

Cloud Computing

Engineering School
University Autònoma de Barcelona

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de Barcelona



What are we going to do?

- Manage your cloud suscription
- Create cloud services

consola de administración de Elastic Beanstalk - Google Chrome

console.aws.amazon.com/elasticbeanstalk/home?region=us-east-1#/gettingStarted

Aplicaciones Bionic Engineering Flightradar24.com ~... CEN - European C... Caja de Ingenieros Save to Mendeley Dictionary, translati... Download Star War...

aws Servicios Grupos de recursos vocstartsoft/user363261=dani... Norte de Virgini

Elastic Beanstalk

Entornos

Aplicaciones

Crear una aplicación web

Cree una nueva aplicación y un nuevo entorno con una aplicación de ejemplo o su propio código. Al crear un entorno, permite que AWS Elastic Beanstalk administre los recursos de AWS y los permisos en su nombre. [Más información](#)

Información de la aplicación

Nombre de la aplicación

Hasta 100 caracteres Unicode, sin incluir la barra (/).

Etiquetas de la aplicación

Aplicar hasta 50 etiquetas. Puede utilizar las etiquetas para agrupar y filtrar sus recursos. Una etiqueta es un par clave-valor. La clave debe ser única en el recurso y distingue entre mayúsculas y minúsculas. [Más información](#)

Clave	Valor	
<input type="text"/>	<input type="text"/>	Eliminar etiqueta

Add tag

Comentarios Español

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Inicio - Microsoft Azure - Google Chrome

portal.azure.com/#home

Aplicaciones Bionic Engineering Flightradar24.com ~... CEN - European C... Caja de Ingenieros Save to Mendeley Dictionary, translati... Download Star War...

Microsoft Azure Buscar recursos, servicios y documentos (G+)

Servicios de Azure

Crear un recurso Azure Blockchain... Lab Services App Services Máquinas virtuales Cuentas de almacenamiento SQL Database Servidores de Azure Databa... Azure Cosmos DB Más servicios

Recursos recientes

Nombre	Tipo	Última consulta
Azure para estudiantes: Starter	Suscripción	hace 6 horas

Navegar

Suscripciones Grupos de recursos Todos los recursos Panel

Herramientas

Microsoft Learn Aprenda a usar Azure con los cursos en línea gratuitos de Microsoft.

Azure Monitor Supervise las aplicaciones y la infraestructura.

Security Center Proteja sus aplicaciones e infraestructura.

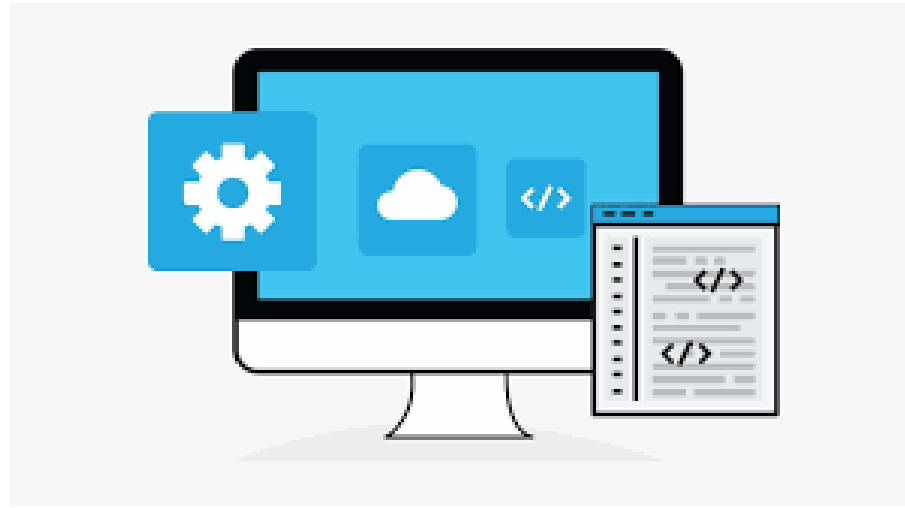
Administración de costos Analice y optimice el gasto en la nube de forma gratuita

Developing & Connecting Cloud Services

Cloud Services

Adapted from <https://docs.microsoft.com/es-es/azure/app-service/containers/tutorial-python-postgresql-app>

- WEB APP
- DATA BASE



PostgreSQL



Back End Frameworks



Laravel

VS



nodeJS

VS



Django

Web Development Frameworks

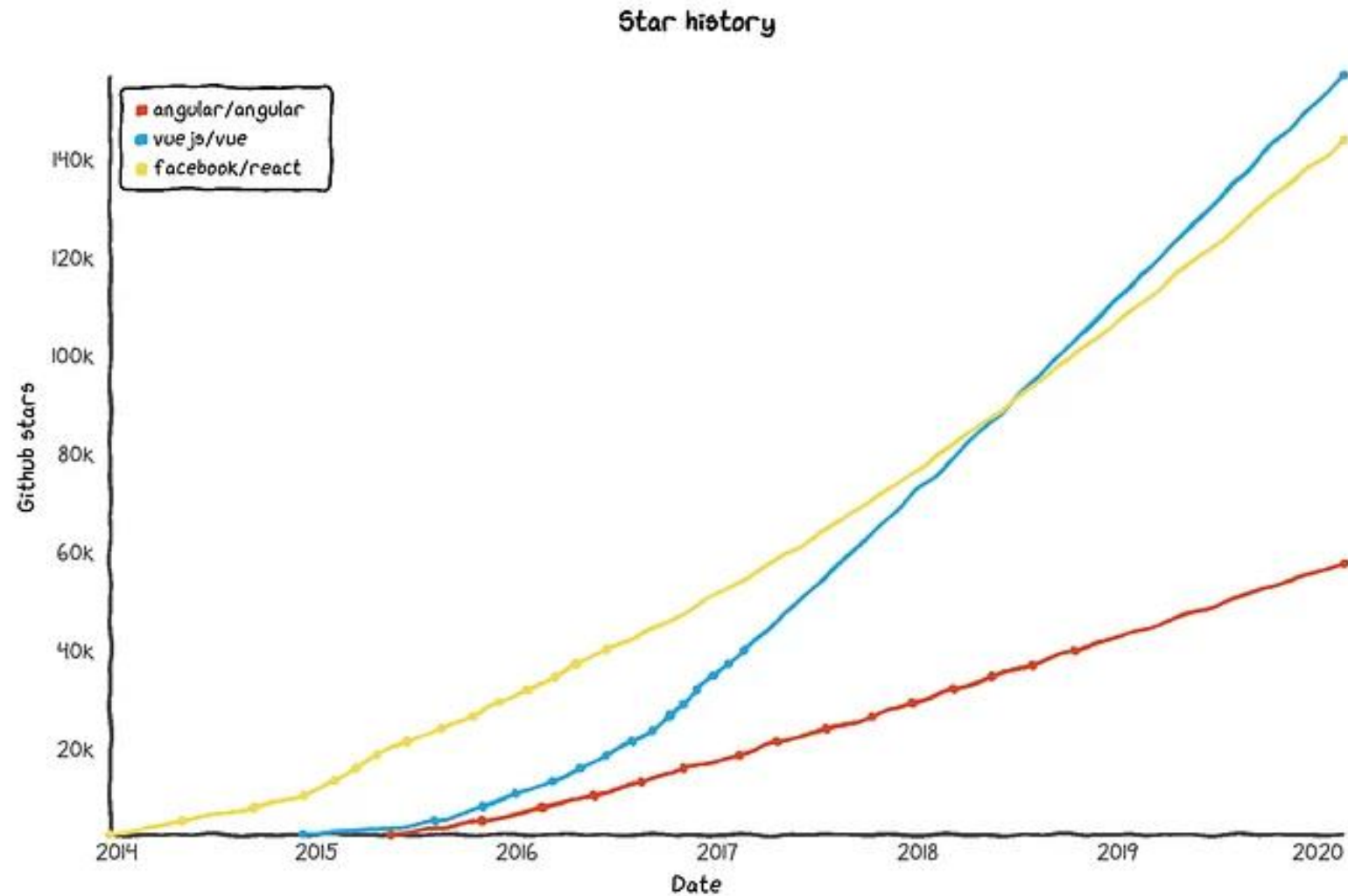
Django vs Laravel vs Node js

Programming Language	Web Framework
Python	Django, Flask, Tornado, web2py
Javascript	Angular, React, Vue.js, Node.js
PHP	Laravel, CodeIgniter, Symfony
Java	Spring, JSF, GWT

