CENTRO DE ENSEÑANZA TÉCNICA Y SUPERIOR

Escuela de Ingeniería

SISTEMAS DE ARQUITECTURA ABIERTA

Tarea 1

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Presenta:

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Assignment 1

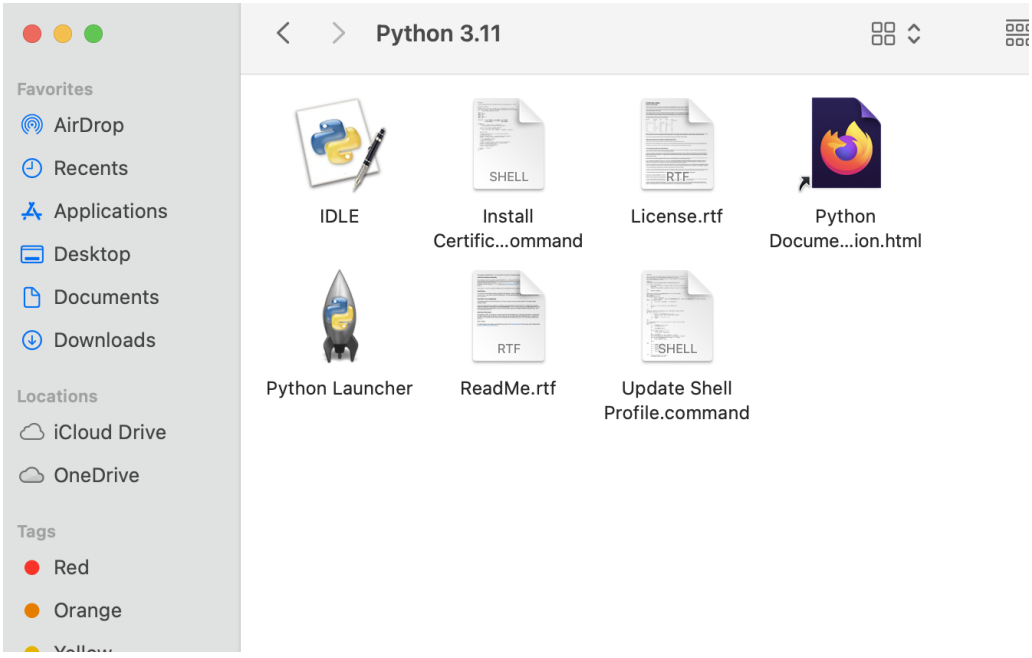
1. What does “Microservices Architecture” mean?

A microservice architecture (unlike the monolithic architecture) is a way of building applications so that its processes are made as independent services, this comes at great hand when the application needs to be deployable or scalable. Another important thing is that this architecture creates cross-functional teams that make the work less stressful at the time of wanting to make a change, and it generates that the dev. Team that worked on a project, once it's done, that same team keeps maintenance of the project and sees how the final product is working.

2. Set up AWS CLI

```
 gs0522@DH3C2HHV62 ~ which aws
/usr/local/bin/aws
 gs0522@DH3C2HHV62 ~ aws --version
aws-cli/2.9.19 Python/3.9.11 Darwin/22.1.0 exe/x86_64 prompt/off
 gs0522@DH3C2HHV62 ~ aws configure
AWS Access Key ID [None]: AKIAUIDHMFQX4NUEX5FX
AWS Secret Access Key [None]: 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
Default region name [None]: us-east-1
Default output format [None]: json
 gs0522@DH3C2HHV62 ~
```

3. Install Python and boto3



```
[ gs0522@DH3C2HHV62 ~ pip show boto3 ]
Name: boto3
Version: 1.26.59
Summary: The AWS SDK for Python
Home-page: https://github.com/boto/boto3
Author: Amazon Web Services
Author-email:
License: Apache License 2.0
Location: /Library/Frameworks/Python.framework/Versions/3.11/lib/python3.11/site
-packages
Requires: botocore, jmespath, s3transfer
Required-by:
 gs0522@DH3C2HHV62 ~
```

4. **Explain how you can have more than one access key in your computer and how to use each one.**

According to the AWS documentation, it is better that the IAM user access keys change every now and then. Using the AWS CLI first we create a second access key with aws *iam create-access-key,* then we update all the work to make sure it's going to use the new key, once that is done, we DO NOT erase the 1st access key yet, we just put it as inactive with *aws iam update-access-key*. Once thats inactive we can check that everything works correctly with the new access key, and after making sure EVERYTHING is working, we then may delete the 1st key with *aws iam delete-access-key*

5. **What S3 is, how it works and how you can use it to deploy a static website.**

S3 is an object storage service that helps store and protect any amount of data, this data is stored in “buckets”. This is great for reviewing the storage usage and activity trends across an organization.

How it works is that first, you create a bucket with a name and a AWS predetermined region, once the bucket is created you can start storing your data, this data will be identified by a “key name”.

For the case of a static website, once you have created an initial bucket you need to change the properties of the bucket, there should be an option for static website hosting, we need to edit that in order to enable the use of this bucket to host a website. Then an index document will be created so that when a request is made to the root domain it returns this index document. Amazon S3 also gives the option to provide a custom error document and redirection rules. After all this is selected then we can save the changes and Amazon S3 enables the static website hosting for your bucket and its endpoint.

6. **What is CloudFront and how it's used to deploy a static website.**

CloudFront is a web service that helps make the distribution of the static and dynamic web content, in other words, this helps send all your content through a worldwide network of data centers (edge locations). CloudFront searches for the fastest and lowest latency data center to send the information to the customer, so it reaches him as soon as possible.

For de deploy of the status website, there where several options on how we can do that such as:

- Using a website endpoint as the origin, with anonymous (public) access allowed.
- Using a website endpoint as the origin, with access restricted by a Referer header.
- Using CloudFormation to deploy a static website endpoint as the origin, and custom domain pointing to CloudFront.

But I believe the better one is to use a REST API, first by creating a bucket on amazon S3 and uploading all the information, then we create a CloudFront web distribution. After that we can choose a custom domain for the HTTPS of the web page and request a Certificate. Then one of the most important parts is to make sure to update the DNS records from your domain to point to the website given by CloudFront domain name.

7. **Explain what an API is**

API is the Application Programming Interface, it helps the communication between the clients request and the server. As an analogy it would be like when a client goes to a restaurant, the waiter would be the API and the server the chef.

8. **Explain what a REST API is**

A REST APIs (**RE**presentational **S**tate **T**ransfer) is an interface that two computer systems use to exchange information safely through the internet, it helps make requests to perform standard database functions like (get, update, delete…)

9. **Explain what you are going to do differently this semester based on last semester experience.**

To be honest, last semester wasn't my favorite, it was purely lectures and no practices, and this semester (even though it's been only one week) I am really liking my classes, I will try to do as many notes as possible and also try to continue researching on my free time, this class and the android class im taking in particular are really going to help me at work; when I first started working I was completely blank, and I think this topics would have been of great use. 👋

References

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