HOUSTON
DATA ANALYTICS

# Code Like a Snake Charmer

## Deploying Python Data Models in Azure

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# Jamey Johnston

## Sr. Data Scientist/Engineer

/jameyj

@STATCowboy

## Education

Texas A&M - MS in Analytics
LSU - BS in Spatial Analysis

## Photographer

http://jamey.photos

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## Blog

https://STATCowboy.com

## Code

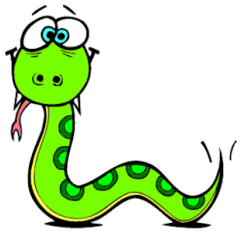
https://github.com/STATCowboy/SnakeCharmer-Adv
https://github.com/STATCowboy/SnakeCharmer-DeployPython2Azure

# Agenda


1. Introduction to Python / Anaconda / IDEs
2. Azure CLI
3. Azure App Services
4. Azure Functions
5. Docker & Flask
6. Azure Container Registry
7. Azure Container Instances
8. Azure Kubernetes Services
9. Azure Databricks & Azure Data Factory
10. Azure ML
11. Azure DevOps & Continuous Integration & Delivery (CI/CD) Pipelines

Source: https://www.python.org/community/logos/

# Introduction to Python

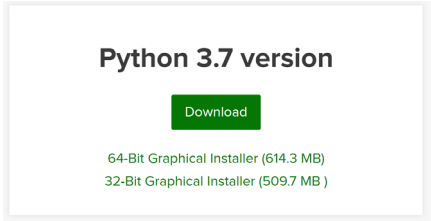


## Why Python?

- Expansive Open Source Library of Data Science Tools (Giant Ecosystem)
- Easy language for new programmers
- Microsoft Support in tools like Azure Databricks, Azure Function Apps, Azure Machine Learning, SQL Server 2017+, Microsoft Machine Learning Server
- You can code on a Raspberry Pi (Who doesn't like Pi!)
- The most popular program languages (IEEE Language Rankings 2018 #1)
- Interpreted language, saves you time, no compilation and linking is necessary

# Anaconda


Source: http://www.anaconda.com




## Anaconda

https://www.anaconda.com/download/

Download the 64-bit Python 3.7 version (still can setup Python 2.7 environments)

You can use miniconda if you don't want the full environment.
(I have switched to it).
https://docs.conda.io/en/latest/miniconda.html

# Anaconda

## Conda Commands

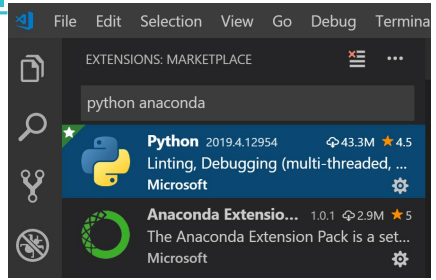
- Export Conda Environment to YAML file to build a new environment
  - `conda env export > <filename>.yml`
  - * activate the environment to export first
- Create Conda environment from YAML file
  - `conda env create -f <filename>.yml –n <ENV NAME>`

https://docs.conda.io/projects/conda/en/latest/user-guide/tasks/manage-environments.html

# Visual Studio Code

## VS Code Python Shortcuts

https://code.visualstudio.com/docs/python/python-tutorial




- Command Palette (CP) – `Ctl+Shift+P`
- Select Python Interpreter (in CP) – `Python: Select Interpreter`
- Run Selection/Line in Python Terminal – `Shift+Enter`
- Install pylint for Highlighting Syntax – `conda install pylint (run in all env)`
- Install Python and Anaconda Extensions and Azure Extensions
- IPython console support in Python Interactive window

# Azure CLI

## Command-line tool for managing Azure resources

https://docs.microsoft.com/en-us/cli/azure/?view=azure-cli-latest

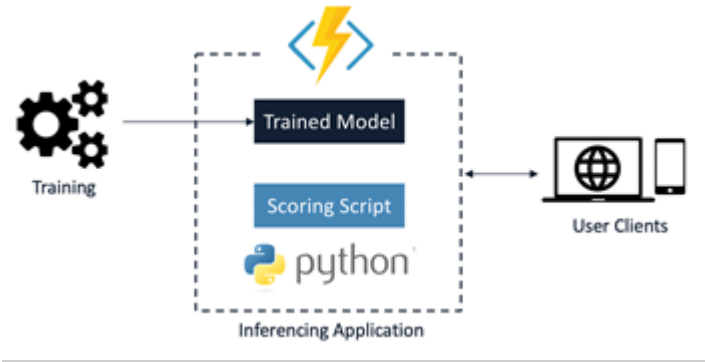
# Azure App Services

## Web Apps on a Fully Managed Platform

https://azure.microsoft.com/en-us/services/app-service/
https://docs.microsoft.com/en-us/azure/python/tutorial-deploy-app-service-on-linux-01

