPORATION
234 France Ave
WA 76328
www.adatum.com
sales@adatum.com

INVOICE TO
Futurkam, Inc.
345 North St
NY 98052

Customer Id: 5791

SALESPERSON	PAYMENT TERMS	DUE DATE
Jacob Steffensen	Due on Receipt	Nov 21, 2020

QUANTITY	DESCRIPTION	UNIT PRICE	LINE TOTAL
05	Pool filter cartridge	\$9.96	\$49.80
01	C Filter replacement	\$12.49	\$12.49
01	Chlorinating tablets	\$85.00	\$85.00

Subtotal: \$147.29
Sales Tax: \$2.96
Total: \$150.25

Adventure Works Cycles
National Harbor
Marketing and Business division
Customer Service
Tel: 42 35 15 55 - Fax: 42 35 16 15

00577710 15/ 09/ 20
Invoice nb 19445003
N F 845 089 98 Ship AV DOLCE
In 15/ 12/ 18
Out 17/ 12/ 18
Rate

CUSTOMER: 029 VALEO		SE: 3 NB E/ S: 1		
Realization	Unit	Quantity	Unit Price	Amount
TAX 1 SPS		1	10000	10000,00
Ship monitoring	TJ	18358	0.119	101503,00
Entry	TJ	18358	0.173	147562,00
Stay tax	TJ	18358	0.135	307066,00
Lighthouse	TJ	18358	0.033	25021,00
Entry	TJ	18358	0.173	147562,00
Stay tax	TJ	18358	0.135	307066,00
Lighthouse	TJ	18358	0.033	25021,00

N-UM 644889,00
TOTAL 103184,00
N-UM 748072,00
VAT
TOTAL VAT Incl

Invoice amount is the following:
Seven hundred forty eight thousand seventy two CFA

Responsible Service head Director

PAGE 1
Item 1

STOCKHOLDERS' EQUITY STATEMENTS

(In millions) (Unaudited)	Three Months Ended March 31,		Nine Months Ended March 31,	
	2020	2019	2020	2019
Common stock and paid-in capital				
Balance, beginning of period	\$ 79,625	\$ 77,556	\$ 78,520	\$ 71,223
Common stock issued	342	274	1,003	6,521
Common stock repurchased	(1,492)	(1,218)	(3,649)	(3,433)
Stock-based compensation expense	1,338	1,172	3,540	3,462
Other, net	0	7	(1)	18
Balance, end of period	79,813	77,791	79,813	77,791
Retained earnings				
Balance, beginning of period	30,739	16,585	24,150	13,682
Net income	10,752	8,809	33,079	26,053
Common stock cash dividends	(3,865)	(3,518)	(11,621)	(10,592)
Common stock repurchased	(5,614)	(3,538)	(13,590)	(11,482)
Cumulative effect of accounting changes	0	0	0	677
Balance, end of period	32,012	16,338	32,012	16,338
Accumulated other comprehensive income (loss)				
Balance, beginning of period	(255)	(2,013)	(340)	(2,187)
Other comprehensive income	2,931	748	3,016	989
Cumulative effect of accounting changes	0	0	0	(67)
Balance, end of period	2,676	(1,265)	2,676	(1,265)
Total stockholders' equity	\$ 114,501	\$ 94,864	\$ 114,501	\$ 94,864
Cash dividends declared per common share	\$ 0.51	\$ 0.46	\$ 1.53	\$ 1.38

Refer to accompanying notes.

Form Recognizer- Layout API

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

☒ QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the Quarterly Period Ended March 31, 2020

OR

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the Transition Period From _____ to _____
Commission File Number 001-37845

MICROSOFT CORPORATION

WASHINGTON, (STATE OF INCORPORATION) 91-1144442 (I.R.S. ID)
ONE MICROSOFT WAY, REDMOND, WASHINGTON 98052-6399
(425) 882-4080
www.microsoft.com/investor

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol	Name of exchange on which registered
Common stock, \$0.00000625 per value per share	MSFT	NASDAQ
2.125% Notes due 2021	MSFT	NASDAQ
3.125% Notes due 2028	MSFT	NASDAQ
2.625% Notes due 2033	MSFT	NASDAQ

Securities registered pursuant to Section 12(g) of the Act:

NONE

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☐ No ☒

Indicate by check mark whether the registrant has submitted electronically every interactive data file required to be submitted pursuant to Rule 405 of Regulation S-T (17 CFR 201.405) of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☐ No ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐ Accelerated filer ☐
Non-accelerated filer ☒ Smaller reporting company ☐
Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

