## **Jenkins-1**

# **ASSIGNMENT**

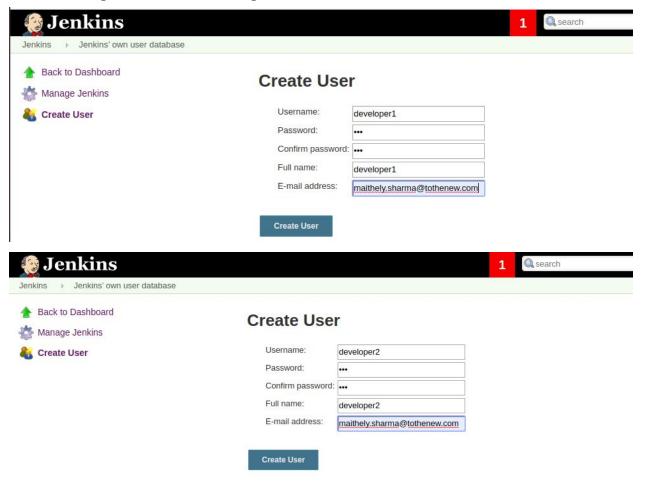


Name – Maithely Sharma
College – University of Petroleum and Energy Studies
EmployeeID – 4057

EmployeeID -

1.Create 2 users: developer1, developer2. The developer1 should be able to build job1 only and can't change the job configuration. The developer2 can configure and build the job2, also he is able to view job1 but can't build/configure it.

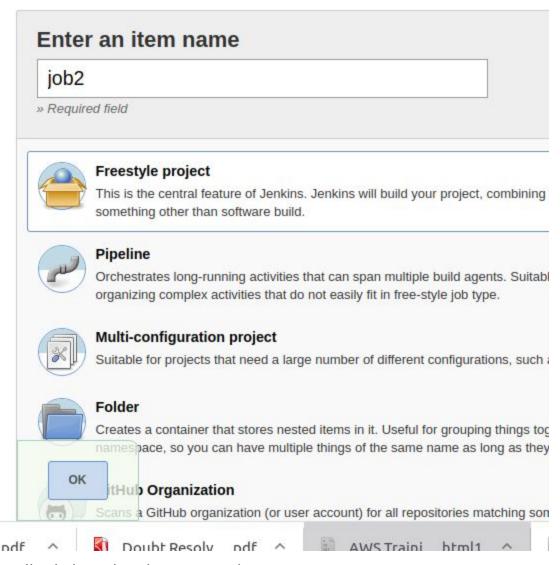
Select manage users from manage users and create 2 users



Create job1

### Enter an item name job1 » Required field Freestyle project This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, a something other than software build. **Pipeline** Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly k organizing complex activities that do not easily fit in free-style job type. Multi-configuration project Suitable for projects that need a large number of different configurations, such as testing on multiple environment Folder Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a namespace, so you can have multiple things of the same name as long as they are in different folders. tHub Organization Scans a GitHub organization (or user account) for all repositories matching some defined markers.

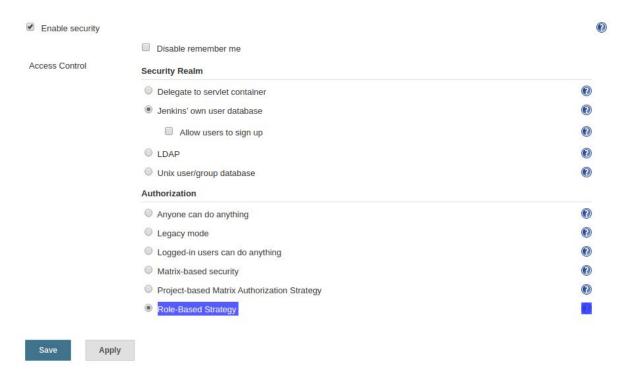
#### Create job2



Install role based authorization plugin

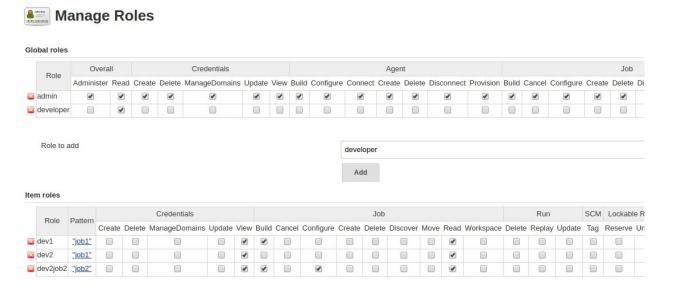


Enable role based authorization in global credentials



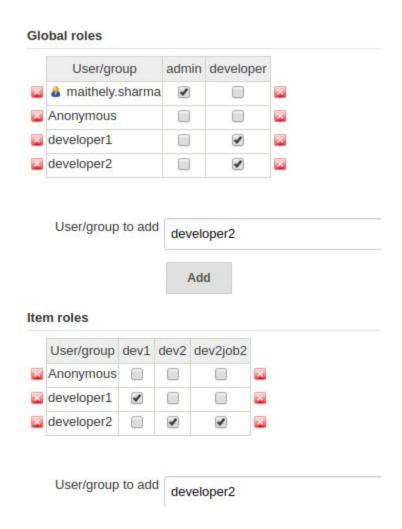
Firstly we created a global role(has permission to view dashboard) as : developer

Then also create dev1 (able to build job1 only and can't change the job configuration), dev2(configure and build the job2, also he is able to view job1 but can't build/configure it.)



