Issue Report: Photo Gallery Web Application Testing

Date: August 30, 2023

General Summary

This consolidated issue report summarizes critical and high-severity issues identified during the testing of the Photo Gallery web application. The issues have been categorized by their respective test cases and priorities, adhering to professional testing standards. Additionally, it highlights the status of each issue, whether it requires clarification, investigation, or improvement.
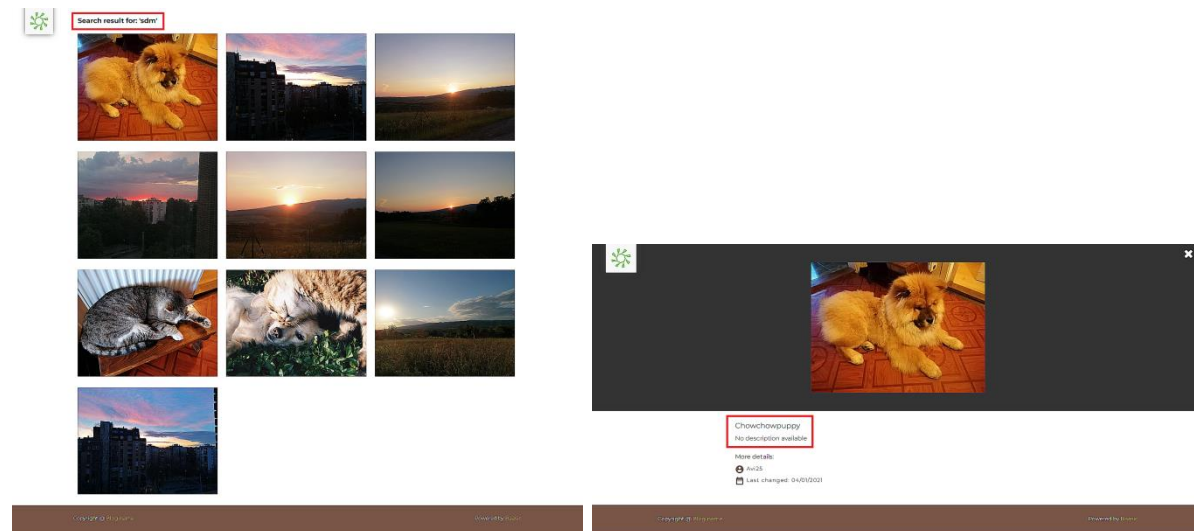
Test Case 1.2: Invalid Keyword Search

Issue: The test case failed due to inconsistent results of an invalid keyword search. When no photos containing the search term are expected, ten irrelevant photos are displayed.

Severity: High

Priority: High

Priority Explanation: This issue significantly impacts functionality and user experience.

Status: Failed

Screenshot 1:

> **Invalid Keyword Search Results**
> - *Description*: The screenshot displays the search results when an invalid keyword "sdm" is entered. Instead of an empty results list, the system shows ten unrelated photos.

Screenshot 2:

Details of Invalid Keyword Search
- *Description:* The screenshot presents the details of a random search result following the entry of an invalid keyword.
 **Note:** The photo details do not contain the requested term.

Test Case 1.4: Search with "Space" Character

Issue: The test case passed because it returned the correct search result. However, there is an issue with the visibility of the "The request is invalid" notification in the top left corner. It is not readily noticeable due to the logo's obscurity.

Severity: Moderate

Priority: Medium

Status: Open
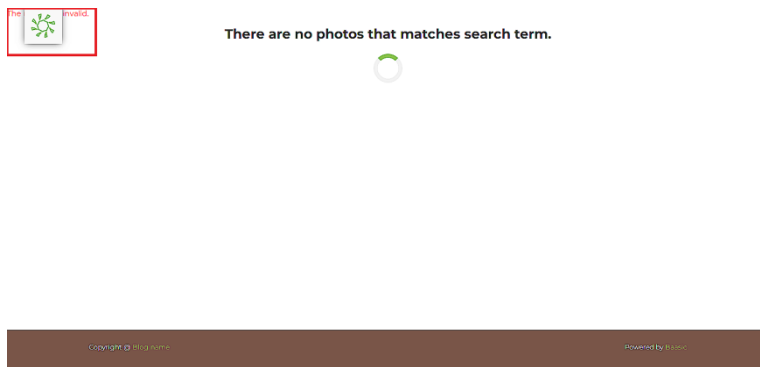
Screenshot 3:

Visibility Issue: Error Notification Location
- *Description*: As the report outlines, the screenshot highlights the visibility issue with the "The Request is Invalid" error notification. The notification is in the top left corner of the page, partially obscured by the logo, making it challenging for users to notice readily.

Test Case 1.4.1: Search with special characters other than the "Space" character

The test case failed due to inconsistent special character keyword search results. Instead of displaying only photos that contain the exact search term, it displayed multiple irrelevant photos. This inconsistency occurred because the system ignored special characters (hyphens and the "Space" characters) in the photo names, resulting in photos containing only a subset of the entered special characters displayed rather than all of them.

Severity: High

Priority: Medium

Status: Open

Screenshot 4:

> **Special Characters Keyword Search Results**
- *Description*: The screenshot partially displays search results when a special character keyword '-' is entered.

Screenshot 5:

> **Details of Special Characters Keyword Search**
- *Description:* The screenshot presents random details of the search results following the entry of a special-characters keyword.
  Note: The photo details do not contain the requested term. Additionally, the thumbnail is different from the photo preview.

Test Case 1.4.2: Search by Photo Date

Issue: The search outcome for the provided date "01/01" displayed a page with an HTTP status code 404. Additionally, a lack of clear guidelines on search criteria has been observed.

Severity: Moderate

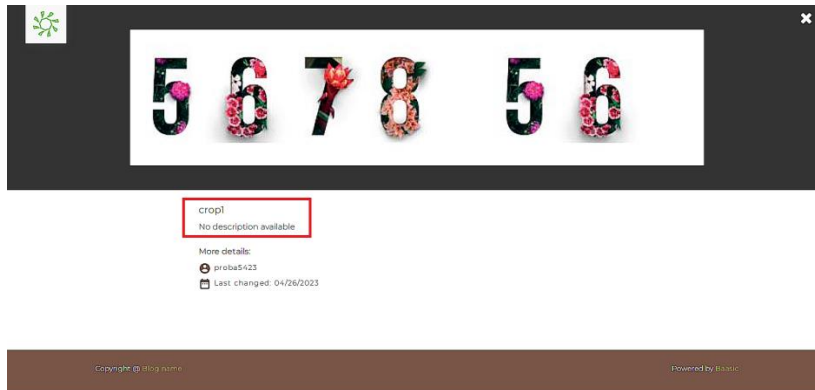*Priority:* Medium

Status: Open

Test Case 1.5: Numeric Search

Issue: The search outcome for the provided sequence of numbers "88" resulted in the display of some irrelevant photos.

