Below is the case study and video link of the Azure Identity and Access Management Project

https://www.loom.com/share/1588c9b6b8ce4feca64a0ae242c8f8d9?sid=557be664-d33e-4121-a64e-30f17309bbb6

🧾 Azure Identity & Access Management (IAM) Case Study

📌 Project Title:

Automated Role-Based Access Control (RBAC) Implementation Using Azure AD and PowerShell

🎯 Objective:

Design and implement a scalable and secure IAM structure in Microsoft Azure using PowerShell to enforce least-privilege access control across users, groups, and cloud resources.

🔧 Tools & Technologies Used

- **Microsoft Azure** (Free Trial Subscription)
- **PowerShell 7**
- **Az PowerShell Module**
- **Azure Active Directory (Entra ID)**
- **RBAC (Role-Based Access Control)**

🛠️ What Was Built

✅ 1. User Provisioning

Created a new Azure AD user:

- `devuser@kwesiandzie2025outlook.onmicrosoft.com`
- Used a secure password object with `ConvertTo-SecureString`
- Account set to force password change at first login

✅ 2. Group Creation & Management

- Created a security group named **"IAM Engineers"**
- Group used to manage RBAC assignments in bulk

✅ 3. Group Membership Assignment

- Added `Dev User` to **IAM Engineers** group using object IDs

✅ 4. Azure Resource Group Setup

- Created a dedicated resource group named `IAMLabRG` in the `EastUS` region for isolated access control testing

✅ 5. RBAC Role Assignment

- Assigned the **Contributor** role to the **IAM Engineers** group at the resource group level

Verified scoping using dynamic subscription ID resolution:

$scope = "/subscriptions/$subId/resourceGroups/IAMLabRG"

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- Ensured least-privilege by controlling role scope to resource group level

✅ 6. Role Modification Handling

- Script includes automatic **removal of previous roles** (e.g., Reader) before new assignments
- Supports switching roles dynamically (Owner, VM Contributor, etc.)

🔁 Automation Potential

The project was designed to be modular and automatable using:

- **Azure Automation Accounts**
- **GitHub Actions (CI/CD)**
- **Windows Task Scheduler**

🧠 Skills Demonstrated

- Azure IAM best practices
- PowerShell scripting and automation
- Secure identity provisioning
- RBAC design and implementation
- Azure AD object handling
- Scoping and access control testing

📦 Outcome

A reusable, real-world PowerShell solution that simulates enterprise IAM setups using:

- Secure user onboarding
- Role-based group access
- Scoped permissions to minimize risk