Front End Frameworks

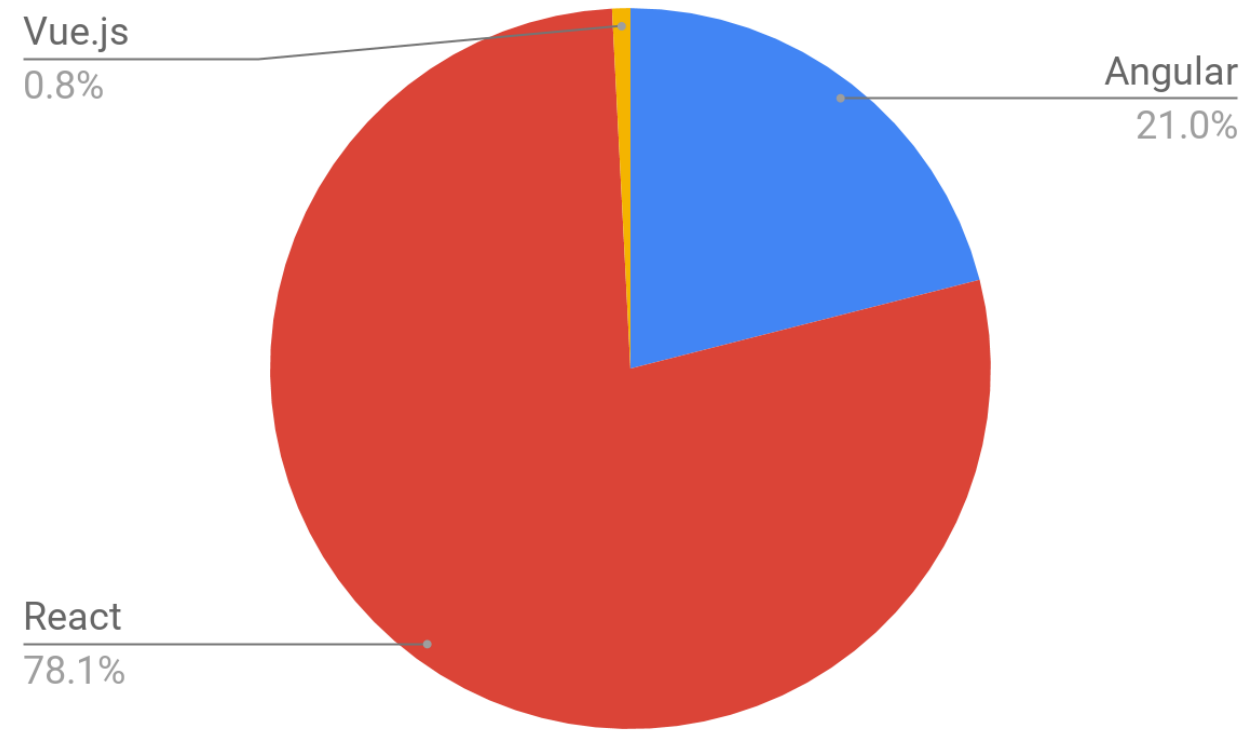


Front End Frameworks



Front End Frameworks

- Job Offers

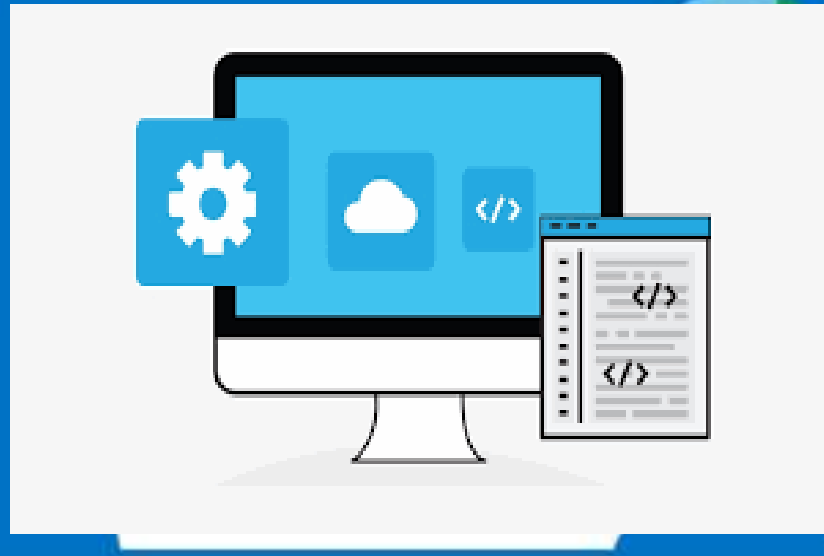


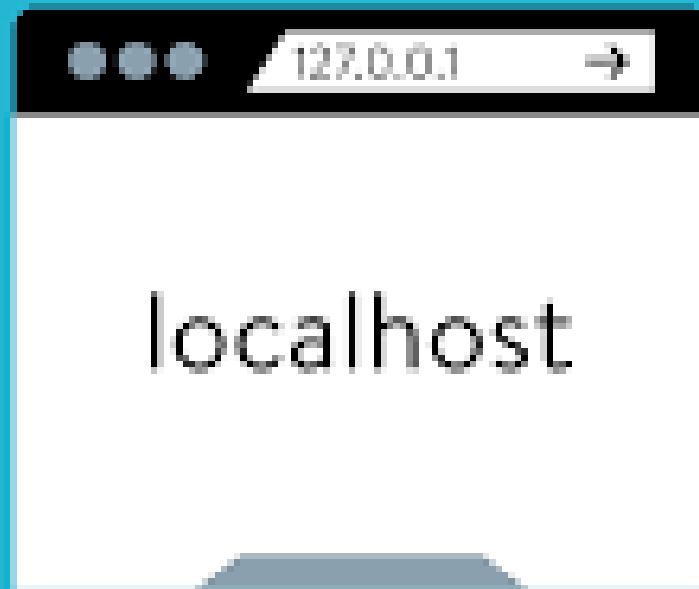
Web App Creation

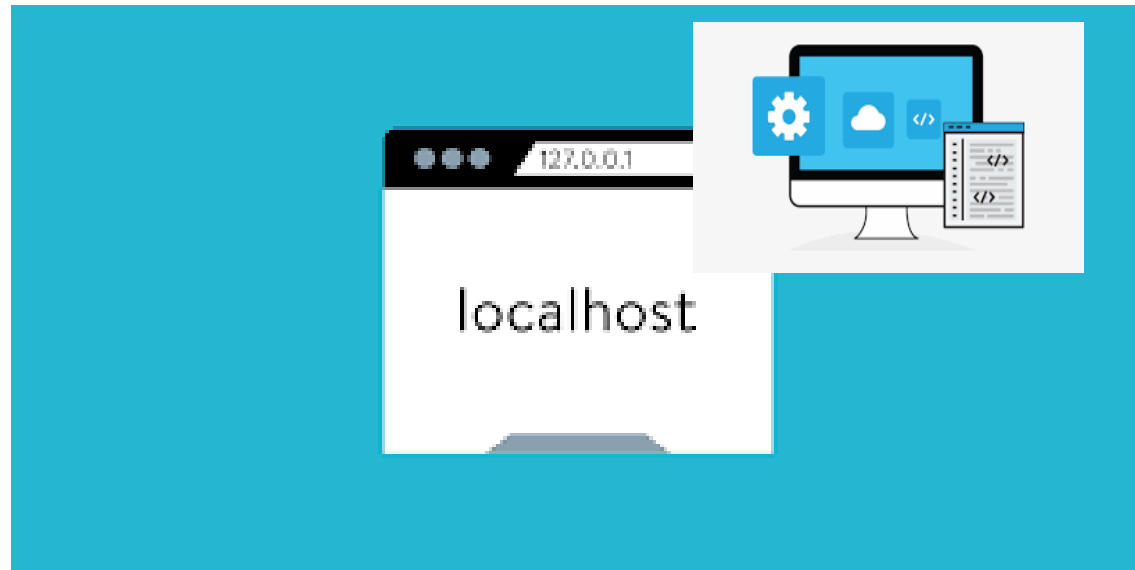
- WEB APP
- DATA BASE



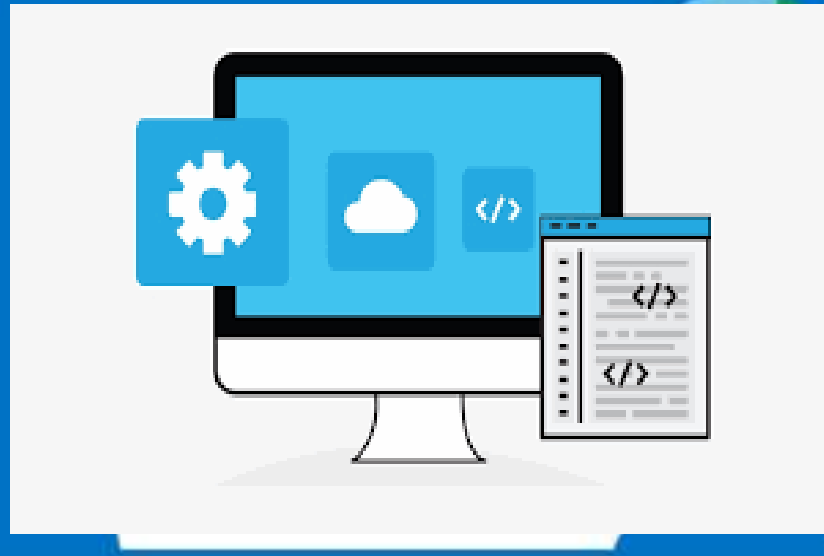
Microsoft Azure







Microsoft Azure



1/3 Create Postgress DB

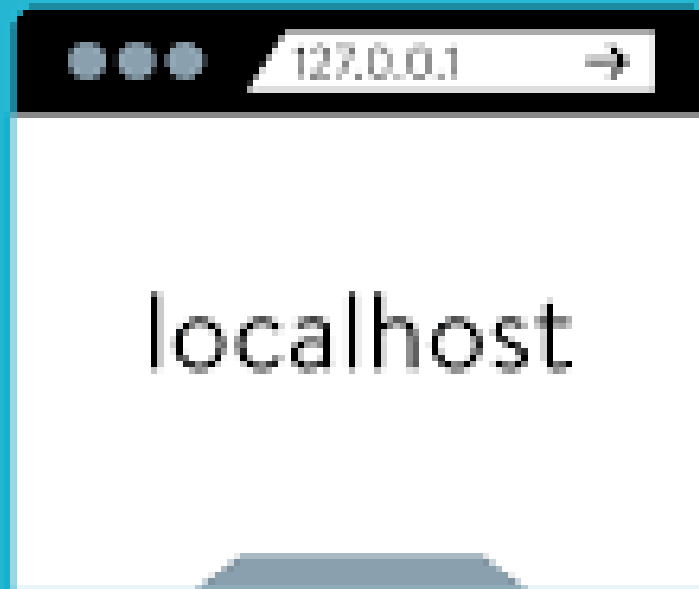
- `python3 --version` (bash) / `py -3 --version` (PowerShell)
- `az --version`
- `az login`
- `git clone https://github.com/Azure-Samples/djangoapp`
- `cd djangoapp`
- `az extension add --name db-up`
- `az postgres up --resource-group DjangoPostgres-tutorial-rg --location centralus --sku-name B_Gen5_1 --server-name <postgres-server-name> --database-name pollsdb --admin-user <admin-username> --admin-password <admin-password> --ssl-enforcement Enabled`

