Day 51: Your CI/CD pipeline on AWS - Part 2 🚀 ☁️

On your journey of making a CI/CD pipeline on AWS with these tools, you completed AWS CodeCommit.

Next few days you'll learn these tools/services:

- CodeBuild
- CodeDeploy
- CodePipeline
- S3

What is CodeBuild ?

AWS CodeBuild is a fully managed build service in the cloud. CodeBuild compiles your source code, runs unit tests, and produces artifacts that are ready to deploy. CodeBuild eliminates the need to provision, manage, and scale your own build servers. It provides prepackaged build environments for popular programming languages and build tools such as Apache Maven, Gradle, and more. You can also customize build environments in CodeBuild to use your own build tools. CodeBuild scales automatically to meet peak build requests.

Task-01:

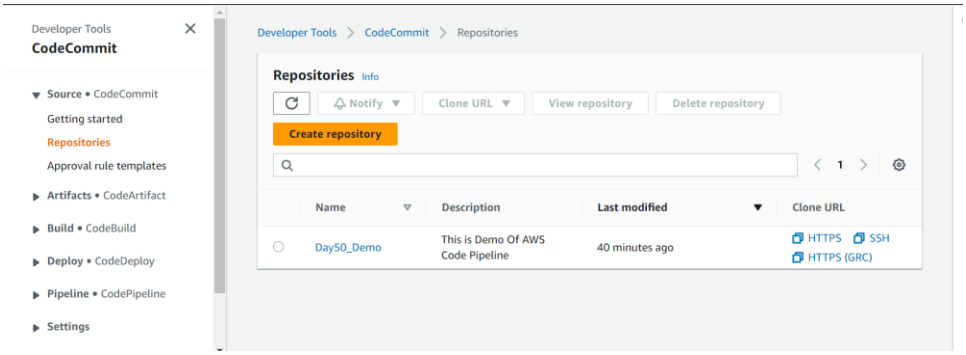
- Read about Buildspec file for Codebuild.

A buildspec is a collection of build commands and related settings, in YAML format, that CodeBuild uses to run a build. You can include a buildspec as part of the source code or you can define a buildspec when you create a build project.

By default, the buildspec file must be named buildspec.yml and placed in the root of your source directory but you can override the default buildspec file name and location.

- create a simple index.html file in CodeCommit Repository

Create a Repository in CodeCommit, same as Day50.



Create IAM USER and Generate Git Credentials, if you are not created already.

Note: - Suppose you again start creating the IAM USER and Git Credentials, then you will be facing this type of error

```
:\Users\Rushikesh\Desktop\DevOps\Day50>git clone https://git-codecommit.us-east-1.amazonaws.com/v1/repos/Day50_Demo
loning into 'Day50_Demo'...
atal: unable to access 'https://git-codecommit.us-east-1.amazonaws.com/v1/repos/Day50_Demo/': The requested URL returned error: 403
```

Solution: need to change the Git Credentials. Follow the site below as a Reference.

Solve This Issue

Clone the Repository and create an index.html file

```
Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ touch index.html

Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ vi index.html

Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ cat index.html
<!DOCTYPE html>
<html>
    <head>
        <title>Basic Web Page</title>
    </head>
    <body>
Hello Rushikesh!
    </body>
</html>
```

Push this Index.html file to the CodeCommit Repository using **git push** command.

```
Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   index.html

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   index.html


Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ git add index.html
warning: in the working copy of 'index.html', LF will be replaced by CRLF the next time Git touches it

Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   index.html


Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ git commit -m "Added index" file
error: pathspec 'file' did not match any file(s) known to git

Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ git commit -m "index file added"
[master (root-commit) b5073cb] index file added
 1 file changed, 9 insertions(+)
 create mode 100644 index.html
```

Task-02:

- Add buildspec.yaml file to CodeCommit Repository and complete the build process.

Create a buildspec.yaml file to build the index.html file using nginx server.

```
Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ vi buildspec.yaml
```

```
$ cat buildspec.yaml
version: 0.2

phases:
  install:
    commands:
      - echo Install Web Server to run Simple html file
      - sudo apt-get update
      - sudo apt-get install nginx -y
  build:
    commands:
      - echo Build started on `date`
      - cp index.html /var/www/html
  post_build:
    commands:
      - echo Build completed on `date`
artifacts:
  files:
    - /var/www/html/index.html
```

