```
pip install boto3>=1.15.0
```

```
pip install paramiko
```

Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/
Collecting paramiko
  Downloading paramiko-3.0.0-py3-none-any.whl (210 kB)
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 210.8/210.8 KB 4.8 MB/s eta 0:00:00
anylinux_2_28_x86_64.whl (593 kB)
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 593.7/593.7 KB 25.2 MB/s eta 0:00:00
anylinux_2_17_x86_64.manylinux2014_x86_64.manylinux_2_24_x86_64.whl (856 kB)
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 856.7/856.7 KB 42.9 MB/s eta 0:00:00
anylinux_2_28_x86_64.whl (4.2 MB)
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 4.2/4.2 MB 79.9 MB/s eta 0:00:00
ent already satisfied: cffi>=1.12 in /usr/local/lib/python3.8/dist-packages (from cryptography>=3.3->paramiko) (1.15.1)
Requirement already satisfied: pycparser in /usr/local/lib/python3.8/dist-packages (from cffi>=1.12->cryptography>=3.3->paramiko) (2.21)
Installing collected packages: bcrypt, pynacl, cryptography, paramiko
Successfully installed bcrypt-4.0.1 cryptography-39.0.1 paramiko-3.0.0 pynacl-1.5.0
```

```python
import boto3
import os
import paramiko

ec2 = boto3.client('ec2', region_name='ap-south-1',aws_access_key_id='AKIASF7Q3PXRRQU57SS7',aws_secret_access_key='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')
```

```python
ec2.describe_instances()
```

```
{'Reservations': [],
 'ResponseMetadata': {'RequestId': '6a896bff-6f48-4983-8342-57da1f01b97c',
  'HTTPStatusCode': 200,
  'HTTPHeaders': {'x-amzn-requestid': '6a896bff-6f48-4983-8342-57da1f01b97c',
   'cache-control': 'no-cache, no-store',
   'strict-transport-security': 'max-age=31536000; includeSubDomains',
   'content-type': 'text/xml;charset=UTF-8',
   'content-length': '230',
   'date': 'Wed, 22 Feb 2023 07:05:40 GMT',
```