Severity: Moderate

Priority: Medium

Status: Open

Screenshot 6:

Irrelevant Search Results for "88" Query
- *Description:* The screenshot illustrates the irrelevant search results for the "88" query. The results do not meet expectations and require correction to make the search accurate and useful.
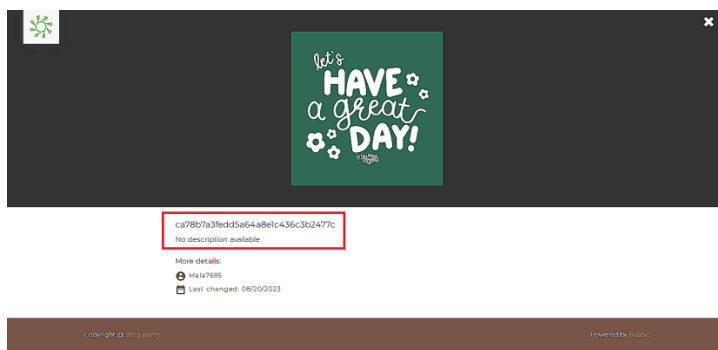
Test Case 1.7: Partial Keyword Search

Issue: The search outcome for the provided partial keyword "as" resulted in displaying some irrelevant photos.

Severity: Moderate

Priority: Medium

Status: Open

Screenshot 7:

Irrelevant Search Results for "as" Query
- *Description:* The screenshot illustrates the irrelevant search results for the "as" query. The results do not meet expectations and require correction to make the search accurate and useful.

Test Case 1.8: Multiple Keyword Search

Issue: The test case failed due to inconsistent results of multiple keyword search. When only relevant photos containing all search terms are expected, none of the four displayed photos meet all the entered criteria.

Severity: High

Priority: Medium

Priority Explanation: This issue affects functionality, but its impact on the user experience is less severe than high-priority issues.

Status: Open

Screenshot 8:

Search Results for "two three"
- *Description*: The screenshot showcases the results obtained when the search terms "two three" were entered.

Screenshot 9:

Detailed View of a Random Search Result
- *Description:* The screenshot provides a detailed view of one of the four photos randomly selected from the results. Information about this photo indicates that the data aligns with only one of the two entered keywords.

## Test Case 2.1: Verifying Consistency of Photo Search Results

Issue: The test case failed due to inconsistencies in search results. When a search result is opened and closed, the expected consistency in displaying six photos is not maintained.

Severity: High

Priority: High

Priority Explanation: This issue significantly impacts functionality and user experience.

Status: Failed
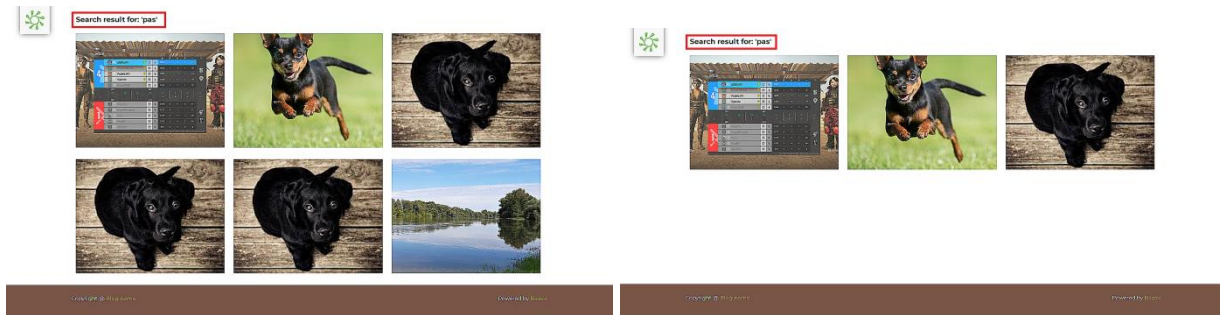
Screenshot 10:

Initial Search Results Display
- *Description*: The screenshot captures the search results before any result is opened or closed. It provides an overview of the initial search results display.

Screenshot 11:

Search Results After Interaction
- *Description:* The screenshot showcases the search results after one or more results have been opened and closed.

Test Case 2.2: Photo Technical Details Discrepancy

Issue: This test case needs clear pass/fail criteria. While its purpose is to identify discrepancies in technical photo details, specific criteria for evaluation are missing. Defining clear standards for evaluating these discrepancies is essential to ensure consistent quality.

Severity: Medium

Priority: Medium

Status: Needs Clarification

Screenshot 12:

Missing Technical Details
- *Description*: The screenshot highlights the absence of detailed information associated with the photo.

Screenshot 13:

Technical Details Displayed

- *Description:* The screenshot captures the moment when the technical details of the photos are presented to the user. Comprehensive technical information is displayed with great precision, including the F-number, camera model, focal length, ISO value, and exposure time.

Test Case 3.2: Simulating Counting Photos in the Gallery

Issue: The test case failed, revealing inconsistencies in photo availability between Chrome and Firefox browsers.

Severity: High

Priority: High

Priority Explanation: This is essential due to a significant impact on user experience.

Status: Needs Investigation

Screenshot 14:

Browser Photo Availability Discrepancy

- *Description:* The screenshot presents the result of executing an automated script that simulates the counting of photos in the website's gallery based on photo URLs and prints the difference in the number of available photos on Chrome and Firefox browsers.

Test Case 3.2.1: Validation of Photo URL HTTP Status Codes.

Issue: The test case failed due to identifying photos with HTTP status codes 404 and 500.

Severity: High

Priority: High

Status: Failed
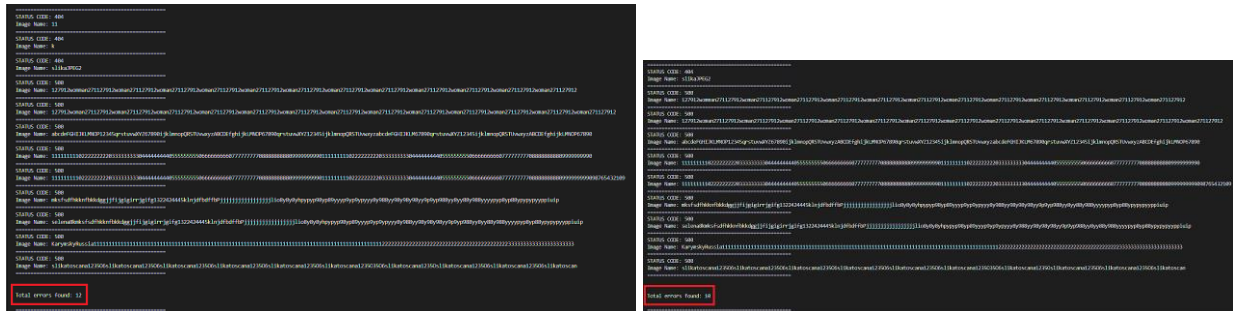
Screenshot 15:

HTTP Status Codes 404 and 500 Test in Chrome
- *Description*: The screenshot presents the outcomes of an automated script execution, rigorously examining all the photographs within the website's gallery. It identifies any photos linked to URLs with HTTP status codes other than 200.

