Authentication and Authorization (DevOps)

1. Authentication

Authentication is the process of verifying who a user or system is.
(Who are you?)

- Examples:

  Login using username and password

  GitHub SSH key authentication

  CI/CD pipeline using access tokens

Simple Diagram:

User/System → Credentials → Authentication Server → Access Granted

2. Authorization

Authorization defines what actions a user or system is allowed to perform after authentication.
(What can you do?)

- Examples:

  A developer can push code but cannot deploy to production

  A pipeline can deploy only to staging environment

Simple Diagram:

Authenticated User → Permission Check → Allow / Deny

3. Authentication vs Authorization

Aspect	Authentication	Authorization
Purpose	Verify identity	Verify permissions
Question	Who are you?	What can you do?
Timing	Comes first	After authentication
Methods	Passwords, MFA, Tokens	RBAC, ABAC, Policies
DevOps Example	Docker registry login	Deploy to production
Failure Result	Access denied	Action denied

Combined Flow:

User → Authentication → Authorization → Access

4. Importance in DevOps

Authentication and Authorization are important in DevOps to:

- Secure source code repositories
- Protect CI/CD pipelines
- Control application deployments
- Prevent unauthorized access