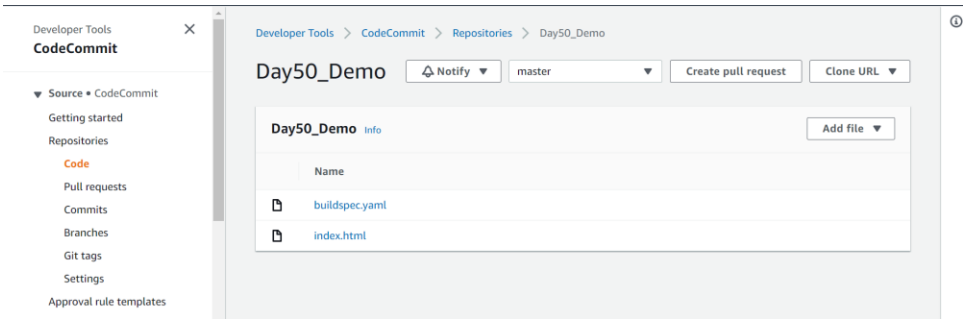
Here's what each step of the build does:

- **version: 0.2 -** version represents the version of the build spec standard being used. This build spec declaration uses the latest version, 0.2
- **Phases** – phases represent the build phases during which you can instruct CodeBuild to run commands. These build phases are listed here as install, build, and post_build. You cannot change the spelling of these build phase names, and you cannot create more build phase names.
- **artifacts**: Specifies the location of the **index.html** file to be included in the build artifact.

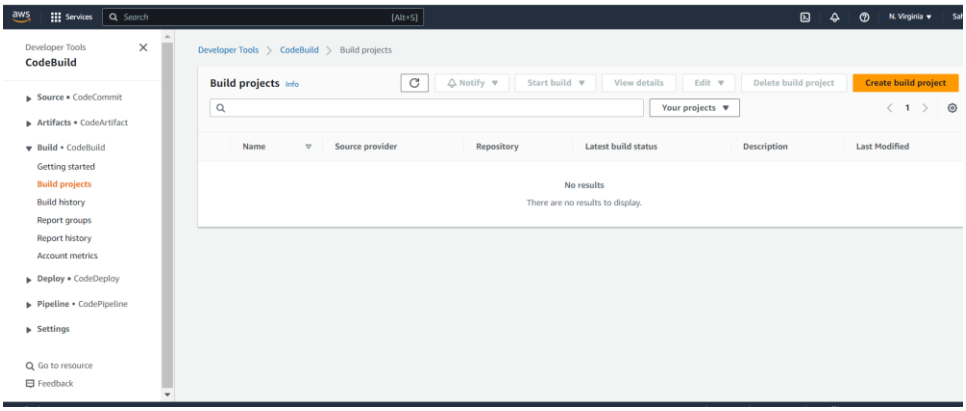
Push this buildspec.file to the CodeCommit Repository using **git push** command.

```
Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        buildspec.yaml

nothing added to commit but untracked files present (use "git add" to track)

Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ git add buildspec.yaml
warning: in the working copy of 'buildspec.yaml', LF will be replaced by CRLF the next time Git touches it

Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   buildspec.yaml


Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ git commit -m "Added BuildSpec file"
[master b25e3cb] Added BuildSpec file
 1 file changed, 17 insertions(+)
 create mode 100644 buildspec.yaml

Rushikesh@DESKTOP-OJSE6R3 MINGW64 ~/Desktop/DevOps/Day50/Day50_Demo (master)
$ git push origin master
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 514 bytes | 257.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
remote: Validating objects: 100%
To https://git-codecommit.us-east-1.amazonaws.com/v1/repos/Day50_Demo
   b5073cb..b25e3cb  master -> master
```

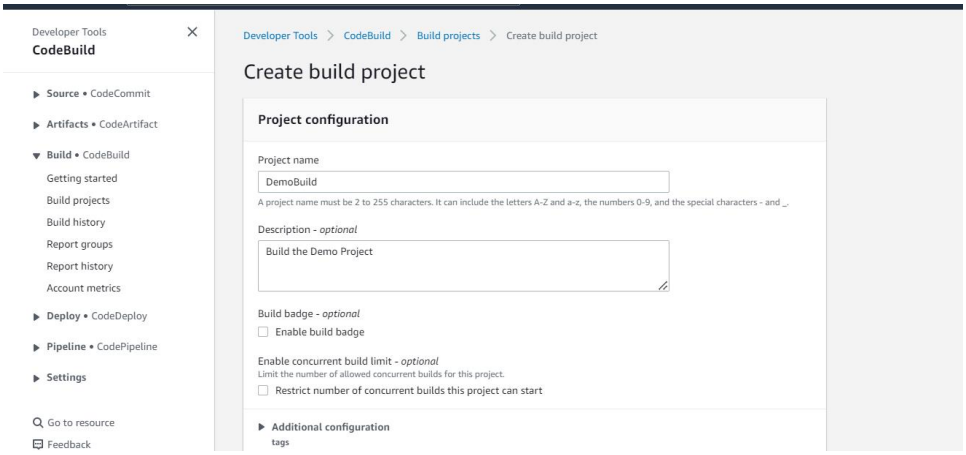
You have a buildspec.yml and index.html file in your CodeCommit repository