Screenshot 16:

HTTP Status Codes 404 and 500 Test in Firefox
- *Description*: The screenshot showcases the results of an automated script execution thoroughly assessing all the photos within the website's gallery. It identifies photos connected to URLs with HTTP status codes different from 200.

Test Case 7.6.1: Verifying Locking Account After Five Invalid Login Attempts

Issue: The test case successfully identifies that the account is locked after five invalid login attempts. However, it fails to provide clear guidance to the user on unlocking the account or contacting customer support.

Severity: High

Priority: High

Priority Explanation: This is necessary due to a severe impact on user security and experience.

Status: Needs Improvement

Test Case 8.5: Recover Password via an Email Link

Issue: Clicking on the password recovery link results in a 404 error instead of redirecting the user to a password reset page.

Severity: High

Priority: High

Priority Explanation: This is essential due to a critical password recovery issue.

Status: Failed
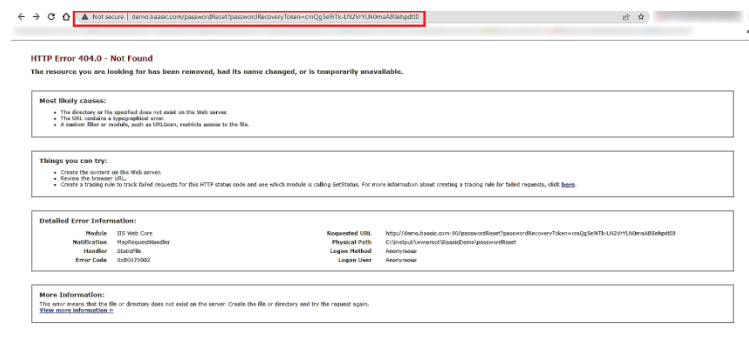
Screenshot 17:

404 Error for Password Recovery Link

- *Description:* The screenshot captures the 404 error page when a user clicks on the password recovery link. Instead of redirecting the user to a password reset page, the system displays a "Not Found" error.

Test Case Numbers 7.7, 7.8, 7.9, 7.10 (Social Media Account Link)

Issue: An error notification "undefined: Social login configuration not found." is displayed instead of redirecting the user to the respective social media application for authentication.

Severity: Medium

Priority: Medium

Status: Needs Investigation

Test Case 11.1: Preventing Duplicate Photo Names Across Different User Accounts

Issue: There is a deficiency in the system's functionality regarding preventing photo uploads with the same name across different user accounts.

Severity: Medium

Priority: High

Status: Open
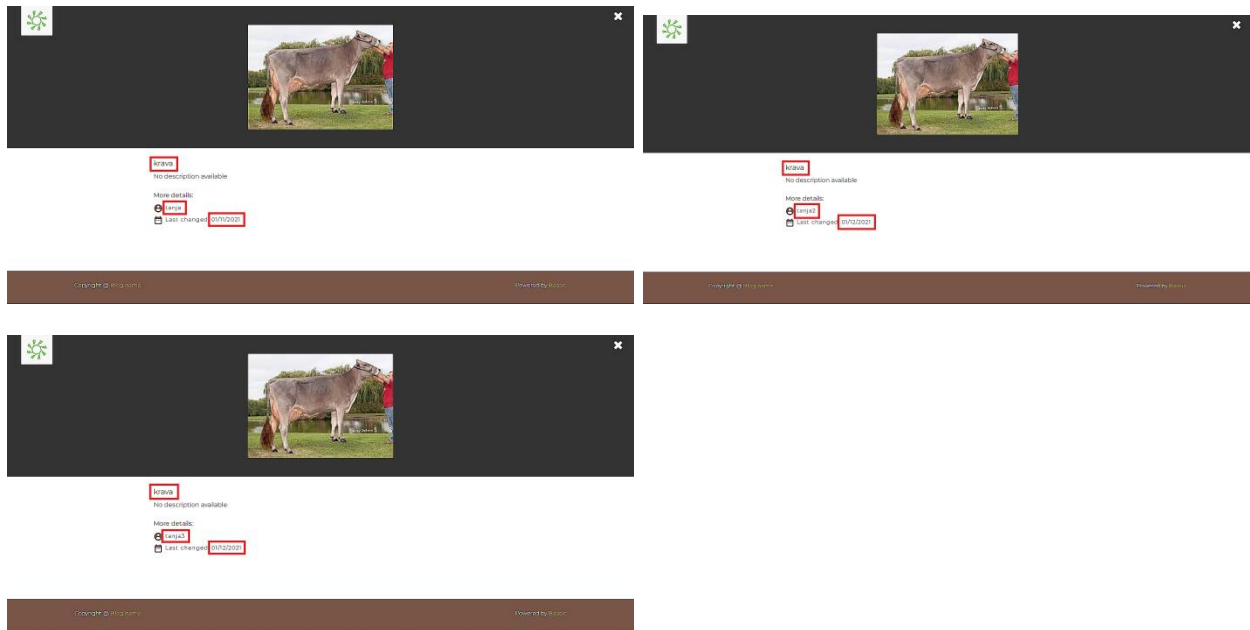
Screenshot 18:

User Tanja - 2021-01-11
- Description: The screenshot displays the same photo with the same name uploaded by Tanja, dated January 11, 2021.

Screenshot 19:

Tanja 2 - 2021-01-12
- Description: The screenshot shows the same photo with the same name uploaded by Tanja 2, dated January 12, 2021.

Screenshot 20:

Tanja 3 - 2021-01-12
- Description: The screenshot exhibits the same photo with the same name uploaded by Tanja 3, dated January 12, 2021.

Test Case Numbers 9.1, 9.2, 12.2 (Managing Overly Long Content)

Issue: The system does not effectively handle album and photo descriptions that exceed the screen width, which leads to multiple problems:

- *Truncated Descriptions:* Photo descriptions are truncated to 100 characters before and after spaces despite the allowed capacity of over 1,000 characters.
- *Readability Issues:* Album names that surpass the screen width create readability issues and overlap with other album names on the Profile page.
- *Deletion Button Challenge:* Due to the length of displayed album names, the deletion button extends beyond the screen's boundaries, making it challenging for users to delete albums.

