



UNIVERSITY OF PETROLEUM & ENERGY STUDIES

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ACO LAB

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Batch- 4 DEVOPS

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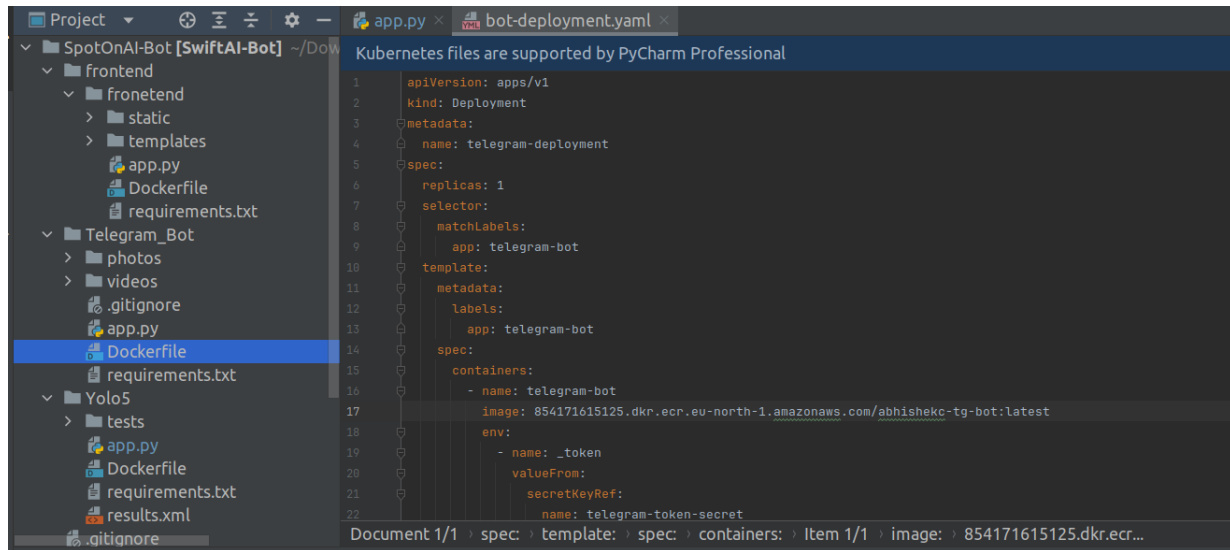
SUBMITTED TO- Dr. Hitesh Kumar Sharma

EXPERIMENT-2

AIM : .dockerignore in Docker

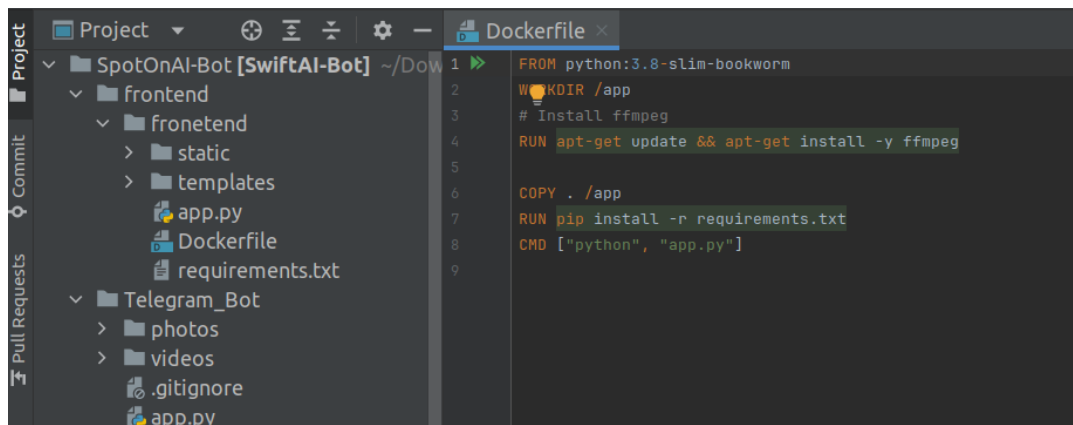
Create a Sample Project:

- Create a simple project directory with various types of files, including source code, configuration files, and build artifacts.



Create a Dockerfile:

- Write a Dockerfile that specifies the build steps for your application, including any necessary dependencies.



Create a .dockerignore File:

- Create a .dockerignore file in the root directory of your project.

