Virtual Machine

- VMware
- Oracle virtualBox

Docker (container)

- also a VM but it is a lightweight machine

DEV (windows) --> TEST --> UAT --> PROD (linux)

DEV (windows) --> TEST --> UAT --> PROD (windows)

software deployment

- `mysql`
- `redis`
- python
- python package (`requirements.txt`)
- `python manage.py runserver`

Containerization

Containerization is the packaging of software code with the operating system (OS)

docker commands

docker build
docker share
docker run

Step to generate access token on `https://hub.docker.com/`

STEP 1: create account on `https://hub.docker.com/`

STEP 2: click on profile icon in docker hub -> account settings -> security -> New access token

STEP 3 : pick name as - `dockerhub` , pick scope as - `Read, Write, Delete` and click on `generate token`

STEP 4: click on `fork` button `https://github.com/python10sep/project1`

STEP 5: Repository will reflect in your `github` account
`https://github.com/<username>`

STEP 6:

Go to project repository
`https://github.com/<username>/project1 -> settings -> secrets and variables -> actions`

`New repository Secret ->`

`DOCKERHUB_USER - <docker hub username>`
`DOCKERHUB_TOKEN - `` `

STEP 7: Open git bash on your machine and `git clone <project https URL>`

STEP 8: Open the code repository in Pycharm

STEP 9: Go to `github project` (project1) and `actions` tab and click on `I understand my worksflows, go ahead and enable workflows`

STEP 10: Make some change.
- go to `requirements.dev.txt` and add `black==23.1.0`

STEP 11: `git add requirements.dev.txt` and `git commit -m "first"` and `git push origin main`

CI CD

- Jenkins, Cloud Build

  Continuous Integration and Continuous Deployment