Severity: Moderate (for 9.1 and 9.2), Low (for 12.2)

Priority: Medium (for 9.1 and 9.2), Low (for 12.2)

Status: Requires Attention
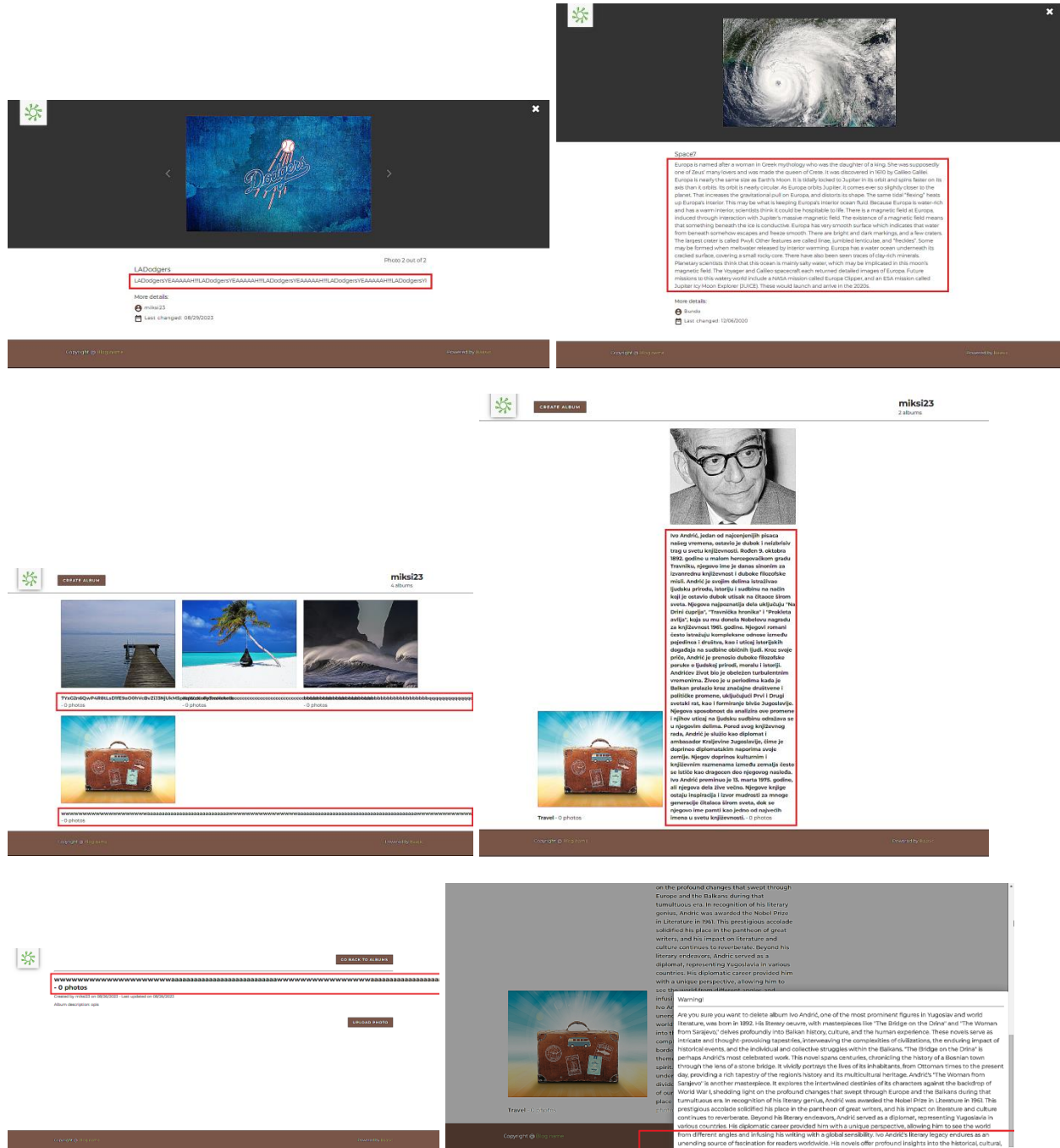
Screenshot 21:

Truncated Photo Description
- *Description*: The screenshot highlights an issue related to concatenated photo descriptions. Despite the system's capacity to accommodate descriptions of over 1,000 characters, this example demonstrates a truncation of the text to 100 characters.

Screenshot 22:

Full Photo Description
- *Description:* The screenshot exemplifies the proper management of non-concatenated photo descriptions. Users have unrestricted access to the complete description, irrespective of its length, resulting in a substantial enhancement of the user experience and ensuring a comprehensive understanding of the photo's content.

Screenshot 23:

Concatenated Album Names Display
- *Description*: The screenshot demonstrates the visual issue of concatenated album names, displaying album names as a single continuous string, which looks unattractive and hinders readability.

Screenshot 24:

Album Names with Spaces Display and Icons Rearrangement
- *Description:* The screenshot showcases album names, including spaces between characters, improving readability and visual presentation. Additionally, this update involves a rearrangement of album icons on the user's profile.

Screenshot 25:

Clipped Album Name in Details
- *Description*: In this screenshot, album details within the album itself are displayed. However, the album name is clipped due to its length, extending beyond the screen's boundaries. The length of the album name depends on the width of the characters used.

Screenshot 26:

Delete Album Confirmation Button Position
- *Description:* After clicking the "Delete album" button, the screenshot illustrates the challenge where the page scrolls to the bottom, and the confirmation and cancellation buttons are entirely pushed out of view, rendering them inaccessible.

Screenshot 27:

Concatenated Album Description Display

- *Description:* A concatenated string in the album description causes it to exceed the screen frame, leading to a portion of the description being truncated.

Test Case Number 12.1: Managing Overly Long Photo Name

Issue: After attempting to upload a photo with an excessively long name, the error notification mentions a different issue: "Name taken, please choose another.". This inconsistency in error messaging should be corrected for clarity.

Severity: High

Priority: Medium

Status: Needs Improvement

String 1:
Text: 'A1B2CU3W3X4Y5Z0B8E1F0G3H4I5J6K7L8M9N0O1P2Q3R4S5T6U7V8W9X0Y1Z2A3B4C5D6E7F8G9H0I1J2K3L4M5N6O7P8Q9R0S1T2U3V4W5X6Y7Z8A9B0C1D2E3F4G5H6I7J8K9L0M1N2O3P4Q5R6S7T8U9V0W1X2Y3Z44Q5R6S7T8U9V0W1X2Y3Z4'
Text width: 1247 pixels
Number of characters: 185

String 2:
Text: 'A1B2CU3Z3X4Y5Z0KL8M9N0O1P2Q3R4S5T6U7V8W9X0Y1Z2A3B4C5D6E7F8G9H0I1J2K3L4M5N6O7P8Q9R0S1T2U3V4W5X6Y7Z8A9B0C1D2E3F4G5H6I7J8K9L0M1N2O3P4Q5R6S7T8U9V0W1X2Y3Z44Q5R6S7T8U9V0W1X2Y3Z4'
Text width: 1174 pixels
Number of characters: 175

