**DOCKER**

Docker is software which can containerize an application, operation system, files or folders, etc. This

allows us to build, share or just work separately on our computer.

**What are these containers?**

To understand these containers, we need to understand what a docker image is first.

A docker image is a file that contains the application you want to containerize. Consider you are coming to the office and have a lunchbox with you. That lunchbox has all the ingredients, utensils, napkins…everything you need for lunch. A docker image is like that lunchbox. In a docker image you will have all the files, OS and prerequisite you need for your application. It has everything you need to build whatever you need. This makes it easy to share and therefore for a lot of your application, you can find the necessary image online rather than building one yourself.

This image is in a container. Docker containers are like very lightweight virtual machines which can hold powerful applications or even the whole operating system. These applications or operating systems are built from the images in the docker container. If the docker image is the recipe of your lunch, the docker container is the actual lunch. If the docker image is a blueprint, the container is the final model.

**How to build these containers?**

Now that we know what an image and a container is, we can move forward with how to create and use it. For our application (ROS2: HUMBLE) we have a docker image already available online. Like I mentioned before, we do not need to create an image for everything, we can simply fetch it from the web.

* Here is a link to all the ROS images that you may want - <https://hub.docker.com/_/ros/>
* We also have osrf images for ROS -<https://hub.docker.com/r/osrf/ros/tags>

- orsf stands for **O**pen **S**ource **R**obotics **F**oundation.

* In a terminal, download Docker from the instructions in this link -<https://docs.docker.com/get-docker/>

After downloading Docker, your computer is ready to create a container.

* Command to pull the docker image -

**docker pull osrf/ros:humble-desktop-full**

I pulled the humble-desktop-fu\ll version of docker. You can pull any image you want. This command will get you ROS2 humble and now you can use it readily.

* Command to run the docker image -

**$ docker run -it osrf/ros:humble-desktop-full**

**root@ff095c5684b9:/#:**

Here ff095c5684b9 is the ID of my container. Once we are in the container we can now perform ROS operations