Class	Outstanding as of April 24, 2020
Common Stock, \$0.00000625 per value per share	7,583,440,247 shares

Text, Tables,
Selection
Marks and
structure
extraction

```
{
  "status": "succeeded",
  "createdDateTime": "2020-11-17T18:48:48Z",
  "lastUpdatedDateTime": "2020-11-17T18:48:53Z",
  "analyzeResult": {
    "version": "2.1.0",
    "readResults": [ ... ],
    "pageResults": [
      {
        "page": 1,
        "tables": [
          {
            "rows": 6,
            "columns": 4,
            "cells": [ ... ]
          },
          {
            "rows": 5,
            "columns": 4,
            "cells": [ ... ]
          },
          {
            "rows": 8,
            "columns": 4,
            "cells": [ ... ]
          }
        ]
      }
    ]
  }
}
```

```
{
  "status": "succeeded",
  "createdDateTime": "2020-11-17T18:48:48Z",
  "lastUpdatedDateTime": "2020-11-17T18:48:53Z",
  "analyzeResult": {
    "version": "2.1.0",
    "readResults": [ ... ],
    "pageResults": [
      {
        "page": 1,
        "tables": [
          {
            "rows": 5,
            "columns": 3,
            "cells": [
              {
                "rowIndex": 0,
                "columnIndex": 0,
                "text": "Title of each class",
                "boundingBox": [ ... ],
                "elements": [
                  "#/readResults/0/lines/24/words/0",
                  "#/readResults/0/lines/24/words/1",
                  "#/readResults/0/lines/24/words/2",
                  "#/readResults/0/lines/24/words/3"
                ]
              },
              ...
            ]
          },
          {
            "rowIndex": 1,
            "columnIndex": 2,
            "text": "NASDAQ",
            "boundingBox": [
              5.3737,
              ...
            ]
          }
        ]
      }
    ]
  }
}
```

Prebuilt Invoice model

CONTOSO LTD.

INVOICE

Contoso Headquarters
123 456th St
New York, NY, 10001

INVOICE: INV-100
INVOICE DATE: 11/15/2019
DUE DATE: 12/15/2019
CUSTOMER NAME: MICROSOFT CORPORATION
SERVICE PERIOD: 10/14/2019 - 11/14/2019
CUSTOMER ID: CID-12345

Microsoft Corp
123 Other St,
Redmond WA, 98052

BILL TO:
Microsoft Finance
123 Bill St,
Redmond WA, 98052

SHIP TO:
Microsoft Delivery
123 Ship St,
Redmond WA, 98052

SERVICE ADDRESS:
Microsoft Services
123 Service St,
Redmond WA, 98052

SALESPERSON	P.O. NUMBER	REQUISITIONER	SHIPPED VIA	F.O.B. POINT	TERMS
	PO-3333				

DATE	ITEM CODE	DESCRIPTION	QTY	UM	PRICE	TAX	AMOUNT
3/4/2021	A125	Consulting Services	2	hours	\$30.00	10%	\$60.00
3/5/2021	B456	Document Fee	8		\$10.00	5%	\$30.00
3/6/2021	C789	Printing Fee	10	pages	\$1.00	20%	\$10.00

SUBTOTAL
SALES TAX
TOTAL
PREVIOUS UNPAID BALANCE
AMOUNT DUE

\$100.00
\$10.00
\$110.00
\$500.00
\$610.00

THANK YOU FOR YOUR BUSINESS!

REMIT TO:
Contoso Billing
123 Remit St
New York, NY, 10001

```

},
"InvoiceId": {
  "type": "string",
  "valueString": "INV-100",
  "text": "INV-100",
  "boundingBox": [
    7.4926,
    1.4203,
    7.9938,
    1.4203,
    7.9938,
    1.5198,
    7.4926,
    1.5198
  ],
  "page": 1,
  "confidence": 0.999,
  "elements": [
    "#/readResults/0/lines/3/words/1"
  ]
},
"VendorAddress": {
  "type": "string",
  "valueString": "123 456th St New York, NY, 10001",
  "text": "123 456th St New York, NY, 10001",
  "boundingBox": [
    0.594,
    1.6077,
    1.9918,

```

Prebuilt Receipt



The prebuilt Receipt model provides both raw and normalized values. Below you can see the raw values on the left, and the normalized values on the right.