String 3:
Text: 'A1B2CU3A4Y5Z0W3O1P2Q3R4S5T6U7V8W9X0Y1Z2A3B4C5D6E7F8G9H0I1J2K3L4M5N6O7P8Q9R0S1T2U3V4W5X6Y7Z8A9B0C1D2E3F4G5H6I7J8K9L0M1N2O3P4Q5R6S7T8U9V0W1X2Y3Z44Q5R6S7T8U9V0W1X2Y3Z4'
Text width: 1114 pixels
Number of characters: 165

String 4:
Text: 'A1B2CU3L4I5K7Q3R4G5T6U7V8W9X0Y1Z2A3B4C5D6E7F8G9H0I1J2K3L4M5N6O7P8Q9R0S1T2U3V4W5X6Y7Z8A9B0C1D2E3F4G5H6I7J8K9L0M1N2O3P4Q5R6S7T8U9V0W1X2Y3Z44Q5R6S7T8U9V0W1X2Y3Z4'
Text width: 1042 pixels
Number of characters: 155

String 5:
Text: 'A1B2CU3L4K5K7M9X0N0O3B4C5D6E7F8G9H0I1J2K3L4M5N6O7P8Q9R0S1T2U3V4W5X6Y7Z8A9B0C1D2E3F4G5H6I7J8K9L0M1N2O3P4Q5R6S7T8U9V0W1X2Y3Z44Q5R6S7T8U9V0W1X2Y3Z4'
Text width: 975 pixels
Number of characters: 145

Screenshot 28:

Error Notification during Photo Upload

- *Description*: The screenshot demonstrates an error notification when attempting to upload a photo with an excessively long name. However, the error notification incorrectly states, "Name taken, please choose another." which is inconsistent with the issue of an overly long name.

Screenshot 29:

Photo Gallery Display after Upload

- *Description:* The screenshot displays the photo gallery after successfully uploading a photo to an album. However, five photos were uploaded to the Photo Gallery, resulting in four of them being orphaned. Two orphaned photos can be displayed, while the other two encounter errors when accessed, both in the gallery and through direct clicks.

Screenshot 30:

Details of Uploaded Photos

- *Description*: The screenshot provides details of the names of 5 variations of the uploaded photo, with the first string representing the name of the first uploaded photo, which is also the last one displayed in the gallery.

Screenshot 31:

Orphaned Photo Display Error

- *Description:* The screenshot displays an opened orphaned photo that experiences a display error, rendering it either inaccessible or incorrectly displayed.

Screenshot 32:

Orphaned Photo Details Display

- *Description:* The screenshot presents an orphaned photo along with its details.

Test Case Number 12.1.1: Managing Alphanumeric and Special Character Combinations in Photo Names

Issue: An issue has been identified related to uploading photos with names containing special characters, including instances where multiple words are combined into a single name. This issue presents the following symptoms:

- The first photo with a name consisting solely of special characters can be uploaded without specifying an additional name.
- If an attempt is made to upload a second photo with a name composed exclusively of randomly selected special characters, the platform displays the notification "Name taken, please choose another .".
- After deleting the first photo and attempting to upload another photo with a name made up solely of random special characters, the photo's icon maintains the display of the initially uploaded photo with special characters. However, the correct photo is displayed when the photo is opened for viewing.

Additionally, the current system behavior, where only whitespace characters are allowed in the photo name and where photos without names are accepted, raises concerns regarding consistency and user experience and causes technical difficulties.

Severity: Medium

Priority: High

Status: Open
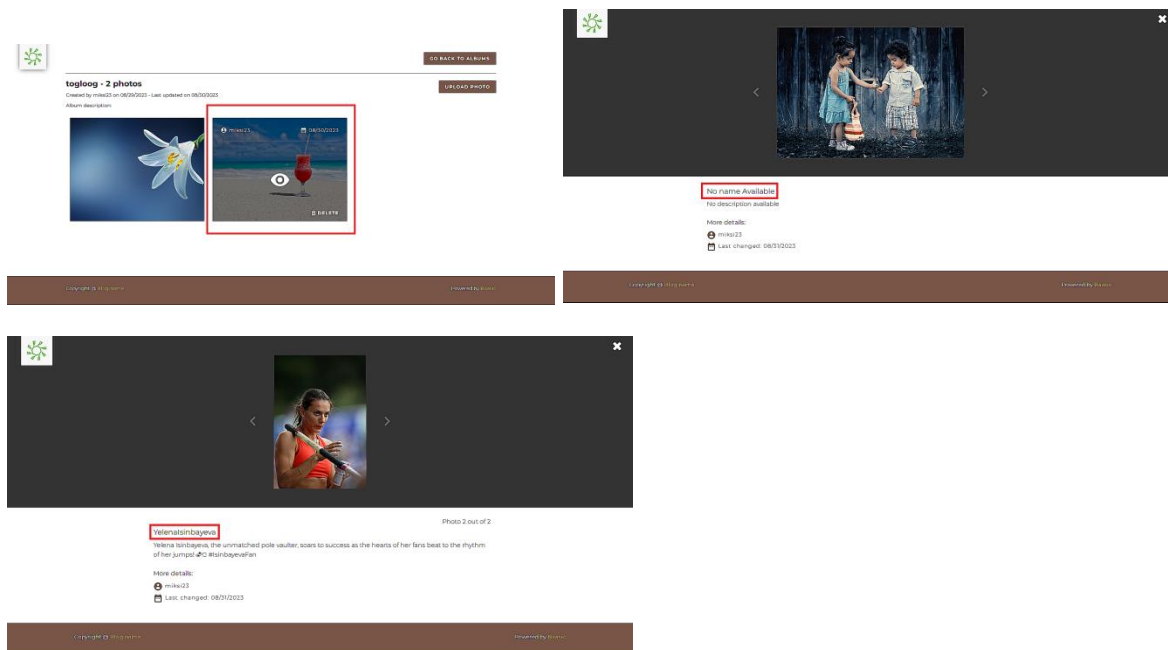
Screenshot 33:

Album Overview
- *Description:* The screenshot displays an album with a photo whose thumbnail to click to open the photo. Simultaneously, this is the thumbnail assigned to all photos successfully uploaded with special characters in their names.

Screenshot 34:

No Name Photo Details

- *Description:* The screenshot presents the details of a photo that lacks a name due to the use of special characters in the title.

Screenshot 35:

Title and Description Handling with Special Characters in Photos

- *Description:* The screenshot demonstrates how the photo description accommodates special characters while the photo title remains unaffected by special characters, resulting in no spaces between the first and last names.

Test Case Number 14: Accessing Individual Photos Within the Album

Issue: Photos at odd positions in the album (1, 3, 5, 7, 9, and 11) result in a 404 error when clicked. This high-severity issue directly impacts the user's ability to access and view photos within an album. Upon further investigation, possible causes of the issue with the link have been identified:

- Different identifiers (segments at the end of the path) are used to access photos in the album.
- There is a difference in how requests for these different identifiers are processed.

