Jenkins Automation for front end

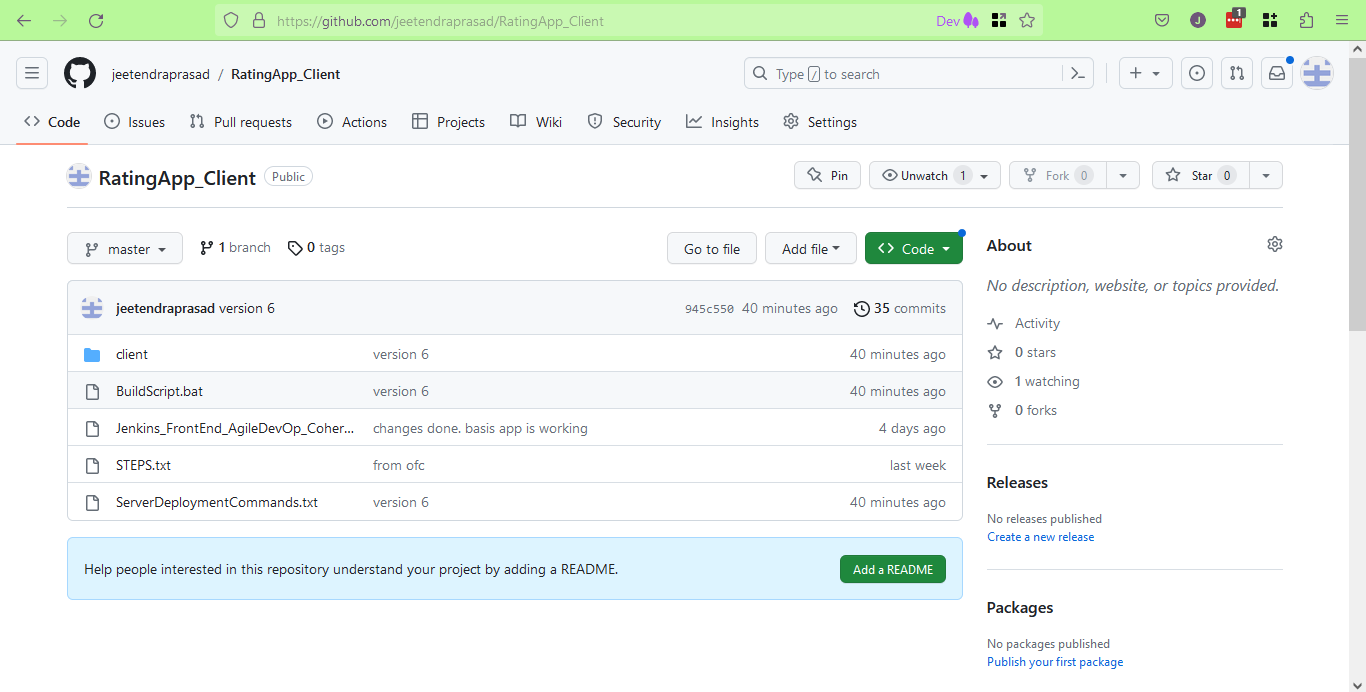
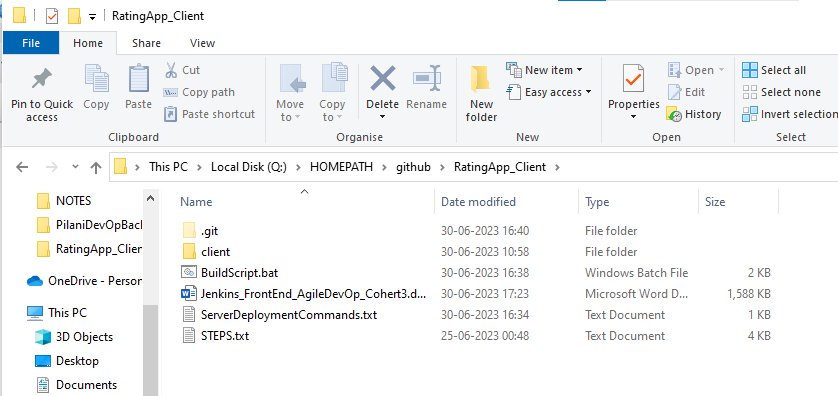
[Agile and DevOps (FSE\_Oct\_2022\_C5\_CFSEZG551)](https://bits-pilani.instructure.com/courses/2061)

FSE Oct 2022 (Cohort 3)

**By**:

PRASAD, JEETENDRA

(2021cfse032@wilp.bits-pilani.ac.in)

1. My git repo: <https://github.com/jeetendraprasad/RatingApp_Client.git> (url: <https://github.com/jeetendraprasad/RatingApp_Client>) 
2. This is my font-end project developed in Angular 15 in ‘VS code’ editor.
3. I also have the local repo at my local system at folder Q:\HOMEPATH\github\RatingApp\_Client. This is seen in explorer as 
4. To build and run my local development environment I use following commands: -

npm install -g @angular/cli@15.0.0

ng new client

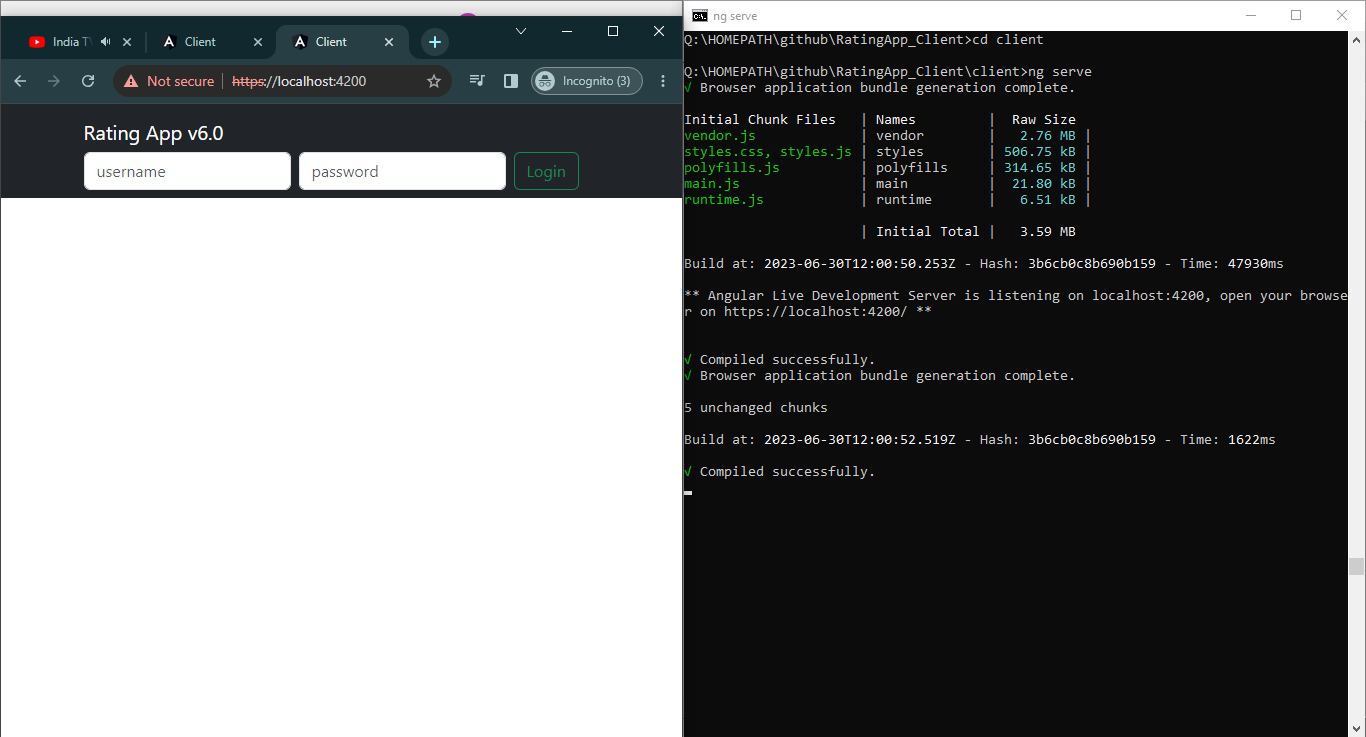
[code change]