2/3 Create Web App

- `az webapp up --resource-group DjangoPostgres-tutorial-rg --location centralus --plan DjangoPostgres-tutorial-plan --sku F1 --name <app-name>`
- `az webapp config appsettings set --settings DBHOST="<postgres-server-name>" DBUSER="<username>" DBPASS="<password>" DBNAME="pollsdb"`
- `az webapp ssh`
 - `# Run database migrations`
 - `python manage.py migrate`
 - `# Create the super user (follow prompts)`
 - `python manage.py createsuperuser`

3/3 Browse your App

- az webapp browse
- `http://<app-name>.azurewebsites.net/admin`
- az webapp log tail
- Manage your app in the Azure portal

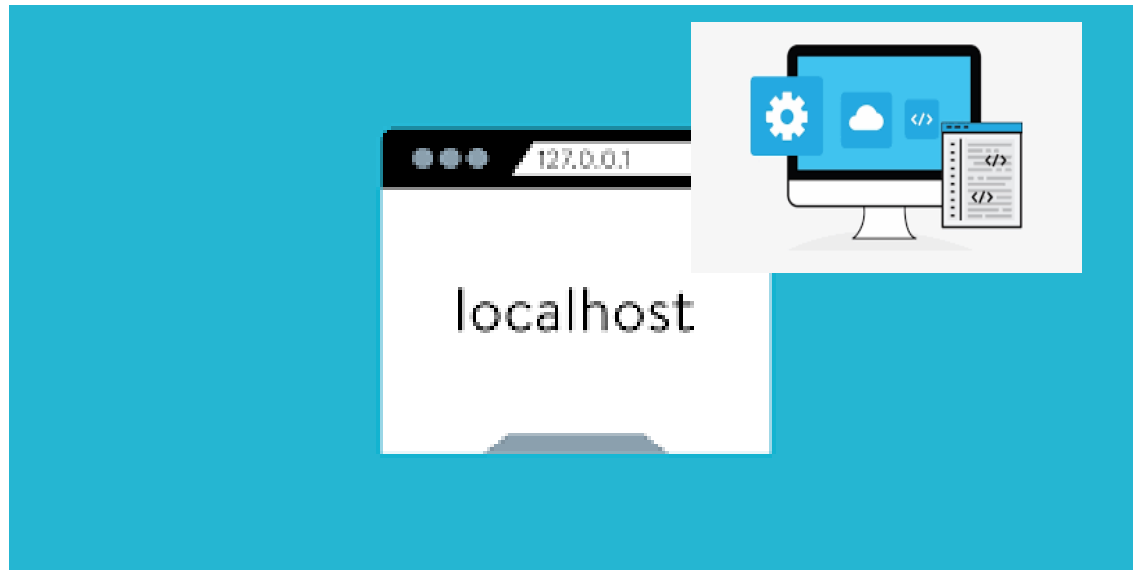


1/2 Configure your App

- # Configure the Python virtual environment
- `python3 -m venv venv (bash) / py -m venv .venv (PowerShell)`
- `source venv/bin/activate (bash) / .venv\scripts\activate (PowerShell)`
- # Install dependencies
- `pip install -r requirements.txt`
- # Run Django migrations
- `python manage.py migrate`
- # Create Django superuser (follow prompts)
- `python manage.py createsuperuser`
- # Run the dev server
- `python manage.py runserver`

2/2 Run your App

- Go to <http://localhost:8000> in a browser, which should display the message "No polls are available".
- Go to <http://localhost:8000/admin> and sign in using the admin user you created previously. Under Polls, again select Add next to Questions and create a poll question with some choices.
- Go to <http://localhost:8000> again and answer the question to test the app.
- Stop the Django server by pressing Ctrl+C.



Run a Python (Django) web app with PostgreSQL in Azure App Service

- Edit your local *env.ps1*:
 - \$Env:DBHOST = "<postgresql-name>"
 - \$Env:DBUSER = "manager"
 - \$Env:DBNAME = "pollsdb"
 - \$Env:DBPASS = "supersecretpass"
- In PowerShell:
 - .\env.ps1
 - python manage.py runserver

Run a Python (Django) web app with PostgreSQL in Azure App Service

- In web browser
 - <http://localhost:8000>
 - No polls are available.
 - <http://localhost:8000/admin>
 - **Add Questions**, and create a poll question with some choices.
 - <http://localhost:8000>
 - see the poll question and answer the question.
 - The local Django sample application writes and stores user data to the the **Azure Database for PostgreSQL** database.
- In PowerShell:
 - To stop the Django server, type Ctrl+C in the terminal.

Clean up resources

- `az group delete --name Python-Django-PGFlex-rg --no-wait`

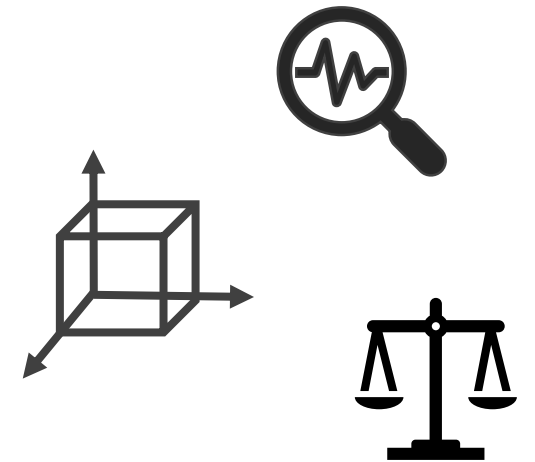
New version!!

- [Tutorial sobre la implementación de una aplicación Django con App Service y el servidor flexible de Azure Database for PostgreSQL en una red virtual | Microsoft Learn](#)
- <https://learn.microsoft.com/es-es/azure/postgresql/flexible-server/tutorial-django-app-service-postgres?tabs=clone>



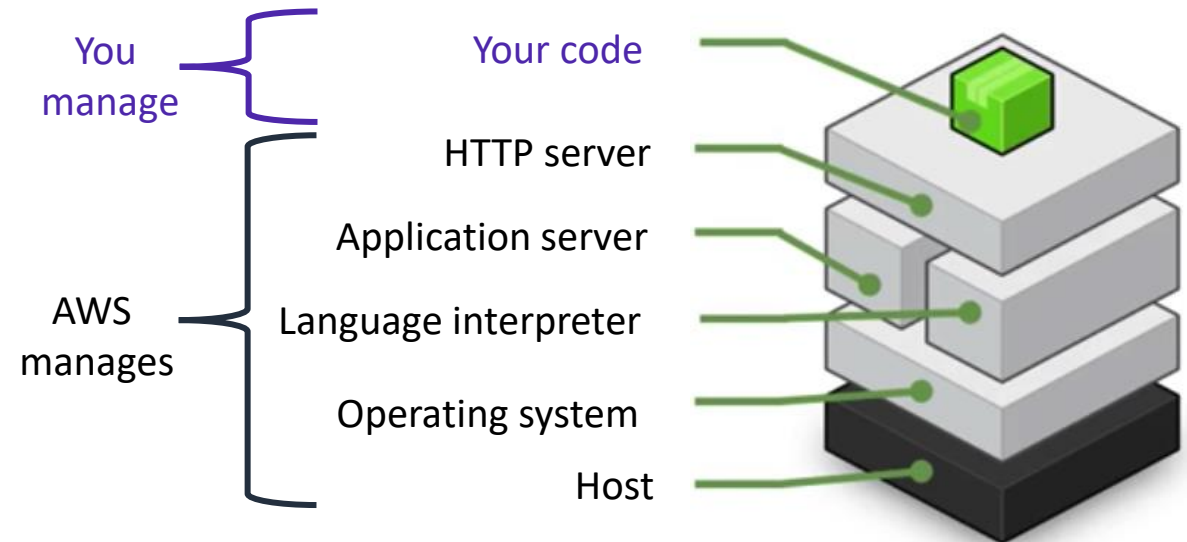
AWS Elastic
Beanstalk

- Easy way to get **web applications** up and running
- **Managed service** that automatically handles –
 - Infrastructure provisioning and configuration
 - Deployment
 - Load balancing
 - Automatic scaling
 - Health monitoring
 - Analysis and debugging
 - Logging
- No additional charge for using it
 - Pay only for the underlying resources that are used