Assign roles

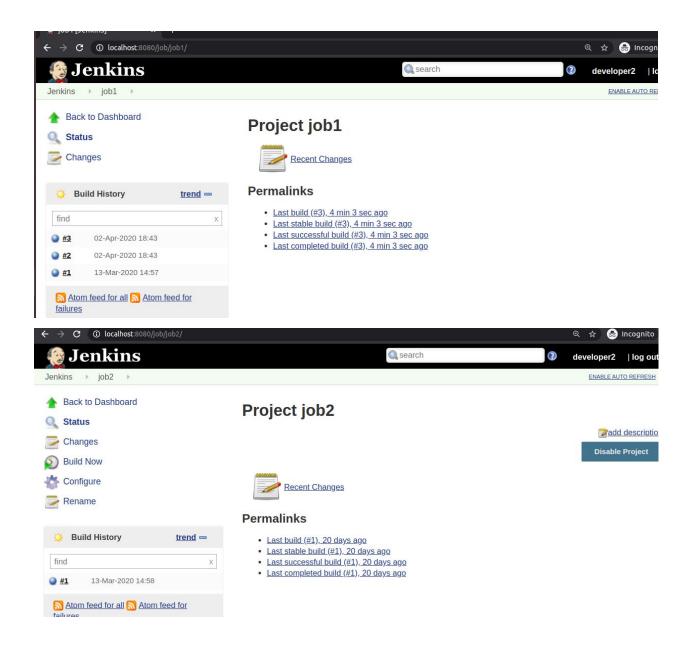




Now login to developer1: you can build the job1



Now login developer2: you can build job1 and configure job2



2.Create a Jenkins Job to create a calculator. It should give you a dropdown to ask Addition, Subtraction, Multiplication or Division and email the

results.

Install environment injector and extended email notification plugin

Hint: Plugin Used (Environment Injector, Extended Email Notification)

### **Installing Plugins/Upgrades**

Checking internet connectivity
 Checking update center connectivity
 Success

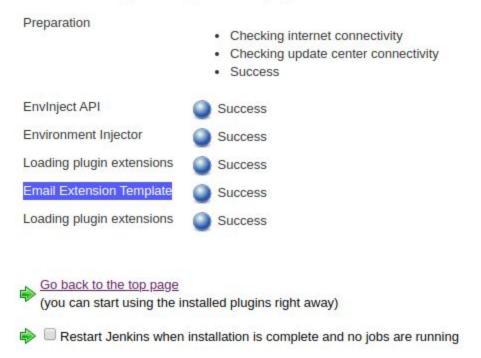
Environment Injector
 Success

Loading plugin extensions

Go back to the top page (you can start using the installed plugins right away)

Restart Jenkins when installation is complete and no jobs are running

### **Installing Plugins/Upgrades**



#### Now setup extended email notification

#### ← Less secure app access

Some apps and devices use less secure sign-in technology, which makes your account vulnerable. You can turn off access for these apps, which we recommend, or turn it on if you want to use them despite the risks. Google will automatically turn this setting OFF if it's not being used. Learn more

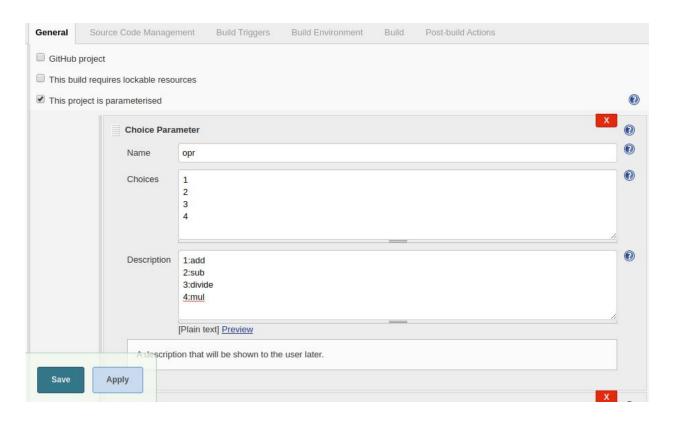
Allow less secure apps: ON

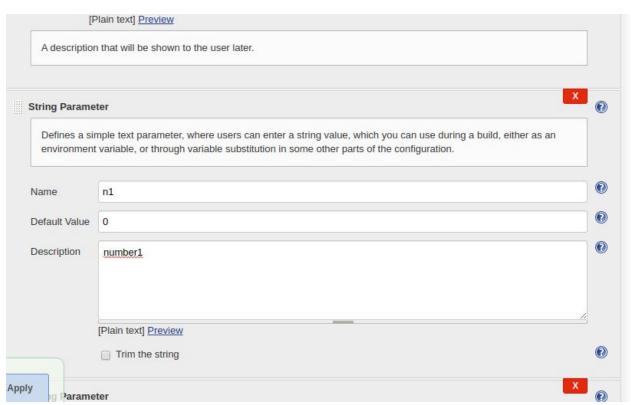
### **Extended E-mail Notification** SMTP server smtp.gmail.com Default user E-mail suffix Use SMTP Authentication User Name maithely.sharma@tothenew.com Password ••••• Advanced Email Properties Use SSL 1 SMTP port 465 Charset UTF-8 . . . . Additional accounts

