**Electricity Consumption Calculator**

**(User Stories)**

## Enriched User Stories

* **User Story #1**

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| **User Story ID** | US #1 |
| **User Story Name** | |  | | --- | | User Registration | |
| **Actors** | |  | | --- | | User | |
| **Description** | As a new user, I want to create an account by providing my email, username, and password so that I can securely use the electricity calculator app. |
| **Per condition** | |  |  | | --- | --- | |  | The user is not registered in the system. | |
| **Post condition** | |  | | --- | | The user account is created successfully, and the user is redirected to  the login page. | |
| **Acceptance Criteria** | |  | | --- | | **Given** I am on the registration page,  **when** I enter my email, username, and password and click 'Sign Up,'  **then** my account is created, and I am redirected to the login page. | |

* **Scenarios**

**Normal Scenario**

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| --- | --- |
| **Actor Action** | **System Response** |
| 1- User enters email, username, and password. | 2- System validates inputs. |
| 3- User clicks 'Sign Up'. | 4- System creates the account and redirects to the login page |

**Exceptional Scenario**

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| **Actor Action** | **System Response** |
| 1- User enters an already registered email. | 2- System shows an error message 'Email is already in use.' |

* **User Story #2**

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| **User Story ID** | US #2 |
| **User Story Name** | User Login |
| **Actors** | Registered User |
| **Description** | As a registered user, I want to log in using my email and password so that I can access my saved consumption data. |
| **Per condition** | The user has already registered. |
| **Post condition** | The user is logged in and redirected to the dashboard. |
| **Acceptance Criteria** | **Given** I am on the login page,  **When** I enter valid credentials and click "Login",  **Then** I should be logged in and redirected to the dashboard. |

* **Scenarios**

**Normal Scenario**

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| --- | --- |
| **Actor Action** | **System Response** |
| 1- User enters email and password | 2- System validates credentials. |
| 3- User clicks "Login" | 4- System logs in the user and redirects to the dashboard. |

**Exceptional Scenario**

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| --- | --- |
| **Actor Action** | **System Response** |
| 1- User enters incorrect credentials. | 2- System shows an error message 'Invalid email or password.' |

* **User Story #3**

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| **User Story ID** | US #3 |
| **User Story Name** | Meter Reading Entry |
| **Actors** | User |
| **Description** | As a user, I want to input my current and previous meter readings so that I can calculate my electricity consumption. |
| **Per condition** | The user has valid access to the app. |
| **Post condition** | Consumption is calculated and displayed to the user. |
| **Acceptance Criteria** | **Given** I am on the meter reading page,  **When** I enter my current and previous readings and press "Calculate",  **Then** the app should display the calculated consumption (kWh). Scenarios |

* **Scenarios**

**Normal Scenario**

|  |  |
| --- | --- |
| **Actor Action** | **System Response** |
| 1- User enters current and previous readings | 2- System calculates consumption |
| 3- User clicks "Calculate" | 4- System displays consumption result. |

**Exceptional Scenario**

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| --- | --- |
| **Actor Action** | **System Response** |
| 1- User enters invalid (non-numeric or negative) values | 2- System shows error "Invalid input. Please enter numbers only. |

* **User Story #4**

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| **User Story ID** | US #4 |
| **User Story Name** | Voice Input for Readings |
| **Actors** | User |
| **Description** | As a user, I want to enter meter readings using my voice so that I can input data quickly without typing. |
| **Per condition** | Device has a working microphone |
| **Post condition** | The spoken input is converted into numerical readings. |
| **Acceptance Criteria** | **Given** I am on the voice input option,  **When** I speak the meter reading,  **Then** the app should display the recognized number in the input field. Scenarios |

* **Scenarios**

**Normal Scenario**

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| --- | --- |
| **Actor Action** | **System Response** |
| 1- User taps "Voice Input" | 2- System activates microphone. |
| 3- User speaks "Two Thousand Three Hundred" or "الفين و ثلاثمائة" | 4- System recognizes and converts it to "2300". |

