

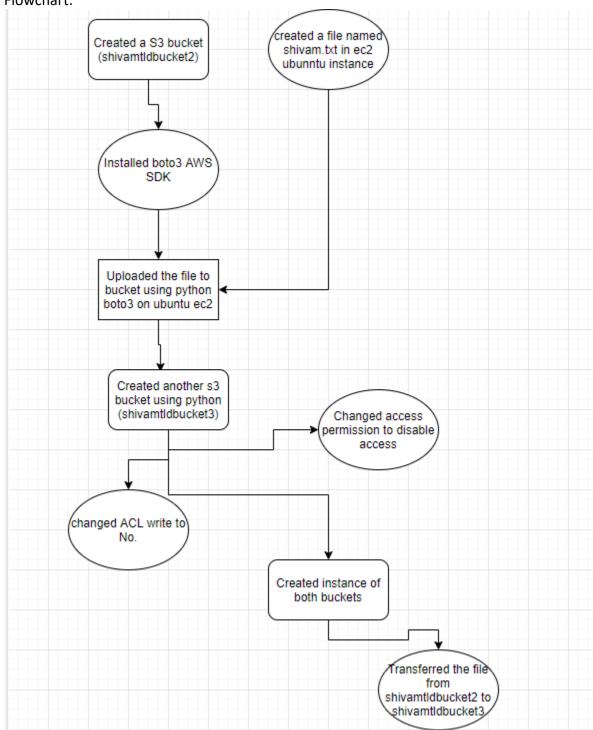
# Serverless Data Processing (CSCI-5410)

# Part – B AWS STORAGE EXPERIMENT

Submitted by:

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# a) Flowchart:

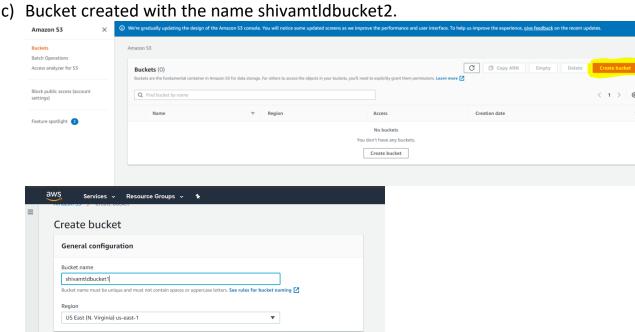


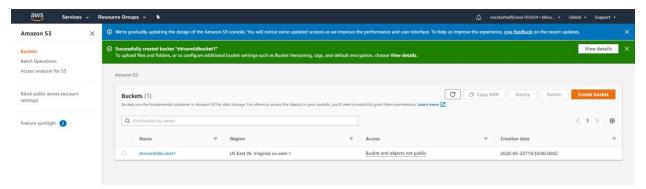
## b) Paragraph:

AWS S3 bucket is used for storage on cloud. AWS offers an SDK kit known as boto3, which can be used to access S3 bucket by python and update/modify the bucket. In this experiment, we learned how to create AWS S3 bucket and access it on EC2 ubuntu instance and by using boto3 we can create and manage the S3 buckets. We created an S3 bucket manually and by using python as well. We uploaded a file on bucket by python SDK.

We change the access permissions and ACL operation permissions by python. Lastly, we transferred a file from one bucket to another.

Bucket settings for Block Public Access





d) Explore AWS SDK for Python - and using python program, upload the file on the S3 bucket you created.
Adding user:

Installed boto3 as python is already installed:

```
Command Prompt - pip install boto3
                                          Don't periodically check PyPI to determine whether a new version of pip is available for download. Implied with --no-index.
 --no-color
                                          Suppress colored output
 \Users\sgshi\Desktop>clear
clear' is not recognized as an internal or external command, perable program or batch file.
 \Users\sgshi\Desktop>pip install boto3
Downloading https://files.pythonhosted.org/packages/bd/a9/1e321ad1a91355f91af9261e176c6aabf543019317a0e8c59dd2fd981c18boto3-1.13.16-py2.py3-none-any.whl (128kB)
                                                      | 133kB 547kB/s
ollecting botocore<1.17.0,>=1.16.16 (from boto3)

Downloading https://files.pythonhosted.org/packages/17/ac/b21f4aba98f239ee5341d79c64bb502a64ad8ac98331bf0d9568707c6576
Downloading https://files.pythomnos
botocore-1.16.16-py2.py3-none-any.whl (6.2MB)
6.2MB 1.1MB/s
ollecting s3transfer<0.4.0,>=0.3.0 (from boto3)
Downloading https://files.pythonhosted.org/packages/69/79/e6afb3d8b0b4e96cefbdc690f741d7dd24547ff1f94240c997a26fa908d3s3transfer-0.3.3-py2.py3-none-any.whl (69kB)
                                                      71kB 1.5MB/s
ollecting jmespath<1.0.0,>=0.7.1 (from boto3)
Downloading https://files.pythonhosted.org/packages/07/cb/5f001272b6faeb23c1c9e0acc04d48eaaf5c862c17709d20e3469c6e0139
jmespath-0.10.0-py2.py3-none-any.whl
ollecting docutils<0.16,>=0.10 (from botocore<1.17.0,>=1.16.16->boto3)
Downloading https://files.pythonhosted.org/packages/22/cd/a6aa959dca619918ccb55023b4cb151949c64d4d5d55b3f4ffd7eee0c6e8
docutils-0.15.2-py3-none-any.whl (547kB)
| 552kB 3.3MB/s
ollecting urllib3<1.26,>=1.20; python_version != "3.4" (from botocore<1.17.0,>=1.16.16->boto3)
```

Python program to add file to S3:

```
Term between claims import Config

ACCES_EFT_ID = Notice_SerT_ID = Notice_
```

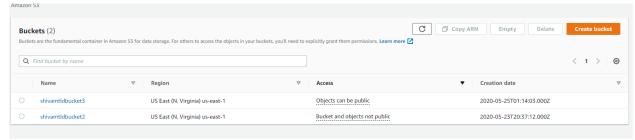
### File uploaded:



e) Code from creating new bucket:



### New bucket created named shivamtldbucket3:

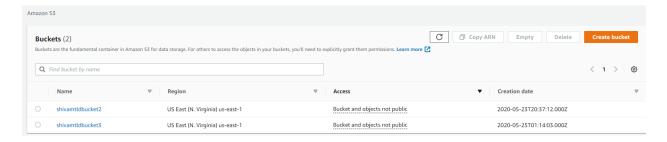


Change Access Permission: disable public access:

```
import boto3
from botocore.client import Config

ACCESS_KEY_ID = 'ASIAOG34WVL6YIED3BN6'
ACCESS_SECRET_KEY = 'Eghkoem5Axr35mi=Ottobe2HR9RGZIyGLI/iJJSz1'
AWS_SESSION_TOKEN= 'PwogXXIyYXXZED0aDNPEcUA6vGf6XQd8SLCAVJq7WFDncAVTjfaSYTJM5br+7cuwNidUomXtXGlBiLcf5ref/42cl0koOhYljtzCOyeGZjeEwUc3ELRQDuF/C9vofqTfcAYPOqO8ilK
s3= boto3.client ('s3',
    aws_access_key_id = ACCESS_KEY_ID,
    aws_secret_access_key= ACCESS_SECRET_KEY,
    aws_secsion_token=AWS_SESSION_TOKEN,
    config=Config(signature_version='s3v4')
)
bucketacl= s3.get_bucket_acl(Bucket = 'shivamtldbucket3')
response = s3.put_public_access_block(
    PublicAccessBlockConfiguration={
        'BlockPublicAcle': True,
        'IgnorePublicAcls': True,
        'RestrictPublicBuckets': True},
        RestrictPublicBuckets': True},
        Bucket = 'shivamtldbucket3')

print("done")
```



Change ACL write to No means changing it to Read.