```
    'server': 'AmazonEC2'},
   'RetryAttempts': 0}}
```

import boto3

```
ec2.create_key_pair(KeyName="kgptalie")
```

```
{'KeyFingerprint':
'53:65:b0:39:41:70:ec:1d:62:14:bc:ee:35:61:a5:6f:e4:73:63:e0',
  'KeyMaterial': '-----BEGIN RSA PRIVATE KEY-----\
nMIIEpAIBAAKCAQEAsEvuVZ/0g29YI4i70awYbFzy8yS7AmgczvosjcYAY2/53Ves\
nxltfeZPUjw6fGqRqrH+jZ4KbavaOi7CFutNFyUCTcH4Vtn6XeWDAwxObYwuYu/Gj\
n4LnL7l/Uzy4W1bpRVmKOEtoFn99D+yvXsNjLKyocwi5PolTpikRGYmIYImG86e1o\
n1g2L74DXDB4TzQ4JrQmf+aBPO6V+wD97jXxTXaMzUzYq3S89eshPTDvIANLquI0m\
n1F3ldOqbLJ6dasna+z7xBqdY5swR20kfh1lrORyisgAxxEejYA9TVfORUcJCDyD8\
nxLgOqqhW7lZi9Kke/6RbU2oznl7ixtlIaA461wIDAQABAoIBADw7hQ9eGhU52nwx\nf/
4hTSrgyuTFnNsipQ0WLli12HYg0NaN2OrgVwtbtZi23yckG4oaBcMcvWrbGDKj\
nudztx/8NgBJEEbkLIUeIBfPgZAt/78vusBXchM9JkJTEY2rcQGPqQi4wrRFFH53W\
nCdhTCX8S4UZ6uhx1NGFYGFAOwb4k4lT6RDGT36s6g+ZlkyHYZsrBDBy9cpcApO7N\
nPAa2BJ/KR0ybhP5WSA0ucy+/Ff3qbTED0Y0NbU35h/SbRIfUKDpqiCQoDlNbmzDk\
nqojwGYK5BVj530H3bWSF0BxTIKiPsuxAlmZC7kycLQMllX32SpKdnsFic+uMiN4v\
nc+OVznECgYEA7sUtYlzPFoHZIphPmMSn0bic4nUD8xE7JHmOExJOoOv9VHGY3inY\
nsVqs8fADe6ZMDniA0SKmrHljMts5c4ZbMmS6x38OUlMNC/KdIcbfzld1x8DrIizr\
n5y7o75voKq/dHT21tNSOOsJtiCYyATIgPoRfeoIl3Q5rJf9TAAaqSo8CgYEAvQSs\
nWMtPetizo7/gnnWaT+2ofdZ0VChGVsLVF88zSLZT/DtGgOrdpgzwbc9ws3glNV3d\
nop42AyaNxszQSnPu+OkrWr3Yivfsopg9vH7xv1TkWnqNWLg4iiwmvJtJXm1MZxLk\
nFnrg0hJYFLnpldH+qqqrM2YueXTQ5VMY0h2GzzkCgYEAjuPJSTgpZlrGywFDgTUP\
nCV7l5FAK0Qfa0PU9pQQrsfoIXOSuiyWX3GtbXF46d2EJ2w8aaA3ImSb7yo+PTid1\
npC7L6F+M/o9dG21Rw8j0XtPQVH6LOKSReISGOf6fbgxY0wr/FvytMVTxn6zb+AM7\
ncK5fRT1l02ixjsfBsB5NAtkCgYEAijv1s0aVDNmYnwP/yMNnJFdBpy4Ei1uc/Wyl\
nnTEKZ334c/oBuNyLVxoVZ6mS2Z3fUGUiZwBfrfQvMZmuJxUcSutzqnw29oMUi2Dd\
nnZIVSIFUM5t27dBkgSCC/+JtSOKUQrl9F7er3dZOlnHUk54tKjGA3Sk4idjVwTEB\
ncQDpC3kCgYANejkVDzqIpEF1yvag5cc1x4hc5tfiyq3SSp5TKoaGAhZ4eFcI3+l+\
n2mbkPG58IIDirzQSOLRTfGdHOKeoV2oMYG7ueKeryqciBmdJuYNJ8PBdqLGth8NN\
nAfVOgOH1fnXe2F+hSEX8p+ddjQRkMKpTnu76VRL2g705dSce+B+7Yg==\n-----END
RSA PRIVATE KEY-----',
 'KeyName': 'kgptalie',
 'KeyPairId': 'key-0ad7136fa01eff802',
 'ResponseMetadata': {'RequestId': '18e84d39-9176-4b01-9a27-
964ddb1da484',
  'HTTPStatusCode': 200,
  'HTTPHeaders': {'x-amzn-requestid': '18e84d39-9176-4b01-9a27-
964ddb1da484',
   'cache-control': 'no-cache, no-store',
   'strict-transport-security': 'max-age=31536000; includeSubDomains',
   'vary': 'accept-encoding',
   'content-type': 'text/xml;charset=UTF-8',
   'content-length': '2089',
   'date': 'Wed, 22 Feb 2023 07:09:33 GMT',
   'server': 'AmazonEC2'},
  'RetryAttempts': 0}}
```

```
ewsp=ec2.create_key_pair(KeyName="kgptalie")