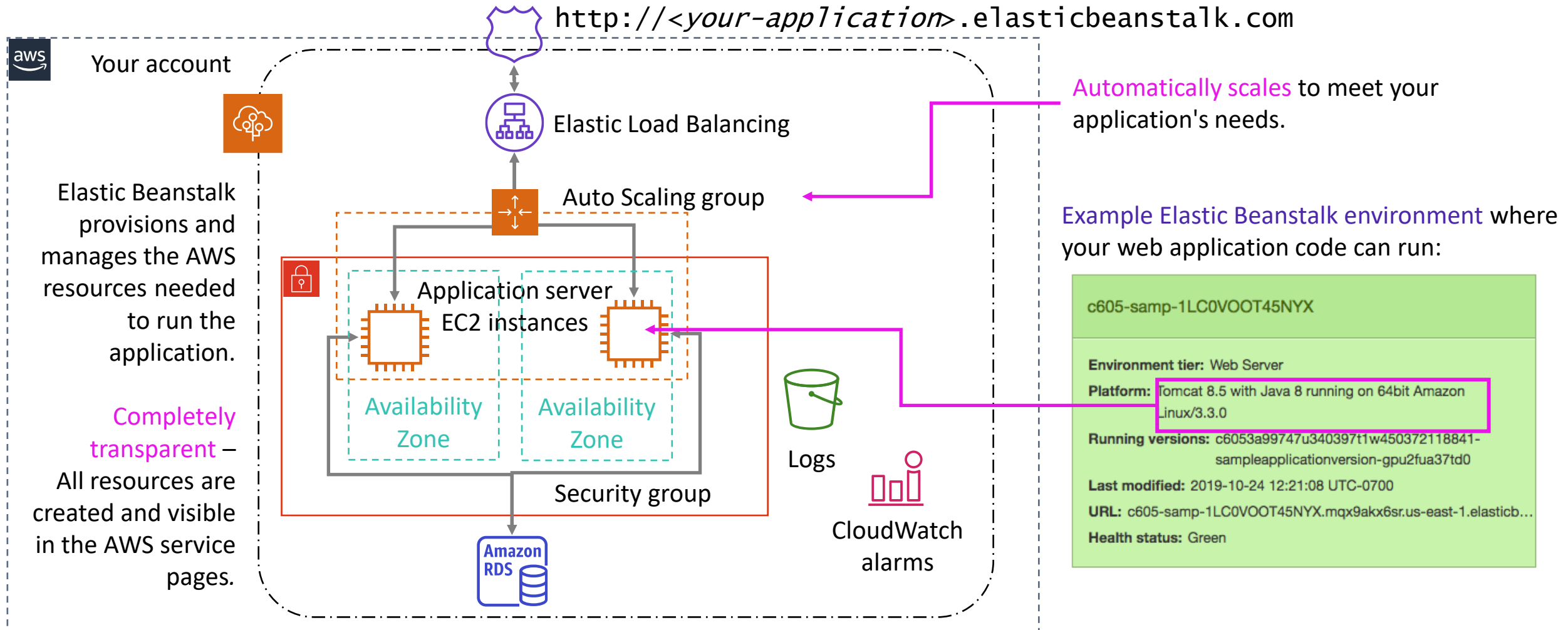


AWS Elastic Beanstalk deployments

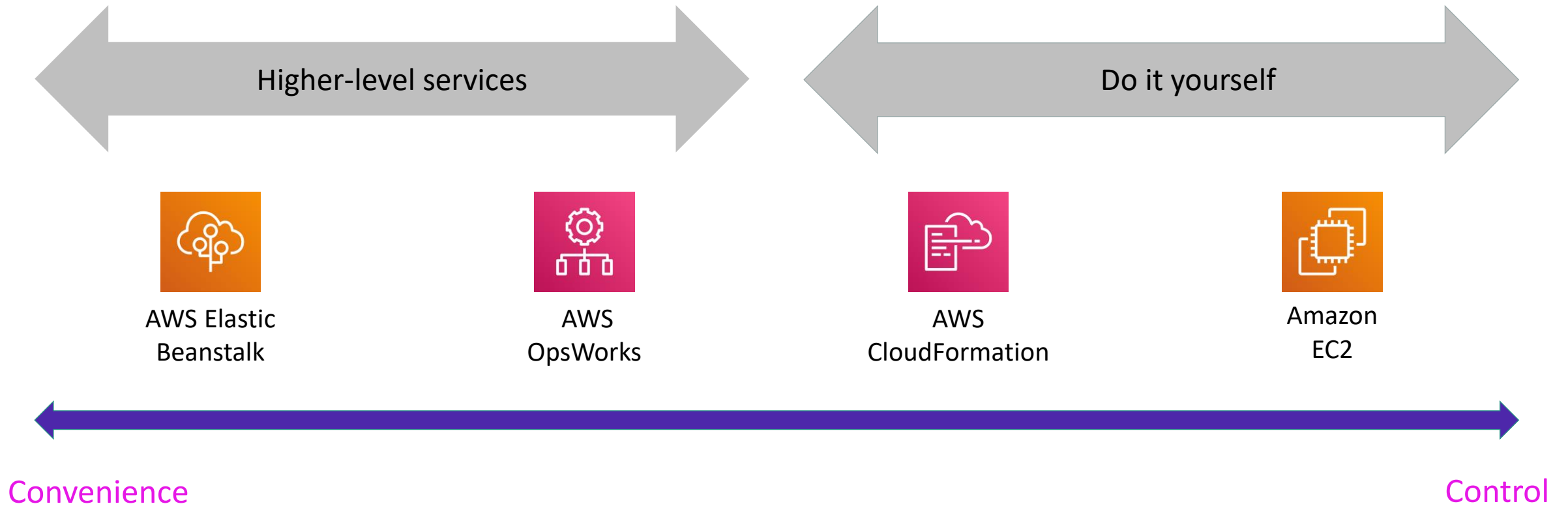
- It supports web applications written for common platforms
 - Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker
- You upload your code
 - Elastic Beanstalk automatically handles the deployment
 - Deploys on servers such as Apache, NGINX, Passenger, Puma, and Microsoft Internet Information Services (IIS)



Elastic Beanstalk application environment



Choosing the right automation solution



Lab: Using Elastic Beanstalk and CloudFormation

≡ AICv1Sem... > Continguts > Module 12...
> Lab 12 - Beanstalk - CloudFormation

AWS 

▶ Start Lab

■ End Lab

i AWS Details

i Readme



eee_w_2800

EN-US

Module 12 Lab: Using Elastic Beanstalk and CloudFormation

Lab overview

In this lab, you will create an application using AWS Elastic Beanstalk. You will also use a template and AWS CloudFormation to build a Virtual Private Cloud (VPC).

Other services

- IBM AI Cognitive Service



IBM Cloud

- <https://cloud.ibm.com/login>
- <https://cognitiveclass.ai/>
- <https://cognitiveclass.ai/applying-ibm-cloud-promo-code>
- <https://developer.ibm.com/tutorials/visual-recognition-challenge/>
- <https://dataplatform.cloud.ibm.com/docs/content/wsj/analyze-data/visual-recognition-overview.html>
- <https://developer.ibm.com/tutorials/deploy-your-first-app-to-ibm-cloud/>
- <https://cognitiveclass.ai/learn/data-science-with-python>
- <https://cognitiveclass.ai/learn/data-science>
- <https://developer.ibm.com/tutorials/?fa=date%3ADESC&fb=>
- <https://developer.ibm.com/tutorials/category/continuous-integration,continuous-delivery/?fa=date%3ADESC&fb=>
- <https://developer.ibm.com/digitalconference/>

Image Classifier - Test

IBM Watson Studio

🔔

daniel franco puntas's Acc... ▾

DF

Food

Overview

Test

Implementation

Filter

Threshold 0.12

0 ● 1

Classes

☐ bread


☐ bun

☐ hamburger

☐ hamburger bun

☐ sandwich

☐ snack food



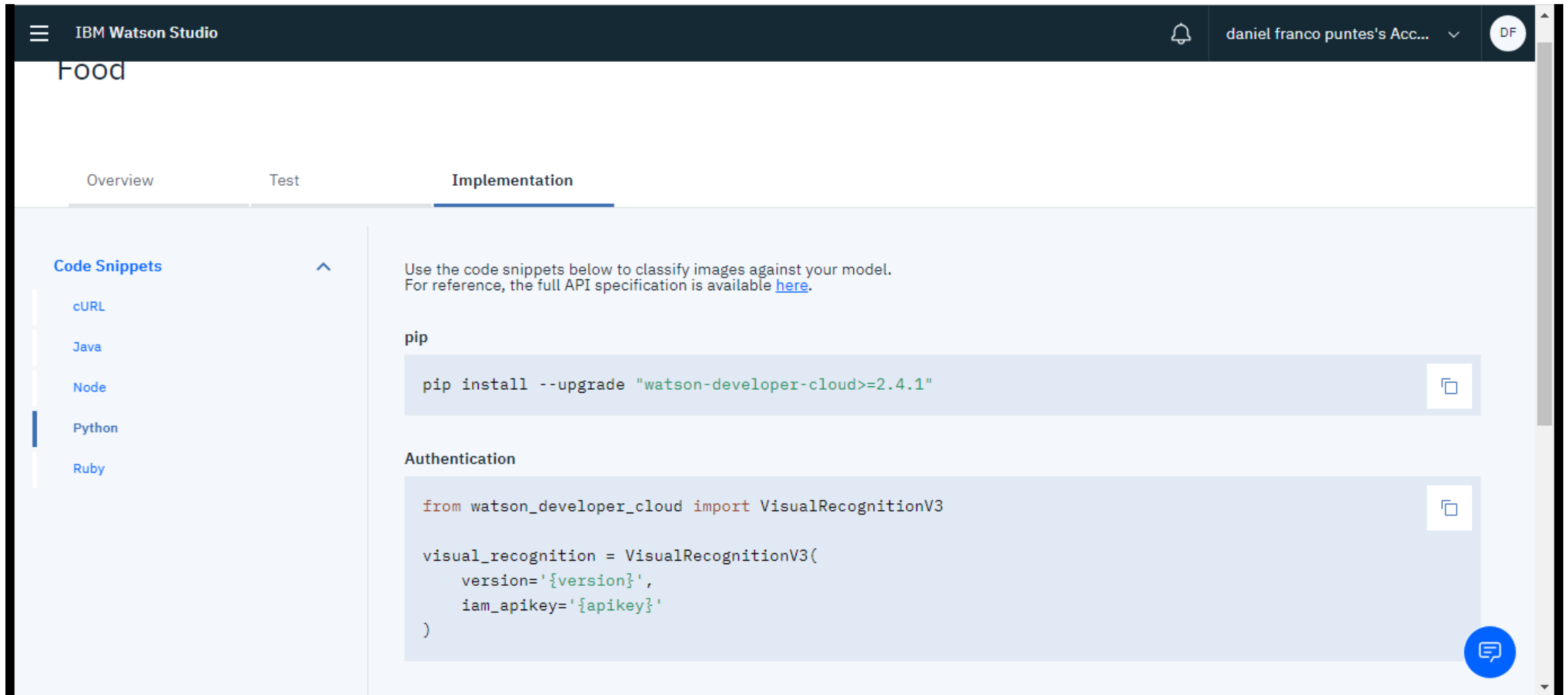
sandwich	0.87
snack food	0.87
hamburger	0.87
hamburger bun	0.50
bun	0.50

