Created by,

*X00179223 -* Raymond McCarthy

*X00167646 -* Taiwo Obadare

*X00162597 -* Vishvajit Sundarrajan

Supervised by,

- Patricia Magee

Project Year 2

Online bookshop with Stock Control

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# Introduction

For the second-year project our team consisting of Raymond McCarthy, Taiwo Obadare, and Vishvajit Sundarrajan, will create an electronic commerce website with the primary goal of selling goods for profit.

The type of e-commerce store we have chosen to create is a bookstore with stock control capabilities using Python, HTML, CSS, and the Django Framework. We will be using Microsoft Azure DevOps for project management and version control.

# Project Design

## Overall Goals:

Our end goal is to have a fully functional, easy to navigate user friendly website with all the functionality and features necessary to operate as a secure e-commerce store.

We will design database models to store information about our customers, products, and orders. Products will be uniquely identifiable with the use of UUID modelling. We will develop administration account types that are authorized to view, add, and update database information.

The website will have the ability for our customers to sign up, sign in and sign out. Our website will have a clear and organized visual user interface with the use of images to present our products, a navigation bar to traverse the website and drop-down menu links to access account features.

We will include pages for customer reviews as well as a contact us page with relevant information, these pages will use Django forms to allow customers to submit information.

Books will be easily located with a search feature and separated into relevant categories. Products can be viewed by category, product detail, and all products.

We will make use of the Django session framework to store cart information for our users. For credit card processing we will implement a Stripe payment facility. After making payment our customers will be redirected to a thank you page and can view their order details. We will also implement the ability to request a refund from a previous order.

We will make use of the slug field to make sure our products are easily found by search engines. And implement a voucher feature for sales and offers.

Our website will be well tested using software quality and assurance testing techniques for error handling and bug detection.

And finally, when requirements have been met, we will launch the website on a domain server.

## Requirements:

### *High priority:*

* Web site structure.
* Web page design.
* Sign up/log in/log out.
* Database models.
  + Customers
  + Products
  + Orders
  + UUID
* Shopping cart functionality
  + Add items to cart.
  + Remove items from cart.
  + Empty cart.
  + Finalize order.
* Website deployment.
* Make payment.
* Django admin for performing add/update/delete.
* Django session framework to manage shopping cart.
* Stripe API functionality.

### *Medium priority:*

* Graphics and images.
* Review page.
* Paginator.
* Search.
* Navbar links.
* Contact us page.
* Returns.