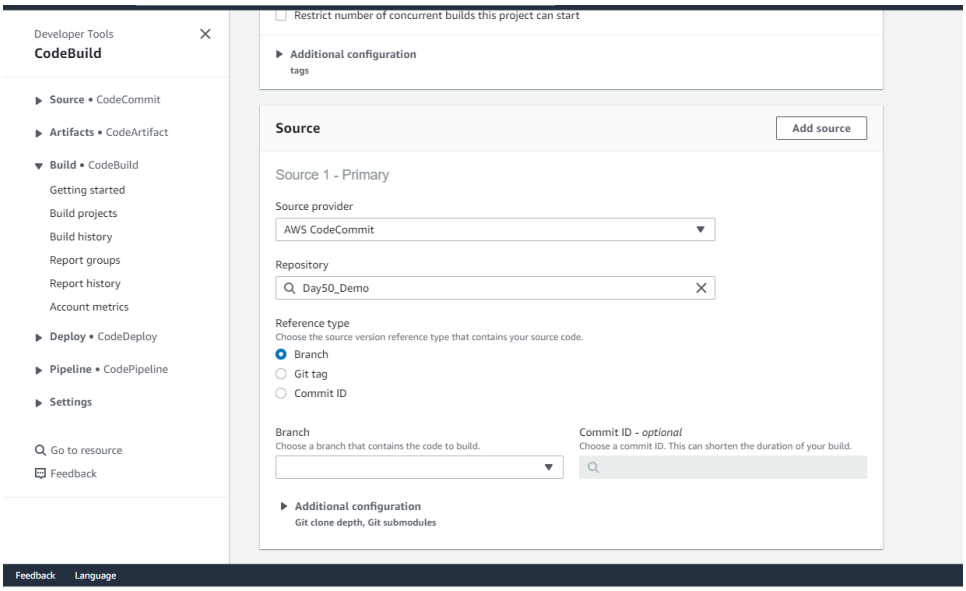
Go to the CodeBuild service. Click the "Create build project" button.



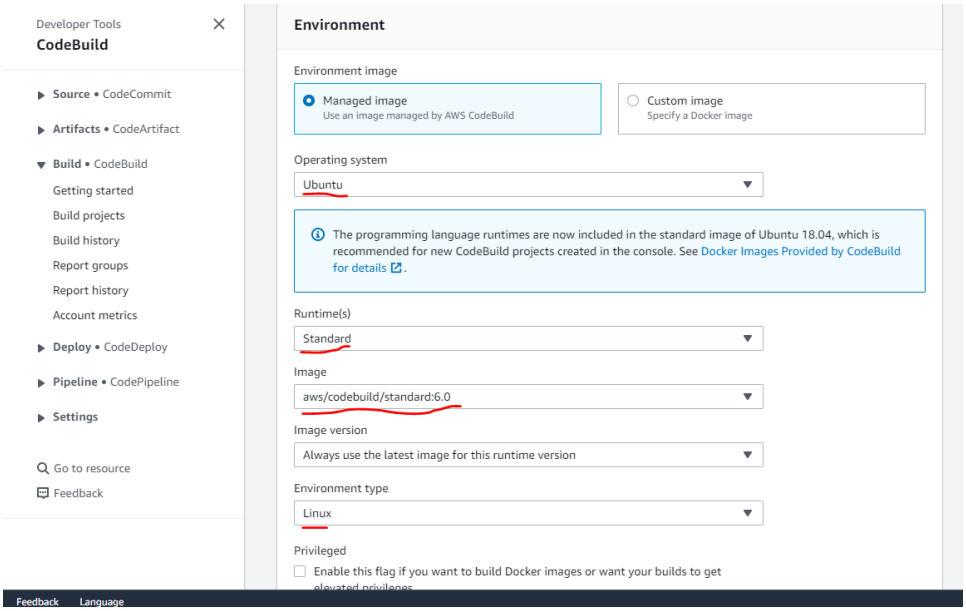
Fill in the details of your build project, including the project name, source provider (CodeCommit), repository, and branch.



