Four Junctions Technologies Private Limited
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Tamil Nadu, India

Automated Crawling and Testing for a Sample E-commerce Website

Objective: Use Selenium for crawling and testing an e-commerce website's basic functionalities.

Problem Statement: You are required to design and implement an automated script to crawl a sample e-commerce website (e.g., Amazon India) and validate specific functionalities. The script should focus on extracting key information from product pages and verifying certain elements on the website.

Task Details:

1. **Basic Crawling**
   - Automate the process of opening the homepage.
   - Search for a product (e.g., "laptop").
   - Extract the following details from the search results:
     - Product Name
     - Price
     - Ratings
     - URL
2. **Functional Testing**
   - Validate the following elements on the product page:
     - Presence of "Add to Cart" button.
     - Product details section (e.g., description, specifications).
     - Image gallery functionality.
   - Test the search functionality with valid and invalid inputs.
3. **Reporting**
   - Store the extracted product information in a CSV file.
   - Log test results (pass/fail) for each validation.
4. **Bonus Tasks**
   - Implement a script to crawl multiple pages of search results.
   - Use Selenium Grid to demonstrate parallel testing.
   - Test responsiveness of the website by simulating different screen sizes.

Application Specifics:

- Use Amazon India or a similar publicly accessible e-commerce website for this assignment.
- Ensure compliance with the website's terms of service.

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Submission Guidelines:

1. Provide the source code in a GitHub repository.
2. Include a README file with:
    - Steps to execute the script.
    - Tools and frameworks used.
    - Any assumptions or constraints.
3. Attach the generated CSV file and logs as part of the submission.

Evaluation Criteria:

- **Completeness:** All required tasks are implemented.
- **Code Quality:** Use of best practices, modular design, and readability.
- **Automation:** Efficiency and robustness of the automated crawling and testing.
- **Bonus Points:** Successfully completing bonus tasks.

Hints and Tips:

- Use explicit waits to handle dynamic elements.
- Avoid hardcoding URLs; parameterize inputs where possible.
- Document any assumptions or constraints clearly.

Good luck!

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