■ Docker + Swarm Cheat Sheet

■ Docker Basics

```
docker version              # Show Docker client & server version
docker info                 # Show system-wide info
docker system df            # Show disk usage
docker system prune         # Remove unused containers/images/networks/volumes
```

■ Images

```
docker images               # List images
docker pull <image>         # Download image
docker rmi <image>          # Remove image
docker history <image>      # Show image layers
docker inspect <image>      # Inspect image details
```

■ Containers

```
docker ps                   # List running containers
docker ps -a                # List all containers
docker run -it <image> bash # Run container with interactive shell
docker exec -it <id> bash   # Access running container
docker logs <id>            # View container logs
docker inspect <id>         # Show env, mounts, networking
docker top <id>             # Show processes in container
docker stats                # Resource usage of containers
```

■ Environment & Dependencies

```
docker exec <id> env                  # Show container environment variables
docker inspect <id> | grep -i env     # Extract env vars from metadata
docker exec <id> cat /etc/os-release  # Show base OS
docker exec <id> dpkg -l              # Installed packages (Debian/Ubuntu)
docker exec <id> rpm -qa              # Installed packages (CentOS/RHEL)
docker-compose config                 # Show resolved env & config from docker-compose.yml
```

■ Networks & Volumes

```
docker network ls               # List networks
docker network inspect <net>    # Inspect network details
docker volume ls                # List volumes
docker volume inspect <vol>     # Inspect volume details
```

■ Swarm Setup

```
docker swarm init                              # Initialize swarm (current node = manager)
docker swarm join --token <token> <ip>:2377 # Join node to swarm
docker swarm leave                             # Leave swarm
docker node ls                                 # List swarm nodes
docker node inspect <node>                     # Inspect node
```

■ Services

```
docker service create --name web -p 80:80 nginx   # Create service
docker service ls                                 # List services
docker service ps web                             # Show tasks for service
docker service scale web=5                         # Scale service
docker service update --image nginx:latest web    # Update service
```

■ Stacks

```
docker stack deploy -c docker-compose.yml mystack  # Deploy stack
docker stack services mystack                      # List services in stack
docker stack ps mystack                            # Show tasks in stack
docker stack rm mystack                            # Remove stack
```

■ Quick Diagram: Docker Swarm

```
Manager Node (Schedules tasks)
        |
-------------------------
|                        |
Worker Node 1      Worker Node 2
(Runs tasks)        (Runs tasks)
```