cd client

npm i

ng build --base-href /eapp/

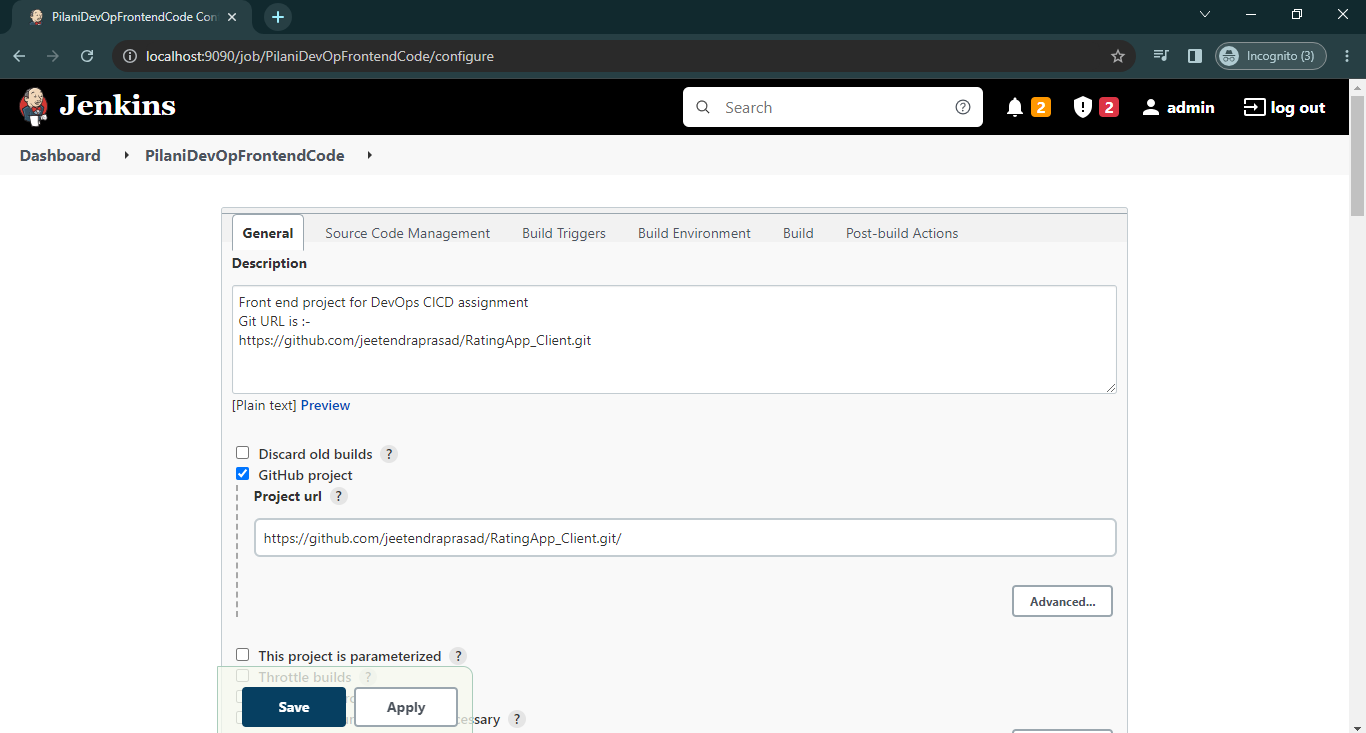
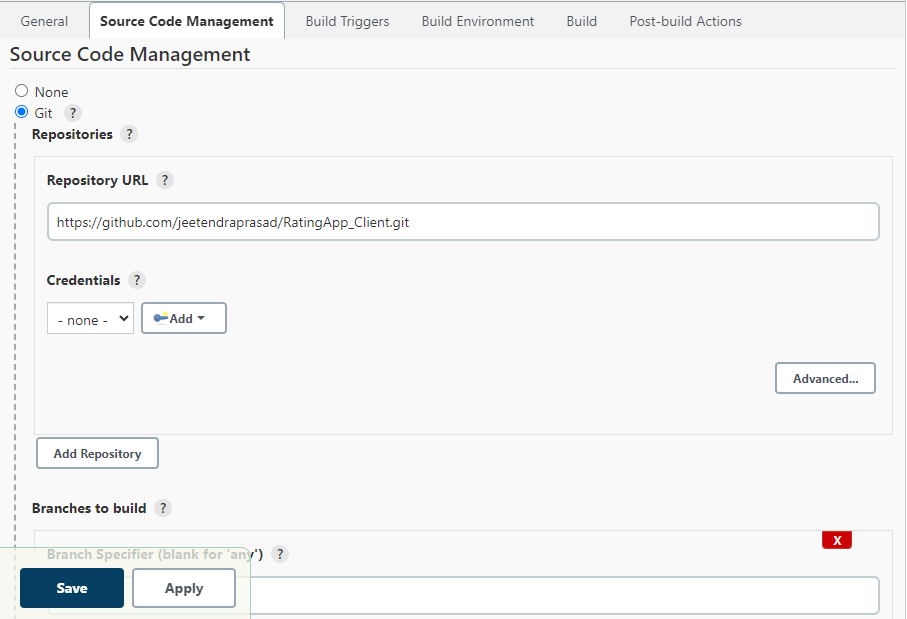
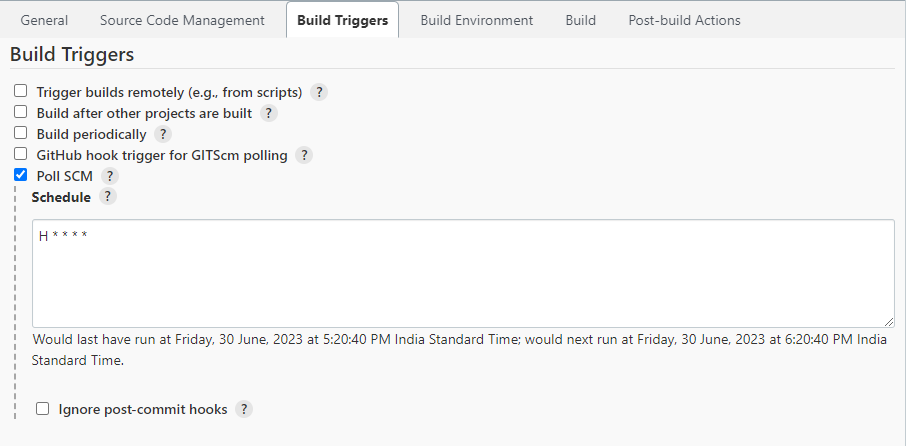
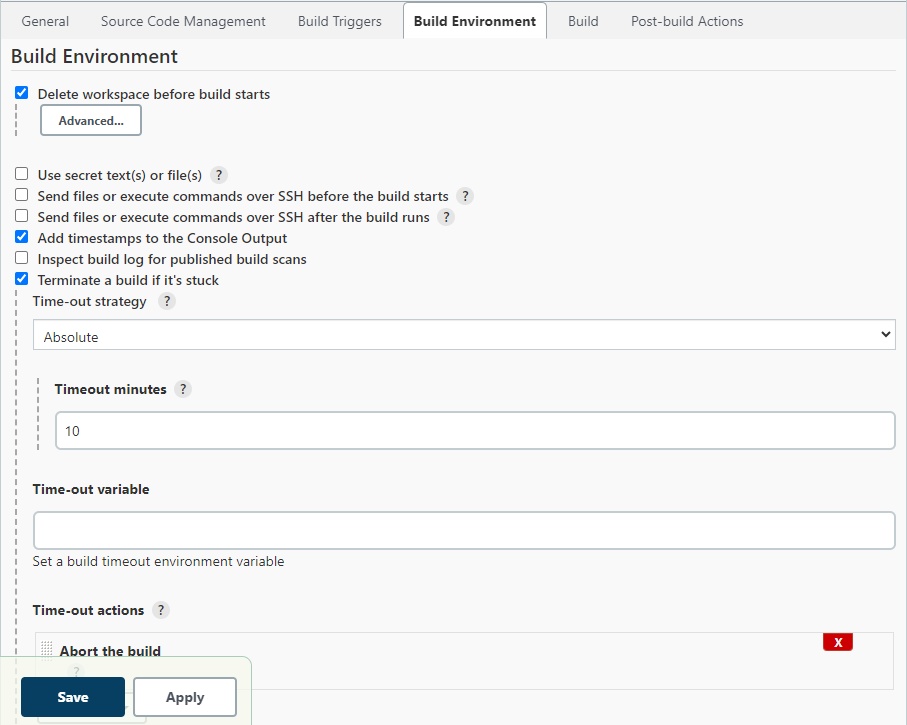
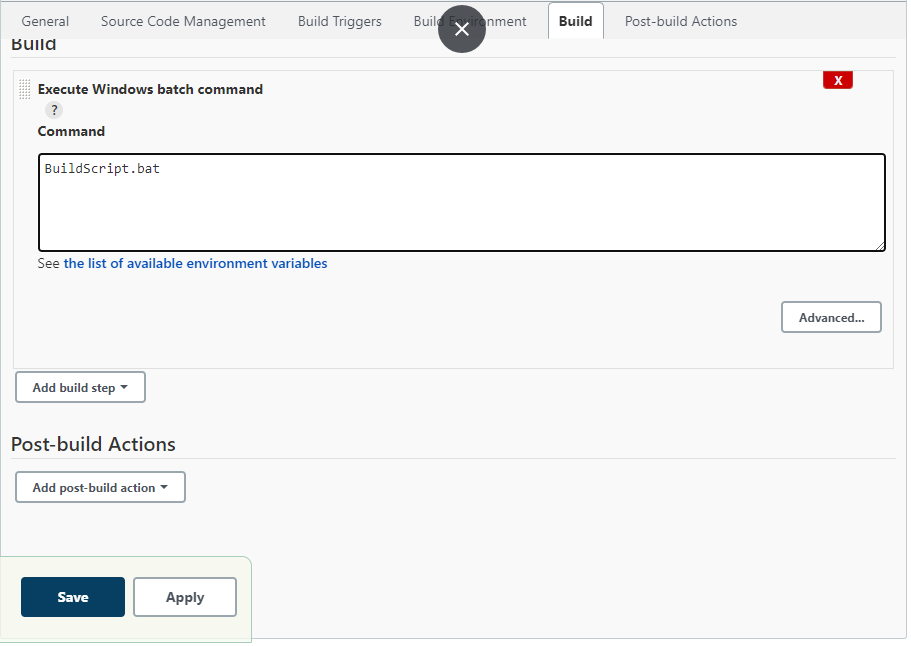
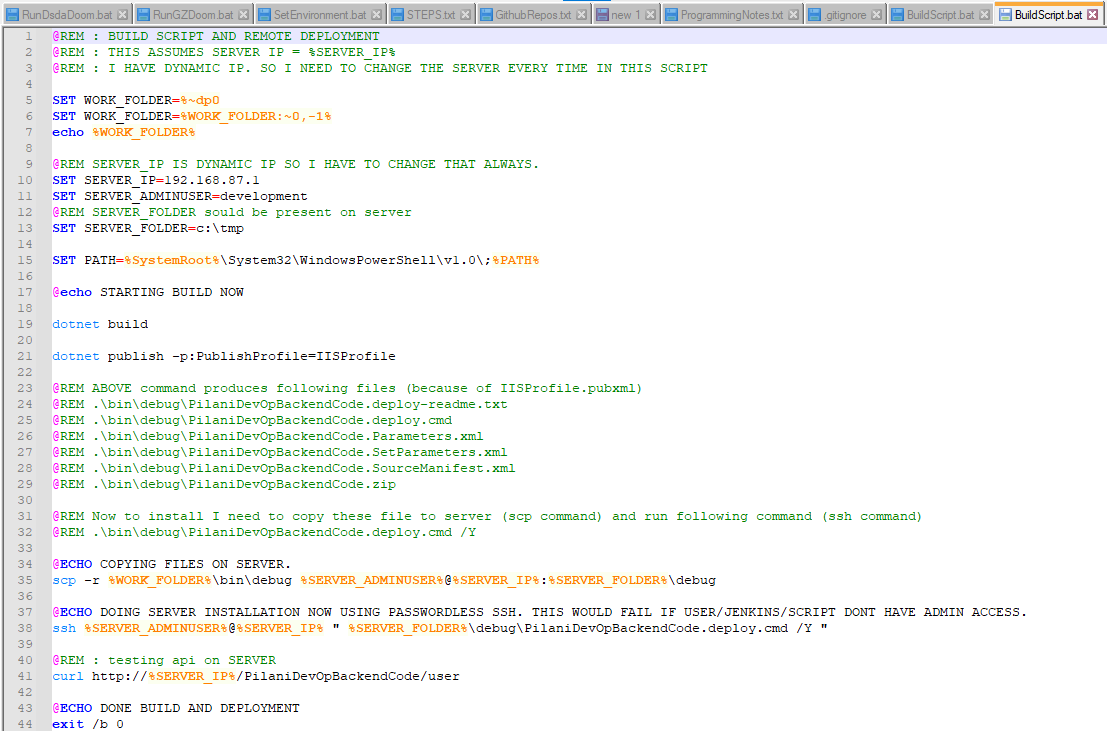
ng serve

