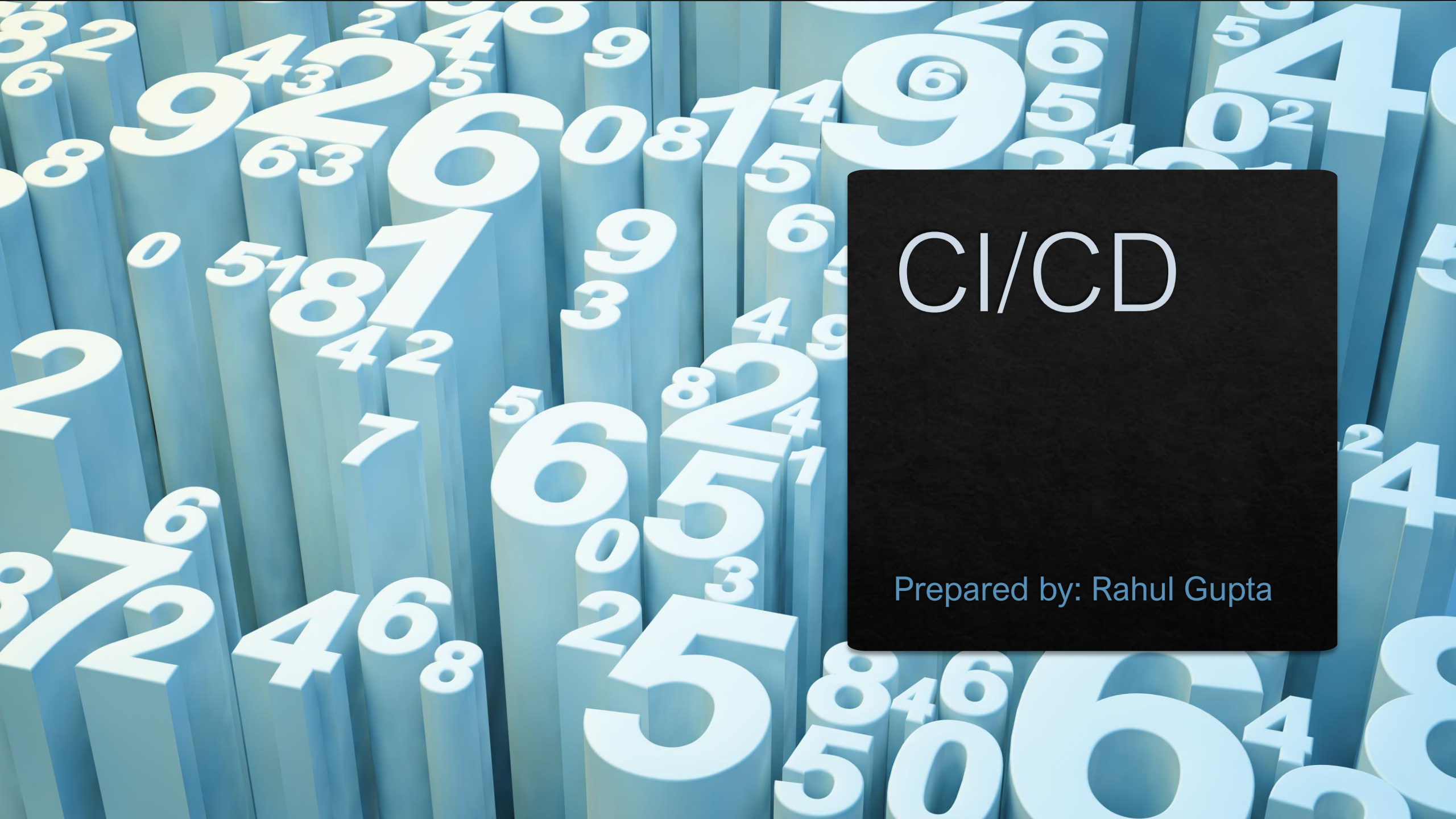
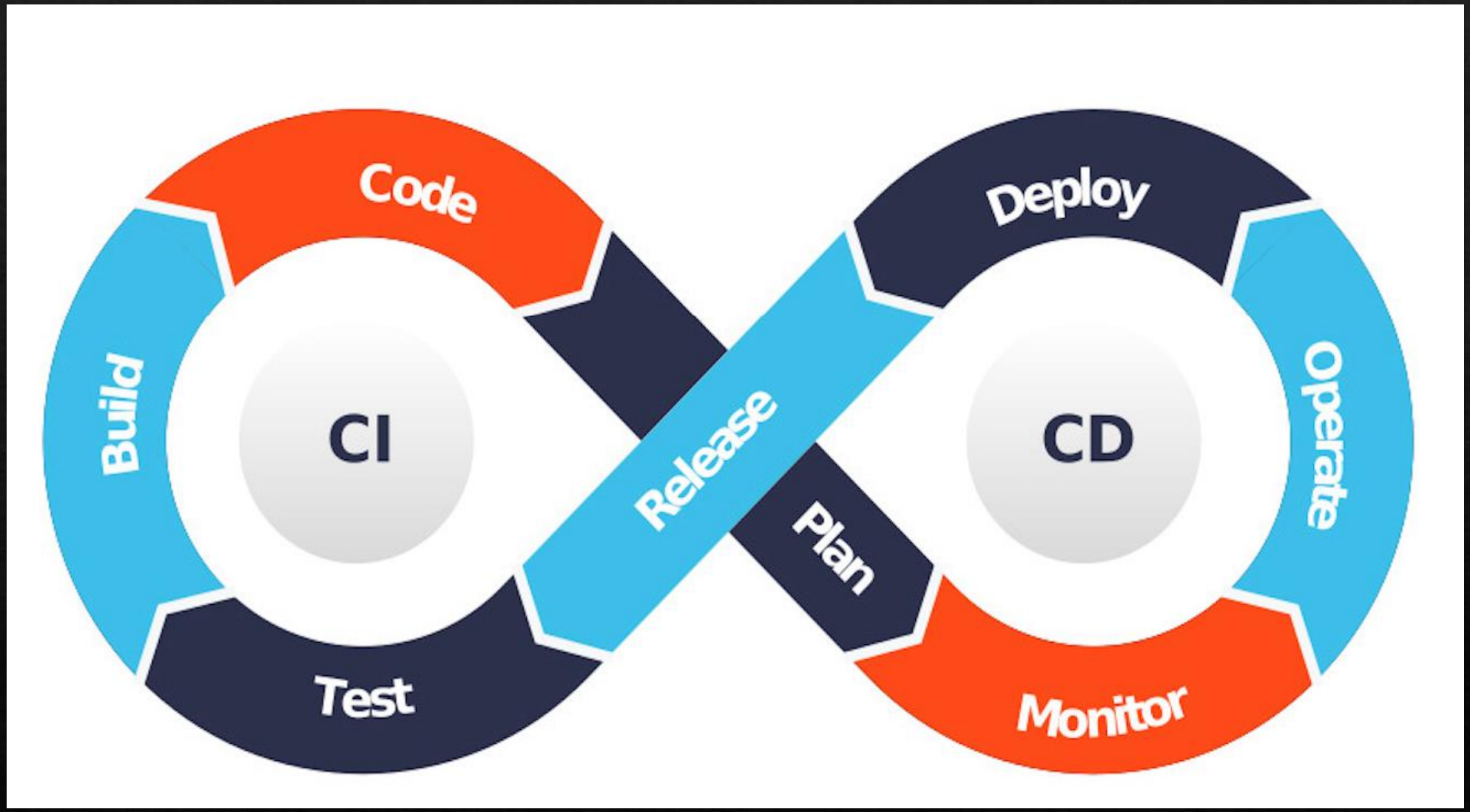


