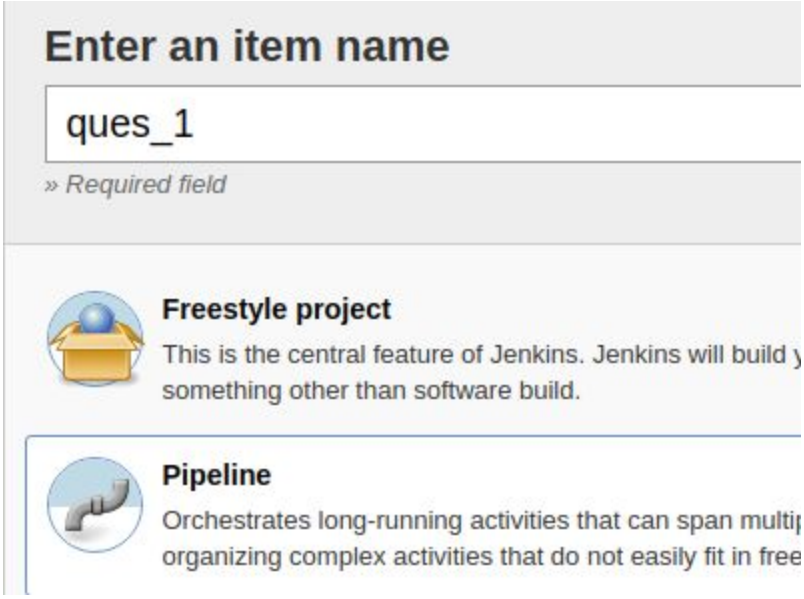
ASSESSMENT - 22

Jenkins 2

TO THE NEW™

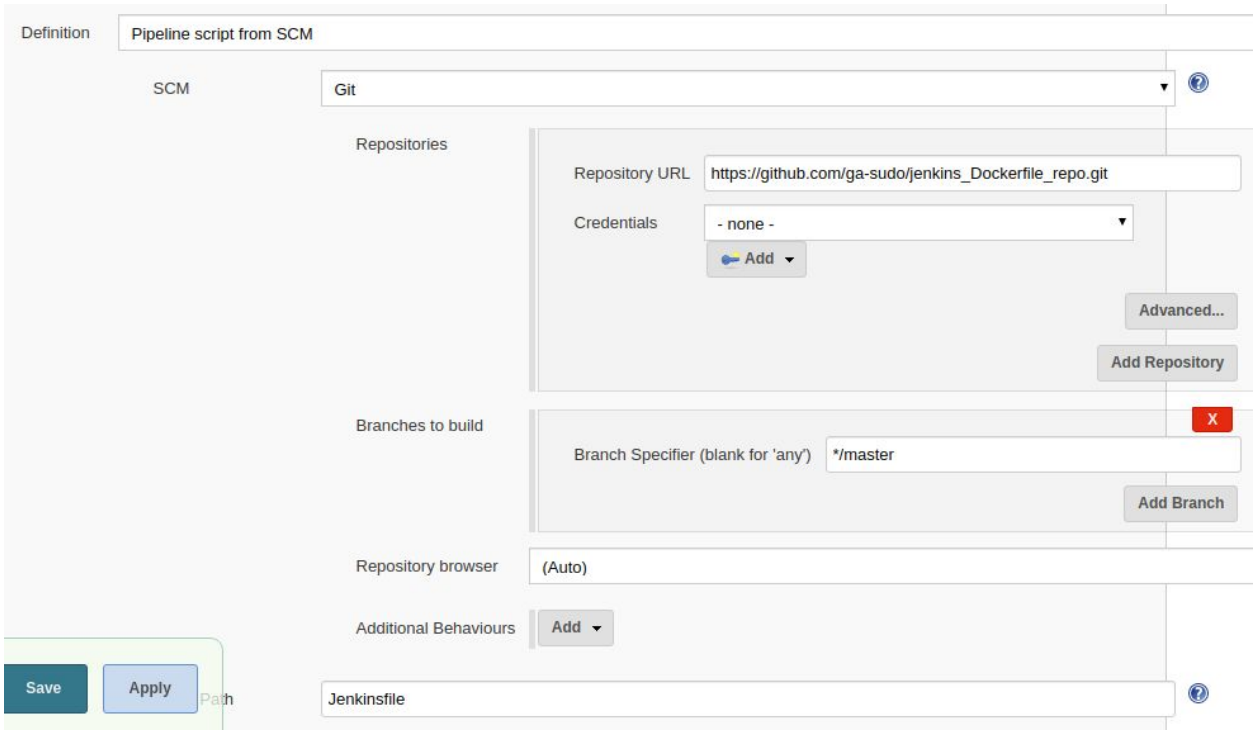
1. Create a jenkins pipeline Job to delete redundant docker images daily at 1 AM UTC.