- Add specific files or directories to the .dockerignore file that you do not want to be included in the Docker image during the build process.

```
.dockerignore
1  # Ignore specific files
2  password.txt
3
4  # Ignore directories
5  node_modules/
6  logs/
7
```

Build the Docker Image:

- Use the docker build command to build the Docker image from the Dockerfile.

```
anushka@anushka-VirtualBox:~/Downloads/SpotOnAI-Bot/frontend$ docker build -t frontend_image:6.1 .  
[+] Building 0.3s (2/2) FINISHED  
=> [internal] load .dockerignore  
=> => transferring context: 2B  
=> [internal] load build definition from Dockerfile  
=> => transferring dockerfile: 2B
```

- Observe the build context and check which files are being included in the Docker image.

•

Modify .dockerignore and Rebuild:

- Modify the .dockerignore file to exclude different types of files or directories from the Docker image.
- Rebuild the Docker image and observe the changes in the build context.

Test the Docker Image:

- Run the Docker image as a container using the docker run command.
- Verify that the container works as expected, despite certain files being excluded from the Docker image.

```
AH00558: httpd: could not reliably determine the server's fully qualified domain name, using 172.17.0.2. Set the 'ServerName' directive globally to suppress this message  
AH00558: httpd: could not reliably determine the server's fully qualified domain name, using 172.17.0.2. Set the 'ServerName' directive globally to suppress this message  
[Thu Nov 16 07:14:34.387957 2023] [mpm_event:notice] [pid 1:tid 140016788367232] AH00489: Apache/2.4.58 (Unix) configured -- resuming normal operations  
[Thu Nov 16 07:14:34.388445 2023] [core:notice] [pid 1:tid 140016788367232] AH00094: Command line: 'httpd -D FOREGROUND'
```

Optimize the .dockerignore File:

- Experiment with different patterns and wildcards in the .dockerignore file to optimize the build context and reduce the image size.

Check Image Size and Contents:

- Use the docker image ls and docker image inspect commands to check the size of the Docker image and its contents.

dockerfile_experiment	latest	b132575f9c97	2 hours ago	59.1MB
dockerfile_experiment	tag	b132575f9c97	2 hours ago	59.1MB
myimage	1.1	b132575f9c97	2 hours ago	59.1MB
alpine	latest	b541f2080109	2 days ago	7.34MB

```
[
  {
    "Id": "sha256:99650d2deb6c970c64395f70d741ec0c46b73a0eda4f7b7d3a903102c7f6a4ff",
    "RepoTags": [
      "my-web-app:1.0.0",
      "my-web-app:1.0.1"
    ],
    "RepoDigests": [],
    "Parent": "",
    "Comment": "buildkit.dockerfile.v0",
    "Created": "2023-11-16T06:35:34.884308068Z",
    "Container": "",
    "ContainerConfig": {
      "Hostname": "",
      "Domainname": "",
      "User": "",
      "AttachStdin": false,
      "AttachStdout": false,
      "AttachStderr": false,
      "Tty": false,
      "OpenStdin": false,
      "StdinOnce": false,
      "Env": null,
      "Cmd": null,
      "Image": "",
      "Volumes": null,
      "WorkingDir": "",
      "Entrypoint": null,
      "OnBuild": null,
      "Labels": null
    }
  },
]
```

```

22
"DockerVersion": "",
"Author": "",
"Config": {
  "Hostname": "",
  "Domainname": "",
  "User": "",
  "AttachStdin": false,
  "AttachStdout": false,
  "AttachStderr": false,
  "ExposedPorts": {
    "80/tcp": {}
  },
  "Tty": false,
  "OpenStdin": false,
  "StdinOnce": false,
  "Env": [
    "PATH=/usr/local/apache2/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin",
    "HTTPD_PREFIX=/usr/local/apache2",
    "HTTPD_VERSION=2.4.58",
    "HTTPD_SHA256=fa16d72a078210a54c47dd5bef2f8b9b8a01d94909a51453956b3ec6442ea4c5",
    "HTTPD_PATCHES="
  ],
  "Cmd": [
    "httpd-foreground"
  ],
  "Image": "",
  "Volumes": null,
  "WorkingDir": "/usr/local/apache2/htdocs/",
  "Entrypoint": null,
  "OnBuild": null,
  "Labels": null,
  "StopSignal": "SIGWINCH"
},