ewsp
```

```
{'KeyFingerprint':
'26:3e:0a:c4:95:1c:6c:ee:32:4f:ca:19:9a:62:f9:11:a9:0b:23:7d',
 'KeyMaterial': '-----BEGIN RSA PRIVATE KEY-----\
nMIIEpAIBAAKCAQEAiiIntsmqDCgOCZKek6DIGKc74+A5LmH1Xvvn4hCjvOR5SD50\
nV90pDFQTFwaY6T/e4zy3q8ZyvOiuIwdIkCZw3jDKTVIm1Hm3z3X3kWpBJxlisHiI\
nl1xebdD3W2iImyMwaH2wRmw9fna4BLlgY86Xe9BMixlziO6XHIp1Dl5szAVsuRIT\
nkJgn0pfMVmNL8QQ1TaIsCVhsBco13cOShJOIRejACxKYANkFpiDlRycN76/g+Hvv\
n1jbzH9awYTtbl+Elo002Awr72iTjJhaiFsZlBkGHixrV1nlYL+3TyRINEJdUh97o\
niY4b/TI8FWbAwAyq/eUAmbUfU9U+bbAU1KWg8QIDAQABAoIBABZKApyFF/JUOEel\nJ/
9sTz1jJs/Ta4aned90yGr7AmDFgSh+I2nWHvyFSHtLrjrc+osyTfTi1brT1N2E\
nHFpeSZIgz1QAsJFSfq10PJlzSsYTW5BcMrYxym7v7CoMyRY3bGU/+sSyTI3ufC0O\
n+JXCTUFGUEOVvMXYsfuB//dslyOoc3cTUbpgAWQKO6Gc/75WGMecVzbSCN3ktSU1\
nGG2c44Sbjz22/EIQ5j6J424e6iS0kH/feuVhcW7iq3rpfna2Q6rBKxm41FD3AL+0\
nRr2XnqZa7VnI81EENGFKmEOvSC9QqxpmHyWeVSjYyGGGSBrHUiMg5T7YGyWmdIvm\
nwS3NOp0CgYEAzttZwSSwGN8Go9vNi1Gtw4VtJBWbzT6195zJVDXp149lVtlzjop+\
nHtg9yw3CMrd234YouKf0NUrHzSusSmErGjrEHqgsvjwI1hIlrQr2IBLzYpTp/475\
n7t+ez4efv2Ci2ke06WbMp6IXXRFGeNiqvx8C5WpuvAdDvZs/mk3SrxcCgYEAqvMs\
nba/pzpr5huTXzrpCyOPAw5vh0vg7UGNAEXTzybU0R0vCq/5sthAXx6Z9wo+ShaLW\
npYY5eW/E7FJRkdmpeK7W8qJOyG513q2c/jMw+X6byWO/wkKSI4i8+vP3sWLCVSNZ\
nn3e26fOvSb2jdKTTi52GbGE9qKuZ370yDYhZX9TcCgYEAo7gce6+r6KNsP/hR4HiP\
nDPbngO3RWErP/uCKwCnDoKaP0INe4Gxgkc0Ya0PCdh2a6iLmy++yaxN6u7pbLKtn\
nT+U/H/x/HTmqzLOkOic40f3twBKYeXoR+qvmp95x4yh6/ERQvYJtbCfwUerAWhky\
nWv4Sbr0kU5F0XfcoCdqaa5UCgYEAi6gFz8Y62FK7L3yc4YJBNST7QdKC+k35Bv9O\nQ/
SrhUnH38cAzsoXvdT/2Fcnvl7UcOBLQwaYxaCN3BKUGPcdAD6105rNiejT2osz\nCmh/
xhOs6aXX7re789Otr8bHv97SrAMpU6j3BT8St3mP1C4kgKq4re+S6GFH8fMs\
nEmH2kZkCgYBIuhbylaC8+jZbxDEh4e8iodOy8GogFL0J5/5paiAdrVcT9RxmfPln\n6/
Iu0WapMw1F1mzMqTeDo42PrccbV/k7QNcVQ2km6iFzBWDaBhd84HkX6EiiMiF2\
nH71z1DR6br7XfFCywKw+zQXWwGu5VWu1bD3PG1IBjtvZ43VDTb+nwQ==\n-----END
RSA PRIVATE KEY-----',
 'KeyName': 'kgptalie',
 'KeyPairId': 'key-0282f4973d4de2c96',
 'ResponseMetadata': {'RequestId': '1346f024-cbbb-44c4-a69d-
7b908de6653a',
  'HTTPStatusCode': 200,
  'HTTPHeaders': {'x-amzn-requestid': '1346f024-cbbb-44c4-a69d-
7b908de6653a',
   'cache-control': 'no-cache, no-store',
   'strict-transport-security': 'max-age=31536000; includeSubDomains',
   'vary': 'accept-encoding',
   'content-type': 'text/xml;charset=UTF-8',
   'content-length': '2089',
   'date': 'Wed, 22 Feb 2023 07:11:33 GMT',
   'server': 'AmazonEC2'},
  'RetryAttempts': 0}}
```