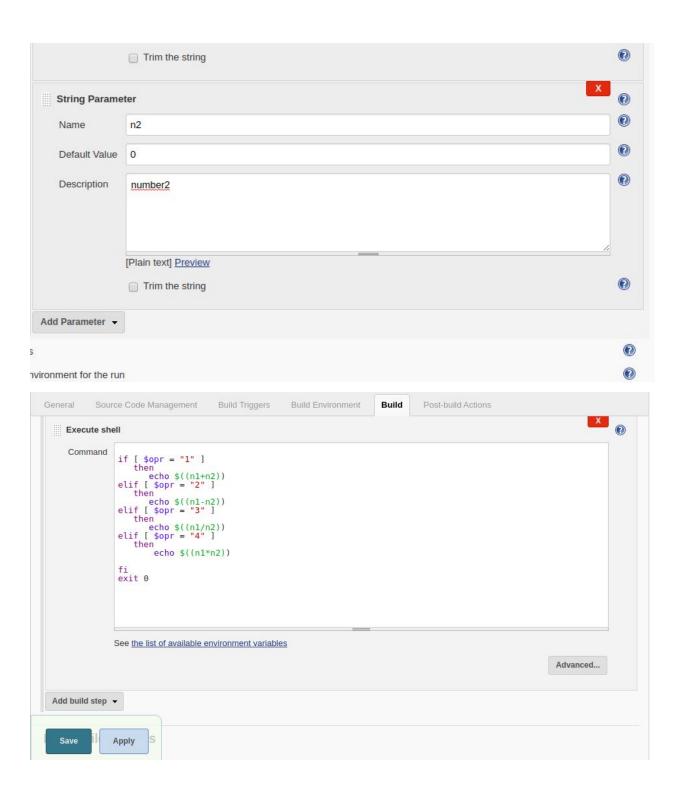
Now create a job calc

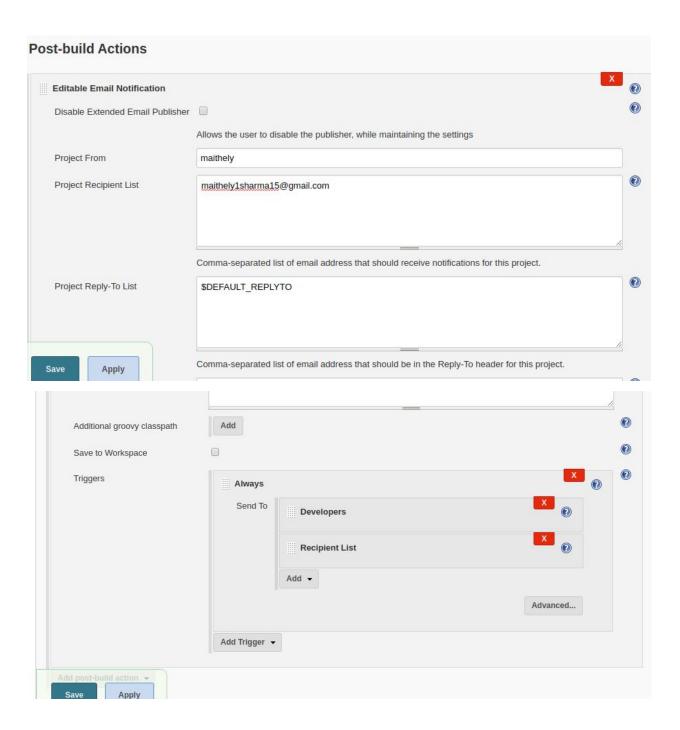
Apply

Save











3.Create jenkins parameterized job which is selecting the different Env. will display different web pages by nginx.

Create a job nginx and add parameters and we will execute commands in build-execute shell

### Enter an item name

#### nginx

» Required field



#### Freestyle project

This is the central feature of Jenkins. Jenkins will build your project something other than software build.



#### **Pipeline**

Orchestrates long-running activities that can span multiple build ag organizing complex activities that do not easily fit in free-style job ty



#### Multi-configuration project

Suitable for projects that need a large number of different configura

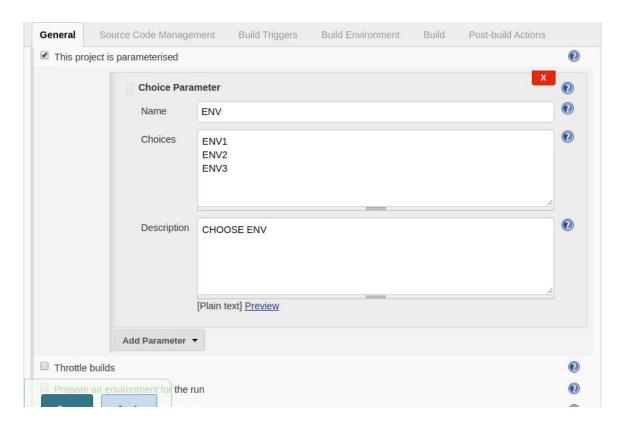


#### Folder

Creates a container that stores nested items in it. Useful for groupil namespace, so you can have multiple things of the same name as



tHub Organization





Now create the files in /var/www/html

```
maithely@maithely:~$ cd /var/www/html/ENV/
maithely@maithely:/var/www/html/ENV$ ls
ENV1.html ENV2.html ENV3.html
maithely@maithely:/var/www/html/ENV$ cat ENV1.html
environment 1
maithely@maithely:/var/www/html/ENV$ cat ENV2.html
environment 2
maithely@maithely:/var/www/html/ENV$ cat ENV3.html
environment 3
maithely@maithely:/var/www/html/ENV$
```