descarga.jpg ^

imgres.html ^

Mostrar todo ×

Image Classifier – Python Code Snippets



The screenshot displays the IBM Watson Studio interface. At the top, a dark blue header bar contains the 'IBM Watson Studio' logo on the left, a notification bell icon, the user account 'daniel franco puntas's Acc...' with a dropdown arrow, and a circular profile icon labeled 'DF' on the right. Below the header, the main content area is titled 'Food' in a large, bold font. Underneath the title, there are three tabs: 'Overview', 'Test', and 'Implementation', with 'Implementation' being the active tab. On the left side of the 'Implementation' tab, there is a sidebar titled 'Code Snippets' with a list of programming languages: 'cURL', 'Java', 'Node', 'Python' (which is highlighted with a blue bar), and 'Ruby'. The main area of the 'Implementation' tab contains instructional text: 'Use the code snippets below to classify images against your model. For reference, the full API specification is available [here](#).' Below this text, there are two sections of code. The first section is titled 'pip' and contains the command: `pip install --upgrade "watson-developer-cloud>=2.4.1"`. The second section is titled 'Authentication' and contains a Python code snippet for initializing the Visual Recognition V3 client: `from watson_developer_cloud import VisualRecognitionV3`, `visual_recognition = VisualRecognitionV3(`, `version='{version}',`, `iam_apikey='{apikey}'`, and `)`. Each code block has a copy icon in its top right corner. A blue chat bubble icon is located in the bottom right corner of the interface.

IBM Watson Studio

Food

Overview Test Implementation

Code Snippets

- cURL
- Java
- Node
- Python
- Ruby

Use the code snippets below to classify images against your model. For reference, the full API specification is available [here](#).

pip

```
pip install --upgrade "watson-developer-cloud>=2.4.1"
```

Authentication

```
from watson_developer_cloud import VisualRecognitionV3

visual_recognition = VisualRecognitionV3(
    version='{version}',
    iam_apikey='{apikey}'
)
```

Image Classifier – Python Code Snippets



The screenshot displays the IBM Watson Studio web interface. At the top, a dark blue header bar contains the 'IBM Watson Studio' logo on the left, a notification bell icon, the user profile 'daniel franco puntas's Acc...' with a dropdown arrow, and a circular profile icon with the initials 'DF' on the right. The main interface is divided into two panels. The left panel, titled 'Code Snippets' with an upward arrow, lists programming languages: cURL, Java, Node, Python (which is highlighted with a blue bar), and Ruby. The right panel, titled 'Classify an image', contains a Python code snippet. The code imports the 'json' module and 'VisualRecognitionV3' from 'watson_developer_cloud'. It initializes a 'visual_recognition' object with the date '2018-03-19' and an 'iam_apikey' placeholder. A 'with' statement opens a file named 'fruitbowl.jpg' in binary mode ('rb') as 'images_file'. The 'visual_recognition' object's 'classify' method is called with 'images_file', a threshold of '0.6', and classifier IDs of 'food'. The result is printed as a JSON dump with an indent of 2. A copy icon is visible in the top right corner of the code editor area, and a chat bubble icon is in the bottom right corner.

IBM Watson Studio

Code Snippets ^

- cURL
- Java
- Node
- Python
- Ruby

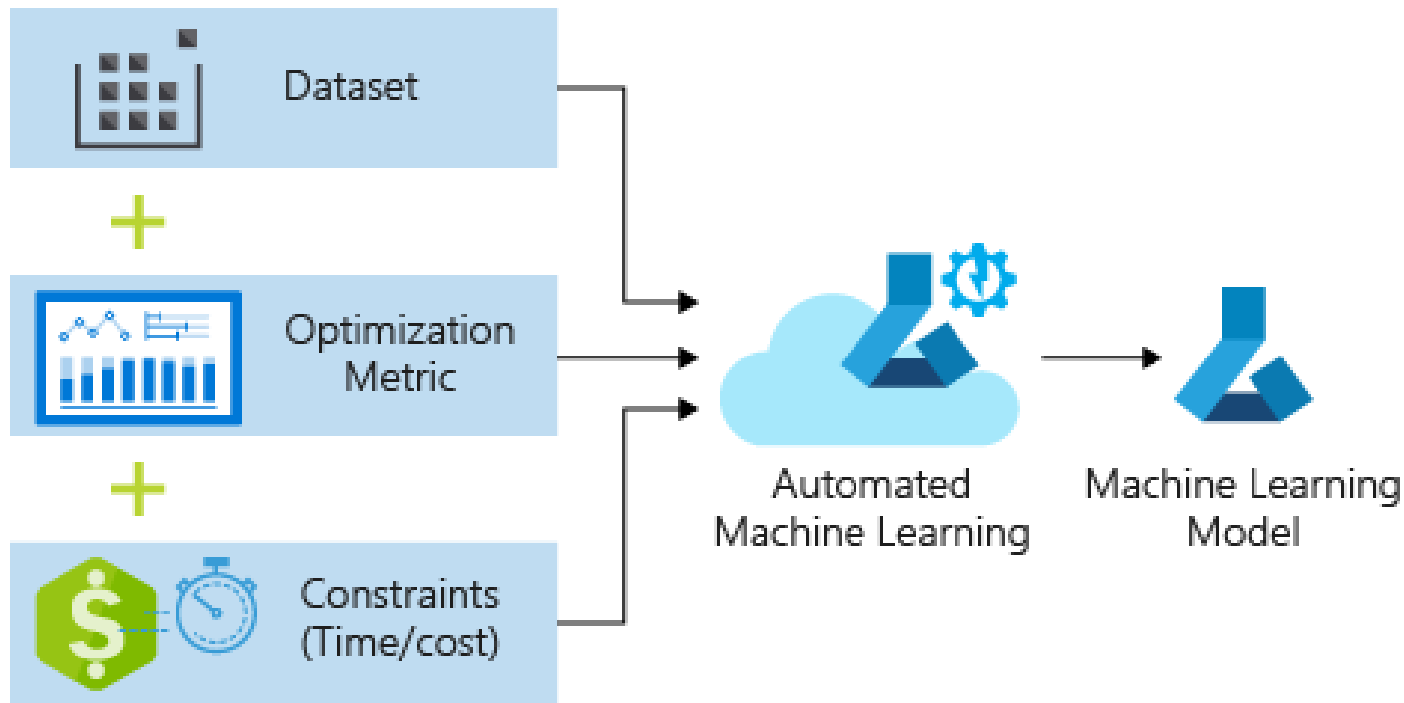
Classify an image

```
import json
from watson_developer_cloud import VisualRecognitionV3

visual_recognition = VisualRecognitionV3(
    '2018-03-19',
    iam_apikey='{iam_api_key}')

with open('./fruitbowl.jpg', 'rb') as images_file:
    classes = visual_recognition.classify(
        images_file,
        threshold='0.6',
        classifier_ids='food').get_result()
print(json.dumps(classes, indent=2))
```

AZURE ML Labs



- [Tutorial: AutoML- train no-code classification models - Azure Machine Learning | Microsoft Docs](#)
- [Tutorial: Demand forecasting & AutoML - Azure Machine Learning | Microsoft Docs](#)
- [Tutorial: AutoML-train regression model - Azure Machine Learning | Microsoft Docs](#)

←

→

↺

https://ml.azure.com/automl/runs/AutoML_5a6ad552-6d31-4b7b-b108-24a4cf8587c3?wsid=/subscriptions/95f0c50e-0d67-45eb-9... A ⓘ ⭐ ⌵ 👤 ...