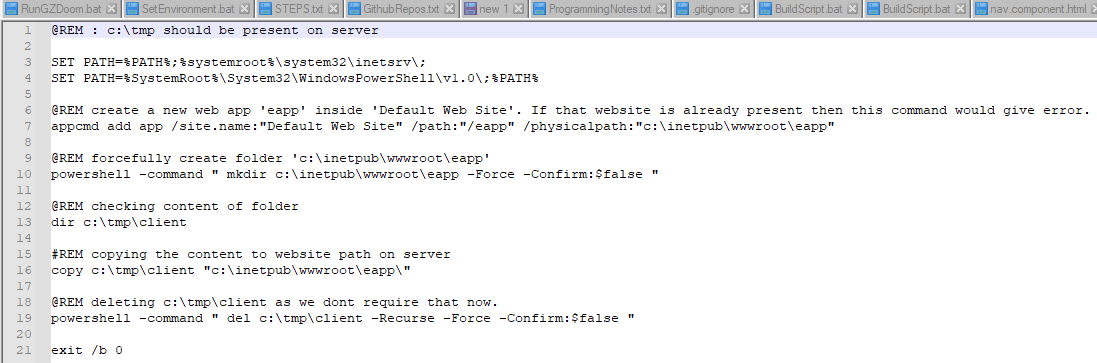
Then in browser I can see my output in url <https://localhost:4200/> as 