Now create a file ENV.com in /etc/nginx/sites-enabled

```
maithely@maithely:/var/www/html/ENV$ cd /etc/nginx/sites-enabled/
maithely@maithely:/etc/nginx/sites-enabled$ cat ENV.com
server{
          listen 80;
          root /var/www/html;
          index ENV1.html, ENV2.html, ENV3.html;
    }
maithely@maithely:/etc/nginx/sites-enabled$
```

#### Edit the /etc/hosts file

```
maithely@maithely:/etc/nginx/sites-enabled$ cd
maithely@maithely:~$ cat /etc/hosts
127.0.0.1 localhost ENV.com

# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
maithely@maithely:~$
```

Also edit the sudoers file in /etc so the jenkins can be without password

```
# Host alias specification

# User alias specification

# User privilege specification

root ALL=(ALL:ALL) ALL
mack ALL=(ALL) NOPASSWD:ALL
jenkins ALL=(ALL) NOPASSWD:ALL

# Members of the admin group may gain root privileges
% admin ALL=(ALL) ALL

# Allow members of group sudo to execute any command
% sudo ALL=(ALL:ALL) ALL

# See sudoers(5) for more information on "#include" directives:
# includedir /etc/sudoers.d

""sudoers" [readonly] 33L, 816C
```

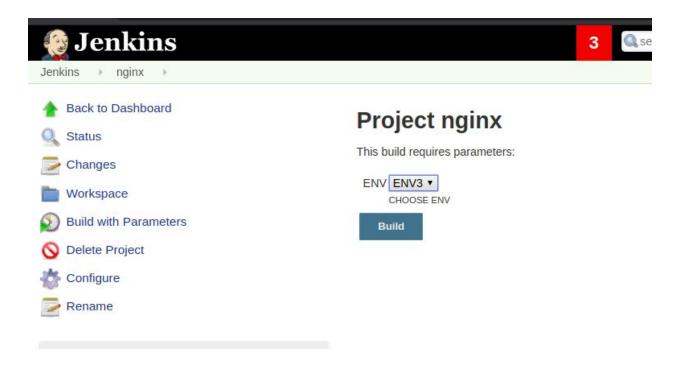
Now test nginx configuration and restart it

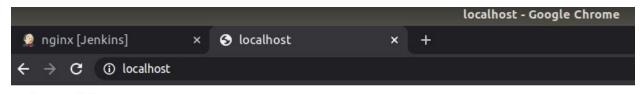
```
maithely@maithely:/etc/nginx/sites-enabled$ sudo nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
maithely@maithely:/etc/nginx/sites-enabled$ sudo service nginx restart
```

Also restart the jenkins

```
maithely@maithely:/var/www/html$ sudo service jenkins restart maithely@maithely:/var/www/html$
```

Now choose the environment





environment 3

4. Create a job which on its failure will trigger another job.

This can be triggered in 2 ways:

**SOLUTION1:** 

Create a job: maithely

#### Enter an item name

### maithely

» Required field



#### Freestyle project

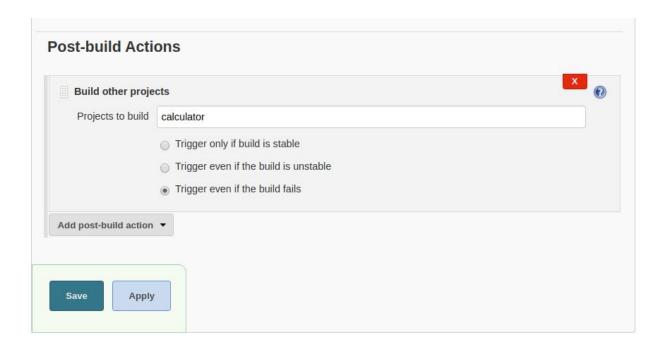
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.