```
ewsp['KeyMaterial']
```

```
{"type":"string"}

file=open('kgptalie.pem','w')
file.write(ewsp['KeyMaterial'])
file.close()
```

#create security group

```
ec2.describe_security_groups()
```

```
{'SecurityGroups': [{'Description': 'default VPC security group',
   'GroupName': 'default',
   'IpPermissions': [{'IpProtocol': '-1',
     'IpRanges': [],
     'Ipv6Ranges': [],
     'PrefixListIds': [],
     'UserIdGroupPairs': [{'GroupId': 'sg-0f638eacf73ee89d2',
       'UserId': '150292102627'}]}],
   'OwnerId': '150292102627',
   'GroupId': 'sg-0f638eacf73ee89d2',
   'IpPermissionsEgress': [{'IpProtocol': '-1',
     'IpRanges': [{'CidrIp': '0.0.0.0/0'}],
     'Ipv6Ranges': [],
     'PrefixListIds': [],
     'UserIdGroupPairs': []}],
   'VpcId': 'vpc-0fc2a618ed2ea7ec2'},
  {'Description': 'default VPC security group',
   'GroupName': 'default',
   'IpPermissions': [{'IpProtocol': '-1',
     'IpRanges': [],
     'Ipv6Ranges': [],
     'PrefixListIds': [],
     'UserIdGroupPairs': [{'GroupId': 'sg-0d6b49f54226f76cd',
       'UserId': '150292102627'}]}],
   'OwnerId': '150292102627',
   'GroupId': 'sg-0d6b49f54226f76cd',
   'IpPermissionsEgress': [{'IpProtocol': '-1',
     'IpRanges': [{'CidrIp': '0.0.0.0/0'}],
     'Ipv6Ranges': [],
     'PrefixListIds': [],
     'UserIdGroupPairs': []}],
   'VpcId': 'vpc-0cd5e44b50adbbb96'}],
 'ResponseMetadata': {'RequestId': 'd32a6f15-d2b8-4b10-9ed2-
55ee3fb9482d',
  'HTTPStatusCode': 200,
  'HTTPHeaders': {'x-amzn-requestid': 'd32a6f15-d2b8-4b10-9ed2-
55ee3fb9482d',
   'cache-control': 'no-cache, no-store',
   'strict-transport-security': 'max-age=31536000; includeSubDomains',
   'vary': 'accept-encoding',
   'content-type': 'text/xml;charset=UTF-8',
```

```
    'content-length': '2755',
    'date': 'Wed, 22 Feb 2023 07:18:03 GMT',
    'server': 'AmazonEC2'},
  'RetryAttempts': 0}}

res=ec2.create_security_group(GroupName="kgptalie",Description="kgptal
ie sg", VpcId= 'vpc-0cd5e44b50adbbb96')

res

{'GroupId': 'sg-06b30b2916f13312a',
 'ResponseMetadata': {'RequestId': '7146e625-ea49-4572-906c-
da9970f87a0a',
   'HTTPStatusCode': 200,
   'HTTPHeaders': {'x-amzn-requestid': '7146e625-ea49-4572-906c-
da9970f87a0a',
    'cache-control': 'no-cache, no-store',
    'strict-transport-security': 'max-age=31536000; includeSubDomains',
    'content-type': 'text/xml;charset=UTF-8',
    'content-length': '283',
    'date': 'Wed, 22 Feb 2023 07:24:18 GMT',
    'server': 'AmazonEC2'},
  'RetryAttempts': 0}}

gid=res['GroupId']
gid

{"type":"string"}

ec2.authorize_security_group_ingress(GroupId=gid,IpPermissions=[{'IpPr
otocol':'tcp','FromPort':80,'ToPort':80,'IpRanges':
[{'CidrIp':'0.0.0.0/0'}]},
{'IpProtocol':'tcp','FromPort':22,'ToPort':22,'IpRanges':
[{'CidrIp':'0.0.0.0/0'}]}])