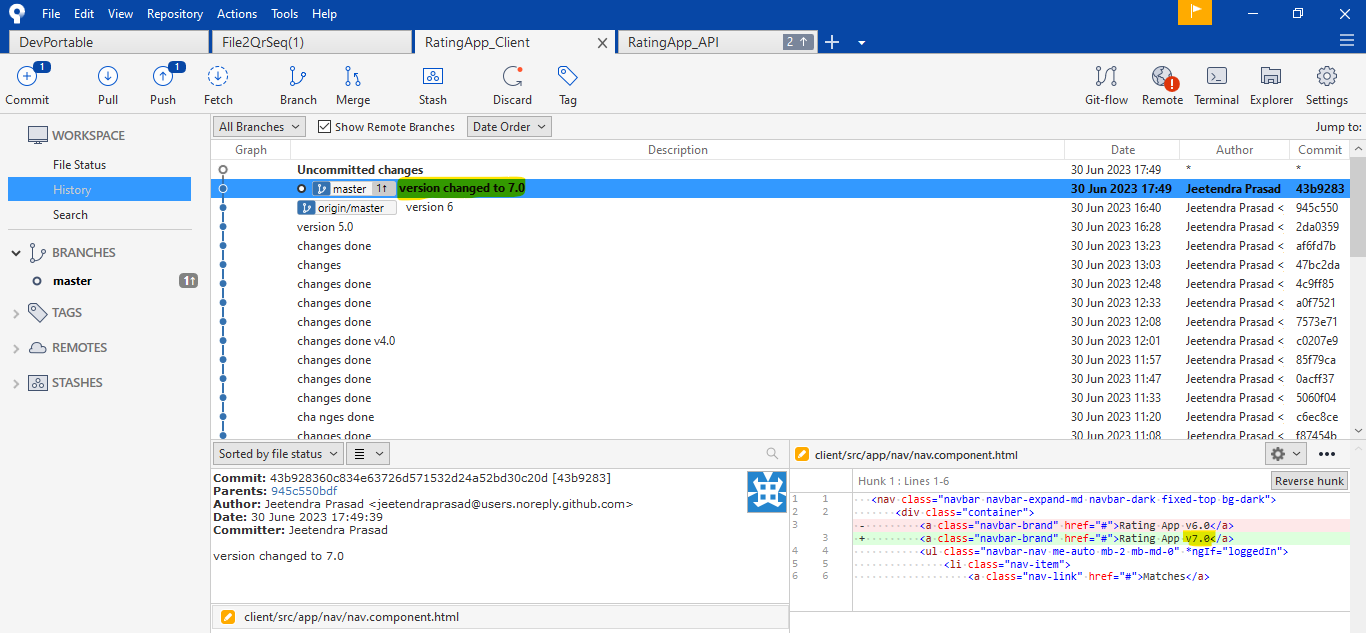
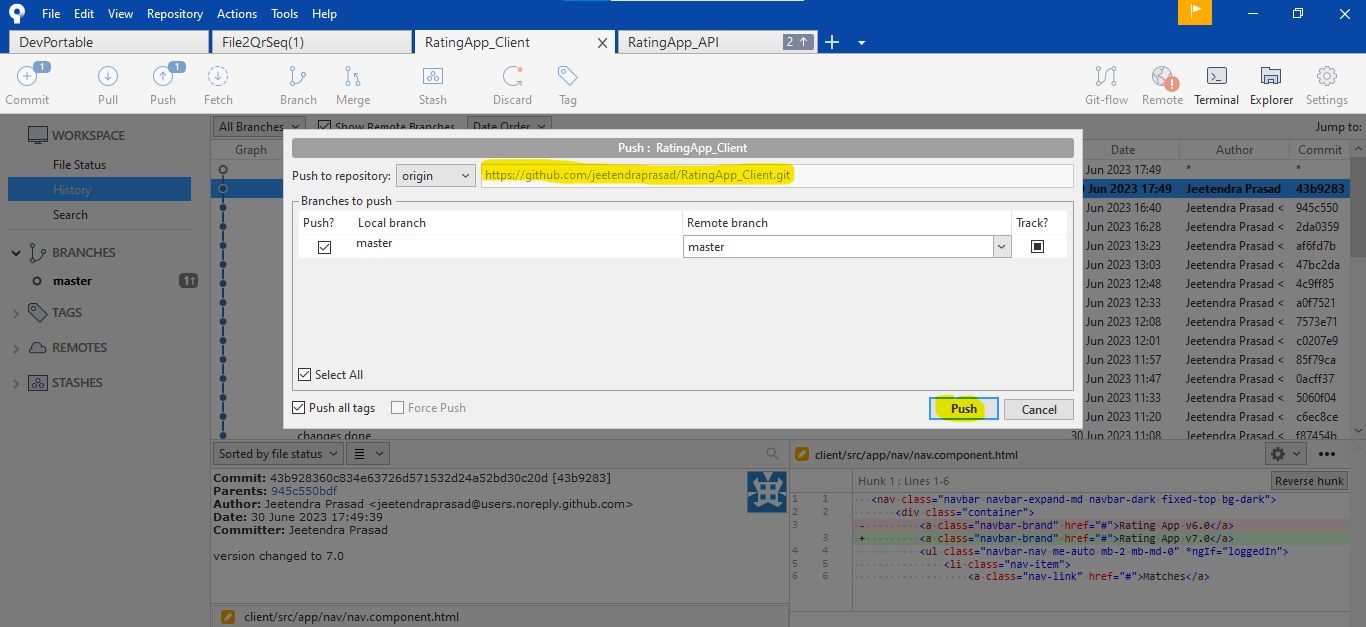
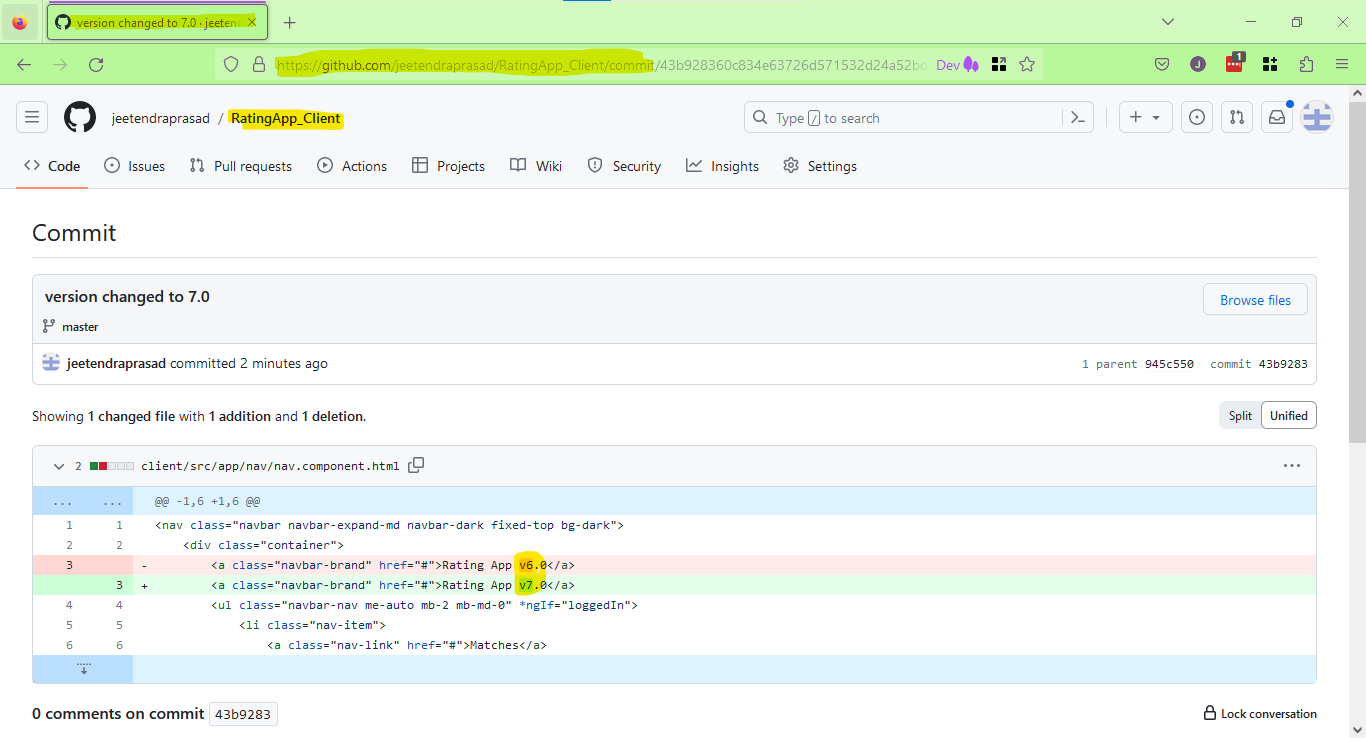
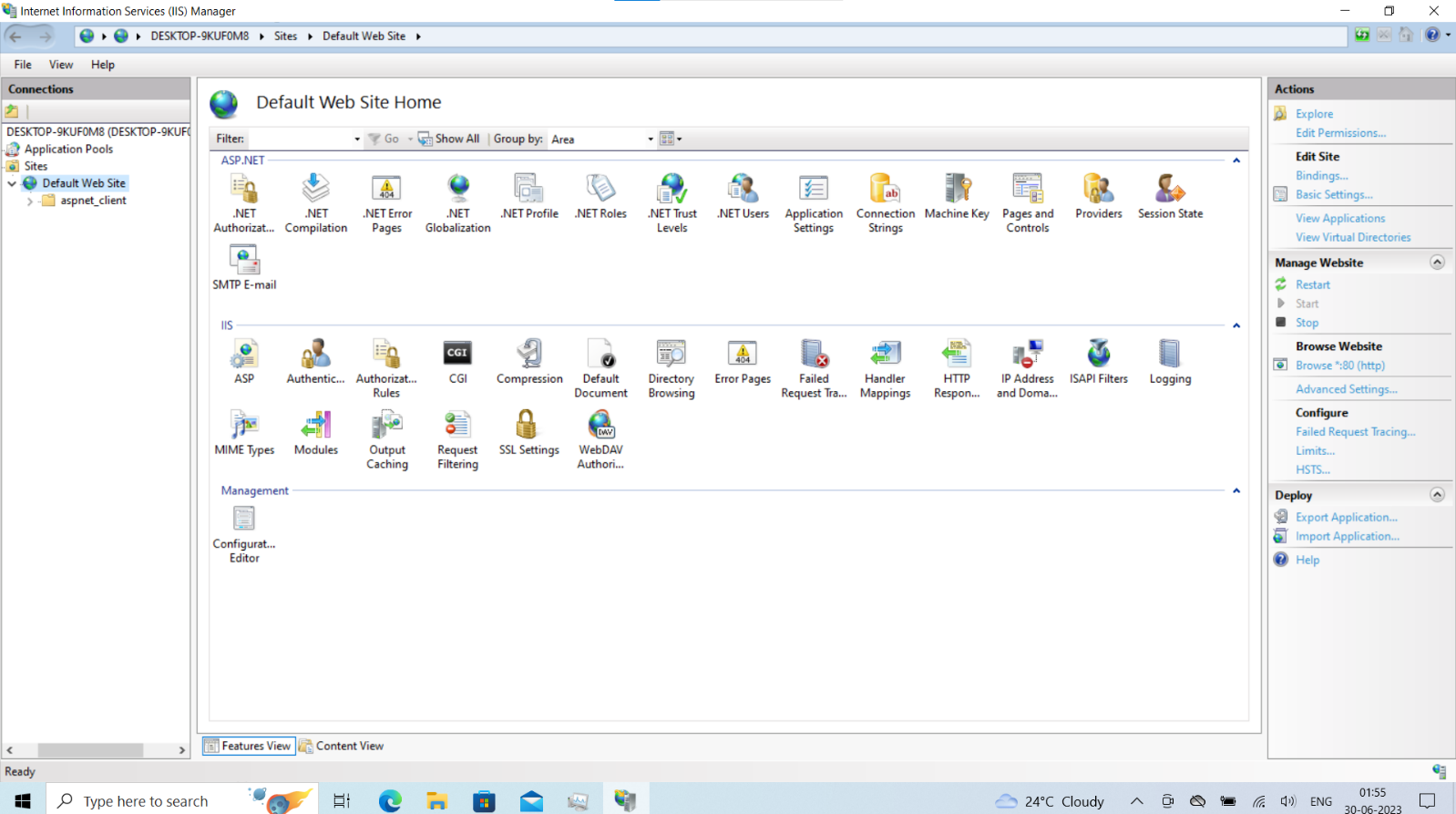
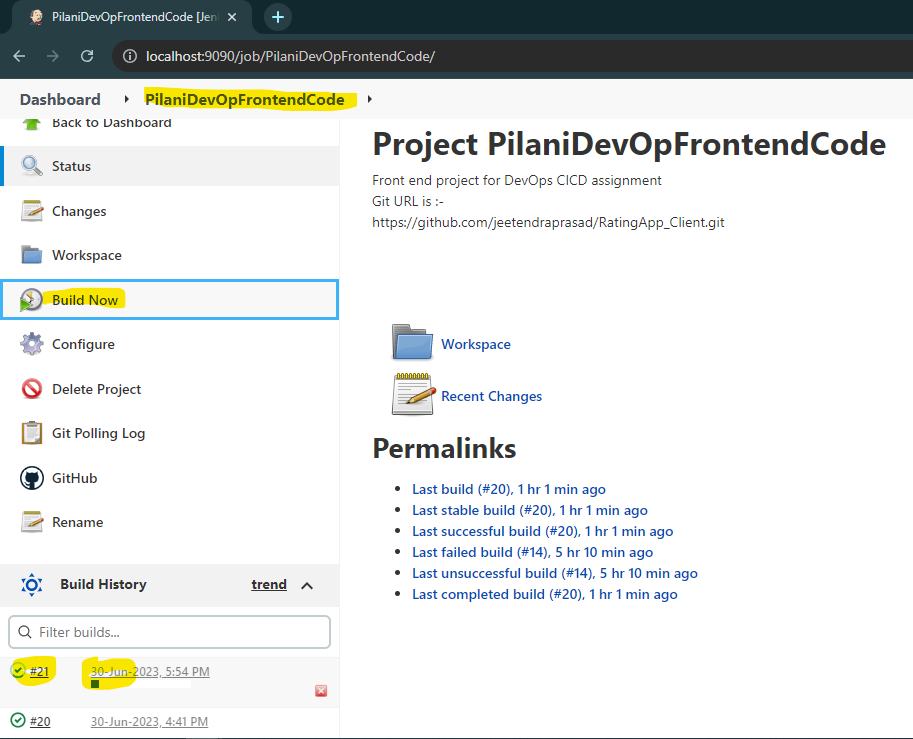
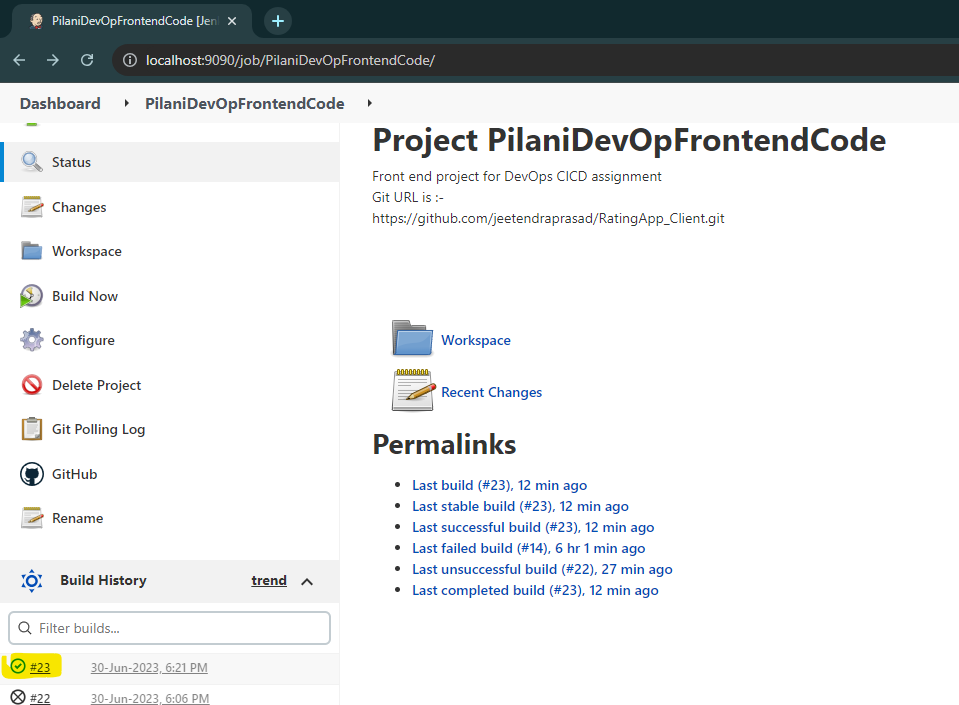
1. I have also set up a remote windows system **as a server** with info ( username@hostname ) as development@192.168.87.1. I have passwordless ssh login enabled between these two systems. So I will use scp to copy files to the server. And do deployment as:-