CI/CD

Prepared by: Rahul Gupta

What is CI/CD

- Continuous Integration (or CI) is a process in devops where changes are merged into a central repository after which the code is automated and tested. The continuous integration process is a practice in software engineering used to merge developers' working copies several times a day into a shared mainline.
- Continuous Deployment is a software development strategy where a new code or a change is deployed directly to the production environment after going through a set of rigorous, automated tests.
- Continuous Delivery is a software engineering approach in which teams produce software in short cycles, ensuring that the software can be reliably released at any time and, following a pipeline through a "production-like environment", without doing so manually.


Code
Build
CI
Test
Release
Plan
Deploy
Operate
CD
Monitor

Current Challenges

- **Manual and Time-consuming Processes:** Manual Processes are error prone and time consuming, leading to delays in delivering to customers.
- **Inconsistent Code Quality:** Code quality is non consistent due to lack of automated testing and validation.
- **High Maintenance costs**: Delay in bug identification and fix, leads to higher maintenance cost.
- **Slower time-to-market:** Manual testing and deployment processes slow down the time to bring new features or updates to the market.
- **Difficulty scaling infrastructure:** Organizations fail to scale their infrastructure efficiently, resulting in high cost due to over provisioning or poor performance due to under provisioning.
- Risk of falling behind: With competitors adopting CI/CD, organizations might be left behind in terms of technology adoption, agility, and market responsiveness.

Benefits of CI/CD

- **Cost Savings:** Implementing CI/CD eliminates the need for manual, time-consuming processes resulting in cost savings
- **Rapid Time-to-Market:** CI/CD significantly reduces the time it takes to bring new features to market, by automating testing and deployment phases.
- **Enhanced Quality Assurance**: Automated testing in CI/CD ensures consistent code quality, minimizing the risk of introducing errors into the software.
- **Streamlined Development Process:** The integrated automated testing and deployment pipelines, results in faster identification and resolution of bugs.
- **Revenue Growth:** The acceleration of software releases enabled by CI/CD allows us to deliver new features and improvements more frequently.
- Customer Satisfaction: Continuous deployment allows us to address customer feedback and implement improvements promptly.

Conclusion

In order to deliver high quality software efficiently, respond to market demands swiftly and maintain a competitive edge, a mindset of continuous improvement and deployment/delivery needs to be fostered within the organization.