Lab Guide: Deploying an Azure Web App with Key Vault and Managed Identity (Group Project)

Lab Objective

You will create a secure, production-ready Azure PaaS environment using Terraform.
Each group will provision the same set of resources, but **each group's Terraform state is isolated by using a unique key in the backend**.

High-Level Steps

1. **Initialize the Project Folder**
2. **Configure the Terraform Backend for Remote State**
3. **Create Required Azure Resources**
   - Resource Group
   - Key Vault
   - App Service Plan (Windows)
   - Windows Web App with Managed Identity and Key Vault URI as app setting
4. **Apply and Validate**
5. **Share Your Resource Outputs**

Step-by-Step Instructions

1. Initialize Your Project Folder

- Open Visual Studio Code (VS Code).
- Create a new folder for your group's lab (e.g., `qe-lab-group1`).
- All work for your group should be done inside this folder.

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2. Configure Terraform Backend for Remote State

- All groups will use the **same storage account, resource group, and container** for the Terraform backend.
- Each group will use a **different key** for their state file.
  For example:

- o Group 1: `group1.tfstate`
- o Group 2: `group2.tfstate`
- o Group 3: `group3.tfstate`
- This ensures that each group's deployments are managed and tracked separately, even though they are working in the same Azure environment.

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3. Define & Deploy Required Resources

Each group must use Terraform to deploy:

- **Azure Resource Group**
  Name pattern: `qe-rg-<regionSuffix>-prod-grp<group number>`
- **Azure Key Vault**
  Name pattern: `qe-akv-<regionSuffix>-prod- grp<group number>-001`
  - o Must be deployed in your resource group and region.
  - o Enable soft-delete and use RBAC for access management.
- **Azure App Service Plan (Windows, B1 SKU)**
  Name pattern: `qe-asp-<regionSuffix>-prod- grp<group number>-win`
  - o Must be deployed in your resource group and region.
- **Azure Windows Web App (Frontend)**
  Name pattern: `qe-<regionSuffix>-web-prod- grp<group number>-001`
  - o Must use the App Service Plan above.
  - o Enable system-assigned managed identity.
  - o Configure App Settings to include the Key Vault URI (`KEY_VAULT_URI`).
  - o Set the .NET version to 6.0.

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4. Apply and Validate

- Initialize your Terraform working directory (`terraform init`).
- Plan and apply your deployment (`terraform plan`, then `terraform apply`).
- After deployment, verify that:
  - o All resources are visible in your Azure portal, in your assigned resource group.
  - o The Windows Web App has the correct app settings and managed identity enabled.
  - o The Key Vault exists and is accessible from the portal.

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5. Share Outputs & Collaborate

- Note the **resource names** and app URL for your group.
- Share your findings and troubleshooting steps with other groups.
- Each group's state is independent, but the environment is consistent for all.