ssh development@192.168.87.1 < file\_containing\_commands.txt

Also on server I have to: -

1. enable IIS.
2. Jenkins setup: All default plug-ins are installed. No other change required.
3. Now I do Jenkins new Job for backend CICD. The name of job is ‘PilaniDevOpFrontendCode’ which looks as:-     . Note Polling time is kept as 1 hour.
4. IMP: There is a file ‘BuildScript.bat’ which is run by Jenkins do build and automatic deployment on server. This deployment is done by copying file to server using scp command and then deployment on server using ssh command. 

Also content of file ‘ServerDeploymentCommands.txt’ is as:- . This file is run on server to do deployment.

1. Now I do code change and add my commit in my local branch. . Followed by push to origin (github) . On github we can see this change as 
2. Now we will do ‘Build Now’ for jenkins job. (Also note that on server there is no website).
3. I press ‘Build Now’ and this triggers build. . Note : I can also wait for 1 hour (git scm poll time is 1hr).
4. My build is successful  with logs as :-

Started by user admin

Running as SYSTEM

Building in workspace Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode

[WS-CLEANUP] Deleting project workspace...

[WS-CLEANUP] Deferred wipeout is used...

[WS-CLEANUP] Done

The recommended git tool is: NONE

No credentials specified

Cloning the remote Git repository

Cloning repository https://github.com/jeetendraprasad/RatingApp\_Client.git

> git.exe init Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode # timeout=10

Fetching upstream changes from https://github.com/jeetendraprasad/RatingApp\_Client.git

> git.exe --version # timeout=10

> git --version # 'git version 2.35.1.windows.2'

> git.exe fetch --tags --force --progress -- https://github.com/jeetendraprasad/RatingApp\_Client.git +refs/heads/\*:refs/remotes/origin/\* # timeout=10

> git.exe config remote.origin.url https://github.com/jeetendraprasad/RatingApp\_Client.git # timeout=10

> git.exe config --add remote.origin.fetch +refs/heads/\*:refs/remotes/origin/\* # timeout=10

Avoid second fetch

> git.exe rev-parse "refs/remotes/origin/master^{commit}" # timeout=10

Checking out Revision 43b928360c834e63726d571532d24a52bd30c20d (refs/remotes/origin/master)

> git.exe config core.sparsecheckout # timeout=10

> git.exe checkout -f 43b928360c834e63726d571532d24a52bd30c20d # timeout=10

Commit message: "version changed to 7.0"

> git.exe rev-list --no-walk 43b928360c834e63726d571532d24a52bd30c20d # timeout=10

[PilaniDevOpFrontendCode] $ cmd /c call Q:\USERPROFILE\TEMP\jenkins3226462894428449278.bat

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode>BuildScript.bat

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode>SET WORK\_FOLDER=Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode\

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode>SET WORK\_FOLDER=Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode>echo Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode>SET SERVER\_IP=192.168.87.1

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode>SET SERVER\_ADMINUSER=development

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode>SET SERVER\_FOLDER=c:\tmp

