| **Day** | **Project A** | **Project B** |
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| 1 | Dockerfile for Flask app | Dockerfile for Node.js app with healthcheck |
| 2 | Multi-stage Dockerfile (React + NGINX) | Optimized Dockerfile + .dockerignore |
| 3 | Docker Compose: Flask + Redis | Docker Compose: Django + PostgreSQL |
| 4 | Docker Compose with named volumes/networks | Environment variable support via .env file |
| 5 | Docker Compose: Nginx reverse proxy for 2 apps | Custom network + healthcheck for services |
| 6 | K8s Deployment + Service for Flask app | K8s Deployment + Service for Node.js app |
| 7 | Add ConfigMap and Secret to K8s app | Liveness and readiness probes |
| 8 | K8s PVC and PV setup (hostPath or Minikube) | Deploy static website with NGINX on K8s |
| 9 | Setup NGINX Ingress Controller + Ingress Resource | K8s TLS Ingress with self-signed cert |
| 10 | K8s Job and CronJob examples | Horizontal Pod Autoscaler for app |
| 11 | Terraform AWS EC2 instance | Terraform AWS S3 bucket |
| 12 | Terraform IAM user + policy | Terraform EC2 with remote provisioner |
| 13 | Terraform VPC + Subnets + Route Tables | Terraform Security Groups for Web + SSH |
| 14 | Terraform RDS MySQL instance | Terraform EBS volume attachment to EC2 |
| 15 | Terraform ELB + attach to EC2 | Terraform with tfvars, outputs.tf, locals.tf |
| 16 | Provision EKS cluster with Terraform | Configure ~/.kube/config for EKS access |
| 17 | Deploy Flask app to EKS with kubectl | Use LoadBalancer Service on EKS |
| 18 | Install Helm and deploy NGINX using Helm | Install Redis using Helm on EKS |
| 19 | Setup Prometheus via Helm | Setup Grafana via Helm |
| 20 | Create custom Helm chart for Flask app | Deploy Helm chart with values override |
| 21 | Install Jenkins on EC2 using Terraform + user\_data | Create Jenkins Pipeline to build Docker image |
| 22 | Push Docker image to Docker Hub via Jenkins | Create GitHub Actions CI for Node.js |
| 23 | GitHub Actions CD to EC2 using SSH | GitHub Actions CD to EKS using kubectl |
| 24 | Add SonarQube to Jenkins pipeline | Add Trivy to scan Docker images |
| 25 | Setup ELK stack using Docker Compose | Log Flask app to Filebeat -> Logstash |
| 26 | Setup AWS CloudWatch Logs for EC2 app | Send app metrics to Prometheus |
| 27 | Install Ansible on control node | Ansible playbook to install Apache |
| 28 | Ansible: Configure EC2 webserver | Ansible dynamic inventory for AWS |
| 29 | Create Vault secrets manually | Access secrets from Vault in app |
| 30 | Final Project A: Full-stack App with CI/CD + K8s + Terraform | Final Project B: Monitoring + Logging + Helm + Vault |