Project Title: Provisioning Assets in Solution Packages Working with SharePoint Components

Purpose:

The goal of this capstone project is to simulate a real-world SharePoint environment where reusable solution packages provision lists, libraries, pages, branding, and site components using PnP provisioning, SPFx packaging, or SharePoint REST/Graph APIs. The project applies core SharePoint development concepts (site columns, content types, templates), deployment techniques (PnP provisioning templates or SPFx), and automation (PowerShell, Power Automate).This solution helps IT admins or power users to streamline SharePoint on-boarding, ensure governance, and deploy standardized artifacts across departments.

Expanded Problem Statement (with Topics)

1. SharePoint Core Concepts — MUST INCLUDE

- Site Columns: Define custom metadata like Department, Status, Asset Type
- Content Types: Reusable schemas for assets like 'Laptop', 'Mobile Device', etc.
- Lists and Libraries: Store provisioned assets and log deployment history
- List Formatting: Use JSON to visually enhance status and type columns
- Pages and Web Parts: Provision welcome pages, dashboards
- Views and Filters: Department-specific or status-based filtered asset lists
- Permissions: Role-based access to provisioning modules

2. Solution Provisioning & Automation — MUST INCLUDE

- PnP Provisioning Templates: Store and deploy reusable schema for asset site
- PnP PowerShell: Automate site setup, asset list provisioning
- SPFx Web Parts (Optional): Custom visual dashboard for provisioning status
- JSON View Formatting: Enhance user UI on lists like “Provisioning Status”
- Version Control: Track provisioning package changes over time

3. Advanced Concepts — OPTIONAL / BONUS

- Power Automate: Auto-email or approval workflows during asset provisioning
- REST/Graph API: Query/Update SharePoint lists programmatically

- App Catalog Deployment: Deploy SPFx solutions across multiple sites

- Provision Hub Sites: Organize department-level asset provisioning under a hub

- Logging: Track provisioning activities with time/user stamps

- Site Design & Script: Deploy branding, logos, footers automatically

What the System Should Do

- Admin (IT Team): Upload/Deploy solution package (PnP or SPFx)

- Admin: Create or update provisioning templates

- Admin: Assign asset lists to departments

- Department Head: View provisioned assets

- System: Track status of provisioning: Pending / Completed / Failed

- System (optional): Trigger workflows or alerts after provisioning

- System (optional): Save provisioning data into SharePoint list or external DB

Example Use Case Flow (Step-by-Step)

Admin launches the provisioning dashboard in SharePoint.

Admin selects a solution package containing lists, libraries, branding, and web parts.

Admin deploys the package to the "IT Department" site.

System provisions:
- An Asset Register List
- A Status Dashboard Page
- Default Views and Columns

Department Head accesses the new site and checks pre-configured views.

Admin initiates provisioning on another department (e.g., Finance) using the same package.

System logs the provisioning history in a 'Provisioning Log' list.

If a step fails (e.g., column conflict), the system logs the error and notifies the admin.

Admin reviews all current asset deployment statuses via the SPFx dashboard or list views.