- Create a pipeline job



- Add cron

- Fetch the Jenkinsfile from the git repository.



- Jenkinsfile in repository.

26 lines (26 sloc) | 581 Bytes

```
pipeline {
    agent any
    stages {
        stage('listing all docker images') {
            steps {
                sh '''
                docker image ls
                '''
                }
            }
        stage('Deleting Redundant images'){
            steps{
                sh '''
                docker image prune -af
                '''
                }
            }
        stage('listing remaining docker images') {
            steps {
                sh '''
                docker image ls
                '''
                }
            }
        }
    }
```

- Build the job.
- Output of stage 1

```
[Pipeline] { (listing all docker images)
[Pipeline] sh
+ docker image ls
REPOSITORY                TAG                 IMAGE ID            CREATED             SIZE
garima1998/nginx_image    nginx               5e9581f7e627        3 days ago          127MB
garima1998/tomcat_image   tomcat              881370d659b0        7 days ago          508MB
nginx                     latest              ed21b7a8aee9        13 days ago         127MB
alpine                    latest              a187dde48cd2        2 weeks ago         5.6MB
ubuntu                    latest              4e5021d210f6        3 weeks ago         64.2MB
centos                    latest              470671670cac        2 months ago        237MB
```

- Output of stage 2

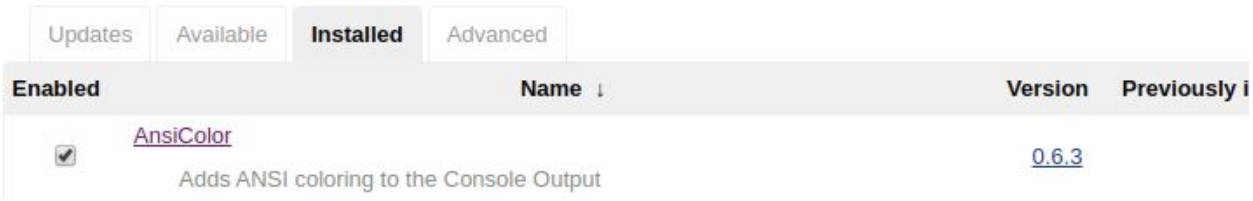
```
[Pipeline] { (Deleting Redundant images)
[Pipeline] sh
+ docker image prune -af
Deleted Images:
untagged: garima1998/nginx_image:nginx
untagged: garima1998/nginx_image@sha256:f0e6b7a8ef990a541e8b600d9109a41cd3b7a47129c2dc6600c89e10803c2145
deleted: sha256:5e9581f7e627f8fbe4961c504cfa7ef0afe902c5f8e415a0eddee5e11f4e1f90
deleted: sha256:49686afd65d9875bda0b439a0636e1cc7f443015d383bdf67f24f7bad1975536
deleted: sha256:88ac93ec5c0a73d2b691f51e6837f36ba823c2488bcca01b86f14be34f98069a
deleted: sha256:47772eae38f5466aac9257acd6a219c4a1768d8c7893732612416708904d0d93
untagged: alpine:latest
untagged: alpine@sha256:b276d875eeed9c7d3f1cfa7edb06b22ed22b14219a7d67c52c56612330348239
deleted: sha256:a187dde48cd289ac374ad8539930628314bc581a481cdb41409c9289419ddb72
deleted: sha256:beee9f30bc1f711043e78d4a2be0668955d4b761d587d6f60c2c8dc081efb203
untagged: centos:latest
untagged: centos@sha256:fe8d824220415eed5477b63addf40fb06c3b049404242b31982106ac204f6700
untagged: ubuntu:latest
untagged: ubuntu@sha256:bec5a2727be7fff3d308193cfde3491f8fba1a2ba392b7546b43a051853a341d
deleted: sha256:4e5021d210f65ebe915670c7089120120bc0a303b90208592851708c1b8c04bd
```