Severity: High

Priority: High

Status: Failed
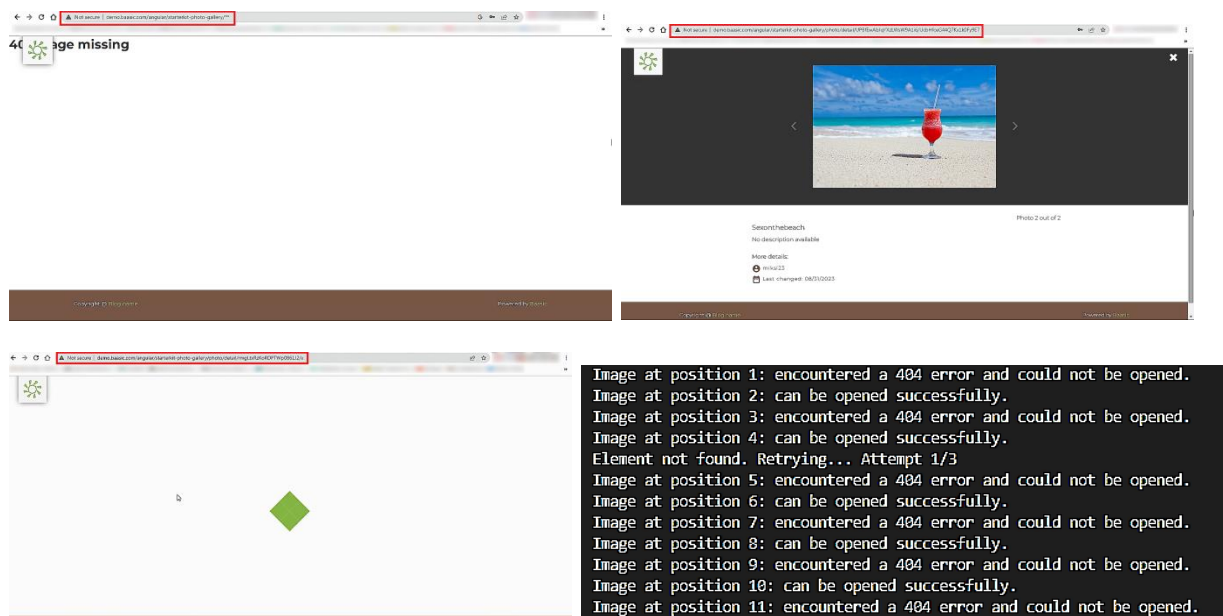
Screenshot 36:

404 Error Accessing Photos
- *Description*: The screenshot displays the 404 error page when attempting to access photos at odd positions within the album.

Screenshot 37:

Successful Access to Even-Positioned Photos
- *Description:* The screenshot demonstrates the successful access to photos at even positions within the album for comparison.

Screenshot 38:

Pre-Redirection Link Display
- *Description*: The screenshot displays the link that precedes an unsuccessful redirection attempt when accessing an odd-positioned photo, resulting in an unsuccessful redirection to a 404 error page.

Screenshot 39:

Automated Script Results for Photos at Positions 1-11
- *Description:* The screenshot displays the results of an automated script that accessed each photo at positions 1-11 within the album. The script analyzed whether the pages were accessible, providing information about whether the problematic 404 error occurs when attempting to access these photos within the album.

## Test Case Number 15: Navigating Through Photos Within the Album

Issue: A discrepancy in the displayed upload dates of photos has been identified. The issue is not related to time zone differences, as the date is displayed one day ahead accurately. This problem affects the accuracy of data presentation to users and can lead to confusion.

Severity: Medium

Priority: Medium

Status: Needs Investigation
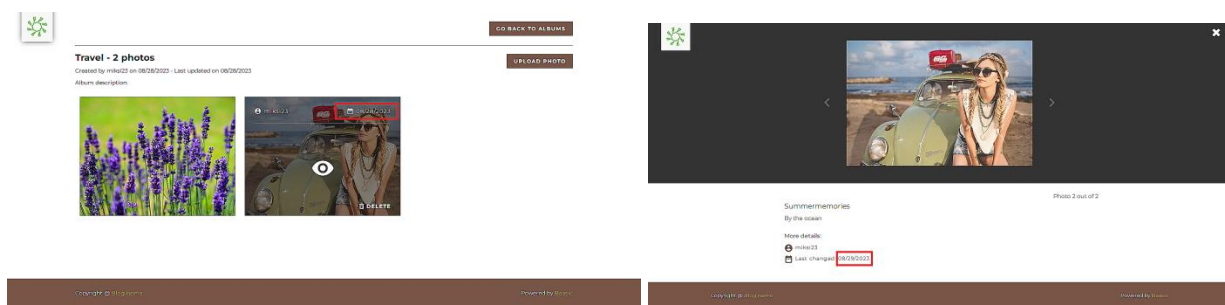
Screenshot 40:

Photo with Correct Upload Date
- *Description*: The screenshot presents a photo selected from an album, where the upload date is accurately and professionally displayed, aligning with the actual date of the photo upload.

Screenshot 41:

Incorrect Upload Date Display
- *Description:* In this screenshot, a photo from the album or Photo Gallery is opened, revealing an upload date inaccurately presented as one day ahead of the actual upload date.

Test Case Number 16: Zooming In and Out

Issue: Zoom functionality is unavailable on some photos, even though they meet acceptable format and dimension criteria. This issue affects the consistency of user experience.

Severity: Medium

Priority: Medium

Status: Needs Investigation

Test Case Numbers 21.2, 21.3, 21.4 (Deleting the Odd-Positioned Photos)

Issue: After deleting an odd-positioned photo, unexpected behaviors occur and impact the system's functionality.