```

```

22
"DockerVersion": "",
"Author": "",
"Config": {
  "Hostname": "",
  "Domainname": "",
  "User": "",
  "AttachStdin": false,
  "AttachStdout": false,
  "AttachStderr": false,
  "ExposedPorts": {
    "80/tcp": {}
  },
  "Tty": false,
  "OpenStdin": false,
  "StdinOnce": false,
  "Env": [
    "PATH=/usr/local/apache2/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin",
    "HTTPD_PREFIX=/usr/local/apache2",
    "HTTPD_VERSION=2.4.58",
    "HTTPD_SHA256=fa16d72a078210a54c47dd5bef2f8b9b8a01d94909a51453956b3ec6442ea4c5",
    "HTTPD_PATCHES="
  ],
  "Cmd": [
    "httpd-foreground"
  ],
  "Image": "",
  "Volumes": null,
  "WorkingDir": "/usr/local/apache2/htdocs/",
  "Entrypoint": null,
  "OnBuild": null,
  "Labels": null,
  "StopSignal": "SIGWINCH"
},

```

```

    "Architecture": "amd64",
    "Os": "linux",
    "Size": 168330828,
    "VirtualSize": 168330828,
    "GraphDriver": {
      "Data": {
        "LowerDir": "/var/lib/docker/overlay2/raghyrahvv19ag5392566yf8/diff:/var/lib/docker/overlay2/778f58b3cc6d9c17e38271347f0f0aaada0e2f1f754b6f1f85b9bcc5659387e5/diff:/var/lib/docker/overlay2/c9c6bf88e15953edf846934fcdeefda71cc3beba523582573907a91c5397bc42/diff:/var/lib/docker/overlay2/92e60c772046397f63b9301cd8151227736843736aa6d7712611f735ca972538/diff:/var/lib/docker/overlay2/dc91793ba1cf6c60fb1868a28f78318e0b9934e8fcfe7f7ed0483dee4f8ea57a/diff:/var/lib/docker/overlay2/eac545cc9cc2c7297fc771d82e491e8fb68004e6b029ac08121285c5af3fda3b/diff",
        "MergedDir": "/var/lib/docker/overlay2/t9k0rmz2y5kc2971zoso8j2z/merged",
        "UpperDir": "/var/lib/docker/overlay2/t9k0rmz2y5kc2971zoso8j2z/diff",
        "WorkDir": "/var/lib/docker/overlay2/t9k0rmz2y5kc2971zoso8j2z/work"
      }
    },
    "Name": "overlay2"
  },
  "RootFS": {
    "Type": "layers",
    "Layers": [
      "sha256:ec983b16636050e69677eb81537e955ab927757c23aaf73971ecf5f71fcc262a",
      "sha256:2905795cb5b834a2e1912922d93bb6f4188c4ae4c786025a2b2337f675ee6e57",
      "sha256:e0ba343b5cab49f2b354f240b5bccf1c29b4ffcefc0cc006102fbaef6ec2bf0fc",
      "sha256:5ca84525a215131486e53202ee9d047f6b7c417ffafdf5487c8ce60adab3af4d",
      "sha256:cdae29f197b2311e9cb11606d872df70e4b2041d48db081854d6a82c62d3f55d",
      "sha256:5f70bf18a086007016e948b04aed3b82103a36bea41755b6cddfaf10ace3c6ef",
      "sha256:f15bf7eea301210fb694c774d8f0ff1576ef59429a50fa2f7b81ed8fe4ae4ab"
    ]
  },
  "Metadata": {
    "LastTagTime": "2023-11-16T07:03:19.234628065Z"
  }
}
]

```

- Command that list the hash id of the image being created and then list the size of the image using its hash id :

```

anushka@anushka-VirtualBox:~/Downloads/SpotOnAI-Bot/frontend$ docker images --quiet --no-trunc frontend_image:1.0
sha256:5c91ad7c7ba4e8888620da259f3adf8b8a17c50f8bd2ce65c489fbeeaf95ca304

```

```

anushka@anushka-VirtualBox:~/Downloads/SpotOnAI-Bot/frontend$ docker inspect --format '{{.Size}}' sha256:5c91ad7c7ba4e8888620da259f3adf8b8a17c50f8bd2ce65c489fbeeaf95ca304
1015816435

```

Documentation and Best Practices:

- Document your findings and the best practices for using the .dockerignore file in your projects.

Through this exercise, you'll gain a better understanding of how to use the .dockerignore file effectively to optimize Docker image builds and reduce image sizes. Adjust the exercise based on your specific project requirements.