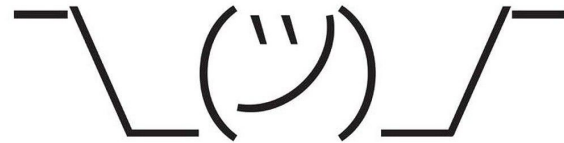
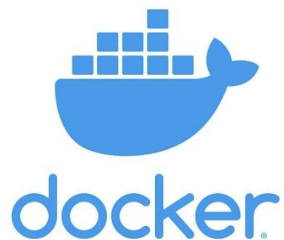


COSC 499: Capstone Software Engineering Project

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IT WORKS
ON MY MACHINE



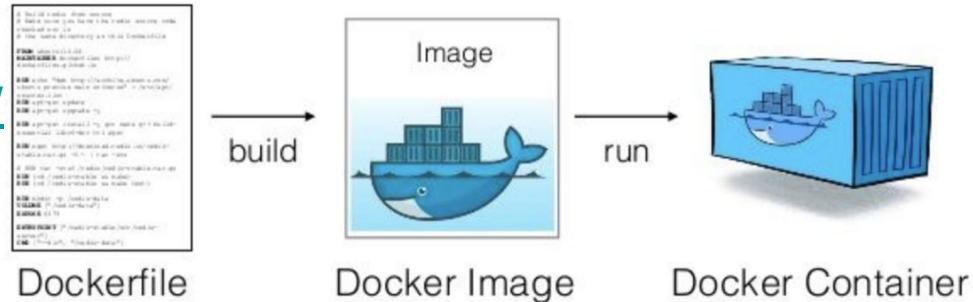
What is Docker

- Tool to bundle all software ingredients together into containers
 - Container management solution
 - Database, config files, libraries, third-party software (all dependencies!)
 - Runs a command to have all the installations and setup done
- Easier to launch/run an application
 - Separates your app from the infrastructure
 - Platform independence
 - Works the same on multiple local/deployment platforms
 - Smoother transition for new developers

How It Works

- Write instructions in **Dockerfile** (ascii file) to build a Docker Image
- Docker **image** (snapshot) is a blueprint for building **containers**
- Executing an image creates 1+ container instances
- A container is like a box with code that can work on its own
 - It is a runnable instance of an image
 - Compact, virtualized runtime environments used to run apps
 - Includes all config files, dependencies, tools, libraries, source
- Tutorial:

<https://docs.docker.com/get-started/>



Why Docker

- Your development team changes
- Your software runs in different environment
- Your software consists of many parts
- You want your software to be scalable
- Your hosting may change in the future
- You want to test new technology

Docker in an Agile Development Process

- Docker facilitates adoption of microservices architecture
 - De-couples service components
 - Easy iterative changes to software services
 - Making the development process more agile
- Working software:
 - Just runs off of the docker image along with packaged dependencies
- Iterative, continuous development:
 - Independence across containers
 - Update dockerfile to create new image with version tags
 - Could be integrated into a CI/CD pipeline to build new image each time code is committed on GitHub (via workflows/actions)

Next Steps



- Review Milestone #1 expectations
- Submit project plan PDF on Canvas
- Check website for other deadlines

- Next week:
 - Discuss your system architecture
 - Draft out project requirements, print 4-5 copies for class