Issue Description:

- *Issue 1:* The issue occurs when deleting an odd-positioned photo, except for the last positioned one in the album.
- *Issue 2:* The album's functionality becomes compromised after encountering the defect. Deleting all photos from the album (without a page reload) restores typical access.
- *Issue 3:* After deleting an odd-positioned photo, a page refresh redirects the user to a 404 error page.
- *Issue 4:* Although the album remains active for actions such as adding a new photo, subsequent page loads render the album inaccessible.
- *Issue 5:* Uploading a photo after encountering the issue does not remove the photo from the gallery when the album is later deleted.
- *Issue 6:* Deleting an album redirects to a 404 error page, even though the album and its cover photo are successfully deleted.
- *Issue 7:* Photos from the deleted album are not removed from the gallery, resulting in orphaned photos.
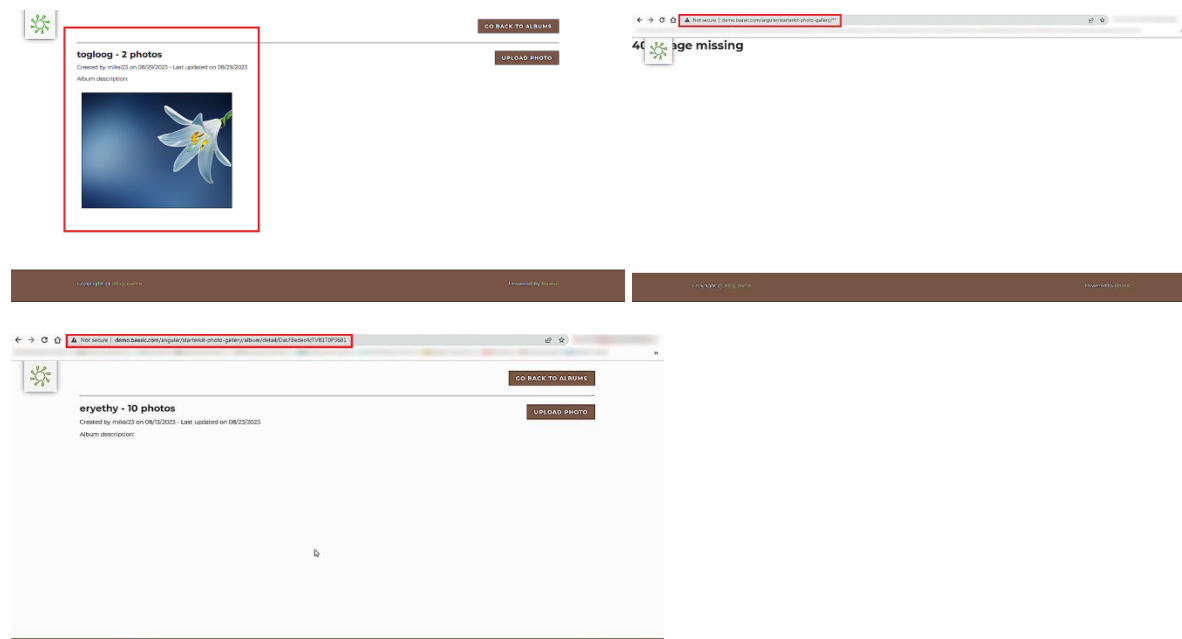
- *Issue 8:* In some cases, inaccessible albums with 0 photos appear. Deleting these albums can result in unexpected duplications of existing albums and the reappearance of previously deleted ones.

Severity: High

Priority: High

Priority Explanation: High priority due to significant impact on user experience.

Status: Failed

Screenshot 42:

Page After Photo Deletion
- *Description*: The screenshot illustrates the page where the user is initially redirected after deleting an odd-positioned photo in the album. It demonstrates the correct album page to which the user should be directed upon photo deletion.

Screenshot 43:

Page After Refresh Error
- *Description:* The screenshot captures the page after the user refreshes it after deleting an odd-positioned photo. It indicates that after the refresh, the user is redirected to a page with a 404 error status, highlighting the issue described in Test Case Numbers 21.2, 21.3, and 21.4.

Screenshot 44:

Album Link Display Before Redirection
- *Description*: The screenshot displays the link the system tries to redirect to when accessing the album after deleting a photo in an odd position, resulting in an unsuccessful redirection to a 404 error page.

Browser Compatibility Assessment

In this section of the report, significant disparities in behavior and performance between Mozilla Firefox and Microsoft Edge web browsers in comparison to the behavior manifested on the Google Chrome browser (which served as the basis for the test plan execution) have been highlighted.

Cursor Visibility in Web Forms

[Mozilla Firefox - Browser Behavior Variations Analysis]

Issue: During data input via web forms in the Mozilla Firefox browser, there is an issue where the cursor is not visible, making it challenging to determine the cursor's position.

Severity: Moderate

Priority: Medium

Status: Open

Cookie Discrepancy

[Mozilla Firefox - Browser Behavior Variations Analysis]

Issue: The absence of cookies in the Mozilla Firefox browser compared to Google Chrome and Microsoft Edge browsers where they are set up.

Severity: High

Priority: Medium

Status: Open

Test Case 3.1: Photo Gallery scrolling

[Microsoft Edge - Browser Behavior Variations Analysis]

The button for opening the photo gallery is not functioning properly in the Microsoft Edge browser. The photo gallery does not open, or it partially opens, showing only the first row of photos. The photo gallery cannot be accessed through the button, but individual photos in the first row can be accessed by clicking on them. The photo gallery does not open consistently, failing to display the complete gallery of photos.

Performance testing
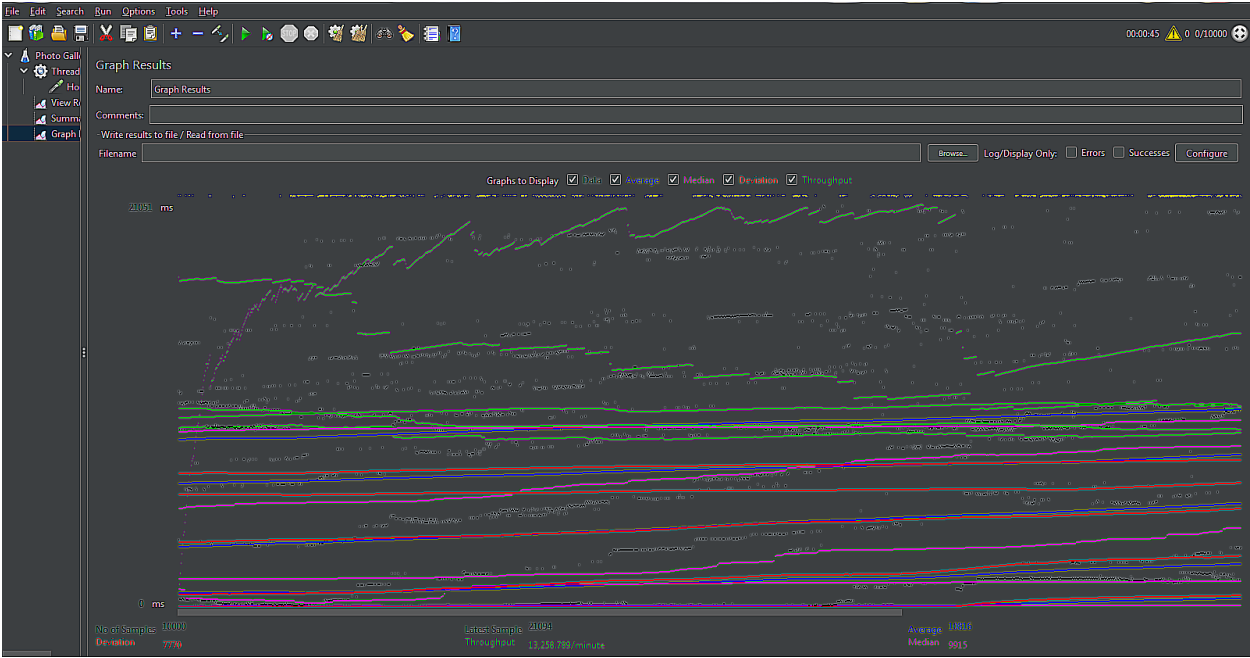
Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughpt	Received	Sent KB/s	Avg. Bytes
Home Pag	10000	10816	0	26275	7770.83	25.49%	220.9798	552.32	24.12	2559.4
TOTAL	10000	10816	0	26275	7770.83	25.49%	220.9798	552.32	24.12	2559.4