- Output of stage 3

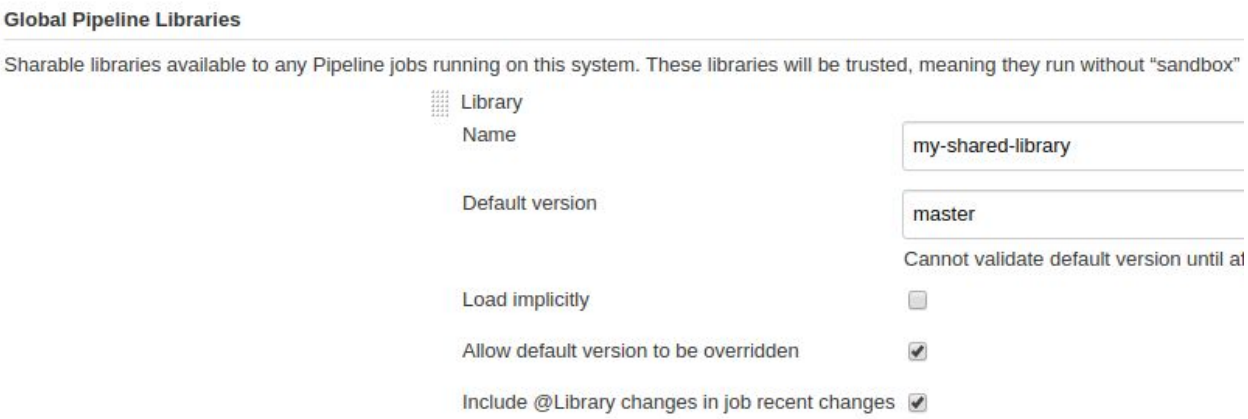
```
Total reclaimed space: 5.596MB
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (listing remaining docker images)
[Pipeline] sh
+ docker image ls
REPOSITORY                TAG                 IMAGE ID            CREATED             SIZE
garima1998/tomcat_image   tomcat              881370d659b0        7 days ago          508MB
nginx                     latest              ed21b7a8aee9        13 days ago         127MB
```

2. Create a shared library function to convert error and success output into a colorful output and use it in the upcoming questions(Hint: use ANSI color).