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode>SET PATH=Q:\Softwares\Perl\perl\site\bin;Q:\Softwares\Perl\perl\bin;Q:\Softwares\Perl\c\bin;Q:\Softwares\PostgresSQL\pgsql\bin\;Q:\Softwares\Pwsh7\;Q:\Softwares\EclipseJava\eclipse\;Q:\Softwares\Jenkins\;Q:\Softwares\OpenJDK\jdk-11.0.15+10\bin\;Q:\Softwares\VSCode\;Q:\Softwares\WinMerge\WinMerge\;Q:\Softwares\SourceTree\;Q:\Softwares\Python\_Pypy\pypy3.9-v7.3.9-win64;Q:\Softwares\Python\_Pypy\pypy3.9-v7.3.9-win64\Scripts;Q:\Softwares\NodeJS\node-v16.13.2-win-x64\;Q:\Softwares\FreeCommander\;Q:\Softwares\PortableGit\bin\;Q:\Softwares\NotepadPP\;C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Windows\System32\OpenSSH\;C:\Program Files\dotnet\;C:\Users\jeete\AppData\Local\Microsoft\WindowsApps;C:\Users\jeete\.dotnet\tools;C:\Windows\system32\inetsrv\;

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode>SET PATH=C:\Windows\System32\WindowsPowerShell\v1.0\;Q:\Softwares\Perl\perl\site\bin;Q:\Softwares\Perl\perl\bin;Q:\Softwares\Perl\c\bin;Q:\Softwares\PostgresSQL\pgsql\bin\;Q:\Softwares\Pwsh7\;Q:\Softwares\EclipseJava\eclipse\;Q:\Softwares\Jenkins\;Q:\Softwares\OpenJDK\jdk-11.0.15+10\bin\;Q:\Softwares\VSCode\;Q:\Softwares\WinMerge\WinMerge\;Q:\Softwares\SourceTree\;Q:\Softwares\Python\_Pypy\pypy3.9-v7.3.9-win64;Q:\Softwares\Python\_Pypy\pypy3.9-v7.3.9-win64\Scripts;Q:\Softwares\NodeJS\node-v16.13.2-win-x64\;Q:\Softwares\FreeCommander\;Q:\Softwares\PortableGit\bin\;Q:\Softwares\NotepadPP\;C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Windows\System32\OpenSSH\;C:\Program Files\dotnet\;C:\Users\jeete\AppData\Local\Microsoft\WindowsApps;C:\Users\jeete\.dotnet\tools;C:\Windows\system32\inetsrv\;

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode>cd client

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode\client>C:\Windows\System32\where.exe ng.cmd

Q:\Softwares\NodeJS\node-v16.13.2-win-x64\ng.cmd

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode\client>powershell -command " npm.cmd i "

npm WARN EBADENGINE Unsupported engine {

npm WARN EBADENGINE package: 'lru-cache@9.1.2',

npm WARN EBADENGINE required: { node: '14 || >=16.14' },

npm WARN EBADENGINE current: { node: 'v16.13.2', npm: '8.1.2' }

npm WARN EBADENGINE }

added 962 packages, and audited 963 packages in 2m

107 packages are looking for funding

run `npm fund` for details

36 moderate severity vulnerabilities

To address issues that do not require attention, run:

npm audit fix

To address all issues (including breaking changes), run:

npm audit fix --force

Run `npm audit` for details.

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode\client>powershell -command " del .\dist -Recurse -Force -Confirm:$false "

del : Cannot find path 'Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode\client\dist' because it does not

exist.

At line:1 char:2

+ del .\dist -Recurse -Force -Confirm:$false

+ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

+ CategoryInfo : ObjectNotFound: (Q:\HOMEPATH\JEN...ode\client\dist:String) [Remove-Item], ItemNotFoundEx

ception

+ FullyQualifiedErrorId : PathNotFound,Microsoft.PowerShell.Commands.RemoveItemCommand

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode\client>powershell -command " ng.cmd build --base-href /eapp/ "

- Generating browser application bundles (phase: setup)...

✔ Browser application bundle generation complete.

✔ Browser application bundle generation complete.

- Copying assets...

✔ Copying assets complete.

- Generating index html...

- Generating index html...

3 rules skipped due to selector errors:

legend+\* -> Cannot read properties of undefined (reading 'type')

.form-floating>~label -> Did not expect successive traversals.

.form-floating>~label -> Did not expect successive traversals.

✔ Index html generation complete.

Initial Chunk Files | Names | Raw Size | Estimated Transfer Size

main.ce7729d2693636dc.js | main | 344.64 kB | 88.05 kB

styles.5400509849bfb961.css | styles | 250.29 kB | 27.43 kB

polyfills.4709fd955acb2242.js | polyfills | 33.08 kB | 10.71 kB

runtime.7ae29a296d479790.js | runtime | 890 bytes | 506 bytes

| Initial Total | 628.89 kB | 126.68 kB

Build at: 2023-06-30T12:58:14.250Z - Hash: 1c71034faa0a1fb3 - Time: 126215ms

Warning: bundle initial exceeded maximum budget. Budget 500.00 kB was not met by 128.89 kB with a total of 628.89 kB.

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode\client>scp -r Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode\client\dist\client development@192.168.87.1:c:\tmp\client

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode\client>ssh development@192.168.87.1 0<Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode\ServerDeploymentCommands.txt

Pseudo-terminal will not be allocated because stdin is not a terminal.

Microsoft Windows [Version 10.0.19044.3086]

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development@DESKTOP-9KUF0M8 C:\Users\development>@REM : c:\tmp should be present on server

development@DESKTOP-9KUF0M8 C:\Users\development>

development@DESKTOP-9KUF0M8 C:\Users\development>SET PATH=%PATH%;%systemroot%\system32\inetsrv\;

development@DESKTOP-9KUF0M8 C:\Users\development>SET PATH=%SystemRoot%\System32\WindowsPowerShell\v1.0\;%PATH%

development@DESKTOP-9KUF0M8 C:\Users\development>

development@DESKTOP-9KUF0M8 C:\Users\development>@REM create a new web app 'eapp' inside 'Default Web Site'. If that website is already present then this command would give error.

development@DESKTOP-9KUF0M8 C:\Users\development>appcmd add app /site.name:"Default Web Site" /path:"/eapp" /physicalpath:"c:\inetpub\wwwroot\eapp"

ERROR ( message:Failed to add duplicate collection element "/eapp". )

development@DESKTOP-9KUF0M8 C:\Users\development>

development@DESKTOP-9KUF0M8 C:\Users\development>@REM forcefully create folder 'c:\inetpub\wwwroot\eapp'

development@DESKTOP-9KUF0M8 C:\Users\development>powershell -command " mkdir c:\inetpub\wwwroot\eapp -Force -Confirm:$false "

Directory: C:\inetpub\wwwroot

Mode LastWriteTime Length Name

---- ------------- ------ ----

d----- 30-06-2023 18:16 eapp

development@DESKTOP-9KUF0M8 C:\Users\development>

development@DESKTOP-9KUF0M8 C:\Users\development>@REM checking content of folder

development@DESKTOP-9KUF0M8 C:\Users\development>dir c:\tmp\client

Volume in drive C has no label.

'#REM' is not recognized as an internal or external command,

operable program or batch file.

Volume Serial Number is AAB9-8215

Directory of c:\tmp\client

30-06-2023 18:28 <DIR> .

30-06-2023 18:28 <DIR> ..