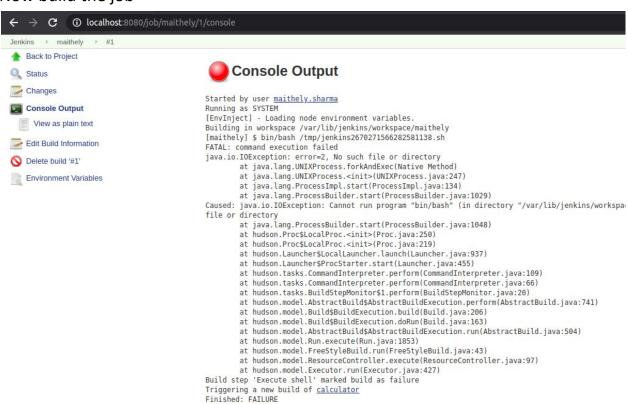
#### **Pipeline**

Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

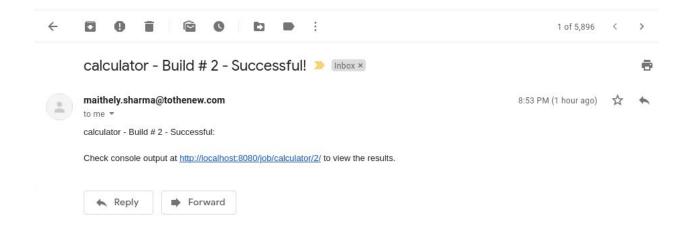




#### Now build the job



We can see that calc was triggered when it failed and i received an email

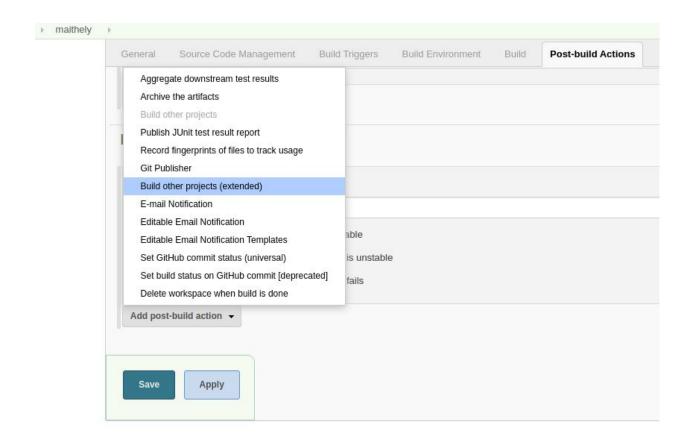


#### **SOLUTION2:**

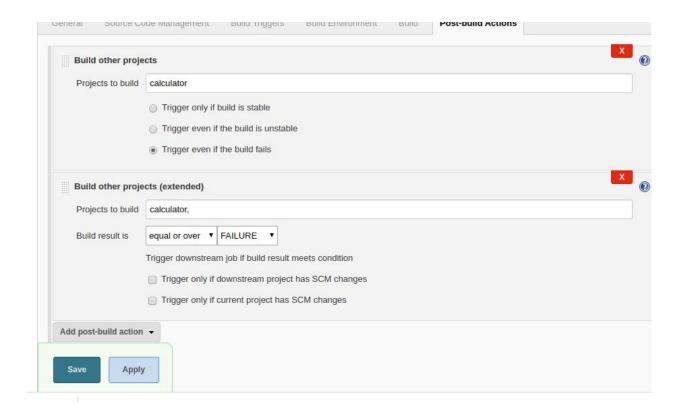
Download plugin Downstream-Ext



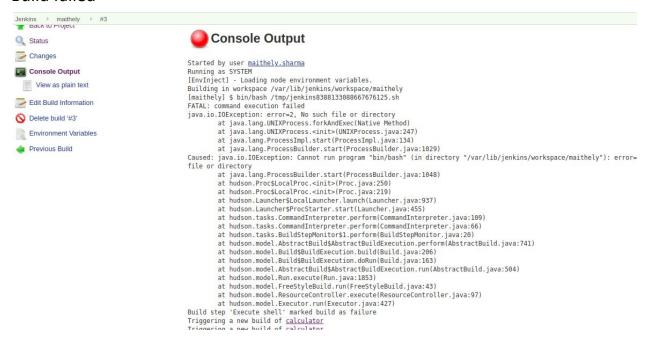
Go to maithely job and select build other projects



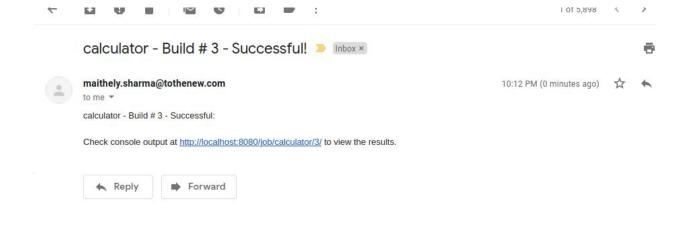
Now select if job fails it should trigger our calc job



#### **Build failed**



#### **Email received**

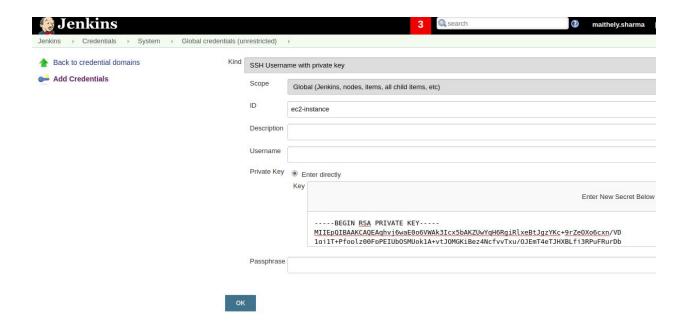


5.Create a job which can set a cron job on another server. This server contains a script on its home directory and the script will print the two string parameters which will be given by the jenkins job.