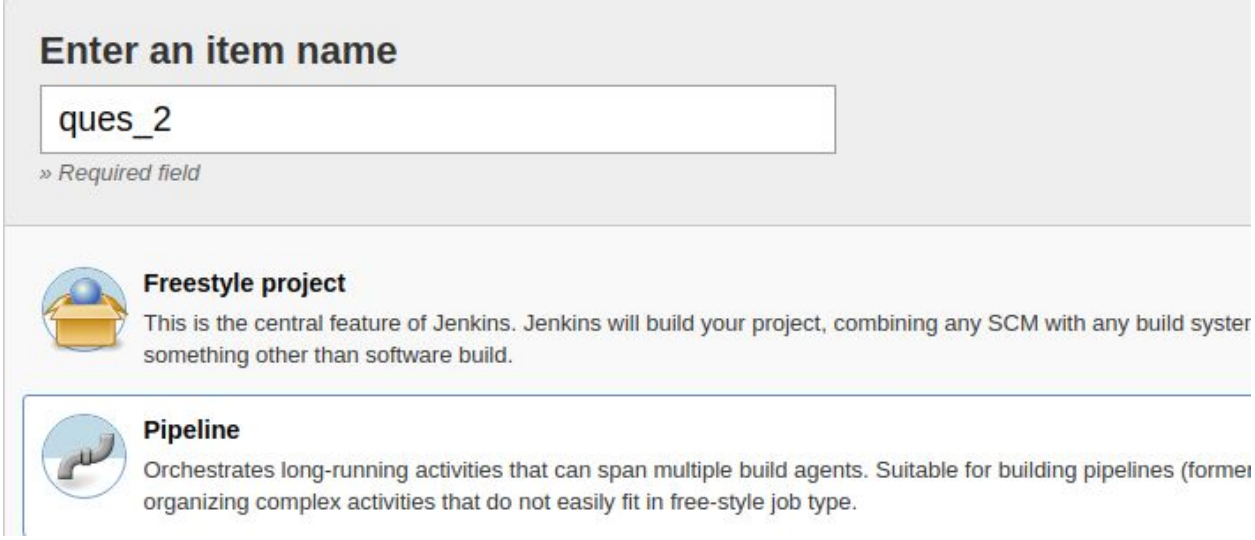
- Install AnsiColor plugin



- Configure the Global Pipeline Libraries in manage jenkins



- Create a pipeline job



Pipeline script from SCM

SCM: Git

Repositories

Repository URL: https://github.com/ga-sudo/Jenkins2.git

Credentials: - none -

Add

Branches to build

Branch Specifier (blank for 'any'): */master

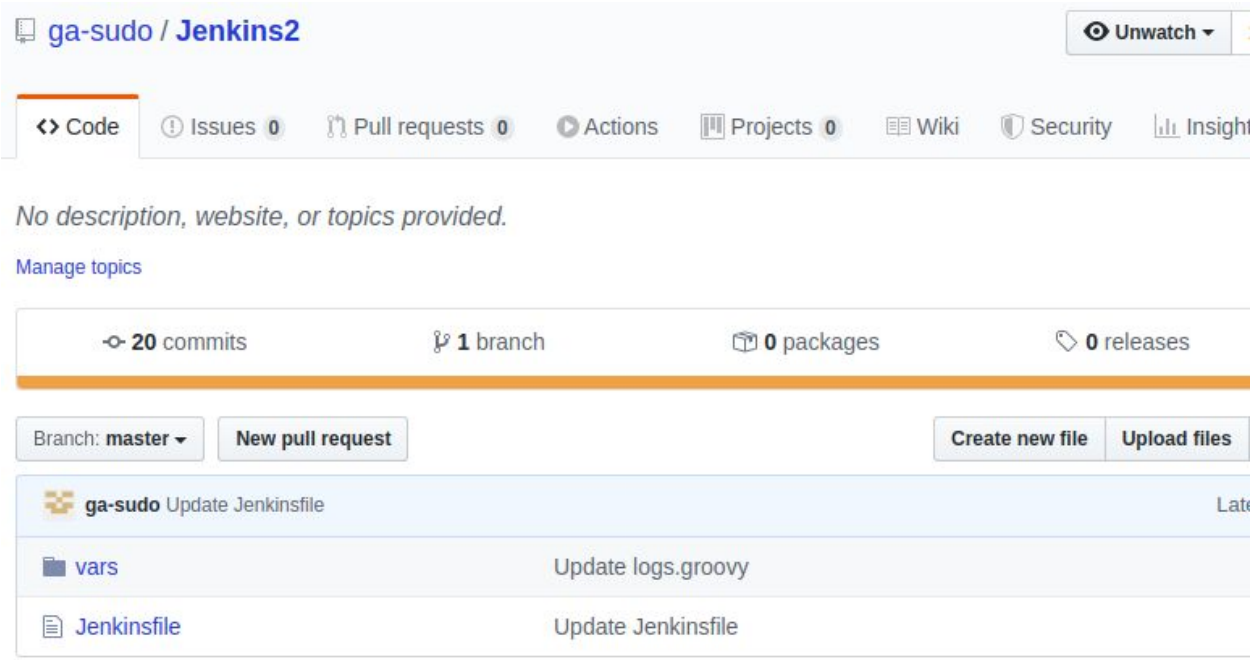
Repository browser: (Auto)