Microsoft Azure Machine Learning Studio

🔔² ⚙️ ? 😊

Azure for Students mlfromuab ⌵

DF

☰

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⚡

🔗

🔍

🧪

🔗

📄

🔄

🖥️

Arab Academy for Science and Technology > mlfromuab > Automated ML > my-1st-automl-experiment > happy_line_pht00z5z

happy_line_pht00z5z ✎ ⭐

↺ Refresh

▶ Edit and submit (preview)

⊗ Cancel

🗑 Delete

Details

Data guardrails

Models

Outputs + logs

Child runs

Snapshot

Properties

Status

▶ Running ⌵

Setting up the run

Validating run configuration

Created

May 5, 2022 5:54 PM

Started

May 5, 2022 5:54 PM

Compute target

automl-compute

Best model summary

ⓘ No data

Run summary

Task type

Classification ⌵ [View configuration settings](#)

Featurization

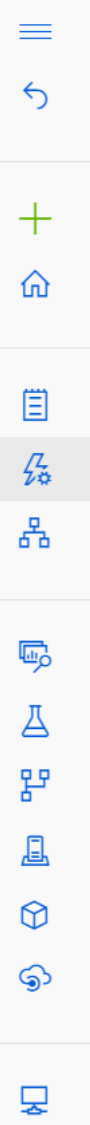
Auto

Primary metric

AUC weighted

Experiment name

my-1st-automl-experiment



Arab Academy for Science and Technology > mlfromuab > Automated ML > my-1st-automl-experiment > happy_line_pht00z5z

happy_line_pht00z5z

Refresh Edit and submit (preview) Cancel Delete

Details Data guardrails Models Outputs + logs Child runs Snapshot

Properties

Status

Running

Model training

Created

May 5, 2022 5:54 PM

Started

May 5, 2022 5:54 PM

Compute target

[automl-compute](#)

Run ID

Best model summary

No data

Run summary

Task type

Classification [View configuration settings](#)

Featurization

Auto

Primary metric

AUC weighted

Experiment name

my-1st-automl-experiment

Experiment title: happy_line_pht00z5z with edit and favorite icons.

Actions: Refresh, Edit and submit (preview), Cancel, Delete

Tabs: Details, Data guardrails, Models (selected), Outputs + logs, Child runs, Snapshot

Actions: Refresh, Deploy, Download, Explain model, View generated code (preview), Edit columns, Reset view

Search bar and filters: Submitted time, All filters, Clear all

Showing 1-5 of 5 models. Page size: 25

Algorithm name	Explained	AUC weighted ↓	Sampling	Submitted time	Dura
MaxAbsScaler, XGBoostClassifier		0.94172	100.00 %	May 5, 2022 6:01 PM	25s
StandardScalerWrapper, LightGBM		0.93110	100.00 %	May 5, 2022 6:01 PM	27s
MaxAbsScaler, RandomForest		0.90572	100.00 %	May 5, 2022 6:01 PM	26s
MaxAbsScaler, ExtremeRandomTrees		0.89353	100.00 %	May 5, 2022 6:01 PM	22s

[MaxAbsScaler, LightGBM](#)

0.94583

100.00 %

May 5, 2022 6:01 PM

24s

min_data_in_leaf : 20

[SparseNormalizer, XGBoostClassifier](#)

0.94221

100.00 %

May 5, 2022 6:01 PM

27s

booster : gbtree

colsample_bytree : 0.8

eta : 0.3

gamma

max_depth : 6

+7

[SparseNormalizer, XGBoostClassifier](#)

0.94181

100.00 %

May 5, 2022 6:01 PM

22s

booster : gbtree

colsample_bytree : 0.8

eta : 0.3

gamma : 0.1

max_depth : 10

+7

[MaxAbsScaler, XGBoostClassifier](#)

0.94172

100.00 %

May 5, 2022 6:01 PM

25s

tree_method : auto

[SparseNormalizer, RandomForest](#)

0.93590

100.00 %

May 5, 2022 6:01 PM

25s

bootstrap : true

class_weight : balanced

criterion : gini

max_features : sqrt

min_samples_leaf : 0.01

+3

[SparseNormalizer, LightGBM](#)

0.93414

100.00 %

May 5, 2022 6:01 PM

27s

boosting_type : goss

colsample_bytree : 0.7922222222222222

learning_rate : 0.09473736842105263

max_bin : 80

max_depth : 6

+8

[StandardScalerWrapper, XGBoostClassifier](#)

0.93287

100.00 %

May 5, 2022 6:01 PM

28s

booster : gbtree

colsample_bytree : 0.5

eta : 0.3

gamma

max_depth : 10

+7

[StandardScalerWrapper, LightGBM](#)

0.93110

100.00 %

May 5, 2022 6:01 PM

27s

boosting_type : gbdt

colsample_bytree : 0.49555555555555555

learning_rate : 0.09473736842105263

max_bin : 140

max_depth : 6

+8

[MaxAbsScaler, RandomForest](#)

0.90572

100.00 %

May 5, 2022 6:01 PM

26s

bootstrap : true

class_weight

criterion : gini

max_features : log2

min_samples_leaf : 0.01

+3

[MaxAbsScaler, ExtremeRandomTrees](#)

0.89353

100.00 %

May 5, 2022 6:01 PM

22s

bootstrap

class_weight

criterion : gini

max_features : 0.7

min_samples_leaf : 0.035789473684210524

+3

[MaxAbsScaler, RandomForest](#)

0.87956

100.00 %

May 5, 2022 6:01 PM

27s

bootstrap : true

class_weight : balanced

criterion : gini

max_features : log2

min_samples_leaf : 0.06157894736842105

+3

..

[MaxAbsScaler, ExtremeRandomTrees](#)

0.82578

100.00 %

May 5, 2022 6:01 PM

32s



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happy_line_pht00z5z

Refresh Edit and submit (preview) Cancel Delete

Details Data guardrails Models Outputs + logs Child runs Snapshot

Properties

Status

Completed

Warning: Experiment timeout reached, hence experiment stopped. Current experiment timeout: 1 hour(s) 0 minute(s)

See more details

Created

May 5, 2022 5:54 PM

Started

May 5, 2022 5:54 PM

Duration

1h 12m 16.92s

Best model summary

Algorithm name

VotingEnsemble

Ensemble details

View ensemble details

AUC weighted

0.94816 View all other metrics

Sampling

100.00 %

Registered models

No registration yet

Deploy status

No deployment yet

happy_line_pht00z5z ✎ ☆

↺ Refresh ⏮ Edit and submit (preview) ⊗ Cancel 🗑 Delete

Details Data guardrails **Models** Outputs + logs Child runs Snapshot

↺ Refresh ▶ Deploy ▾ ⬇ Download 🔍 Explain model # View generated code (preview) 📊 Edit columns ↺ Reset view

🔍 Search Submitted time ▾ ⚙ All filters ✕ Clear all

Showing 1-43 of 43 models Page size: 50 ▾

Algorithm name		AutoML_5a6ad552-6d31-4b7b-b108-24a4cf8587c3_45	weighted ↓	Sampling	Submitted time	Dura
✓	VotingEnsemble	View explanation	0.94816	100.00 %	May 5, 2022 7:01 PM	4s
	StackEnsemble		0.94798	100.00 %	May 5, 2022 7:01 PM	4s
	MaxAbsScaler, LightGBM		0.94606	100.00 %	May 5, 2022 6:25 PM	4s
	MaxAbsScaler, LightGBM		0.94583	100.00 %	May 5, 2022 6:01 PM	24s

happy_line_pht00z5z ✎ ⭐

🔄 Refresh ⏮ Edit and submit (preview) ⊗ Cancel 🗑 Delete

Details Data guardrails **Models** Outputs + logs Child runs Snapshot

🔄 Refresh ▶ Deploy ▼ ⬇ Download 🔍 Explain model # View generated code (preview) 📊 Edit columns ↺ Reset view

🔍 Search

Submitted time ▼ 🔹 All filters ✕ Clear all

Showing 1-43 of 43 models

Page size: 50 ▼

Algorithm name		AutoML_5a6ad552-6d31-4b7b-b108-24a4cf8587c3_45	weighted ↓	Sampling	Submitted time	Dura
✓	VotingEnsemble	View explanation	0.94816	100.00 %	May 5, 2022 7:01 PM	4s
	StackEnsemble		0.94798	100.00 %	May 5, 2022 7:01 PM	4s
	MaxAbsScaler, LightGBM		0.94606	100.00 %	May 5, 2022 6:25 PM	4s
	MaxAbsScaler, LightGBM		0.94583	100.00 %	May 5, 2022 6:01 PM	24s

happy_line_pht00z5z

Refresh Edit and submit (preview) Cancel Delete

Details Data guardrails Models Outputs + logs Child runs Snapshot

Success: Explainability run successfully created. You can view the run status in the "Child runs" tab. Once the run is complete, the explainability tab will populate with your explanations.