Address	
1124 Pike St Seattle, WA	1124 Pike St Seattle, WA
Phone number	
206-624-0173	+12066240173

Items	
Cup Fund Donation	5.00

Subtotal		
\$5.00		5
Total		
\$5.00		5

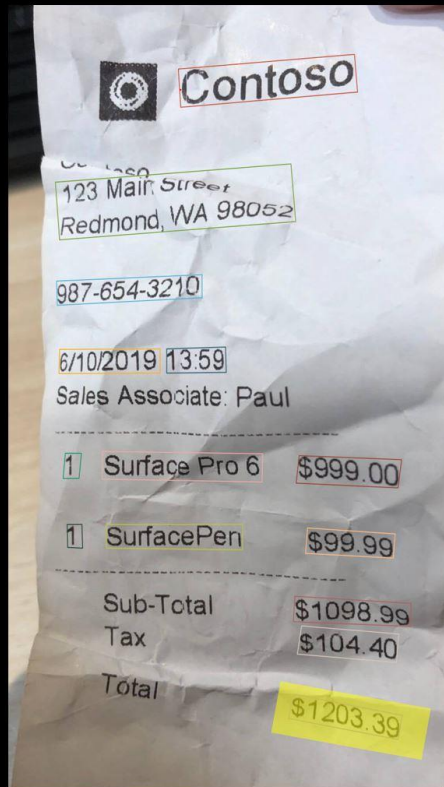


```

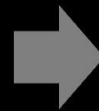
"valueArray": [
  {
    "type": "object",
    "valueObject": {
      "Name": {
        "type": "string",
        "valueString": "Cup Fund Donation",
        "text": "Cup Fund Donation",
        "boundingBox": [
          201.7,
          335.7,
          470.7,
          342,
          470,
          373,
          201,
          366.7
        ]
      },
      "page": 1,
      "confidence": 0.917
    }
  },
  "TotalPrice": {
    "type": "number",
    "valueNumber": 5,
    "text": "5.00",
    "boundingBox": [
      637,
      339,
      701,
      336,
      702.3,
      363,
      638.3,
      366
    ]
  },
  "page": 1,
  "confidence": 0.916
}

```

Prebuilt Receipt model



Page #	Field name / Value	Confidence %
1	MerchantName Contoso	53.3%
1	MerchantAddress 123 Main Street Redmond, WA 98052	99.0%
1	MerchantPhoneNumber text: 987-654-3210 valuePhoneNumber: +19876543210	99.0%
1	TransactionDate text: 6/10/2019 valueDate: 2019-06-10	99.0%
1	TransactionTime text: 13:59 valueTime: 13:59:00	98.8%
1	Subtotal text: \$1098.99 valueNumber: 1098.99	98.8%
1	Tax text: \$104.40 valueNumber: 104.4	95.7%
1	Total text: \$1203.39 valueNumber: 1203.39	69.1%
1	Item 1 Surface Pro 6	78.4%
1	Item 1: Quantity 1	97.5%
1	Item 1: TotalPrice text: \$999.00	85.9%



```
"Tax": {
  "type": "number",
  "valueNumber": 104.4,
  "text": "$104.40",
  "boundingBox": [
    724,
    1089,
    889,
    1103,
    885,
    1151,
    717,
    1137
  ],
  "page": 1,
  "confidence": 0.957,
  "elements": [
    "#/readResults/0/lines/12/words/0"
  ]
},
"Total": {
  "type": "number",
  "valueNumber": 1203.39,
  "text": "$1203.39",
  "boundingBox": [
    711,
    1205,
    895,
    1241,
    888,
    1282,
    702,
    1246
  ],
  "page": 1,
  "confidence": 0.691,
```