Additional Behaviours: Add

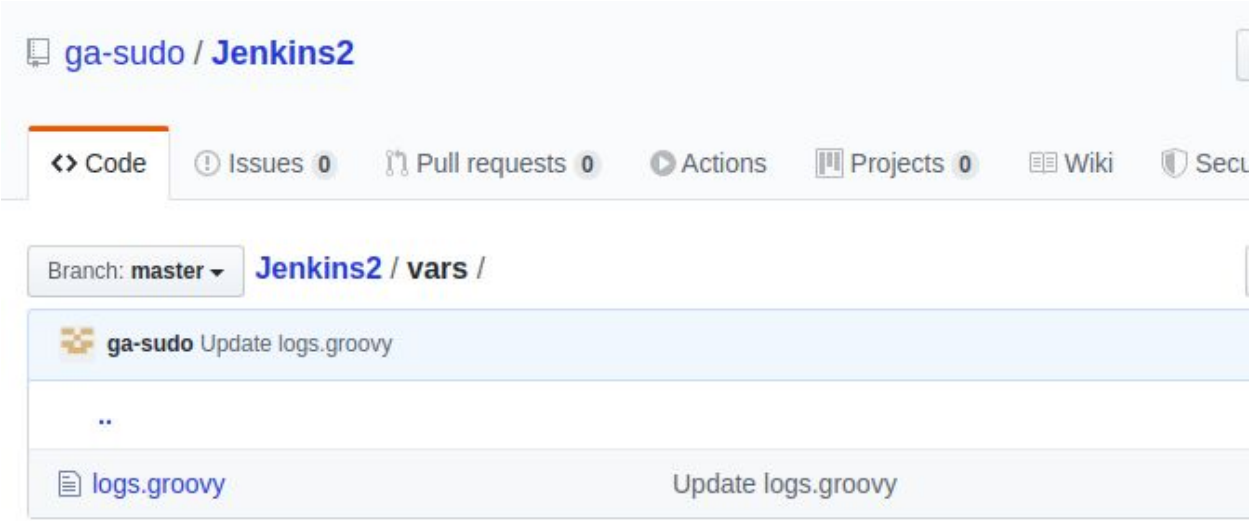
Apply

Path: Jenkinsfile

- Create a git repository with a folder named vars.The structure should be somewhat like.



- In the vars folder we shall write the groovy scripts that'll be pulled into the jenkins file at the runtime.



logs.groovy

Branch: **master** **Jenkins2** / vars / **logs.groovy**

ga-sudo Update logs.groovy

1 contributor

23 lines (17 sloc) | 411 Bytes

```
def loadColors() {
    RED='\033[0;31m'
    GREEN='\033[0;32m'
    NC='\033[0m'
}

def info(message){
    loadColors()
    sh """set +x;echo -e "${GREEN}[INFO] - ${message} ${NC}" """
}

def warn(message){
    loadColors()
    sh """set +x;echo -e "${RED}[WARN] - ${message} ${NC}" """
}

def gitCommitId(message){
    loadColors()
    sh """set +x;echo -e "${GREEN}[GIT COMMIT ID] - ${message} ${NC}" """
}

```

My jenkins file

Branch: **master** **Jenkins2** / **Jenkinsfile**

ga-sudo Update Jenkinsfile

1 contributor

21 lines (21 sloc) | 470 Bytes

```
#!groovy
library identifier: 'Jenkins2@master', retriever: modernSCM(
        [$class: 'GitSCMSource' ,
         remote: 'https://github.com/ga-sudo/Jenkins2'])
pipeline {
   agent any
    options{
       timestamps()
       ansiColor( 'xterm' )
   }
   stages {
      stage( 'Coloured Outputs with git commit id' ) {
         steps {
             script{
                 logs.info "SUCCESS"
                 logs.warn "WARNING"
             }
         }
      }
  }
}
```

Output:

```
[Pipeline] { (Coloured Outputs with git commit id)
[Pipeline] script
[Pipeline] {
[Pipeline] sh
09:45:38  + set +x
09:45:38  -e [INFO] - SUCCESS
[Pipeline] sh
09:45:38  + set +x
09:45:38  -e [WARN] - WARNING
[Pipeline] }
[Pipeline] // script
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // ansiColor
[Pipeline] }
[Pipeline] // timestamps
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

3. Create a function in the same shared library to output git commitID.

- Jenkins file

Branch: **master** **Jenkins2** / **Jenkinsfile**

ga-sudo Update Jenkinsfile

1 contributor

23 lines (23 sloc) | 592 Bytes

```
#!groovy
library identifier: 'Jenkins2@master', retriever: modernSCM(
        [$class: 'GitSCMSource' ,
         remote: 'https://github.com/ga-sudo/Jenkins2'])
pipeline {
   agent any
    options{
       timestamps()
       ansiColor( 'xterm' )
   }
   stages {
      stage( 'Coloured Outputs with git commit id' ) {
         steps {
             script{
                 logs.info "SUCCESS"
                 logs.warn "WARNING"
                 def gitId=sh(script: 'git rev-parse HEAD' , returnStdout: true)
                 logs.gitCommitId(gitId)
             }
         }
      }
  }
}
```

- Output:

```
[Pipeline] { (Coloured Outputs with git commit id)
[Pipeline] script
[Pipeline] {
[Pipeline] sh
09:49:00  + set +x
09:49:00  -e [INFO] - SUCCESS
[Pipeline] sh
09:49:00  + set +x
09:49:00  -e [WARN] - WARNING
[Pipeline] sh
09:49:01  + git rev-parse HEAD
[Pipeline] sh
09:49:01  + set +x
09:49:01  -e [GIT COMMIT ID] - cb8ac824f9deb319c756e50aa2c7f37f81ed299d
```

4.Take a sample react application and deploy it on EKS

a. You can use this repo or any other sample (https://github.com/gothinkster/react-redux-realworld-example-app).

b. Create a Dockerfile for react application

c. Build and publish image to ECR (create ECR repo of your name) and image must have the git commit id in its name.

d. Deploy this image on EKS.

e. Send Slack notification/Mail/google chat notification for build pass, abort and fail.

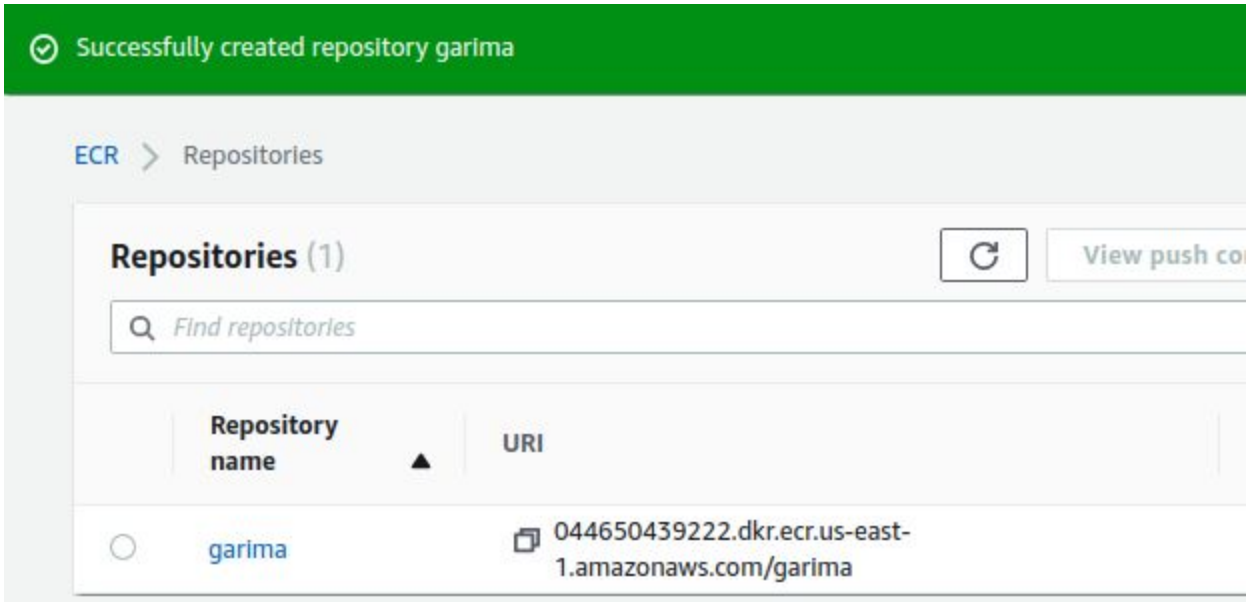
- Switch to user jenkins, login to aws ecr registry and authenticate docker for ecr.