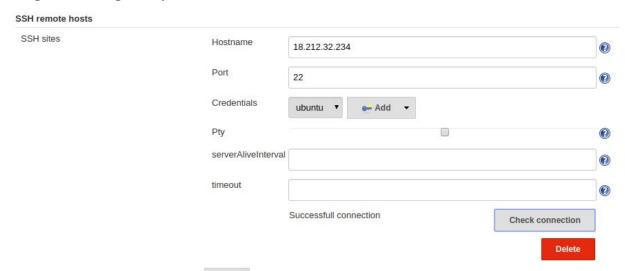
#### Install ssh plugin



Go to credentials->global credentials and add username with private key



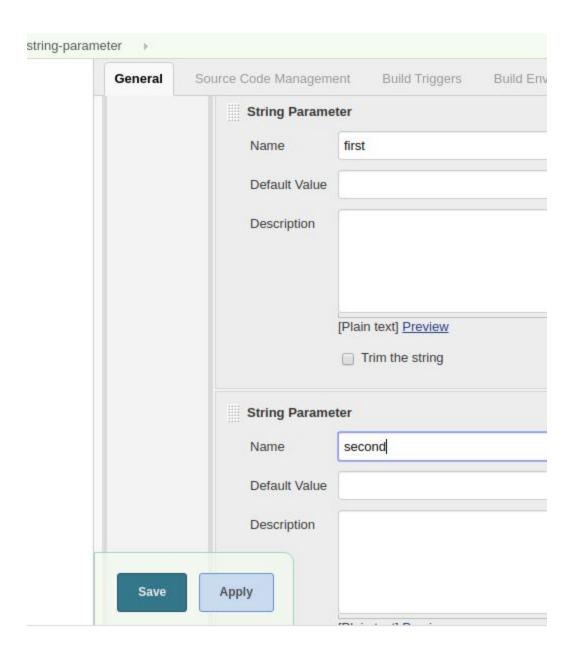
#### Now go to configure system and add ssh remote host



#### Now create a file in the instance

```
ubuntu@ip-172-31-210-43:~$ cat string.sh
echo " $1 $2 "
ubuntu@ip-172-31-210-43:~$ chmod +x string.sh
chmod: changing permissions of 'string.sh': Operation not permitted
ubuntu@ip-172-31-210-43:~$ sudo !!
sudo chmod +x string.sh
```

Create a job and add 2 string parameters in it

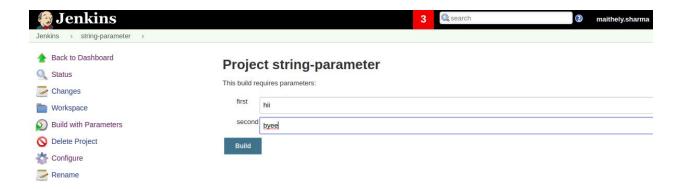


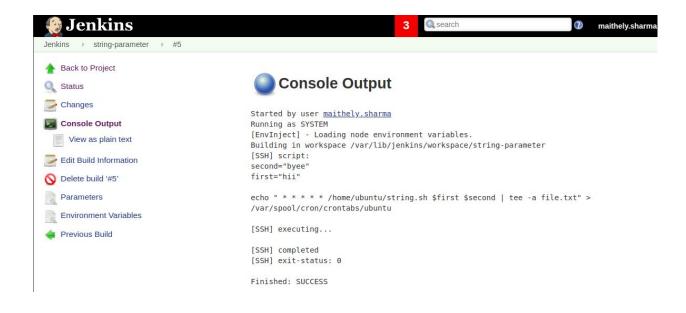


#### Now you have to change the ownership of the file

ubuntu@ip-172-31-210-43:~\$ chown ubuntu:ubuntu /var/spool/cron/crontabs/
chown: changing ownership of '/var/spool/cron/crontabs/': Operation not permitted
ubuntu@ip-172-31-210-43:~\$ sudo !!
sudo chown ubuntu:ubuntu /var/spool/cron/crontabs/

#### Now build the job





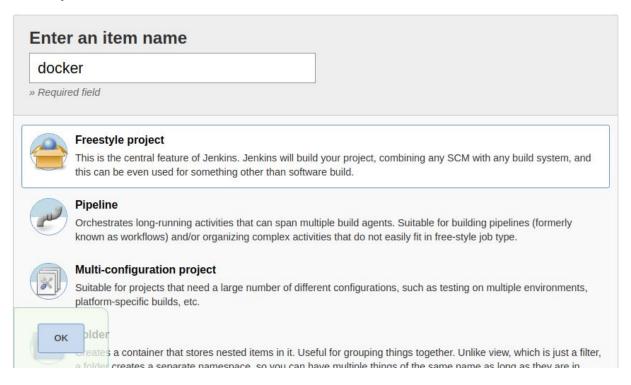
```
ubuntu@ip-172-31-210-43:~$ crontab -e crontab: installing new crontab
```

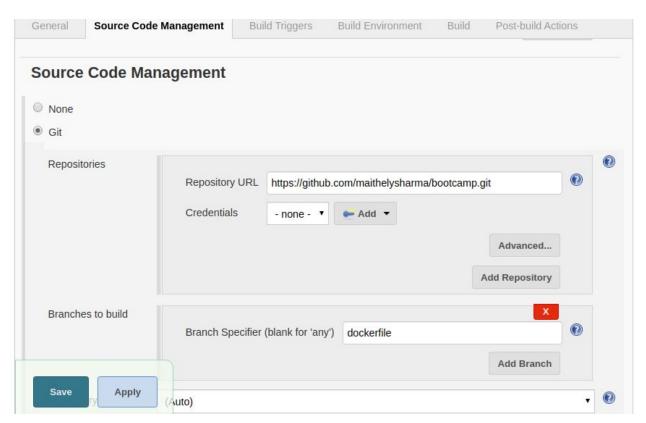
```
ubuntu@ip-172-31-210-43:~$ crontab -l
   * * * * /home/ubuntu/string.sh hi bye | tee -a file.txt
```

```
ubuntu@ip-172-31-210-43:~$ cat file.txt
hi bye
```

6.Create a job in which: Pull Dockerfile from GitHub, build it and push to Dockerhub. The docker image should have the tag: git commit id. Host a static website on s3.