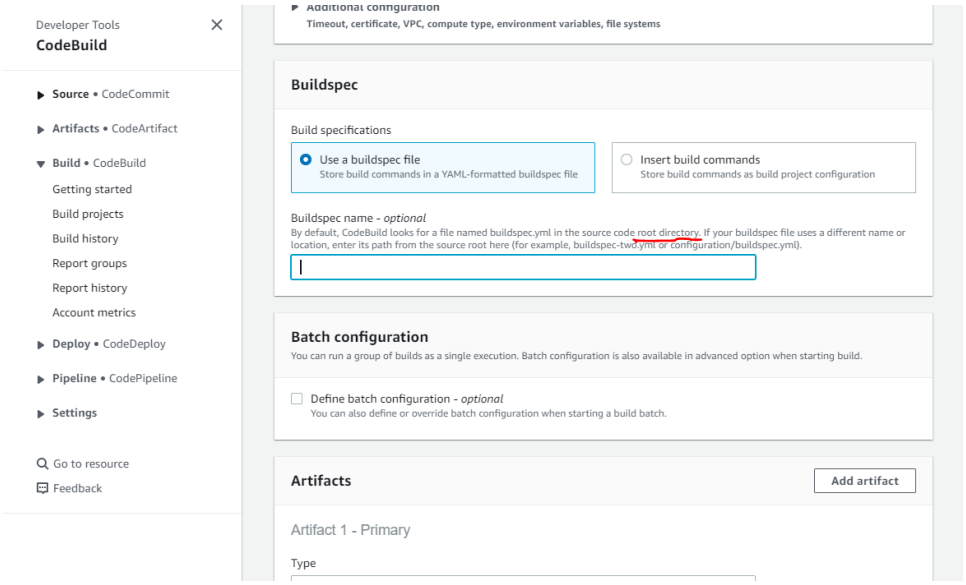
In source section, select source provider AWS CodeCommit, select Repository that you created earlier and select branch master.



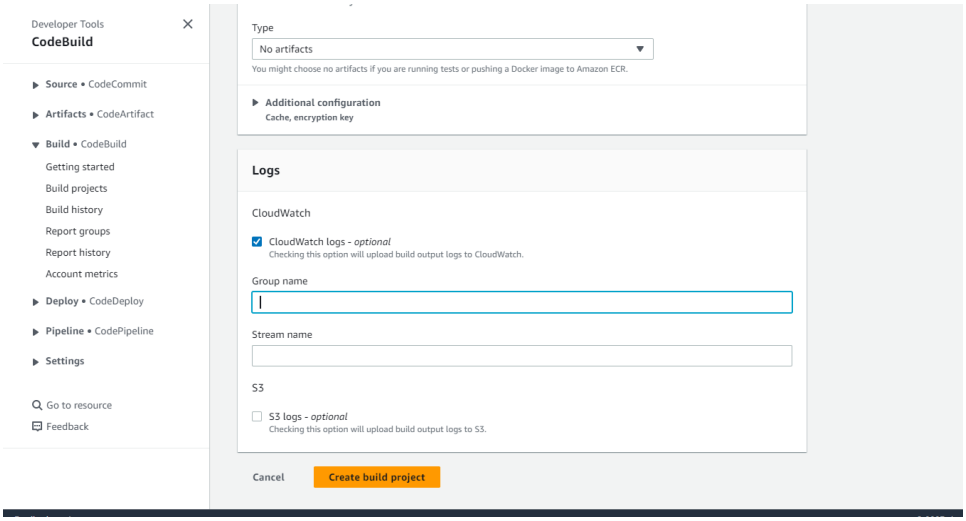
In Environment section, choose operating system, runtime ad image.



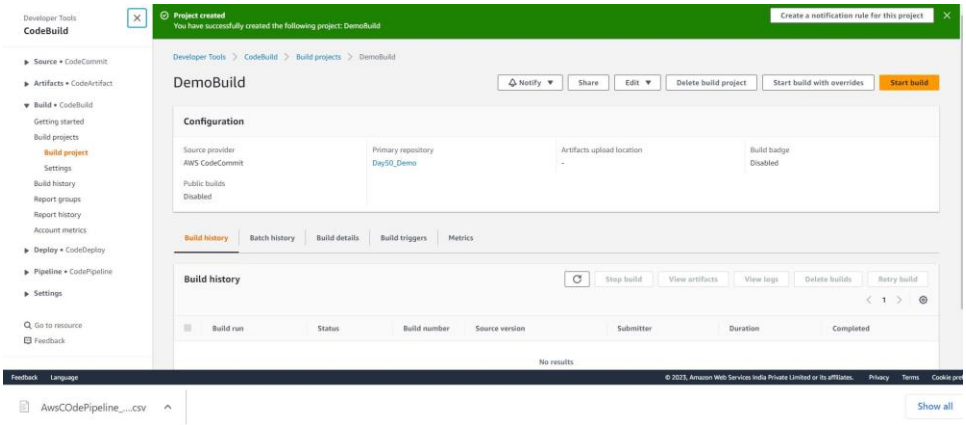
choose **"Use a buildspec file"** option, because by default CodeBuild looks for a file named buildspec.yaml in the source code root directory.