### Code continuation:

```
botocore.client <mark>import</mark> Config
ACCESS_KEY_ID =
ACCESS SECRET KEY = AWS_SESSION_TOKEN=
s3= boto3.client ('s3',
aws_access_key_id = ACCESS_KEY_ID,
aws_secret_access_key= ACCESS_SECRET_KEY,
aws_session_token=AWS_SESSION_TOKEN,
 config=Config(signature_version='
response = s3.put public access block(
            PublicAccessBlockConfiguration={
                              blicAcls': True,
PublicAcls': True,
s4= boto3.resource ('s3',
 aws_access_key_id = ACCESS_KEY_ID,
aws_secret_access_key= ACCESS_SECRET_KEY,
aws_session_token=AWS_SESSION_TOKEN,
 config=Config(signature_version='s
bucket acl=s4.BucketAcl('shivamtldbucket3')
response=bucket acl.put(
           AccessControlPolicy= {
```

ACL Write permission is not there:



f) Move file from bucket shivamtldbucket2 to bucket shivamtldbucker3: Python program:





```
Program Script:
```

```
File upload:
import boto3
from botocore.client import Config
ACCESS KEY ID = 'ASIAQG34WVL6QEH7PP54'
ACCESS SECRET KEY = 'UrctVnBQWQYuSF12j/PeI6nDchg1uTXrkc3Wfrw5'
AWS SESSION TOKEN='FwoGZXIvYXdzEDUaDP0rAFFph2DUvuMPVyLCAQCONKUIvCF4jVXRpoU
oD0yU+4pDApLplGlLY875vjT783P1LKwpe+Nd+JH/XDZ2HU8u4Bi/3fF3uyi/prsjBvuj0wlN1RYFt7Ls
EAuyOrTCWbfJESrmkrDCpxbrj1Mi7vGo6nitHxMgVQTpHxqvKLnx6wFr9RuZzZberhtlYGHJTNrtnZe
PeCeZiVEGb7PJIJt3NTHGBXKhmftn2r5NAx2keNk2EmtiveZdmYo3J+S4PboRQbB9shtyTJ5Fk0qGIJ
/jKN+Mq/YFMi0n6saXMvIhvzhQ6qUPzh1zgjTUd/UlbtH1UgQfEf2Tixwmv+oV9ECmug75bG0'
BUCKET NAME = 'shivamtldbucket2'
data = open('Shivam.txt', 'rb')
s3= boto3.resource ('s3',
aws_access_key_id = ACCESS_KEY_ID,
aws secret access key= ACCESS SECRET KEY,
aws session token=AWS SESSION TOKEN,
config=Config(signature version='s3v4')
s3.Bucket(BUCKET_NAME).put_object(Key='Shivam.txt', Body= data)
print("done")
Create bucket:
import boto3
from botocore.client import Config
ACCESS KEY ID = 'ASIAQG34WVL6YIED3BN6'
ACCESS SECRET KEY = 'Eghkoem5Axr39ml4OtGbe2HR9RGZlyGLi/iJJSzi'
AWS SESSION TOKEN=
'FwoGZXIvYXdzEDoaDNpPecUA6vGf6Xqd8SLCAVJq7WFDncAVTjfaSYTJM5brM9W5Zo0Z4sXQUQ
xCEWmK4IoV5aTxKUjStzDqy6xq/v8cFS5liZrqYbarfPLVRhI8rHv4kNeizBB5wqeiWcKBflOKImpHPL/
fXQraPEjsV4bmEnWvOMEUnmzwT1zr7hlDSckDLAbyKyXeJY2Y0meR1pMU1pW8D+7ouwNidU0
mXkXGlBiLcf5ref/42c10koOhYljtzCOyeGZjeEwUc3ELRQDuF/C9vofqTfoAYPOqO8ilKJCurPYFMi1Y
er1GJ/f95gyG1pR3HTrNexyVEmdHqSlbq265a4W7BcG1rtn4G58MNcEZV0w='
s3= boto3.client ('s3',
aws access key id = ACCESS KEY ID,
```