#### Create a job







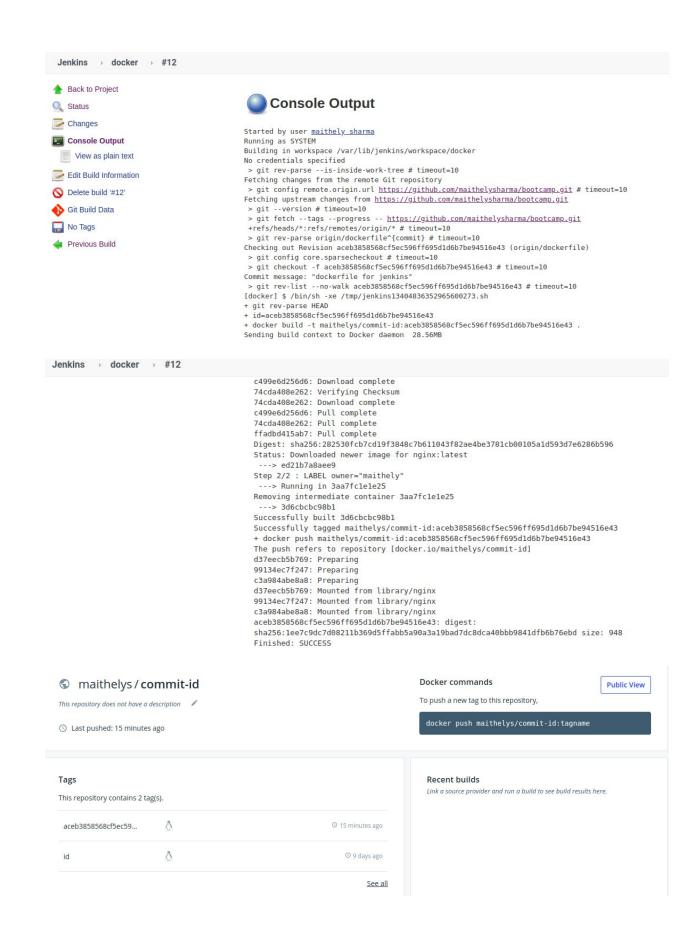
```
maithely@maithely:~$ sudo usermod -aG docker jenkins
[sudo] password for maithely:
maithely@maithely:~$ sudo service jenkins restart
maithely@maithely:~$ sudo su jenkins
```

```
jenkins@maithely:/home/maithely$ service docker status

● docker.service - Docker Application Container Engine
Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)
Drop-In: /etc/systemd/system/docker.service.d
—options.conf
Active: active (running) since Thu 2020-03-05 15:16:15 IST; 4 weeks 1 days ago
Docs: https://docs.docker.com

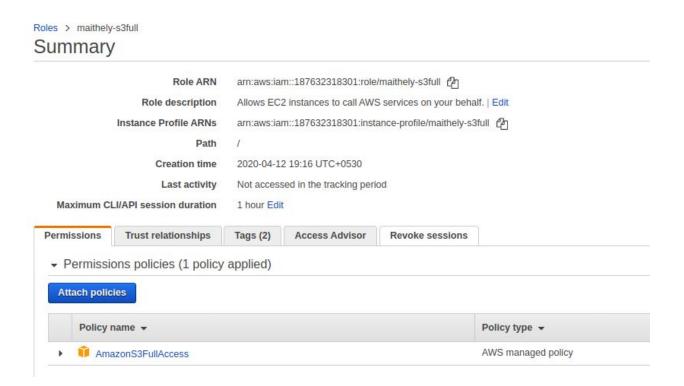
Main PID: 20236 (dockerd)
Tasks: 17
CGroup: /system.slice/docker.service
—20236 /usr/bin/dockerd -H unix:// -H tcp://0.0.0.0:2375
```

#### Enter the credentials for dockerhub



7.Its static content should be in git repo. When a person commits any change in the repo, the job should automatically reflect the changes in the s3 website.

Firstly create ec2-instance and attach s3 full access role to it

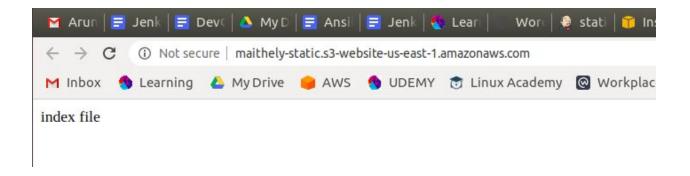


Now enable static-web hosting and simultaneously make index.html and error.html in local and upload on bucket

### Endpoint: http://maithely-static.s3-website-us-east-1.amazonaws.com Use this bucket to host a website 1 Learn more Index document (1) index.html Error document (1) error.html Redirection rules (optional) () Redirect requests 1 Learn more Disable website hosting maithely-static Overview Q Type a prefix and press Enter to search. Press ESC to clear. 1 Upload + Create folder Actions ~ Download US East (N. Virginia) 2 Viewing 1 to 2 Name ▼ Last modified ▼ Size ▼ Storage class ▼ Apr 12, 2020 8:11:02 PM ☐ ☐ error.html 12.0 B Standard Apr 12, 2020 8:10:40 PM index.html 12.0 B Standard GMT+0530 Viewing 1 to 2

