

# Assignment 3

1. Create a CloudFront distribution for your website and explain each step with great technical detail. 50 points.

- a. First able you need to type in your terminal or console the next command:

```
aws cloudfront create-distribution --origin-domain-name david.rolan.cetystijuana.com.s3.amazonaws.com --default-root-object index.html
```

The meaning of this command it's the next one,

*Aws* like always, *CloudFront* because we going to use this extension of *aws cli*, *create-distribution* we going to create a new one, *--origin-domain-name* as we had use to refer our domain right here it's where we going to add our full website name with *s3.amazonaws.com* for example, *--default-root-object* you need to add your main file in this part.

- b. If we did it correctly you going to receive an output something like this json file, just to mentioned that's example it's just the beginning of it:

```
{
  "Location": "https://cloudfront.amazonaws.com/2020-05-31/distribution/E37WAW6CPLG1NV", "ETag": "E1X4800RJAEFHJ",
  "Distribution": {
    "Distribution": {
      "Distribution": {
        "Id": "E37WAW6CPLG1NV",
        "ARN": "arn:aws:cloudfront::292274580527:distribution/E37WAW6CPLG1NV",
        "Status": "InProgress",
        "LastModifiedTime": "2023-02-11T02:18:02.400000+00:00",
        "InProgressInvalidationBatches": 0,
        "DomainName": "dfd591f0v10jk.cloudfront.net",
        "ActiveTrustedSigners": {
          "Enabled": false,
          "Quantity": 0 },

```

- c. In this json we have very important info like our ID: this is unique through the whole process working with distributions, location: where its located our website, eTag: It's important to a lot of reasons just to mention a few like its our HTTP header, cache validation, etc. And the most important Domain Name the URL that's going to use later and starts like this "dfd591f0v10jk.cloudfront.net".
- d. With all this together we move on, to change our cname record to use correctly the functionality of CloudFront, to get to it we need to modify or

cnamerecord.json that we create previously, inside there you need to modify the value instead of your old website name add your new domainName and change the TTL value so you can see the results earlier, then save it. So, we going to upload our changes with the next command

```
aws route53 change-resource-record-sets --hosted-zone-id Z03346142C3RKH191036Y --change-batch [file path]
```

- e. The output that you going to received it's something like this:

```
{ "ChangeInfo":  
{ "Id": "/change/C00742682BPTI0WWGJPZE",  
"Status": "PENDING",  
"SubmittedAt": "2023-02-11T02:36:47.833000+00:00",  
"Comment": "Create record for my subdomain"  
} } }
```

- f. You need to wait a couple of minutes so that status to changes, and finally to know if we have done everything correctly, it's as simple as type the next command:

```
aws cloudfront list-distributions
```

So, with the last command we are displaying the distributions deployed, so you can search on it, if you find it and look the changed we did, so everything is set up.

## 2. Update your DNS Record to route to the CloudFront end point and explain each step with great technical detail. 10 points.

- To modify this route first able we need to modify our cnamerecord.json that we need to modify certain things on it,

```
{  
  "Comment": "Create record for my subdomain",  
  "Changes": [  
    {  
      "Action": "UPSERT",  
      "ResourceRecordSet": {  
        "Name": "roldan.cetystijuana.com",  
        "Type": "CNAME",  
        "TTL": 3,  
        "ResourceRecords": [  
          {  
            "Value": "d1k1zeh58yvpbl.cloudfront.net"  
          }  
        ]  
      }  
    }  
  ]  
}
```

- So in this case we going to change to "Action": "UPSERT", that name it's with the one we have previously. The most important value to notice its "Value" : "d1k1zeh58yvpbl.cloudfront.net" this an example of how it look like, only with this is ready to be saved. Okay what we are doing with this basically we will be able to redirect all traffic with the same link but using the functionality of CloudFront, and why you should be interested to use this technology basically CloudFront uses edges locations, which are distributes servers around the world with that you have low latency and high transfer speed, so its advantage use this services.
- Now we need run this command to change the value that we had previously for that we use this one:

```
aws route53 change-resource-record-sets --hosted-zone-id
Z03346142C3RKH191036Y --change-batch file:///pathfile/
cnamerecord.json
```

- After that we going to receive an output with certain information about like Id, Status, SubmittedAt, Comment, you need to focus on the Status value, which is PENDING, this value takes time to change to INSYNC, it need be changes in all the DNS servers around our region.
- By doing this correctly and most important wait you can try by yourself as simple as copy the value from our cname file and paste it in your browser, if your website pop up, you have done with this.