30-06-2023 18:28 13,596 3rdpartylicenses.txt

30-06-2023 18:28 948 favicon.ico

30-06-2023 18:28 165,742 fontawesome-webfont.2b13baa7dd4f54c9.eot

30-06-2023 18:28 165,548 fontawesome-webfont.8a7cb27d142e3e19.ttf

30-06-2023 18:28 98,024 fontawesome-webfont.cf011583fb81df9f.woff

30-06-2023 18:28 444,379 fontawesome-webfont.da909aa098b0ee2d.svg

30-06-2023 18:28 77,160 fontawesome-webfont.e9955780856cf8aa.woff2

30-06-2023 18:28 5,001 index.html

30-06-2023 18:28 352,915 main.ce7729d2693636dc.js

30-06-2023 18:28 33,876 polyfills.4709fd955acb2242.js

30-06-2023 18:28 890 runtime.7ae29a296d479790.js

30-06-2023 18:28 256,299 styles.5400509849bfb961.css

12 File(s) 1,614,378 bytes

2 Dir(s) 947,878,080,512 bytes free

development@DESKTOP-9KUF0M8 C:\Users\development>

development@DESKTOP-9KUF0M8 C:\Users\development>#REM copying the content to website path on server

development@DESKTOP-9KUF0M8 C:\Users\development>copy c:\tmp\client "c:\inetpub\wwwroot\eapp\"

c:\tmp\client\3rdpartylicenses.txt

c:\tmp\client\favicon.ico

c:\tmp\client\fontawesome-webfont.2b13baa7dd4f54c9.eot

c:\tmp\client\fontawesome-webfont.8a7cb27d142e3e19.ttf

c:\tmp\client\fontawesome-webfont.cf011583fb81df9f.woff

c:\tmp\client\fontawesome-webfont.da909aa098b0ee2d.svg

c:\tmp\client\fontawesome-webfont.e9955780856cf8aa.woff2

c:\tmp\client\index.html

c:\tmp\client\main.ce7729d2693636dc.js

c:\tmp\client\polyfills.4709fd955acb2242.js

c:\tmp\client\runtime.7ae29a296d479790.js

c:\tmp\client\styles.5400509849bfb961.css

12 file(s) copied.

development@DESKTOP-9KUF0M8 C:\Users\development>

development@DESKTOP-9KUF0M8 C:\Users\development>@REM deleting c:\tmp\client as we dont require that now.

development@DESKTOP-9KUF0M8 C:\Users\development>powershell -command " del c:\tmp\client -Recurse -Force -Confirm:$false "

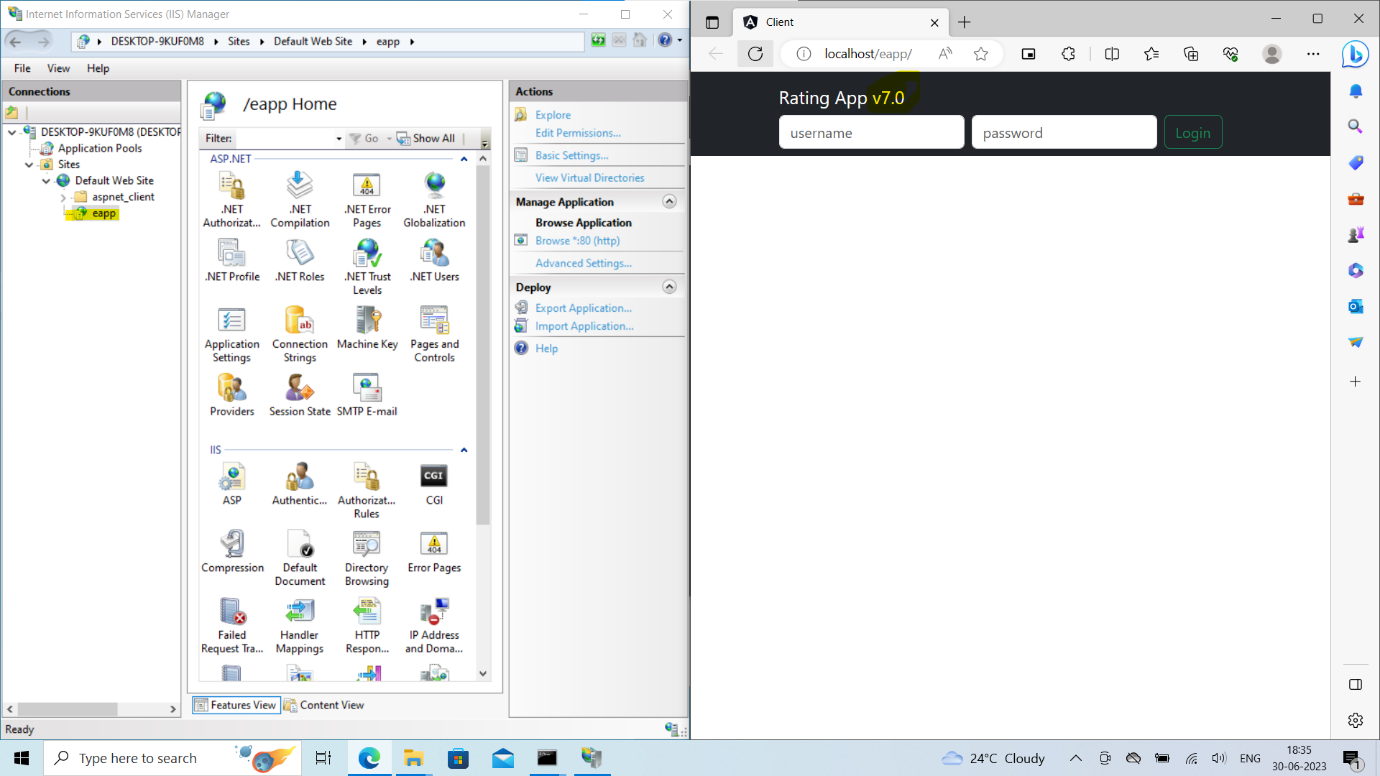
development@DESKTOP-9KUF0M8 C:\Users\development>

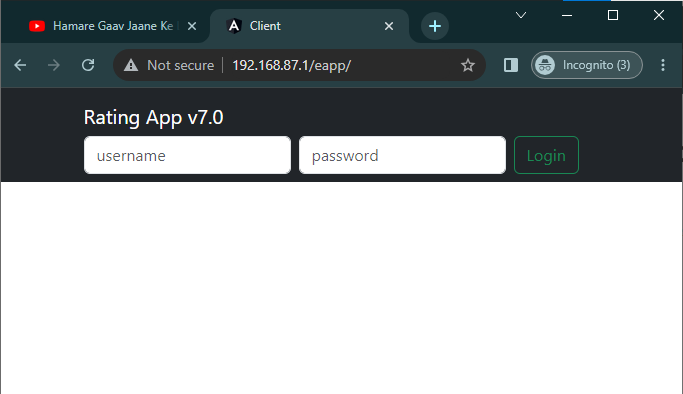
development@DESKTOP-9KUF0M8 C:\Users\development>More?

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode\client>cd ..

Q:\HOMEPATH\JENKINS\_HOME\workspace\PilaniDevOpFrontendCode>exit /b 0

Finished: SUCCESS

1. Now on server we can see that website is deployed as:-  and we can test that by opening url

<http://192.168.87.1/eapp/> in browser 

Result : We completed backend code Jenkins CICD automation.