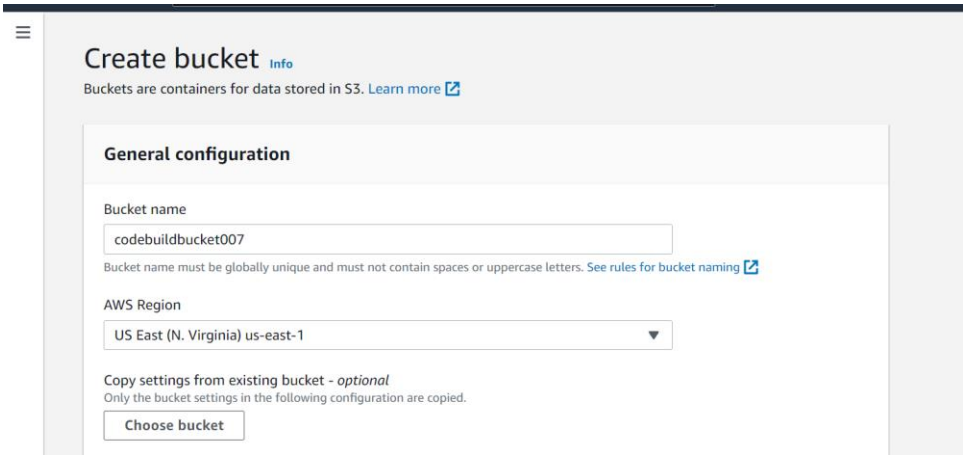
Click "Create build project" to create your project.



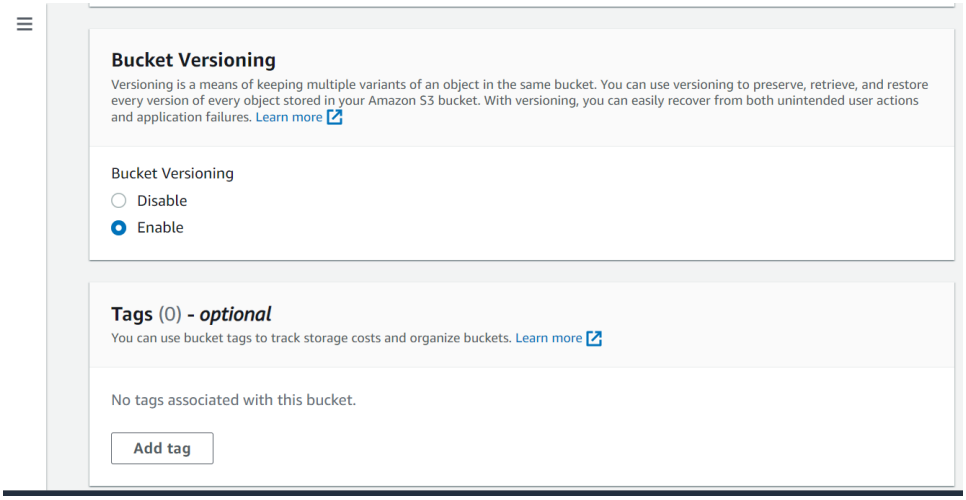
Successfully build project is created.