**Exceptional Scenario**

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| --- | --- |
| **Actor Action** | **System Response** |
| 1- User speaks unclear input | 2- System shows message "Could not recognize number, please try again." |

* **User Story #5**

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| **User Story ID** | US #5 |
| **User Story Name** | OCR Reading Detection |
| **Actors** | User |
| **Description** | As a user, I want to capture my meter reading using the camera or using a photo from the gallery so that the system can extract numbers automatically. |
| **Per condition** | Device has a camera |
| **Post condition** | Extracted meter reading is displayed in the input field. |
| **Acceptance Criteria** | **Given** I choose "Scan Meter",  **When** I take a photo of the meter or choose from galery,  **Then** the system extracts and displays the numerical value. |

* **Scenarios**

**Normal Scenario**

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| --- | --- |
| **Actor Action** | **System Response** |
| 1- User captures photo or choose from the gallery | 2- OCR extracts numbers and fills input field |

**Exceptional Scenario**

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| --- | --- |
| **Actor Action** | **System Response** |
| 1- User captures blurry image | 2- System shows "Unable to detect reading, please retake the photo." |

* **User Story #6**

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| **User Story ID** | US #6 |
| **User Story Name** | Consumption Visualization |
| **Actors** | User |
| **Description** | As a user, I want to see my electricity consumption visualized in bar and pie charts so that I can better understand my usage. |
| **Per condition** | The user has at least one consumption calculation stored. |
| **Post condition** | Charts are displayed with updated data. |
| **Acceptance Criteria** | **Given** I have past and current readings saved,  **When** I view my dashboard,  **Then** I should see bar and pie charts showing my usage. |

* **Scenarios**

**Normal Scenario**

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| --- | --- |
| **Actor Action** | **System Response** |
| 1- User navigates to "Dashboard" | 2- System loads bar chart (monthly usage) and pie chart (consumption distribution). |

**Exceptional Scenario**

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| **Actor Action** | **System Response** |
| 1- User has no recorded data | 2- System shows message "No consumption data available." |

* **User Story #7**

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| --- | --- |
| **User Story ID** | US #7 |
| **User Story Name** | Cost Estimation |
| **Actors** | User |
| **Description** | As a user, I want to estimate my electricity bill cost based on my consumption so that I can plan my expenses. |
| **Per condition** | User is logged in. |
| **Post condition** | Estimated cost is displayed. |
| Acceptance Criteria | **Given** I have calculated my consumption,  **When** I view the result,  **Then** the app should also show the estimated cost based on predefined tariff rates. |

* **Scenarios**

**Normal Scenario**

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| **Actor Action** | **System Response** |
| 1- User calculates consumption | 2- System applies tariff and shows cost. |

**Exceptional Scenario**

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| --- | --- |
| **Actor Action** | **System Response** |
| 1- User tries to view cost after entering invalid consumption (negative/ unrealistic). | 2- Unable to estimate cost. Please check your meter readings |

* **User Story #8**

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| --- | --- |
| **User Story ID** | US #8 |
| **User Story Name** | History Tracking |
| **Actors** | User |
| **Description** | As a user, I want to save and view my past electricity consumption history so that I can track my usage trends over time. |
| **Per condition** | User has at least one past record. |
| **Post condition** | A list of past consumption and costs is shown. |
| **Acceptance Criteria** | **Given** I open the "History" page,  **When** I have saved records,  **Then** the app should display them in chronological order with dates, consumption, and cost. |

* **Scenarios**

**Normal Scenario**

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| --- | --- |
| **Actor Action** | **System Response** |
| 1- User opens "History" | 2- System displays list of past readings and costs. |

**Exceptional Scenario**

|  |  |
| --- | --- |
| **Actor Action** | **System Response** |
| 1- User has no history | 2- System shows "No history available." |