User Story ID	US#1
User Story Name	One-Time Calculation
Actors	Guest User
Description	As a guest user, I want to calculate my electricity consumption once by entering my previous and current meter readings so that I can quickly estimate my usage without creating an account.
Acceptance Criteria	The user can access the quick calculation feature without logging in. The system should display two input fields: previous and current readings. After pressing "Calculate," the system should display the total consumption and cost. The system should display an option to create an account to save the calculation.

Normal Scenario

Actor	System
1 – Open the application.	2 – Display welcome screen with two options: "Create Account" or "Calculate Once."
3 – Select "Calculate Once."	4 – Display fields for "Previous Reading" and "Current Reading."
5 – Enter both readings.	6 – Validate that both readings are numeric and logical (current > previous).
7 – Press "Calculate."	8 – Display total electricity consumption and cost estimate.
9 – Review results.	10 – Display message: "Want to save your data? Create an account to store your history."

Exception Scenarios

1. Missing or invalid readings

Actor	System
1 – Enter one reading or invalid data (e.g., letters instead of numbers).	2 – Display error: "Please enter valid numeric readings for both fields."

2. Current reading less than previous reading

Actor	System
1 – Enter a smaller current reading than the previous one.	2 – Display error: "Current reading must be greater than previous reading."

3. User decides to save the result

Actor	System
1 – After viewing the result, choose "Save Result."	2 – Display message: "Please create an account to save your data."
3 – Click "Create Account."	3 – Redirect to the account creation page.

User story ID	US#2
User story name	Create Account
Actors	User
Description	As a user, I want to create a new account by entering my username and password so that I can access the application.
Acceptance criteria:	The system should validate all entered data. If the information is correct, the system will create the user's account and redirect them to the home page.

Normal scenario:

Actor	System
1 – Open the application.	2 – Display the login screen with an option to "Create Account."
3 – Select "Create Account."	4 – Display a form asking for username and password.
5 – Enter username and password.	6 – Validate the entered data.
7 – Submit the form.	8 – Create the account and redirect to the home page.

Exception scenario:

Actor	System
1 – Enter invalid or incomplete data.	2 – Display an error message prompting the user to correct the input.
3 – Retry creating the account.	4 – Validate again and proceed if data is correct.

User story ID	US#3
User story name	Calculate
Actors	User
Description	As a user, I want to calculate my electricity usage by entering, uploading, or recording the meter readings in different ways so that I can know my total consumption.
Acceptance criteria:	The system should support multiple input methods (camera, gallery, voice, manual entry), extract or record the readings accurately, and display the calculated usage clearly.

Normal scenario(s):

1. **Using Camera:**

Actor	System
1 – Select "Calculate."	2 – Display options: "Camera," "Upload," "Voice," "Manual Input."
3 – Choose "Camera."	4 – Open the device camera.
5 – Capture a clear image of the meter.	6 – Process the image and extract the numbers.
7 – Confirm results.	8 – Display calculated usage and related statistics.

2. **Using Upload (Gallery):**

Actor	System
1 – Select "Calculate."	2 – Display options: "Camera," "Upload," "Voice," "Manual Input."
3 – Choose "Upload."	4 – Open the gallery to select an image.
5 – Pick a clear image of the meter.	6 – Process the uploaded image and extract numbers.
7 – Confirm results.	8 – Display calculated usage and related statistics.

3.   Using Voice Input

Actor	System
1 – Select "Calculate."	2 – Display options: "Camera," "Upload," "Voice," "Manual Input."
3 – Choose "Voice."	4 – Activate microphone.
5 – Speak the meter reading.	6 – Convert voice to text and extract numbers.
7 – Confirm reading.	8 – Display calculated usage and related statistics.

4.   Using Manual Input

Actor	System
1 – Select "Calculate."	2 – Display options: "Camera," "Upload," "Voice," "Manual Input."
3 – Choose "Manual Input."	4 – Display a text field for entering numbers.
5 – Enter meter readings manually.	6 – Validate the input format.
7 – Submit the data.	8 – Display calculated usage and related statistics.

Exceptional scenario(s):

1. Image is unclear or incorrect (Camera or Upload)

Actor	System
1 – Capture or upload an unclear image.	2 – Detect unreadable image.
3 – Wait for feedback.	4 – Display an error message asking to retake or upload a clearer photo.

2. Voice input unclear

Actor	System
1 – Record unclear or incomplete voice input.	2 – Detect recognition error.
3 – Wait for feedback.	4 – Display message asking to repeat or type the reading manually.

3. Invalid manual entry

Actor	System
1 – Enter invalid or non-numeric data.	2 – Validate and detect error.
3 – Wait for feedback.	4 – Display error message asking to correct the input.

User Story ID	US#4
User Story Name	Power Usage
Actors	Registered User
Precondition	The user must have already created an account and be logged into the system.
Description	As a registered user, I want to enter the list of my electrical devices and the total amount I want to pay by the end of the month so that the system can calculate how long I can use each device within my budget.
Acceptance Criteria	The user can only access this feature after logging in. The system should allow adding multiple devices with their power ratings (Watts). The user should be able to input a total monthly electr).ty budget. The system calculates and displays the recommended usage duration for eachbudget.based on the budget.