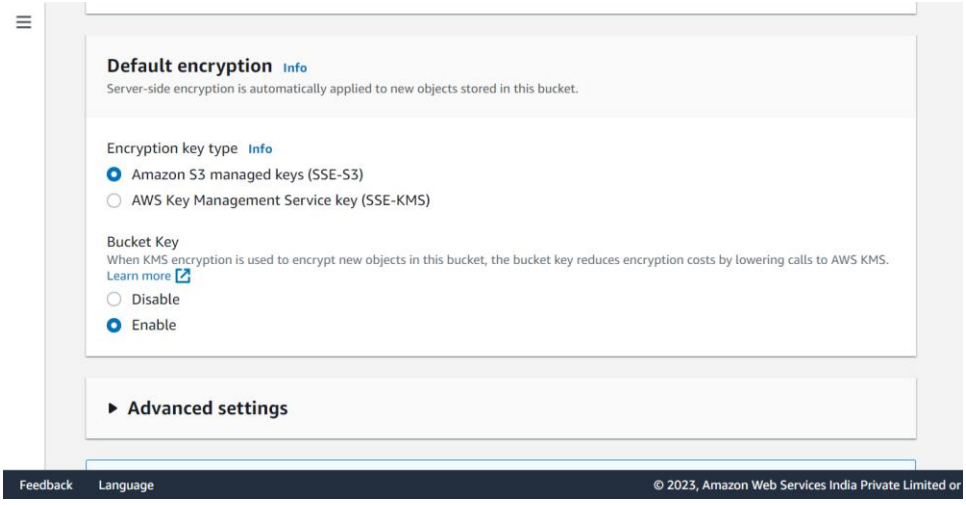


Create a S3 Bucket

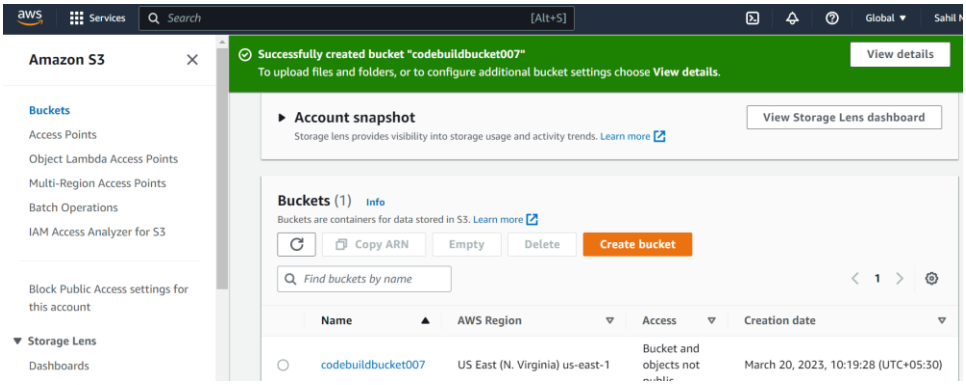


Enable Bucket Versioning

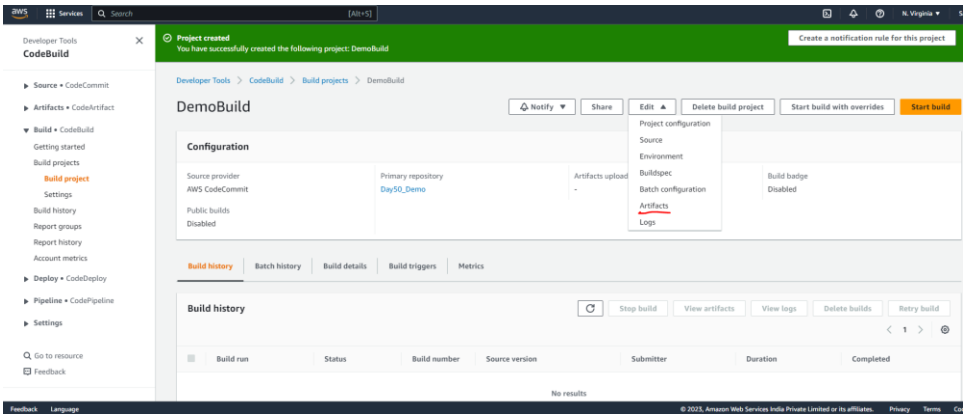




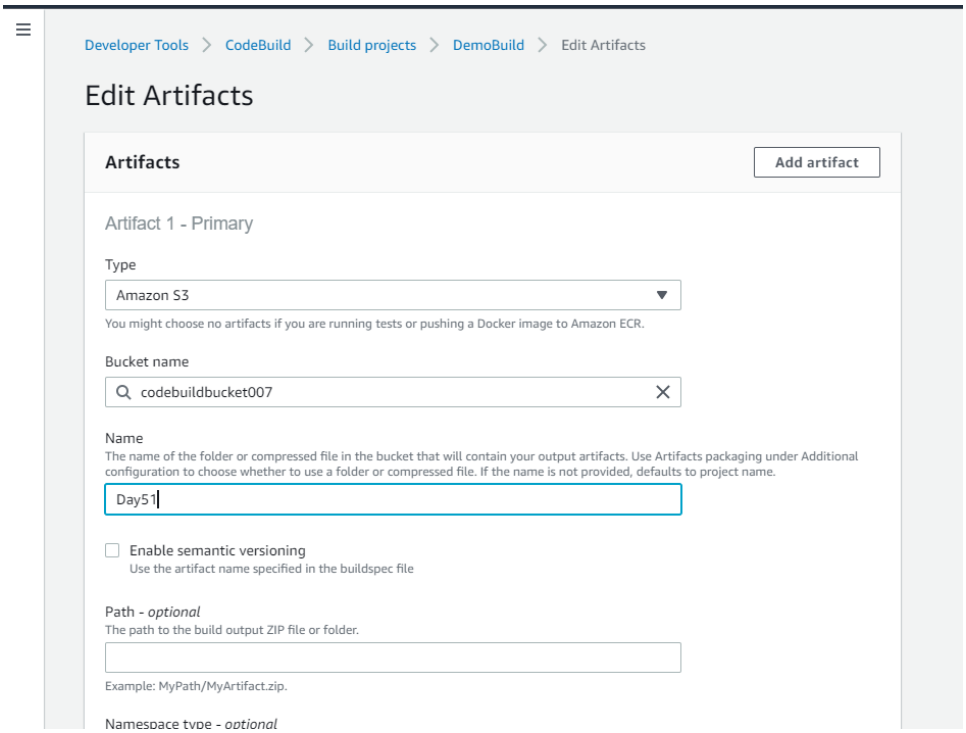
Bucket is Created Successfully.