Prebuilt Identification (ID) cards model

Prebuilt Identification (ID) Cards



Page # / Field name / Value	Confidence
1 DocumentNumber	98.80%
text: LIC#WDLABCD456DG	
valueString: LICWDLACD5DG	
1 LastName	97.90%
TALBOT	
1 FirstName	96.30%
LIAM R.	
1 DateOfBirth	99.00%
text: 01/06/1958	
valueDate: 1958-01-06	
1 DateOfExpiration	99.00%
text: 08/12/2020	
valueDate: 2020-08-12	
1 Sex	99.30%
M	
1 Address	94.90%
123 STREET ADDRESS YOUR CITY WA 99999-1234	
Country	99.50%
United States	
Region	99.00%
Washington	

```
"documentResults": [
  {
    "docType": "prebuilt:iddocument:driverLicense",
    "docTypeConfidence": 0.995,
    "pageRange": [
      1,
      1
    ],
    "fields": {
      "DocumentNumber": {
        "type": "string",
        "valueString": "LICWDLACD5DG",
        "text": "LIC#WDLABCD456DG",
        "boundingBox": [
          160,
          70,
          313,
          69,
          313,
          84,
          161,
          85
        ]
      },
      "page": 1,
      "confidence": 0.988,
      "elements": [
        {
          "text": "01/06/1958"
        }
      ]
    },
    "LastName": {
      "type": "string",
      "valueString": "TALBOT",
      "text": "TALBOT",
      "boundingBox": [
        160,
        86,
        213,
        813,
        213,
        99,
        160,
        100
      ]
    },
    "page": 1,
    "confidence": 0.979,
    "elements": [
      {
        "text": "08/12/2020"
      }
    ]
  },
  "FirstName": {
    "type": "string",
    "valueString": "LIAM R.",
    "text": "LIAM R.",
    "boundingBox": [
      160,
      86,
        213,
        813,
        213,
        99,
        160,
        100
      ]
    },
    "page": 1,
    "confidence": 0.979,
    "elements": [
      {
        "text": "08/12/2020"
      }
    ]
  }
]
```

Prebuilt Identification (ID) cards model

[illegible]

```

"documentResults": [
  {
    "docType": "prebuilt:idDocument:passport",
    "docTypeConfidence": 0.995,
    "pageRange": [
      1,
      1
    ],
    "fields": {
      "MachineReadableZone": {
        "type": "object",
        "valueObject": {
          "Country": {
            "type": "country",
            "valueCountry": "CAN",
            "text": "CAN"
          },
          "DateOfBirth": {
            "type": "date",
            "valueDate": "1985-01-01",
            "text": "850101"
          },
          "DateOfExpiration": {
            "type": "date",
            "valueDate": "2023-01-14",
            "text": "230114"
          },
          "DocumentNumber": {
            "type": "string",
            "valueString": "ZE000509",
            "text": "ZE000509"
          },
          "FirstName": {
            "type": "string",
            "valueString": "SARAH",
            "text": "SARAH"
          },
          "LastName": {
            "type": "string",
            "valueString": "MARTIN",
            "text": "MARTIN"
          },
          "Nationality": {
            "type": "country",
            "valueCountry": "CAN",

```


Prebuilt Business Cards model

Prebuilt Business Cards



Page # / Field name / Value	Confidence %
1 CompanyNames	76.8%
CONTOSO	
1 ContactNames	99.0%
Chris Smith	
1 JobTitles	99.0%
Senior Researcher	
1 Departments	98.6%
Cloud & AI Department	
1 Emails	99.0%
chris.smith@contoso.com	
1 Websites	99.5%
https://www.contoso.com/	
1 MobilePhones	99.5%
+1 (987) 123-4567	
1 OtherPhones	98.8%
+1 (987) 213-5674	
1 Faxes	98.9%
+1 (987) 312-6745	
1 Addresses	98.7%
4001 1st Ave NE Redmond, WA 98052	

```
1,
"documentResults": [
  {
    "docType": "prebuilt:businesscard",
    "pageRange": [
      1,
      1
    ],
    "fields": {
      "CompanyNames": {
        "type": "array",
        "valueArray": [
          {
            "type": "string",
            "valueString": "CONTOSO",
            "text": "CONTOSO",
            "boundingBox": [
              535,
              1571,
              1331,
              1571,
              1332,
              1722,
              534,
              1719
            ]
          }
        ],
        "page": 1,
        "confidence": 0.768
      }
    },
    "ContactNames": {
      "type": "array",
      "valueArray": [
        {
          "type": "object",
          "valueObject": {
            "FirstName": {
              "type": "string",
              "valueString": "Chris",
              "text": "Chris",
              "boundingBox": [
                1556,
                2018,
                1920,
                2021,
                1919,
                2156,
                1558,
                2154
              ]
            }
          }
        ]
      },
      "page": 1
    }
  }
]
```

Question: Form Recognizer

Question: In which of the following scenarios can you use the Form Recognizer service? Choose 2 answers from the options given below

- Extract the invoice number from an invoice
- Translate a form from French to English
- Find image of product in a catalog
- Identity the retailer from a receipt

Statement – True/False

Prebuilt business card model can extract information from business cards in English.

Prebuilt receipt model can extract information from sales receipts in French.

Custom model can be trained to extract information from custom forms in Spanish.