### 3. Explain what it means to minify website resources (html, js, css) and the advantages anddisadvantages of this process. 10 points.

If we are talking about minify our files that we use or resources that we use the are possible options for that. In web development when we talk about minify or reducing the size of resources such HTML, CSS, JS we are talking about reducing the files, comments, and extra spaces that we use to understand a little bit better our own code.

For example, with JS that uses {} we can join all the code just to bit aware of the "{" and the other one that close it "}". What we going to get with that, you file will be reduce a lot, so basically is a lighter website that previously, and event in memory size is way lees that use all our normal format, just imagine how much memory and even better with bigger project in the work field, thus you save

with this good practice. But to get to that now exists ton of technologies that does this work.

This topic is very important when we talk about Content Delivery Network (CDN), just imagine how important is to have a fastest content delivery in your website, that's why this resource provides automated minification, and that type of minification are more quickly and effectively instead of manual minification.

To resume this information:

- Advantage:
  - o It makes websites faster and more efficient
  - o If we have smaller file sizes mean lower hosting and reduced bandwidth costs.
  - o Faster loading times and a more streamlined user experience can improve engagement and satisfaction.
  - o Faster loading times can positively impact your search engine rankings an increase your website visibility.
- Disadvantages:
  - o Minified code can be harder to read and understand for developers, which can make troubleshooting and debugging more difficult.
  - o Some web resources, particularly older or poorly coded ones, may not function properly when minified, which can cause compatibility issues with certain browsers or devices.
  - o Use automated tools for minification can result in errors or incorrect outputs, which may require additional manual intervention and more time on it.

**4. Write a python script (and explain each step with great technical detail) to**

**a. Create or update a record in the Students DynamoDB table based on the id.**

In the first step with need to make sure that we have already install "boto3" library, this library which is AWS SDK (Software Development Kit). After this now we can continue with create our script

The "boto3" documentation said that we need to save in a variable.  
'dynamodb= boto3.resource('dynamodb')' -> creates a "Dynamodb" resource object using the 'boto3' library.

"table = dynamodb.Table('Students')" -> creates a 'Table' object named 'table'

'update\_expression = SET full\_name = :val1' -> SET because we going to SET in this item full\_name is attribute, ":val1" the variable which is going to be replaced

'expression\_attribute\_values = {':val1': 'David Roldan'} ' -> like its name says inside this variable are the attribute values like my name "David Roldan"

Now finally we use the main function 'table.update\_item'

(Key='id' : '27292') -> Key because this parameter specifies the primary key on the item.

UpdateExpression=update\_expression -> this function its like this because normally is something like this 'SET full\_name = :val1' but I use variable for that, that's why is deferent, and something that is already explained.

ExpressionAttributeValues -> Same with this, it can be like this '{':val1': 'David Roldan'} '.

```
import boto3
dynamodb = boto3.resource('dynamodb')
table = dynamodb.Table('Students')
update_expression = 'SET full_name = :val1'
expression_attribute_values = {':val1': 'David Roldan'}
table.update_item(Key={"id": "27292"},
UpdateExpression=update_expression,
ExpressionAttributeValues=expression_attribute_values
)
```

Once we run this script it should run without errors. Now we can check our Table in the database to make sure the changes are done.

```
{'full_name': 'David Roldan', 'id': '27292',
'personal_website': 'david.rolдан.cetystijuana.com'}
```

**b. Delete a record in the Students DynamoDB table based on the id**

Before we start this process, we need to how my id is on the db, its something like this, is important because is going to disappear. So for that we can use this command to display all the values of this table Students:

```
aws dynamodb scan --table-name Students
```

```

{
  "full_name": {
    "S": "Abner Isangel Silva Godoy"
  },
  "id": {
    "S": "030934"
  },
  "personal_website": {
    "S": "marcos.cetystijuana.com"
  }
},
{
  "full_name": {
    "S": "David Roldan"
  },
  "id": {
    "S": "27292"
  },
  "personal_website": {
    "S": "david.roldan.cetystijuana.com"
  }
},
{
  "full_name": {
    "S": "Stephanie Gonzalez"
  },
  "id": {
    "S": "33892"
  },
  "personal_website": {
    "S": "stephanie.cetystijuana.com.s3-we
com"
  }
}