```
jenkins@garima:~$ aws ecr get-login-password --region us-east-1 | docker login -
-username AWS --password-stdin 044650439222.dkr.ecr.us-east-1.amazonaws.com
WARNING! Your password will be stored unencrypted in /var/lib/jenkins/.docker/co
nfig.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
jenkins@garima:~$
```

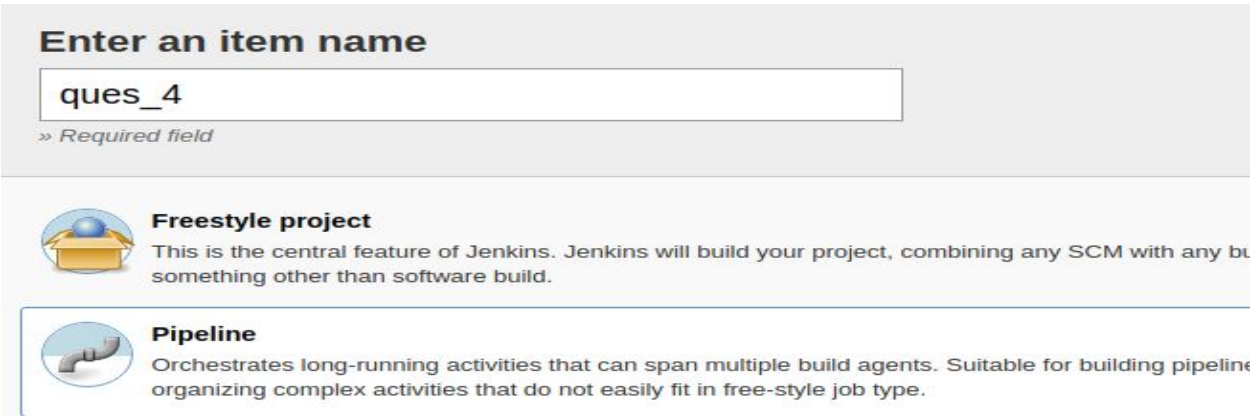
- Dockerfile

```
jenkins@garima:~$ cat Dockerfile
FROM mhart/alpine-node:11 AS builder
WORKDIR /app
COPY . .
RUN yarn run build

FROM mhart/alpine-node
RUN yarn global add serve
WORKDIR /app
COPY --from=builder /app/build .
CMD ["serve", "-p", "80", "-s", "."]
```

- Create ecr repo



- Create a pipeline job.



Pipeline script from SCM

SCM: Git

Repositories

Repository URL: https://github.com/ga-sudo/Jenkins2.git

Credentials: - none -

Add

Branches to build

Branch Specifier (blank for 'any'): */ques_4

Repository browser: (Auto)

Additional Behaviours: Add

Apply

Script Path: Jenkinsfile

- Jenkinsfile

```
pipeline {
    agent any
    stages {
        stage('Docker Build') {
            steps {
               sh 'docker build -t 044650439222.dkr.ecr.us-east-1.amazonaws.com/garima:$(git rev-parse HEAD) .'
            }
        }
        stage('pushing image to ECR') {
            steps {
                sh 'docker push 044650439222.dkr.ecr.us-east-1.amazonaws.com/garima:$(git rev-parse HEAD)'
            }
        }
        stage('Deploying on eks') {
            steps {
                        sh 'kubectl apply -f deployment.yml'
                        sh 'sleep 10'
                        sh 'kubectl get pods'
                        sh 'kubectl get svc'
                        sh 'kubectl describe pods'
            }
        }
    }
        post {
        success {
            emailext body: 'Success', recipientProviders: [[$class: 'DevelopersRecipientProvider'], [$class: 'RequesterRecipientProvide
        }
        failure {
            emailext body: 'failed', recipientProviders: [[$class: 'DevelopersRecipientProvider'], [$class: 'RequesterRecipientProvider
        }
    }
```

Branch: **ques_4** **Jenkins2** / **Dockerfile**

ga-sudo Create Dockerfile

1 contributor

8 lines (8 sloc) | 237 Bytes

```
FROM node:13.12.0-alpine
WORKDIR /app
ENV PATH /app/node_modules/.bin:$PATH
RUN apk add git
RUN git clone https://github.com/gothinkster/react-redux-realworld-example-app /app
RUN npm install --silent
CMD [ "npm" , "start" ]
EXPOSE 4100
```

Branch: **ques_4** Jenkins2 / **deployment.yaml**

ga-sudo Create deployment.yaml

1 contributor

34 lines (34 sloc) | 542 Bytes

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: react-deployment
  labels:
    app: react
spec:
  replicas: 2
  selector:
    matchLabels:
      app: react
  template:
    metadata:
      labels:
        app: react
spec:
  containers:
  - name: dreact
    image: 044650439222.dkr.ecr.us-east-1.amazonaws.com/garima
    ports:
    - containerPort: 4100
---
```

```yaml
---
apiVersion: v1
kind: Service
metadata:
  name: my-service
spec:
  type: NodePort
  selector:
    app: react
    ports:
    - protocol: TCP
      port: 4100
      targetPort: 4100
```