Homework A: Acceptance Test Plan for NYPL Catalog

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The mission of the Acceptance Test is to provide stakeholders with information about the quality of the New York Public Library (NYPL) Catalog, as found on http://browse.nypl.org. This is determined by whether the product meets the requirements as specified in the contract. Much of this is based on whether the new catalog is consistent in functionality with the old catalog, as found on http://catalog.nypl.org.

The value of the product is evaluated based on its value to the stakeholders, who are assumed here to be the library (i.e., the people that paid for the product). The software's customer is the library, but the library's customer is the public. As a result, the library's interests are strongly aligned with the public's in terms of functionality and usability, stability, performance, and security.

Requirements

There are many points of possible failure in the new product. The most basic expected functionality, which is largely based on the old catalog, is as follows:

- Searching for a specific book based on
  - keyword
  - author
  - title
  - subject
  - genre
  - call number
  - category
  - ISBN
  - language
  - location of the specific library
- Find books that can be found on the old catalog
- View more information about a book
- Check how many copies are available

- Find the location where a copy is available

Additionally, the new features that have been introduced will be tested to evaluate that they work as expected. This involves testing the responsive design, such that:

- When the browser is resized, the content follows
- The search bar does not go outside of the boundaries of the page

Finally, the new catalog will be tested that it is secure against user attack. This includes:

- SQL injection
- Non-ASCII characters
- Maximum values (incredibly long search)
- Minimum values (empty search)
- Using HTML in the search

Test plan & methodology

We narrow down this list to a set of 10 functional and non-functional tests. The most commonly used functionality involves searching and viewing a specific book, so these features are extensively tested. The non-functional set of tests assures that the software is durable and reliable, including protection against attack and verifying the responsiveness of the site.

1. Search via keyword
2. Search via title
3. Search via ISBN
4. Search via location
5. View the ISBN of a book
6. View number of copies for a book
7. View location of a copy
8. Searching with non-ASCII characters is allowable
9. An SQL injection fails
10. The search bar does not go outside of the boundaries of the page

The reason for the search selections is based on the assumption that the majority of searches are from the user searching for a specific book by keyword, its title, or specifically by ISBN. Additionally, because the NYPL has multiple locations, a search by location is also crucial. Being able to view the ISBN, the number of copies, and the location of that copy is also critical for the user to be able to find a specific book that

was searched for. As multiple languages are supported within the library catalog, we must verify that non-ASCII characters are supported. We verify that SQL injections fail to prevent the entire database of the library catalog from being destroyed. Lastly, as part of the contract for the new design called for a responsive, resizable site. This will be tested via resizing the browser and testing that the search bar, the most important element in the catalog, is not outside of the bounds of the browser.

Each test will be conducted within a python script that utilizes selenium to manipulate and test the web browser contents. The contents and results as shown in the new product are at times compared to results as found via Amazon, when a specific ISBN for a book is known. Additionally, the contents and results in the new product are compared to the content and results that the old product produces. Thus, both the old product and Amazon's book results are used as testing oracles.

Prototype

Due to familiarity with selenium in terms of functional testing, the selected prototype test was one of a non-fuctional test for responsiveness in the design. Here, we test that the search bar is within the bounds of the window when the window has been resized to be smaller.

```
def test10_searchbar_in_bounds_after_resize(self):
    # set new window size to mobile device size
    prev_size = self.browser.get_window_size()
    nww, nwh = 500, 560
    self.browser.set_window_size(nww, nwh)

    # get new search bar width, height, x, y after resize
    search_bar = self.browser.find_element_by_id("searchString")
    nsw, nsh = search_bar.size['width'], search_bar.size['height']
    nsx, nsy = search_bar.location['x'], search_bar.location['y']

    assert(nsw + nsx <= nww)
    assert(nsh + nsy <= nwh)

    # reset to original size
    self.browser.set_window_size(prev_size['width'], prev_size['height'])
```