# Superpowers of CI/CD

# What is CI/CD?

- **CI/CD** stands for continuous integration and continuous deployment.

- **Continuous Integration** - the practice of merging all developers' working copies to a shared mainline several times a day.

- **Continuous Deployment** - software engineering approach in which the value is delivered frequently through automated deployments of software.

- Both approaches fall under the engineering practice of **continuous delivery** which allows teams produce and release value in short cycles.

# CI/CD Features

- Automated Deployments - The setting up of cloud infrastructure and deployment of software is performed via code

- Pipelines - data processing elements connected in series, where the output of one element is the input of the next one. Tasks are performed in sequence: build, test then deploy

- Rigorous testing – Tests are performed at each step of the pipeline ensuring that only successful processes move along the pipeline.

# Current Challenges

- Slow and error prone deployment process. The manual nature of deployment currently employed provides a prime breeding ground for human based errors.

- Many hours of developer time spent on tracing and fixing bugs introduced by new code.

- High infrastructure cost from unused cloud resources.

# CI/CD to the rescue!

- CI/CD increases the speed of software releases to the market as the deployment process is automated. With automation there is no human based errors that would arise with manual deployments. Faster release rates means increased revenue as new features are released faster.

- CI/CD increases accountability and transparency among the developer team as developers are alerted of any errors that are introduced every time they submit new code. This avoids costs that arise with developer time trying to fix any breaks in the code.

- CI/CD reduces infrastructure costs that arises from unused resources by automating infrastructure cleanup.