# Azure Functions

## Serverless Compute Platform




https://azure.microsoft.com/en-us/services/functions/

https://azure.microsoft.com/en-us/blog/announcing-the-general-availability-of-python-support-in-azure-functions/

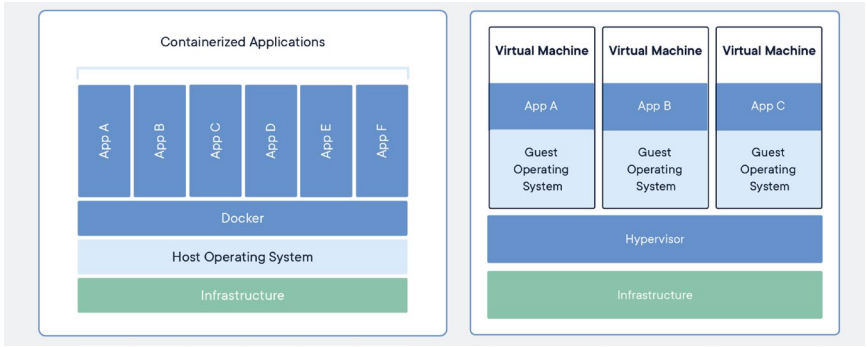
# Docker & Flask



## Software delivered as Lightweight Containers – Docker

## Small core Web Framework in Python - Flask

https://www.docker.com/
https://www.docker.com/resources/what-container
https://www.fullstackpython.com/flask.html

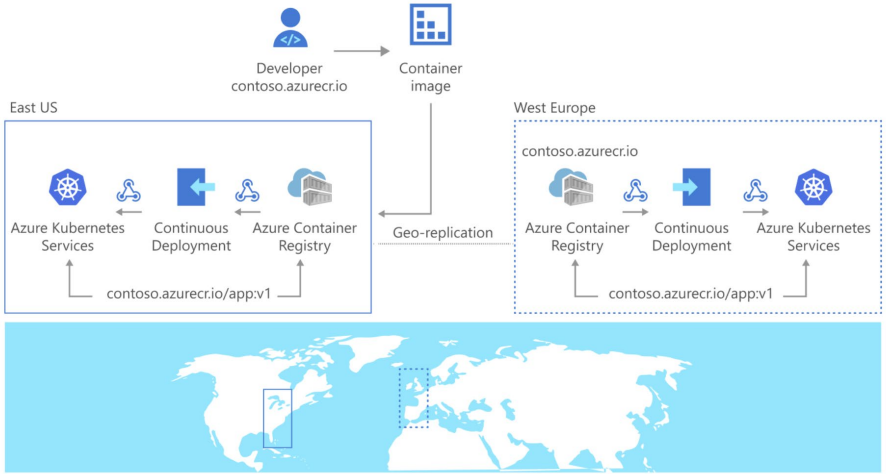



Docker VM

# Azure Container Registry

## Registry of Docker and OCI images in Azure

https://azure.microsoft.com/en-us/services/container-registry/



# Azure Container Instances

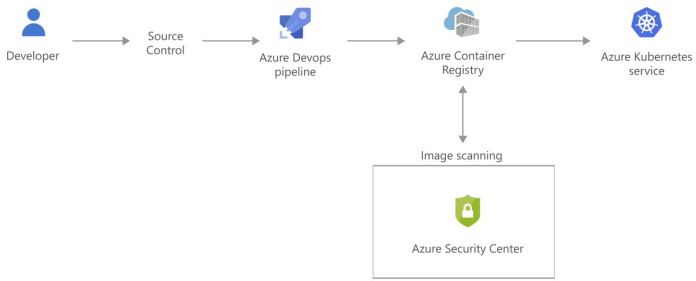
## Run Containers on Azure without Managing Servers

https://azure.microsoft.com/en-us/services/container-instances/
https://docs.microsoft.com/en-us/azure/container-instances/container-instances-quickstart

