

Heartland Escapes: Software Requirements Engineering

Software Requirements Engineering – CS641

Aidan Polivka

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Revision History

Revision	Revision Date	Description
0	10/14/2024	Initial Creation

Project Outline

Heartland Escapes is a bookstore based out of Lincoln Nebraska. Over the past few years, they have seen a drastic rise in popularity due to their social media virality. Because of the increased traffic through their stores, Heartland Escapes has just recently modernized and moved their system to Google Cloud Platform (GCP). Now they're looking to expand into developing their own e-commerce site. They want to take an iterative approach to developing this e-commerce site, starting with product display and search.

Heartland Escapes current system architecture contains the following components: an inventory API, a corresponding inventory database, a point-of-sale system, an accounting database, and a public website. The public website already integrates with the inventory API, and this integration point on their public website should be the host of the product catalog prototype data.

The purpose of this document is to create a plan for the requirements engineering process needed to support this development effort for Heartland Escapes. Requirement elicitation approaches will be evaluated, and the resulting requirement outcomes will be analyzed using a variety of techniques. The importance of quality in software products will be explored, and areas of required product quality for this Heartland Escapes project will be identified. Verification and validation plans will be prepared and implemented, and finally the resulting requirements specification list will be provided.

Although this effort is a small part of the larger e-commerce system, it is not a trivial pursuit. Advanced product display will require deep integration into their existing inventory systems, and UI/UX tends to be a very opinionated sector of software development. A lot of requirements can be generated around product searching, filtering, out of stock display, search performance, category browsing, etc. Additionally, user experience design has been trending toward accessible user interface design. This includes screen reader support, sufficient color contrast for readability, and potentially color blindness friendly system themes.

Requirements Elicitation

TBD

Requirements Analysis

TBD

Requirements and Software Quality

TBD

Requirements Validation and Verification

TBD

Requirements Specification

Functional

1. Products must be able to be browsed by product category.

Users should be able to choose categories or a selection of categories to search for books. For example, a user should be able to choose genres “Teen” and “Thriller” at the same time or independently, and the results should fit such genre selections.

2. Product results should be sortable by title, author, rating, and genre

After products are browsed or keyed in, the user should be able to sort the list of returned products by their table headings. This way if the user can further control the way they ingest the products in the catalog.

3. Products should be able to be searched via keyboard by title, author, and genre

A search bar should be available to the user to search more specifically for their desired product. This should be a fuzzy search across title, author, and genre in that priority order.

4. Products returned from search should be displayed with their in-store availability (In Stock/ Out of Stock)

Users should be able to tell whether their desired product is in stock at their desired store location.

Non-Functional

1. Extensability

The product catalog feature must be extensable. This is the first component of the e-commerce platform prototype, meaning that from this module the rest of the e-commerce system will need to be built.

2. Usability

This project is primarily user experience oriented. Heartland Escapes customers tend to range from teenagers to the elderly, so the user interface design needs to be intuitive enough to support all age demographics. Also, Heartland Escapes stakeholders would like the system to be screen reader accessible. They plan to sell audio books through

this e-commerce platform, so they would like the platform to be accessible to blind customers.

3. Interoperability

The e-commerce site is expected to share inventory from across the Heartland Escapes stores. This means that the product catalog must integrate with the existing inventory system to retrieve product descriptions and availability.

4. Portability

Many individuals who utilize e-commerce platforms do so across multiple forms of devices. Heartland Escapes does not expect their customers to adhere to a specific operating system or device type to use their platform. The e-commerce website should support all potential media sizes.

References

TBD