aws secret access key= ACCESS SECRET KEY,

```
aws session token=AWS SESSION TOKEN,
config=Config(signature version='s3v4')
)
s3.create bucket Bucket='shivamtldbucket3'
response = s3.put public access block(
    PublicAccessBlockConfiguration={
      'BlockPublicAcls': True,
      'IgnorePublicAcls': True,
      'BlockPublicPolicy': True,
      'RestrictPublicBuckets': True},
    Bucket = 'shivamtldbucket3')
s4= boto3.resource ('s3',
aws access key id = ACCESS KEY ID,
aws secret access key= ACCESS SECRET KEY,
aws_session_token=AWS_SESSION_TOKEN,
config=Config(signature version='s3v4')
bucket acl=s4.BucketAcl('shivamtldbucket3')
response=bucket acl.put(
    AccessControlPolicy= {
      'Owner':{
        'DisplayName': 'awslabsc0w747645t1587490972',
        'ID': '0bd54bb7d683bdcf67d69a16de1687c02d331c109d0659da7e77c66a33f7d7db'},
      'Grants':[
        {'Grantee':{
          'Type': 'CanonicalUser',
          'DisplayName': 'awslabsc0w747645t1587490972',
          'ID':
'0bd54bb7d683bdcf67d69a16de1687c02d331c109d0659da7e77c66a33f7d7db'},
          'Permission': 'READ ACP'},
        {'Grantee':{
          'Type': 'CanonicalUser',
          'DisplayName': 'awslabsc0w747645t1587490972',
          'ID':
'0bd54bb7d683bdcf67d69a16de1687c02d331c109d0659da7e77c66a33f7d7db'},
          'Permission': 'READ'
        }]})
print("done")
```

### Transfer file to another bucket:

```
import boto3
from botocore.client import Config
ACCESS KEY ID = 'ASIAQG34WVL6YIED3BN6'
ACCESS_SECRET_KEY = 'Eghkoem5Axr39ml4OtGbe2HR9RGZIyGLi/iJJSzi'
AWS SESSION TOKEN=
'FwoGZXIvYXdzEDoaDNpPecUA6vGf6Xqd8SLCAVJq7WFDncAVTjfaSYTJM5brM9W5Zo0Z4sXQUQ
xCEWmK4IoV5aTxKUjStzDqy6xq/v8cFS5liZrqYbarfPLVRhI8rHv4kNeizBB5wqeiWcKBflOKImpHPL/
fXQraPEjsV4bmEnWvOMEUnmzwT1zr7hlDSckDLAbyKyXeJY2Y0meR1pMU1pW8D+7ouwNidU0
mXkXGlBiLcf5ref/42c10koOhYljtzCOyeGZjeEwUc3ELRQDuF/C9vofqTfoAYPOqO8ilKJCurPYFMi1Y
er1GJ/f95gyG1pR3HTrNexyVEmdHqSlbq265a4W7BcG1rtn4G58MNcEZV0w='
s3= boto3.client ('s3',
aws_access_key_id = ACCESS_KEY_ID,
aws secret access key= ACCESS SECRET KEY,
aws session token=AWS SESSION TOKEN,
config=Config(signature_version='s3v4')
)
s4= boto3.resource ('s3',
aws access key id = ACCESS KEY ID,
aws secret access key= ACCESS SECRET KEY,
aws session token=AWS SESSION TOKEN,
config=Config(signature_version='s3v4')
)
bucket1= s4.Bucket('shivamtldbucket2')
bucket2=s4.Bucket('shivamtldbucket3')
for i in bucket1.objects.all():
 fname= i.key.split('/')[-1]
 bucket2.put object(Key='fromshivamtldbucket2/'+ fname, Body= i.get()["Body"].read())
print("Done")
```