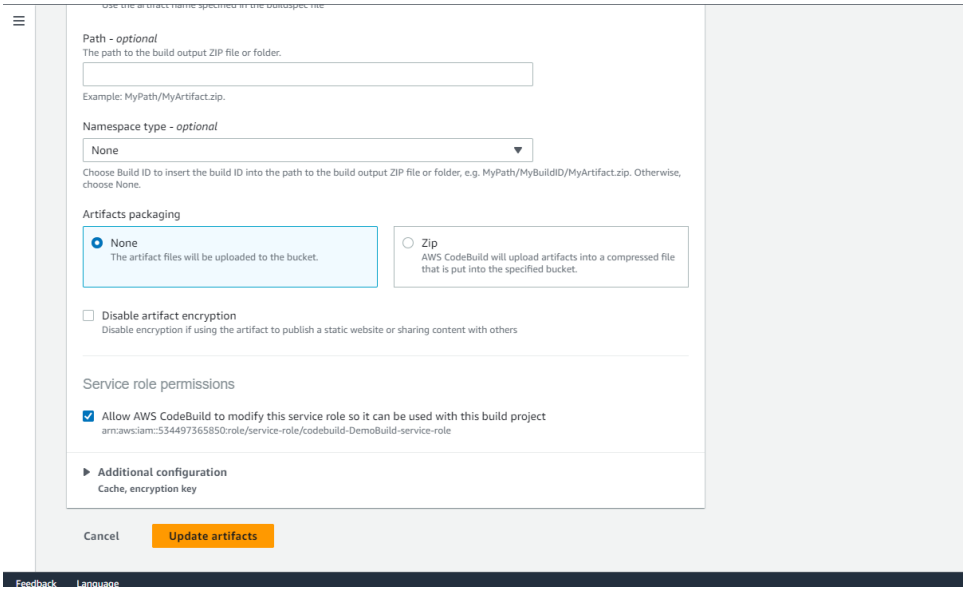
Goto CodeBuild Service and Edit the Artifacts.



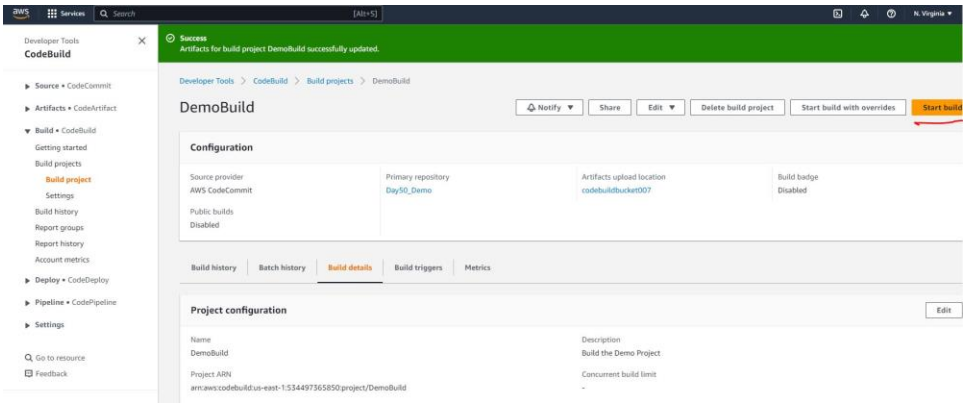
In Artifacts, add BucketName and Folder Name



Click on 'Update artifacts'.

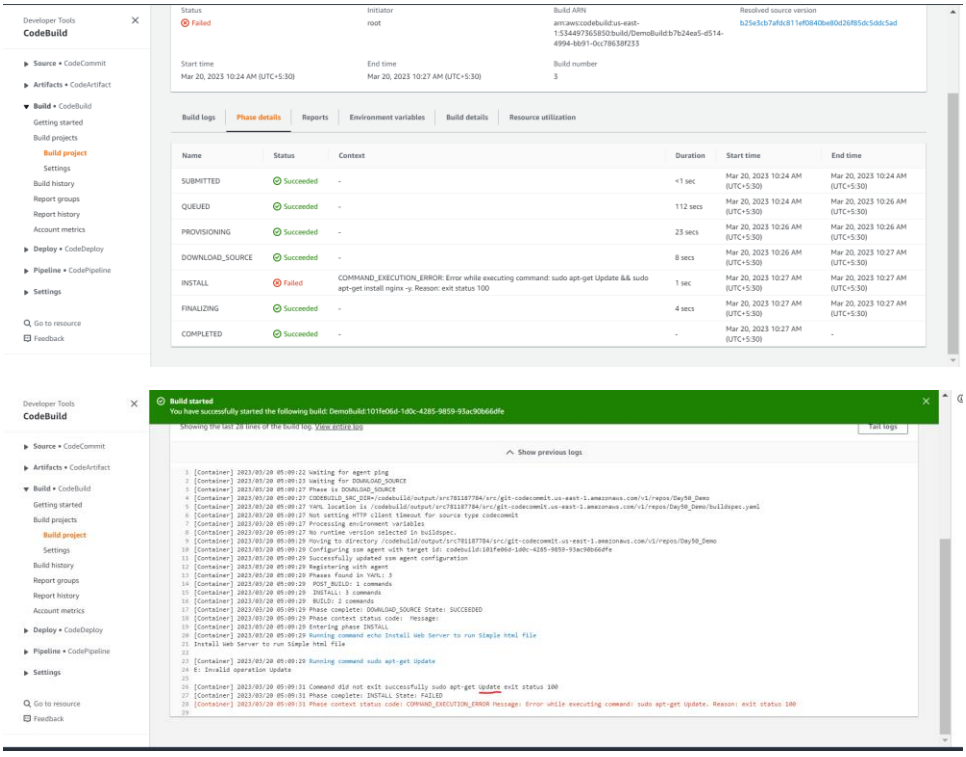


Click the "Start build" button to start a new build.