Static website hosting

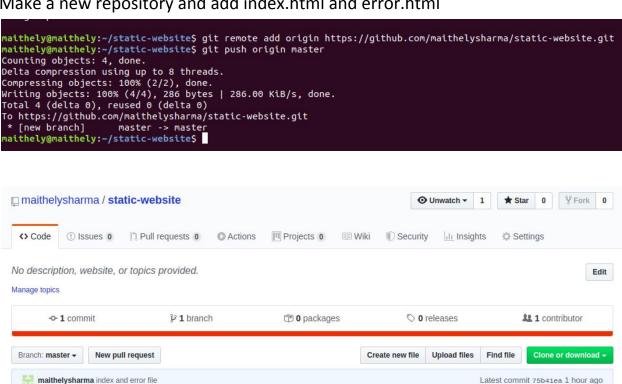
Now you are able to access the arn and see the below output



#### Make a new repository and add index.html and error.html

error.html

index.html



1 hour ago

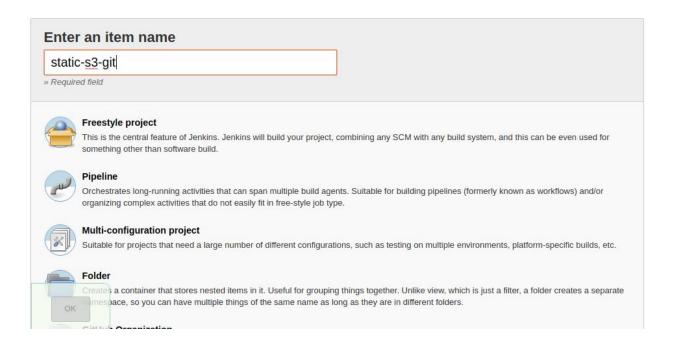
1 hour ago

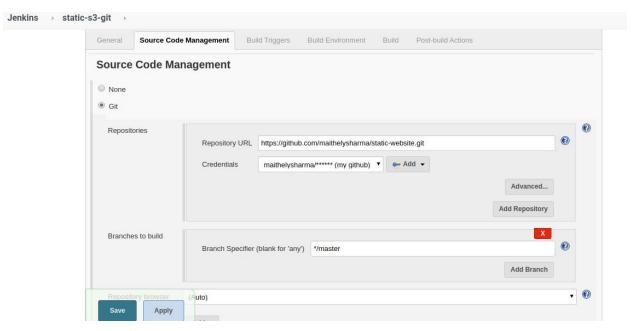
Now go to browser and type ip (you will see that you have to set up jenkins) then create a job in jenkins

index and error file

index and error file

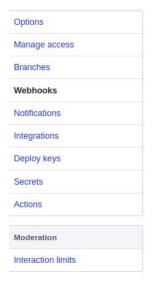
Help people interested in this repository understand your project by adding a README.

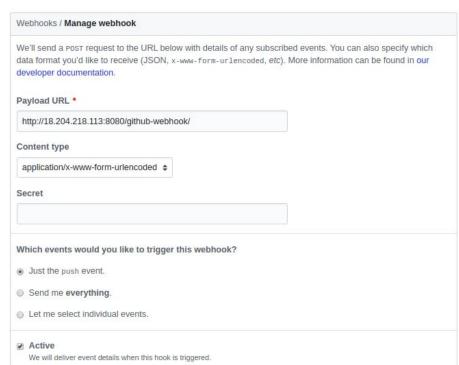




☐ Trigger builds remotely (e.g., from scripts)		(2
	er projects are built	(?
Build periodic		•
GitHub hook trigger for GITScm polling		(?
If Jenkins v	rill receive PUSH GitHub hook from repo defined in Git SCM section it will trigger Git SCM polling logic. So polling logic in fact Git SCM.  (from GitHub plugin)	
Poll SCM		•
uild		
Jild Execute sh	ell X	•
		•
Execute sh Command	eli	•

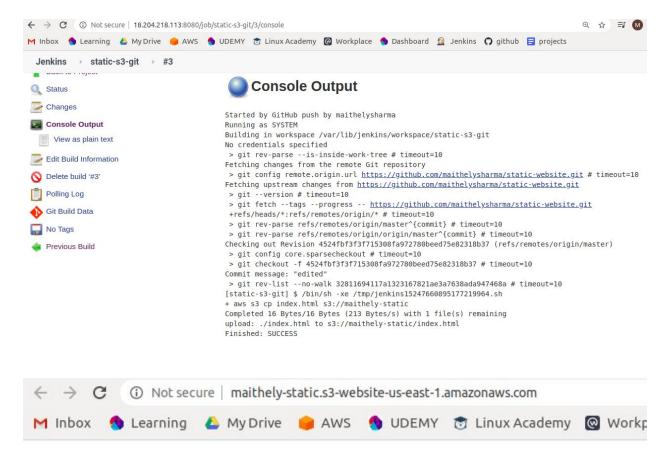
Now go in the settings of that repository and add a webhook and use the instance ip in payload-url





#### Now edit the index.html file and push it to git

```
maithely@maithely:~$ cd static-website/
maithely@maithely:~/static-website$ ls
error.html index.html
maithely@maithely:~/static-website$ rm error.html
maithely@maithely:~/static-website$ echo " edit the file " > index.html
maithely@maithely:~/static-website$ git add .
maithely@maithely:~/static-website$ git commit -m "edited"
[master 4524fbf] edited
 2 files changed, 1 insertion(+), 2 deletions(-)
 delete mode 100644 error.html
maithely@maithely:~/static-website$ git push origin master
Counting objects: 3, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (1/1), done.
Writing objects: 100% (3/3), 259 bytes | 259.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/maithelysharma/static-website.git
   3281169..4524fbf master -> master
maithely@maithely:~/static-website$
```



edit the file