{'Return': True,
 'SecurityGroupRules': [{'SecurityGroupRuleId': 'sgr-
04173ed5e3ef99a12',
   'GroupId': 'sg-06b30b2916f13312a',
   'GroupOwnerId': '150292102627',
   'IsEgress': False,
   'IpProtocol': 'tcp',
   'FromPort': 80,
   'ToPort': 80,
   'CidrIpv4': '0.0.0.0/0'},
  {'SecurityGroupRuleId': 'sgr-0cdb231fbb1de1fb2',
   'GroupId': 'sg-06b30b2916f13312a',
   'GroupOwnerId': '150292102627',
   'IsEgress': False,
   'IpProtocol': 'tcp',
   'FromPort': 22,
   'ToPort': 22,
```

```
    'CidrIpv4': '0.0.0.0/0'}],
  'ResponseMetadata': {'RequestId': '2d9ce1f9-c361-49a1-acae-
7ac8c6acdee3',
   'HTTPStatusCode': 200,
   'HTTPHeaders': {'x-amzn-requestid': '2d9ce1f9-c361-49a1-acae-
7ac8c6acdee3',
    'cache-control': 'no-cache, no-store',
    'strict-transport-security': 'max-age=31536000; includeSubDomains',
    'content-type': 'text/xml;charset=UTF-8',
    'content-length': '1124',
    'date': 'Wed, 22 Feb 2023 07:36:27 GMT',
    'server': 'AmazonEC2'},
   'RetryAttempts': 0}}
```

```python
#create EC2 instance:

import boto3

ec2_resource=boto3.resource('ec2',region_name='ap-south-
1',aws_access_key_id='AKIASF7Q3PXRRQU57SS7',aws_secret_access_key='Hhw
3+gF6cja/t6GIkwXPqrUuao4p6afLcHF2juW6')

ec2 = boto3.resource('ec2',region_name='ap-south-
1',aws_access_key_id='AKIASF7Q3PXRRQU57SS7',aws_secret_access_key='Hhw
3+gF6cja/t6GIkwXPqrUuao4p6afLcHF2juW6')
vpc = ec2.create_vpc(CidrBlock='10.0.0.0/16')
subnet = vpc.create_subnet(CidrBlock='10.0.1.0/24')

instance = ec2.create_instances(ImageId='ami-0e742cca61fb65051',
InstanceType='t2.micro', KeyName='kgptalie', SubnetId=subnet.id,
MaxCount=1, MinCount=1)

# Wait for the instance to be in the running state
instance[0].wait_until_running()
instance[0].reload()


import boto3

pip install boto3
```

```
Looking in indexes: https://pypi.org/simple, https://us-
python.pkg.dev/colab-wheels/public/simple/
Requirement already satisfied: boto3 in /usr/local/lib/python3.8/dist-
packages (1.26.76)
Requirement already satisfied: jmespath<2.0.0,>=0.7.1 in
/usr/local/lib/python3.8/dist-packages (from boto3) (1.0.1)
Requirement already satisfied: botocore<1.30.0,>=1.29.76 in
/usr/local/lib/python3.8/dist-packages (from boto3) (1.29.76)
Requirement already satisfied: s3transfer<0.7.0,>=0.6.0 in
/usr/local/lib/python3.8/dist-packages (from boto3) (0.6.0)
Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in
```

```
/usr/local/lib/python3.8/dist-packages (from
botocore<1.30.0,>=1.29.76->boto3) (2.8.2)
Requirement already satisfied: urllib3<1.27,>=1.25.4 in
/usr/local/lib/python3.8/dist-packages (from
botocore<1.30.0,>=1.29.76->boto3) (1.26.14)
Requirement already satisfied: six>=1.5 in
/usr/local/lib/python3.8/dist-packages (from python-
dateutil<3.0.0,>=2.1->botocore<1.30.0,>=1.29.76->boto3) (1.15.0)
```

