Here are the test scenarios to thoroughly test the form's functionality and data validation:

**1. Username Field Validation**

* **Scenario 1.1**: Verify that the "Username" field is mandatory.
  + **Expected Result**: Error message should be displayed if the field is left empty.
* **Scenario 1.2**: Verify that the default value "JohnDoe" is pre-populated.
  + **Expected Result**: "JohnDoe" should be displayed in the field by default.

**2. Phone Field Validation (Optional)**

* **Scenario 2.1**: Verify that the "Phone" field is optional.
  + **Expected Result**: No error should be displayed if the field is left empty.
* **Scenario 2.2**: Verify that the phone number format is correct.
  + **Expected Result**: The phone number format should accept values like +1234567890.

**3. Email Field Validation**

* **Scenario 3.1**: Verify that the "Email" field is mandatory.
  + **Expected Result**: Error message should be displayed if the field is left empty.
* **Scenario 3.2**: Verify the email format validation.
  + **Expected Result**: Error message should be displayed if the email format is invalid (e.g., missing '@').

**4. Password Field Validation (Masked)**

* **Scenario 4.1**: Verify that the "Password" field is mandatory.
  + **Expected Result**: Error message should be displayed if the field is left empty.
* **Scenario 4.2**: Verify that the password is masked.
  + **Expected Result**: Entered password characters should be masked (e.g., '\*\*\*\*').
* **Scenario 4.3**: Verify that the password has a minimum length of 6 characters.
  + **Expected Result**: Error message should be displayed if the password is shorter than 6 characters.

**5. Age Field Validation**

* **Scenario 5.1**: Verify that the "Age" field accepts values between 18 and 100.
  + **Expected Result**: Error message should be displayed for values below 18 or above 100.
* **Scenario 5.2**: Verify that the "Age" field is mandatory.
  + **Expected Result**: Error message should be displayed if the field is left empty.

**6. Event Date Validation**

* **Scenario 6.1**: Verify that the default event date is set to 2024-01-01.
  + **Expected Result**: The field should display the default date 2024-01-01.
* **Scenario 6.2**: Verify that the date cannot be earlier than 2024-01-01 or later than 2024-12-31.
  + **Expected Result**: Error message should be displayed if the date is out of range.

**7. Address Field Validation (Conditional)**

* **Scenario 7.1**: Verify that the "Address" field is visible only if the "Include Address" checkbox is selected.
  + **Expected Result**: The "Address" field should appear when the checkbox is checked.
* **Scenario 7.2**: Verify that the "Address" field becomes mandatory once visible.
  + **Expected Result**: Error message should be displayed if the "Address" field is visible but left empty.

**8. CAPTCHA Validation**

* **Scenario 8.1**: Verify that the CAPTCHA must match the value "1234".
  + **Expected Result**: Error message should be displayed if the entered value is incorrect.

**9. Reset Button Functionality**

* **Scenario 9.1**: Verify that clicking the "Reset" button clears all form fields and error messages.
  + **Expected Result**: All fields should reset to their default values, and error messages should disappear.

**10. Form Submission**

* **Scenario 10.1**: Verify that the form cannot be submitted if any mandatory field is invalid or left empty.
  + **Expected Result**: The form should not submit, and error messages should be displayed for invalid fields.
* **Scenario 10.2**: Verify that the form can be successfully submitted if all required fields are valid.
  + **Expected Result**: Form should submit successfully, and a success message should be shown.

**11. Auto-Save Functionality**

* **Scenario 11.1**: Verify that the "Auto-Save" field's value is saved every 5 seconds.
  + **Expected Result**: The value should be saved to localStorage and persist across page reloads.
* **Scenario 11.2**: Verify that the saved value is restored when the page is reloaded.
  + **Expected Result**: The value from localStorage should be pre-filled in the field.

**12. Miscellaneous**

* **Scenario 12.1**: Verify that error messages are cleared when the "Reset" button is clicked.
  + **Expected Result**: All error messages should disappear after clicking the "Reset" button.

These scenarios should comprehensively cover the testing of functionality and data validation for the form.