```

To begging with this script it's simple than the last one, same we need to import boto3 then once again we need to create an instance using 'boto3.client' in the

DynamoDB client, this name because it's the name of my variable, now use the important function 'delete\_item(Table\_Name=Table\_Name)' in our case we are interest in Students and inside this bracket we going to choose our Key in this case its our id, so we fill in the blank spaces in the brackets, 'S' for string and our id number.

```

#script para eliminar segun el id
client = boto3.client('dynamodb')
client.delete_item(Table_Name='Students',
                    Key={"id":{"S": "27292"}}
)

```

To make sure we run the last command again to display all the students and search us in the table.

```
aws dynamodb scan --table-name Students
```

```

    },
    "full_name": {
      "S": "Marcos Alberto Moroyoqui Olán"
    },
    "id": {
      "S": "030934"
    },
    "personal_website": {
      "S": "marcos.cetystijuana.com"
    }
  },
  {
    "full_name": {
      "S": "Stephanie Gonzalez"
    },
    "id": {
      "S": "33892"
    },
    "personal_website": {
      "S": "stephanie.cetystijuana.com.s3-website-us-east-1.amazonaws.com"
    }
  },
  {
    "full_name": {
      "S": "Abner Isangel Silva Godoy"
    },
    "id": {
      "S": "32069"
    },
    "personal_website": {
      "S": "http://abner.cetystijuana.com/"
    }
  }
]

```

c. Find a record in the Students DynamoDB table by id. d. 20 points.

Once again we need to create a python script to do this action, once again we need to create this instance of DynamoDB to use this functionality we have to do this part, in this script we need to create a new variable because now we are going to print if the consult it's found and there our instance.get\_item(), before that our TableName = "Table\_name", Key={"id":{"S": "009930"} our primary key what it is, like in this case we are searching for a specific id we type it in. Something new here, our print(data['Item']) that will display the content of the item that was retrieved from Students table related with the primary key that in this case its id: 009930.

```

client = boto3.client('dynamodb')
data = client.get_item(
    TableName='Students',
    Key={"id":{"S": "009930"}}
)
print(data['Item'])

```

Once we run this script, the correct input should be something like this:

```
{'full_name': {'S': 'Jesus Jaquez Rueda'}, 'id': {'S': '009930'}, 'personal_website': {'S': 'jax.cetystijuana.com'}}
```

5. Explain the difference between Growth mindset and Fixed mindset according to Carol Dweck 10 points.

Carol Dweck, is a psychologist a researcher, she developed this concept of mindsets to describe the way individuals approach challenges and setbacks.

That's why she named these two types of mindsets: a fixed mindset and growth mindset, both will be explain below.

**Fixed mindset:** they think that all the intelligence or talents are hereby those fixed traits are responsible for success and cannot be developed or improved. This kind of person most of the time had a successfully record in the pass talking about trophies, medals in can be in sports for example. This kind of person don't like feedback on contrary they feel attack when you do that.

**Growth-mindset:** People believe that new abelites can be developed through practice, these views crate a love for learning. This person believes that they can learn everything if they put in enough effort. Another greater difference is the way growth-mindset look the opportunity to learn because failure its part of learning. The way a grow-mindset see the feedback because they know that's a constructive criticism to become better.

This is important this kind of mindsets are between us, and what happen is that modern companies are looking for growth-mindset person because they know they will solve problems and persist despite obstacles.

In summary A fixed mindset means you think you're born with a certain level of intelligence and talent, and that's all you'll ever have. But a growth mindset is all about believing you can improve and develop new skills with effort and practice. If you've got a growth mindset, you're more likely to see challenges as opportunities, and you won't be so quick to give up when things get tough. Plus, you'll feel more motivated to reach your goals, and you'll have a better attitude towards learning in general.