```python
import boto3
import os
import mimetypes

session = boto3.Session(
    aws_access_key_id='AKIASF7Q3PXRRQU57SS7',
    aws_secret_access_key='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'
)
s3 = session.resource('s3',region_name='ap-south-
1',aws_access_key_id='AKIASF7Q3PXRRQU57SS7',aws_secret_access_key='Hhw
3+gF6cja/t6GIkwXPqrUuao4p6afLcHF2juW6')

region="ap-south-1"

s3 = boto3.resource('s3',region_name='ap-south-
1',aws_access_key_id='AKIASF7Q3PXRRQU57SS7',aws_secret_access_key='Hhw
3+gF6cja/t6GIkwXPqrUuao4p6afLcHF2juW6')
bucket_name = 'chauhanweb'
bucket = s3.create_bucket(Bucket=bucket_name,
CreateBucketConfiguration={'LocationConstraint': 'ap-south-1'})

import json




html_file_name = 'boto.html'

# Set the bucket policy to allow public access
bucket_policy = {
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Principal": "*",
            "Action": [
                "s3:GetObject"
            ],
            "Resource": [
                "arn:aws:s3:::{}/*".format(bucket_name)
            ]
        }
```

```
    ]
}

# Print the URL of the website


#To install Nginx on an EC2 instance using remote execution in Python

pip install boto3

Looking in indexes: https://pypi.org/simple, https://us-
python.pkg.dev/colab-wheels/public/simple/
Requirement already satisfied: boto3 in /usr/local/lib/python3.8/dist-
packages (1.26.76)
Requirement already satisfied: botocore<1.30.0,>=1.29.76 in
/usr/local/lib/python3.8/dist-packages (from boto3) (1.29.76)
Requirement already satisfied: s3transfer<0.7.0,>=0.6.0 in
/usr/local/lib/python3.8/dist-packages (from boto3) (0.6.0)
Requirement already satisfied: jmespath<2.0.0,>=0.7.1 in
/usr/local/lib/python3.8/dist-packages (from boto3) (1.0.1)
Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in
/usr/local/lib/python3.8/dist-packages (from
botocore<1.30.0,>=1.29.76->boto3) (2.8.2)
Requirement already satisfied: urllib3<1.27,>=1.25.4 in
/usr/local/lib/python3.8/dist-packages (from
botocore<1.30.0,>=1.29.76->boto3) (1.26.14)
Requirement already satisfied: six>=1.5 in
/usr/local/lib/python3.8/dist-packages (from python-
dateutil<3.0.0,>=2.1->botocore<1.30.0,>=1.29.76->boto3) (1.15.0)

import boto3
import time

session = boto3.Session(
    aws_access_key_id='AKIASF7Q3PXRRQU57SS7',
    aws_secret_access_key='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',
    region_name='ap-south-1'
)
ssm = session.client('ssm')

commands = [    'sudo yum update -y',    'sudo amazon-linux-extras
install nginx1.12 -y']

bucket_policy = json.dumps(bucket_policy)
bucket_policy = bucket_policy.replace('BUCKET_NAME', bucket_name)
bucket_policy = bucket_policy.replace('REGION',
os.environ['AWS_DEFAULT_REGION'])
bucket_policy = bucket_policy.replace('ACCOUNT_ID',
boto3.client('sts').get_caller_identity().get('Account'))
s3.BucketPolicy(bucket_name).put(Policy=bucket_policy)
```

```python
# Install Nginx in the EC2 instance using remote execution
key_path = '/path/to/my-key-pair.pem'
instance_ip_address = instance[0].public_ip_address

ssh_client = paramiko.SSHClient()
ssh_client.set_missing_host_key_policy(paramiko.AutoAddPolicy())
ssh_client.connect(hostname=instance_ip_address, username='ubuntu',
key_filename=key_path)

stdin, stdout, stderr = ssh_client.exec_command('sudo apt-get update')
stdin, stdout, stderr = ssh
```