Refresh Deploy Download Explain model View generated code (preview) Edit columns Reset view









Search Submitted time All filters Clear all

Showing 1-43 of 43 models Page size: 50

	Algorithm name	Explained	AUC weighted ↓	Sampling	Submitted time	Dura
✓	VotingEnsemble	View explanation	0.94816	100.00 %	May 5, 2022 7:01 PM	4s
	StackEnsemble		0.94798	100.00 %	May 5, 2022 7:01 PM	4s
	MaxAbsScaler, LightGBM		0.94606	100.00 %	May 5, 2022 6:25 PM	4s


(i) This job is using the new compute runtime to improve performance. You can expect to see a different log structure along with the new runtime.

patient_school_5f0wg8j0

 Refresh  Deploy  Download  Explain model  View generated code (preview)  Test model (preview)  Cancel  Delete

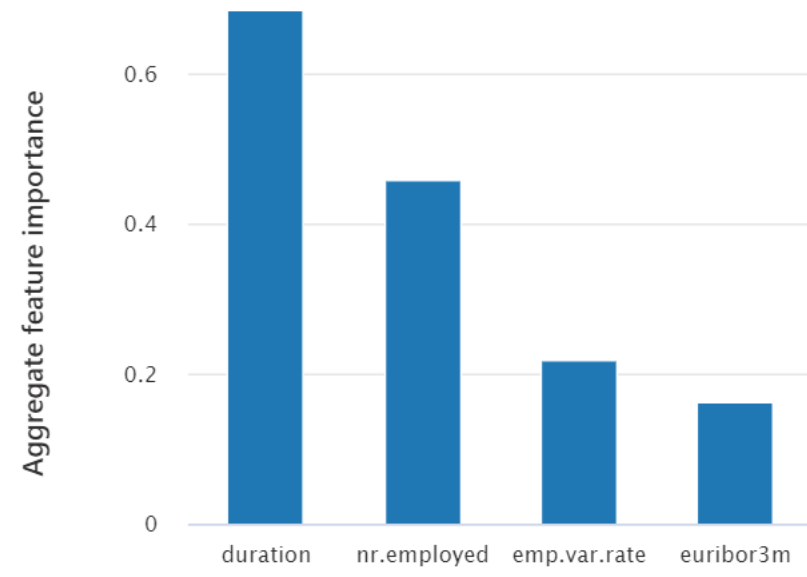
Details Model **Explanations (preview)** Metrics Data transformation (preview) Test results (preview) Outputs + logs Images Child runs Snapshot Monitor

0 filters

Explanation ID 

50e76c96

b649a202



Sort by datapoint

All data 

Chart type

☒ Bar

☐ Box

This job is using the new compute runtime to improve performance. You can expect to see a different log structure along with the new runtime.

patient_school_5f0wg8j0

Refresh Deploy Download Explain mo

Details Model Explanations (preview)

Metrics

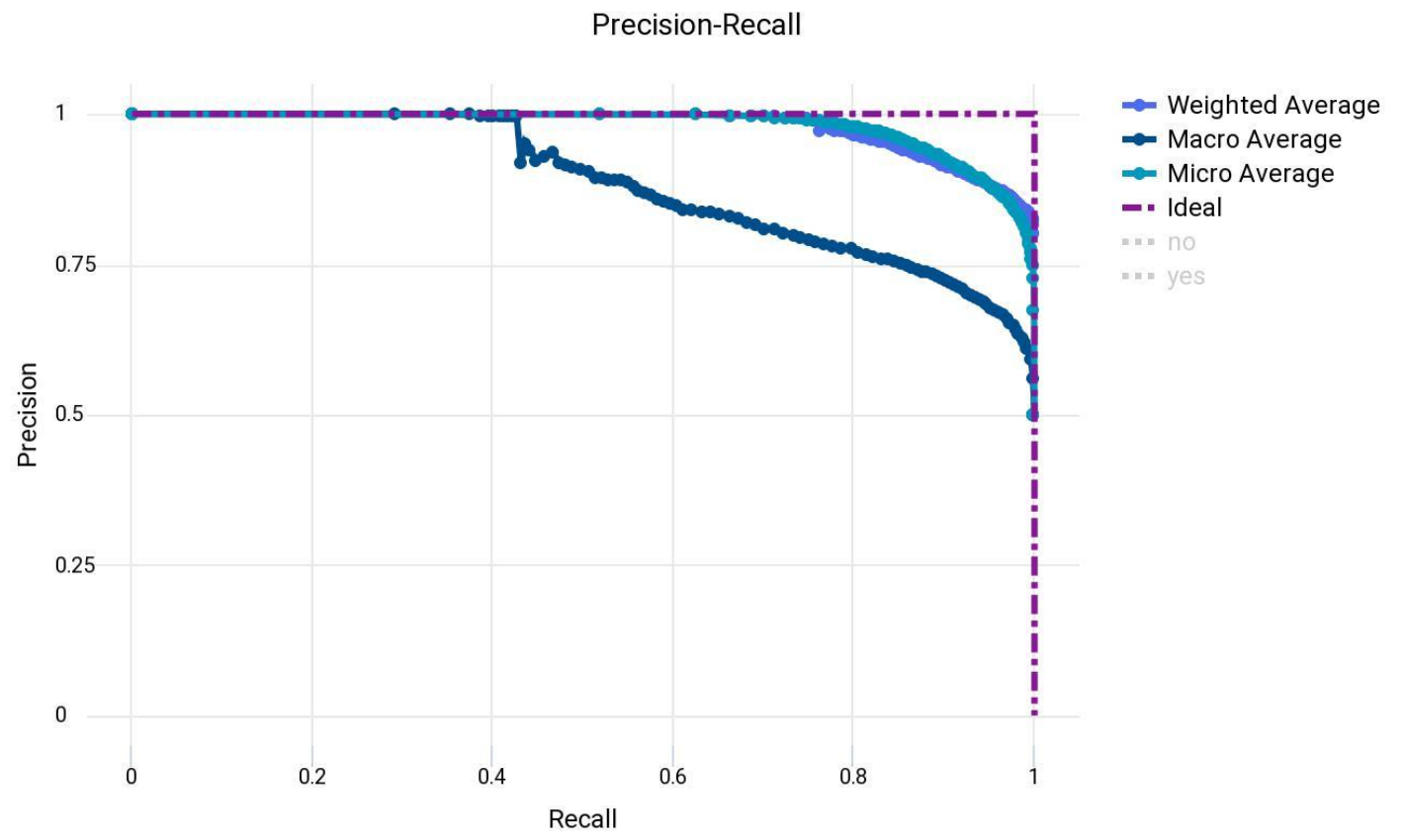
Select a metric to see a visualization or table of the data.

- Search
- ☒ accuracy
 - ☒ accuracy_table
 - ☒ AUC_macro
 - ☒ AUC_micro
 - ☒ AUC_weighted

View as: (

accurac

0.915



my-automl-deploy

Details Test Consume Deployment logs

Input data to test real-time endpoint

Test

Select editor type

☒ Form editor ☐ JSON editor

▼ data

age

40

job

example_value

marital

example_value

Test result

```
{
  "Results": [
    "no"
  ]
}
```

←

→

↺

https://ml.azure.com/experiments/id/12e9f0d9-d63e-4c3d-b7b5-28c9a8b45f04/runs/AutoML_5a6ad552-6d31-4b7b-b108-2...

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Microsoft Azure Machine Learning Studio

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Azure for Students

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Experiments

my-1st-automl-experiment

happy_line_pht00z5z

patient_school_5f0wg8j0

ⓘ

This job is using the new compute runtime to improve performance. You can expect to see a different log structure along with the new runtime.

×

patient_school_5f0wg8j0

🔄 Refresh

▶ Deploy ▼

⬇ Download

🔍 Explain model

View generated code (preview)

✓ Test model (preview)

⊗ Cancel

🗑 Delete

Details

Model

Explanations (preview)

Metrics

Data transformation (preview)

Test results (preview)

Outputs + logs

Images

Child runs

Snapshot

Monitoring (preview)

Model summary

Algorithm name
VotingEnsemble

Ensemble details
[View ensemble details](#)

AUC weighted
0.94816 [View all other metrics](#)

Sampling
100.00 % ⓘ

Registered models
[AutoML5a6ad552645:1](#)

Deploy status
[my-automl-deploy](#) ✓ Succeeded

my-automl-deploy

Details Test Consume Deployment logs

Created on

May 5, 2022 9:30 PM

Last updated on

May 5, 2022 9:30 PM

Image ID

--

REST endpoint

<http://517b8b4b-6e5a-419b-b51f-ae5e8c84d5ea.eastus.azurecontainer.io/score> 📄

Key-based authentication enabled

false

Swagger URI

<http://517b8b4b-6e5a-419b-b51f-ae5e8c84d5ea.eastus.azurecontainer.io/swagger.json> 📄

CPU

1.8

Memory

4 GB

Application Insights enabled

false



my-automl-deploy

- Details
- Test**
- Consume
- Deployment logs

Input data to test real-time endpoint Test

Select editor type

- ☒ Form editor
- ☐ JSON editor

data CSV

age

job

marital

education

Test result

```
{  "Results": [    "no"  ]}
```

Build an AI web app by using Python and Flask

- Learn how to set up a Flask development environment
- Learn how to use Flask to build a form
- Learn how to use the Translator service to translate text



AWS Computer Vision

Amazon Rekognition Custom Labels



Services

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[Alt+S]



Select a Region

voclabs/user363261=Daniel_Franco @ 3072-7320-1625



Amazon Rekognition Custom Labels



Get started

Projects [Updated](#)

▼ **circuit_boards_1**

Dataset

Pricing [↗](#)

Documentation [↗](#)

NEW! Amazon Rekognition Custom Labels now manages datasets within a project.

You can now create datasets for your projects with the console or AWS SDK. If you have previously used Amazon Rekognition Custom Labels, your older datasets need to be associated with a new project.

[Learn more](#)



Custom Labels > Projects > circuit_boards_1

We notice you're using an unsupported browser version. Amazon Rekognition Custom Labels supports only the most recent stable versions of Firefox, Chrome and Edge.

circuit_boards_1 [Info](#)

▼ How it works

Creating your dataset



1. Create dataset

A dataset is a collection of images, and image labels, that you use to train or test a model.

✓ Created



2. Label images

Labels identify objects, scenes, or concepts on an entire image, or they identify object locations on an image.

Add labels

Training your model



3. Train model

Depending on the training dataset, the training model finds image-level scenes and concepts, or it finds object locations.

Train model

Evaluating your model



4. Check performance metrics

Performance metrics tell you if your model needs additional training before you can use it.

