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| **Bug Summary Report**  Project Name: Orange HRM(web application) |

**OrangeHRM**

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**Total Bugs Found: 48**

**Bugs Count - Section Wise**

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| Section | Number of Bugs | Focus Areas |
| Register | 2 | Input validation, error handling for duplicate entries, UI/UX consistency during user registration. |
| Login | 3 | Authentication mechanism, password validation, error messages for invalid credentials. |
| Search | 0 | No bugs found; ensure search accuracy, query optimization, and error messages for no results in future updates. |
| Functionalities | 29 | Core features like employee management, time tracking, leave management, payroll, and reporting; focus on broken workflows, data integrity, and incorrect outputs. |
| Logout | 2 | Session management, redirection after logout, and security measures (e.g., session timeout handling). |
| Usability | 9 | Navigation clarity, button alignment, responsiveness, accessibility features (e.g., screen reader support, color contrasts), and UI responsiveness. |
| Performance | 3 | Page load times, database query optimization, and stress testing for handling high user traffic. |

**Observations**

1. **Critical Functionalities**:
   * The **Functionalities Section** has the **highest number of bugs (29)**, indicating that key operational features are unreliable or prone to errors. This area must undergo rigorous testing for correctness and completeness.
2. **User Experience Challenges**:
   * **Usability (9)** issues reflect areas that directly impact user satisfaction, including navigation, clarity, and accessibility, which need immediate attention.
3. **Authentication and Security**:
   * Bugs in the **Login (3)** and **Logout (2)** sections suggest potential vulnerabilities in user authentication and session management, posing risks to data security and user privacy.
4. **Performance Optimization**:
   * With **3 performance bugs**, it’s essential to evaluate system speed, responsiveness under load, and database efficiency to ensure smooth operation during peak usage.
5. **Stable Search**:
   * While no bugs were found in the **Search Section**, it is critical to maintain this performance with preventive measures like indexing and query optimization.

**Key Focus Areas for Improvement**

1. **Functional Testing**:
   * Perform **end-to-end testing** of workflows in core functionalities like employee data management, leave requests, and reporting to identify edge cases and unexpected behaviors.
2. **Security and Authentication**:
   * Address issues in **Login** and **Logout** to ensure secure user authentication, session management, and protection against threats like session hijacking or brute force attacks.
3. **Usability Enhancements**:
   * Improve UI/UX elements to enhance navigation and accessibility for diverse users. Conduct user feedback sessions and integrate tools like WCAG compliance validators.
4. **Performance Tuning**:
   * Conduct load testing and optimize critical components such as database queries, caching mechanisms, and server configurations to improve response times and scalability.
5. **Consistency in Register Section**:
   * Focus on error handling and data validation to ensure a seamless user onboarding experience without glitches or redundant data entry.

**Recommendations**

* **Prioritize Core Fixes**: Address high-priority bugs in **Functionalities**, **Login**, and **Logout** sections first, as they directly affect usability and security.
* **Enhance Usability**: Simplify workflows, standardize layouts, and address alignment issues to create a more user-friendly interface.
* **Optimize Performance**: Use tools like Apache JMeter or LoadRunner for performance testing, ensuring the system can handle increased traffic effectively.
* **Continuous Testing and Monitoring**: Implement automated testing pipelines for functional and regression testing, and monitor user behavior for additional insights into potential problem areas.