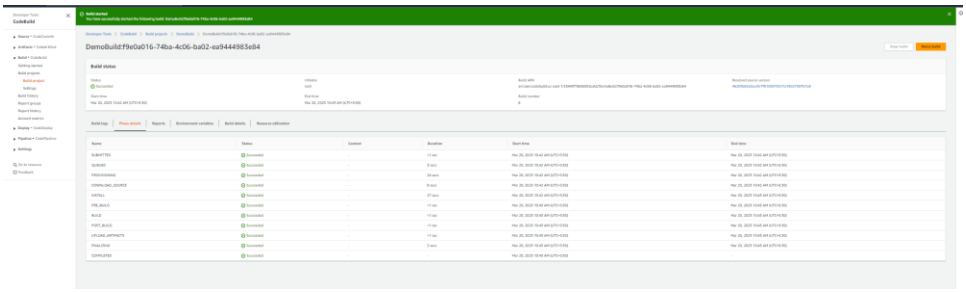
See in Phase Details, one phase is failed.

Go to Build Logs and see the Error and try to Resolve it.

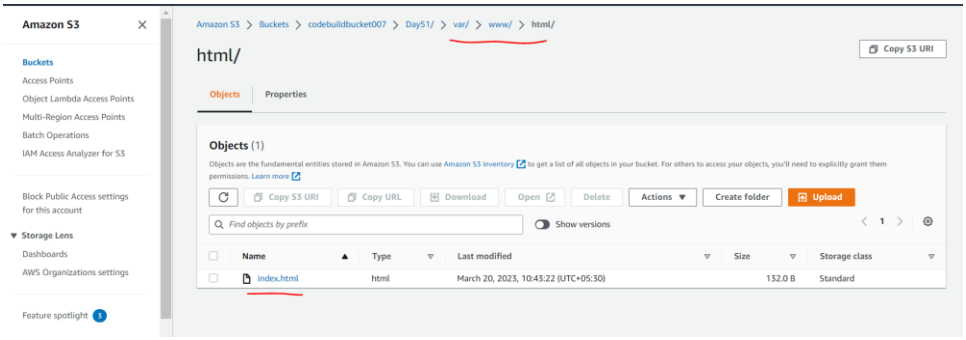


Again, click on Retry Build, and see the next time all build process is complete.

The artifacts will be uploaded to the specified S3 bucket location.

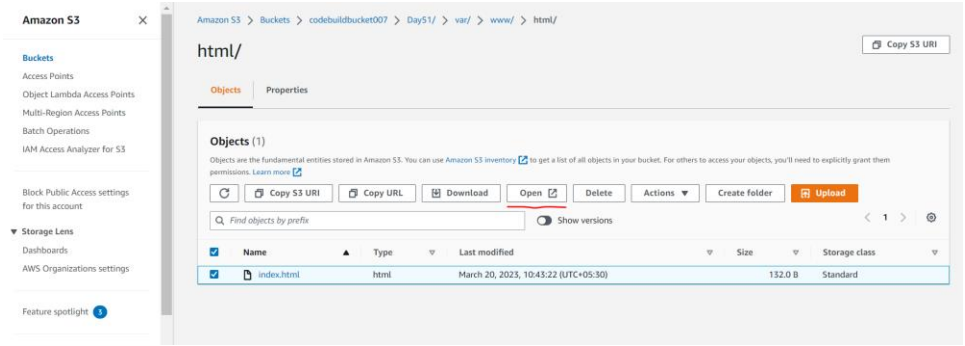


In buildspec.yml file, inside artifacts phase there is a location of file which is **/var/www/html/index.html**. You can check that folders and index.html file inside **s3 bucket**.

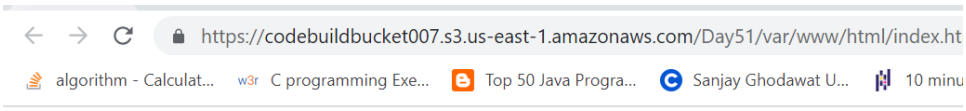


Click on 'index.html' file, below you can see properties of file.

Click on 'open' on the right-hand side.



Here is an output of index.html file.



Hello Rushikesh!

Happy Learning :)