Check metrics

Amazon Rekognition Custom Labels

- ▶ Get started
- ▶ Projects [Updated](#)
- ▶ circuit_boards_1

Pricing [↗](#)
Documentation [↗](#)

✔ Your model is running. You incur charges while it is running. Stop your model if it's not being used.

📘 **NEW! Amazon Rekognition Custom Labels now manages datasets within a project.**
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Custom Labels > Projects > circuit_boards_1 > Models > circuit_boards_1.2022-05-04T16.47.47

📘 We notice you're using an unsupported browser version. Amazon Rekognition Custom Labels supports only the most recent stable versions of Firefox, Chrome and Edge.

circuit_boards_1.2022-05-04T16.47.47 [Info](#) [Delete model](#)

Evaluation | Model details | Use model | Tags

📘 **Evaluation** ✕
The Evaluation tab shows the testing results for your trained model. This helps you understand the overall performance of your model. To view the results for an image, choose the View test results button.

Evaluation results View test results		
F1 score Info	Average precision Info	Overall recall Info
0.726	0.836	0.657

Amazon Rekognition Custom Labels ✕

- ▶ Get started
- Projects [Updated](#)
- ▼ **circuit_boards_1**
 - Dataset
- Pricing [🔗](#)
- Documentation [🔗](#)

image labels, and you use to train or test a model.

concepts on an entire image, or they identify object locations on an image.

the training model finds image-level scenes and concepts, or it finds object locations.

the model is ready for training before you can use it.

✅ Created

Add labels

Train model

Check metrics

Project details

Project name
circuit_boards_1

Created
May 04, 2022 at 16:44:15
(UTC+02:00)

Dataset
4 training labels, 16 training images,
4 test labels, 16 test images

Models
2

Models (2)

Delete model

Download validation results ▼

🔍 Find resources

< 1 ... >

<input type="checkbox"/>	Name ▼	Date created ▼	Training dataset ▼	Test dataset ▼	Model performance (F1 score) ▼	Model status ▼	Status message ▼
<input checked="" type="checkbox"/>	circuit_boards_1.2022-05-04T16.47.47	May 04, 2022			0.726	STARTING	The model is starting.
<input type="checkbox"/>	circuit_boards_1.2022-05-04T16.45.36	May 04, 2022			0.726	TRAINING_COMPLETED	The model is ready to run.

Amazon Rekognition Custom Labels



- ▶ Get started
- Projects [Updated](#)
- ▶ circuit_boards_1

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📘 Your model is starting. It might take up to 30 minutes to start running.

📘 **NEW! Amazon Rekognition Custom Labels now manages datasets within a project.**
You can now create datasets for your projects with the console or AWS SDK. If you have previously used Amazon Rekognition Custom Labels, your older datasets need to be associated with a new project.

[Learn more](#)



Custom Labels > Projects > circuit_boards_1 > Models > circuit_boards_1.2022-05-04T16.47.47

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circuit_boards_1.2022-05-04T16.47.47 [Info](#)

[Delete model](#)

Evaluation

Model details

Use model

Tags



Use model

Use the Use model tab to start and stop your model. Code examples for using your trained model are provided.



Use your model

Amazon Resource Name (ARN)

arn:aws:rekognition:us-east-1:307273201625:project/circuit_boards_1/version/circuit_boards_1.2022-05-04T16.47.47/1651675717461

▼ API Code

Use your model circuit_boards_1.2022-05-04T16.47.47 by calling the following AWS CLI commands or Python scripts. You can start and stop the model, and analyze custom labels in new images.

- ☐ AWS CLI command
- ☒ Python

Start model

Sample python script to start the circuit_boards_1.2022-05-04T16.47.47 model.

```
1  #Copyright 2020 Amazon.com, Inc. or its affiliates. All Rights Reserved.
2  #PDX-License-Identifier: MIT-0 (For details, see https://github.com/awsdocs/amazon-rekognition-custom-labels-developer-guide/bl
3
4  import boto3
5
6  def start_model(project_arn, model_arn, version_name, min_inference_units):
7
8      client=boto3.client('rekognition')
9
10     try:
11         # Start the model
12         print('Starting model: ' + model_arn)
13         response=client.start_project_version(ProjectVersionArn=model_arn, MinInferenceUnits=min_inference_units)
14         # Wait for the model to be in the running state
15         project_version_running_waiter = client.get_waiter('project_version_running')
16         project_version_running_waiter.wait(ProjectArn=project_arn, VersionNames=[version_name])
17
18         #Get the running status
19         describe_response=client.describe_project_versions(ProjectArn=project_arn,
20             VersionNames=[version_name])
21         for model in describe_response['ProjectVersionDescriptions']:
22             print("Status: " + model['Status'])
23             print("Message: " + model['StatusMessage'])
24     except Exception as e:
25         print(e)
26
27     print('Done...')
28
29 def main():
30     project_arn='arn:aws:rekognition:us-east-1:307273201625:project/circuit_boards_1/1651675504840'
31     model_arn='arn:aws:rekognition:us-east-1:307273201625:project/circuit_boards_1/version/circuit_boards_1.2022-05-04T16.47.47
32     min_inference_units=1
33     version_name='circuit_boards_1.2022-05-04T16.47.47'
34     start_model(project_arn, model_arn, version_name, min_inference_units)
35
36 if __name__ == "__main__":
37     main()
```

Analyze image

Sample python script to analyze an image with the circuit_boards_1.2022-05-04T16.47.47 model. Replace MY_BUCKET and MY_IMAGE_KEY with your S3 bucket name and image key (name).

```
1  #Copyright 2020 Amazon.com, Inc. or its affiliates. All Rights Reserved.
2  #PDX-License-Identifier: MIT-0 (For details, see https://github.com/awsdocs/amazon-reko
3
4  import boto3
5  import io
6  from PIL import Image, ImageDraw, ExifTags, ImageColor, ImageFont
7
8  def display_image(bucket,photo,response):
9      # Load image from S3 bucket
10     s3_connection = boto3.resource('s3')
11
12     s3_object = s3_connection.Object(bucket,photo)
13     s3_response = s3_object.get()
14
15     stream = io.BytesIO(s3_response['Body'].read())
16     image=Image.open(stream)
17
18     # Ready image to draw bounding boxes on it.
19     imgWidth, imgHeight = image.size
20     draw = ImageDraw.Draw(image)
21
22     # calculate and display bounding boxes for each detected custom Label
23     print('Detected custom labels for ' + photo)
24     for customLabel in response['CustomLabels']:
25         print('Label ' + str(customLabel['Name']))
26         print('Confidence ' + str(customLabel['Confidence']))
27         if 'Geometry' in customLabel:
```

```

28     box = customLabel['Geometry']['BoundingBox']
29     left = imgWidth * box['Left']
30     top = imgHeight * box['Top']
31     width = imgWidth * box['Width']
32     height = imgHeight * box['Height']
33
34     fnt = ImageFont.truetype('/Library/Fonts/Arial.ttf', 50)
35     draw.text((left,top), customLabel['Name'], fill='#00d400', font=fnt)
36
37     print('Left: ' + '{0:.0f}'.format(left))
38     print('Top: ' + '{0:.0f}'.format(top))
39     print('Label Width: ' + "{0:.0f}".format(width))
40     print('Label Height: ' + "{0:.0f}".format(height))
41
42     points = (
43         (left,top),
44         (left + width, top),
45         (left + width, top + height),
46         (left , top + height),
47         (left, top))
48     draw.line(points, fill='#00d400', width=5)
49
50     image.show()
51
52 def show_custom_labels(model,bucket,photo, min_confidence):
53     client=boto3.client('rekognition')
54
55     #Call DetectCustomLabels
56     response = client.detect_custom_labels(Image={'S3Object': {'Bucket': bucket, 'Name'
57     MinConfidence=min_confidence,

```

```
58         ProjectVersionArn=model)
59
60     # For object detection use case, uncomment below code to display image.
61     # display_image(bucket,photo,response)
62
63     return len(response['CustomLabels'])
64
65 def main():
66
67     bucket='MY_BUCKET'
68     photo='MY_IMAGE_KEY'
69     model='arn:aws:rekognition:us-east-1:307273201625:project/circuit_boards_1/version/'
70     min_confidence=95
71
72     label_count=show_custom_labels(model,bucket,photo, min_confidence)
73     print("Custom labels detected: " + str(label_count))
74
75
76 if __name__ == "__main__":
77     main()
```

Stop model

Sample python script to stop the circuit_boards_1.2022-05-04T16.47.47 model.

```
1  #Copyright 2020 Amazon.com, Inc. or its affiliates. All Rights Reserved.
2  #PDX-License-Identifier: MIT-0 (For details, see https://github.com/awsdocs/amazon-rekognition-custom-lab
3  |
4  import boto3
5  import time
6
7
8  def stop_model(model_arn):
9
10     client=boto3.client('rekognition')
11
12     print('Stopping model:' + model_arn)
13
14     #Stop the model
15     try:
16         response=client.stop_project_version(ProjectVersionArn=model_arn)
17         status=response['Status']
18         print ('Status: ' + status)
19     except Exception as e:
20         print(e)
21
22     print('Done...')
23
24  def main():
25
26     model_arn='arn:aws:rekognition:us-east-1:307273201625:project/circuit_boards_1/version/circuit_boards
27     stop_model(model_arn)
28
29  if __name__ == "__main__":
30     main()
```




Cloud Computing

Infrastructure and Web Development

Engineering School

Daniel Franco



Universitat Autònoma de Barcelona

Escola d'Enginyeria