Screenshot 45:

> **Performance Testing Results Graph (10,000 Users)**
> - *Description*: The screenshot displays a graph of performance testing results for the application in a 10,000-user environment. The graph illustrates response times and error rates during testing, providing insights into the application's performance under high load. The table below the graph further presents numerical data for a better understanding of the results.

Recommendations for Functionality Updates in the Photo Gallery Web Application:

1. **Enhance Search Functionality:**

   - Implement a robust search algorithm for accurate results.
   - Include fuzzy search and alternative suggestions for no exact matches.
   - Provide clear error notifications for invalid search queries.
   - Enhance the search configuration to ensure that only relevant results are displayed for only one or two digits.

2. **Consistency in Display:**

   - Address the issue of inconsistent photo display when opening and closing search results.

3. **Clear Pass/Fail Criteria:**

   - Define clear pass/fail criteria for Test Case 2.2 (Photo Technical Details Discrepancy).

4. **Technical Details Validation:**

   - Regularly validate photo technical details for quality and format standards.
   - Implement automated checks for HTTP status codes for photos.

5. **Browser Compatibility:**

   - Investigate and resolve photo availability inconsistencies between browsers (e.g., Chrome and Firefox, Test Case 3.2).
   - Address cursor visibility issues in the Firefox browser.
   - Ensuring consistent functionality and user experience across browsers such as Google Chrome, Mozilla Firefox, and Microsoft Edge, especially regarding cookies and photo gallery access.

6. **User Guidance:**

   - Provide clear instructions for account unlock and customer support contact (Test Case 7.6.1).
   - Correct the password recovery link leading to a 404 error (Test Case 8.5).

7. **Social Media Account Linking:**

   - Investigate and fix the "undefined: Social login configuration not found" error for social media account linking (Test Case Numbers 7.7, 7.8, 7.9, 7.10).

8. **Prevent Duplicate Photo Uploads:**

   - Enhance the system to prevent uploading the same photo with the same name across different user accounts.

9. **Error Notification Consistency:**

   - Standardize error notifications for consistency and clarity in notifications (Test Case 12.1).

10. **Routing and Link Generation Analysis:**

    - Analyze routing and link generation to resolve issues causing 404 errors for photos at odd positions (Test Case Number 14).

11. **Date Display Discrepancy**

    - Conduct a thorough investigation to identify the root cause of the date display discrepancy.

- Implement necessary corrections to ensure accurate display of photo upload dates, thus improving data integrity. (Test Case Number 15).

12. **Managing Photo Naming and Character Validation:**

- Enhance the photo naming process by implementing character validation.
- Display real-time error notifications during character input to guide users and prevent invalid characters.

13. **Managing Album and Photo Name/Description:**

- Suggest consistently optimizing the photo description display (avoid removing parts longer than 100 characters before and after spaces when a description longer than 1,000 characters is supported).
- Specify the permissible input capacity for the fields and ensure the inclusion of a notification.

14. **Zoom Functionality:**

- Investigate and fix inconsistencies in zoom functionality across photos (Test Case Number 16).

15. **Deletion of Photos and Albums:**

- Resolve the issue when deleting photos leads to a 404 error (Test Case Number 21.2).

16. **Testing and Reporting Standards:**

- Adhere to industry-standard testing practices with clear pass/fail criteria.
- Improve test case documentation for better coverage and reporting.

17. **Account Locking Policy:**

- Carefully review the account locking policy after multiple unsuccessful login attempts.

18. **Managing Deleted Photos and Albums:**

- Ensure all associated content is effectively removed from the gallery when photos or albums are deleted.

19. **Performance Improvement:**

- Address issues related to slow responses and high error rates, particularly in cases where the maximum response time is significantly longer despite a satisfactory average response time.

Recommendations for User Interface Enhancements:

1. **Additional User Functionalities:**

   - Suggest additional user functionalities, such as renaming or changing photo and album descriptions.

2. **Privileges for Viewing Photos:**

   - Emphasize the importance of privilege systems for controlled photo viewing.

3. **Guidance for Single-Field Search Criteria:**

   - Inform users about the available search criteria when there is only one input field. That can include additional information or instructions below the input field or linking users to the "Help" page, which explains in detail how to use the search criteria.

4. **Password:**

   - Suggest password enhancements, including notifications regarding the minimum password length and a password toggle.

5. **Cover Photo Information:**

   - Propose displaying cover photo information.

6. **Deleting Photos:**

   - Recommend allowing photo deletion while open, eliminating the need to navigate back.

7. **Number of Photos in Search Results:**

   - Suggest displaying the number of photos in search results.

8. **Photo Naming and Character Validation:**

   - Enhance the photo naming process by implementing character validation.
   - Allow users to use specific characters, such as hyphens (-), when naming photos.
   - Display real-time error notifications during character input to guide users and prevent invalid characters.

9. **Album and Photo Name/Description Visibility:**

   - Implement a warning or error notification for album and photo creation where names and descriptions exceed the screen width, as this currently leads to visibility issues and name overlaps on the profile page, compromising readability.

- Enhance the Enter key's response display while inputting photo/album descriptions to ensure proper rendering of the subsequent line.

10. **Bulk Upload and Deletion:**

- Recommend implementing bulk upload and deletion of photos and albums for efficiency.

11. **Return to Album:**

- Suggest adding an album return option if a new photo is not uploaded.
- Address unintended actions resulting from the simultaneous clickability of dual buttons and the Enter key response.

12. **Cancel During Upload:**

- Suggest adding an option to cancel during the upload process.

13. **Renaming Photo/Album:**

- Recommend incorporating a feature that allows users to rename photos and albums.

- Propose the inclusion of a dedicated field for specifying the maximum length of album names.

14. **Password Warning:**

- Suggest introducing warnings about account locking after multiple unsuccessful login attempts.

15. **Registration:**

- Address shortcomings in the registration process, including allowing identical passwords and usernames.

16. **Gallery Navigation:**

- Recommend implementing navigation between photos in the gallery for easy browsing.

Implementing these recommendations will enhance the Photo Gallery web application's functionality and user experience, ensuring it remains reliable and user-friendly.