# Azure Kubernetes Services

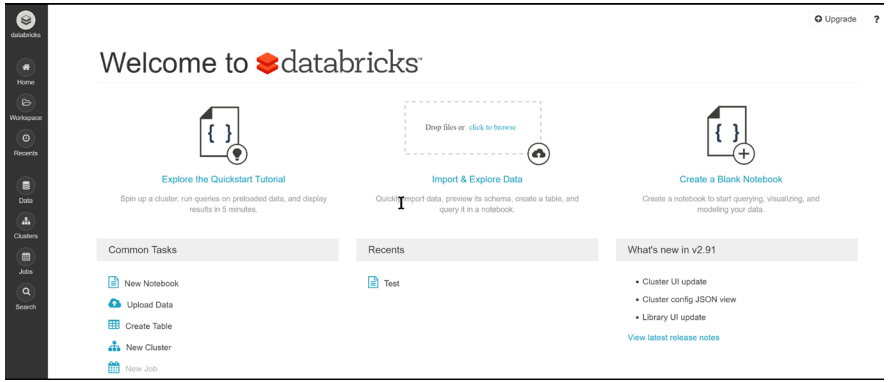
## Deploy/Manage Containerized Apps in Kubernetes in Azure

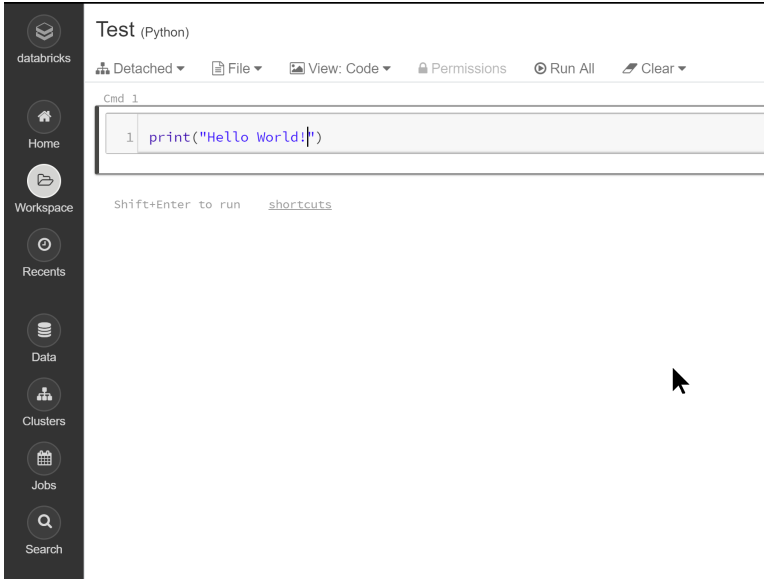
https://azure.microsoft.com/en-us/services/kubernetes-service/



# Python and Azure Databricks

## Workbooks

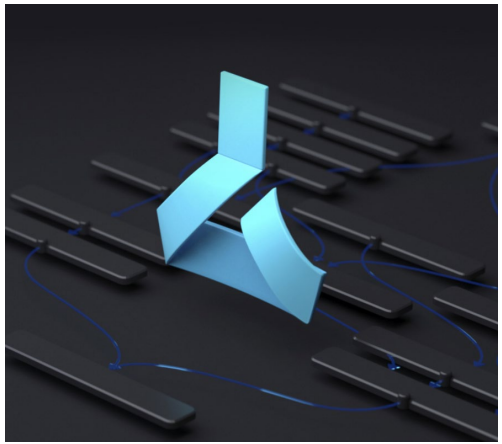


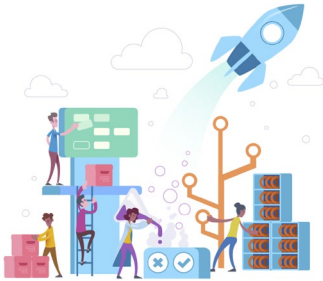
# Azure ML

## Build Enterprise Grade models quickly in Azure

https://azure.microsoft.com/en-us/services/machine-learning/



# Azure DevOps & CI/CD Pipelines



## Modern Dev Services in Azure

https://dev.azure.com

### Azure Boards

Deliver value to your users faster using proven agile tools to plan, track, and discuss work across your teams.

### Azure Pipelines

Build, test, and deploy with CI/CD that works with any language, platform, and cloud. Connect to GitHub or any other Git provider and deploy continuously.

### Azure Repos

Get unlimited, cloud-hosted private Git repos and collaborate to build better code with pull requests and advanced file management.

### Azure Test Plans

Test and ship with confidence using manual and exploratory testing tools.

### Azure Artifacts

Create, host, and share packages with your team, and add artifacts to your CI/CD pipelines with a single click.

### Extensions Marketplace

Access extensions from Slack to SonarCloud to 1,000 other apps and services—built by the community.

DEMO

# MS & Python


# Thank You

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