Normal Scenario

Actor	System
1 – Log in successfully.	2 – Display the home screen with the "Power Usage" option.
3 – Select "Power Usage."	4 – Open the page for adding devices and entering the budget.
5 – Add devices with their power consumption details.	6 – Save and validate the input.
7 – Enter the total budget for the month.	8 – Process the input and perform calculations.

9 – Submit the data.	10 – Display a detailed report showing how long each device can be used daily or monthly within the set budge

Exception Scenarios

1. No devices entered

Actor	System
1 – Open the "Power Usage" page.	2 – Display fields for adding devices.
3 – Skip adding devices and click "Submit."	4 – Display an error: "Please add at least one device to continue."

2. Invalid or incorrect budget value

Actor	System
1 – Enter a negative, empty, or non-numeric budget value.	2 – Validate the input.
3 – Wait for response.	4 – Display an error: "Please enter a valid budget amount."

3. User not logged in

Actor	System
1 – Try to access "Power Usage" without logging in.	2 – Redirect to the login page and display message: "Please log in to access this feature."

User Story ID	US#5
User Story Name	Profile
Actors	Registered User
Precondition	The user must be logged into the system.
Description	As a registered user, I want to view and update my personal profile information so that my account data remains accurate and up to date.
Acceptance Criteria	The user must be logged in to access their profile. The profile should display personal details such as name, email, and password. The user can edit and save updated information. The system should validate inputs and confirm successful updates.

Normal Scenario

Actor	System
1 – Log in successfully.	2 – Display the home screen.
3 – Select "Profile."	4 – Display the profile page with current user details.
5 – Edit personal information (e.g., name, email, password).	6 – Validate updated fields.
7 – Save changes.	7 – Update the database and display confirmation: "Profile updated successfully."

Exception Scenarios

1. User not logged in

Actor	System
1 – Attempt to access "Profile" without logging in.	2 – Redirect to the login page and display message: "Please log in to view your profile."

2. Invalid input format

Actor	System
1 – Enter invalid data (e.g., wrong email format, short password).	2 – Validate fields and display appropriate error messages.

3. Connection or server error

Actor	System
1 – Submit profile updates.	2 – Encounter a system error during saving.
– 3 Wait for response.	4 – Display message: "Unable to save changes. Please try again later."

User Story ID	US#6
User Story Name	Update Data
Actors	Registered User
Precondition	The user must be logged into the system and have access to previous consumption or device data.
Description	As a registered user, I want to update my electricity usage data or device information so that the system can provide more accurate calculations and recommendations.
Acceptance Criteria	The user must be logged in to access this feature. The system should allow editing existing devices or usage data. All input must be validated before saving. The system should confirm the update and refresh related calculations.

Normal Scenario

Actor	System
1 – saving.uccessfully.	2 – Display the home screen.
3 – Select "Update Data."	4 – Display a list of existing data (devices, readings, or usage info).
5 – Choose the item to update.	5 – Display editable fields with current values.
6 – Modify the details (e.g., device power, usage amount).	6 – Validate updated information.
7 – Save changes.	8 – Update the database and display confirmation: "Data updated successfully."
9 – Return to main page.	10 – Refresh the system with new calculations based on updated data.

Exception Scenarios

1. User not logged in

Actor	System
1 – Attempt to access "Update Data" without logging in.	2 – Redirect to login page and display message: "Please log in to access this feature."

2. Invalid input

Actor	System
1 – Enter invalid or incomplete data.	2 – Validate and display error message: "Invalid data. Please check your inputs."

3. No existing data

Actor	System
1 – Open "Update Data."	2 – Find no previous records.
3 – Wait for response.	4 – Display message: "No data available to update."

User Story ID	US#7

User Story Name	Finding My Company
Actors	Guest User
Description	As a guest user, I want to find the electricity company responsible for my area by entering my address or using my current location so that I can know which company I belong to.
Acceptance Criteria	The user can access this feature without logging in. The system should provide an input field to enter an address. The system should also allow the user to use current GPS location by clicking a "Use My Location" button. After clicking "Find My Company," the system should display the company that serves the provided location. The system should show an error message if no company is found for the entered address.

Normal Scenario

Actor	System
1 – Open the application.	2 – Display the home screen with an option "Find My Company."
3 – Select "Find My Company."	4 – Open a page with an address field and a "Use My Location" button.
5 – Enter address manually or click "Use My Location."	6 – Capture or validate the entered location data.
7 – Click "Find My Company."	8 – Retrieve and display the company that serves the given area.

Exception Scenarios

1. No address entered

Actor	System
1 – Leave the address field empty and click "Find My Company."	2 – Display an error message: "Please enter your address or enable location access."

2. Location permission denied

Actor	System
1 – Click "Use My Location" but deny location permission.	2 – Display a warning: "Location access denied. Please enable location services or enter your address manually."

3. No company found the address

Actor	System
1 – Enter a valid address not covered by any company.	2 – Display message: "No company found for this location."