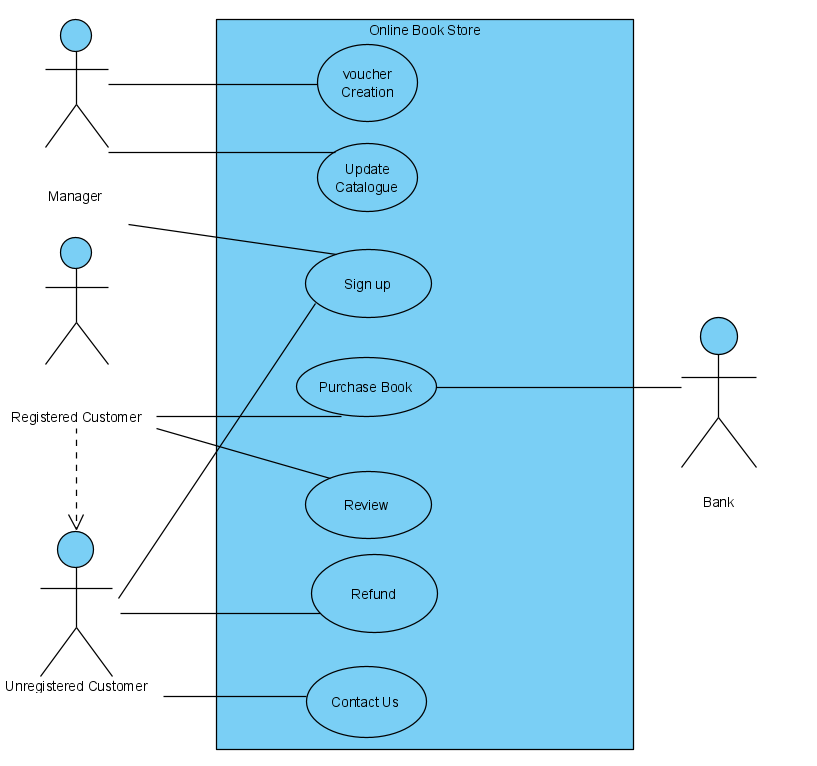
### *Low priority:*

* Slug.
* Voucher

## Class Diagram

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## Use Case Diagram



## Use Case Descriptions

|  |  |
| --- | --- |
| **Use Case:** | Customer Sign up |
| **Actor (s):** | Unregistered customer |
| **Goal:** | Create an account for an individual customer, that stores their information for future logins and purchases |
| **Overview:** | The customer is registered and logged in. The customer is now present in the customer database. |
| **Pre-Condition:** | The customer must be unregistered and not logged into an account. |
| **Post Condition:** | The customer is registered and logged in. The customer is now present in the customer database. |
| **Successful Scenario:** | 1. Customer will land on homepage and be met with a ‘Sign Up’ link. 2. Customer clicks link and is redirected to sign up page. 3. Customer enters their chosen username, email address and password. 4. Customer confirms correct password. 5. Customer clicks ‘Sign Up’ submit button. 6. Customer is redirected to success page. 7. Customer is now registered. |
| **Alternative Scenario (s)** | 1. The customer’s details are unsuccessful due to already being registered. |

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| --- | --- |
| **Use Case:** | Registered customer purchases book |
| **Actor (s):** | Registered customer |
| **Goal:** | Registered customer successfully purchases book |
| **Overview:** | The payment has been successful, and the customer is issued an order number. |
| **Pre-Condition:** | The customer must be registered. |
| **Post Condition:** | The customer has made a successful book purchase. |
| **Successful Scenario:** | 1. Customer will land on homepage and select log in, if not already logged in. 2. Customer enters username and password on log in page and clicks submit. 3. Customer is redirected to success page. 4. Customer searches for book. 5. Customer adds book to cart. 6. User navigates to cart and chooses pay now option. 7. Stripe API opens and customer is directed to enter payment details. 8. Customer enters credit card information and clicks submit. 9. Card payment is authenticated by stripe. 10. Payment is successful and order is logged. |
| **Alternative Scenario (s)** | 1. The customer’s payment is unsuccessful, and the ordered is not approved. |

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| --- | --- |
| **Use Case:** | Unregistered customer purchases book |
| **Actor (s):** | Unregistered customer |
| **Goal:** | Unregistered customer successfully purchases book |
| **Overview:** | The payment has been successful, and the customer is issued an order number. |
| **Pre-Condition:** | N/A |
| **Post Condition:** | Customer has made a successful book purchase |
| **Successful Scenario:** | 1. Customer searches for book. 2. Customer adds book to cart. 3. Customer navigates to cart and chooses ‘pay now’ option. 4. Stripe API opens and customer is directed to enter payment details. 5. Customer enters credit card information and clicks submit. 6. Card payment is authenticated by stripe. 7. Payment is successful and order is logged. |
| **Alternative Scenario (s)** | 1. The customer’s payment is unsuccessful, and the ordered is not approved. |

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| **Use Case:** | Manager updates catalogue |
| **Actor (s):** | Manager |
| **Goal:** | Manager adds a new book, deletes an old book, or updates a books details on the database. |
| **Overview:** | The new book is now visible for customers, the old book is no longer visible, or the book details and description have been updated. |
| **Pre-Condition:** | Manager is logged in with permissions. |
| **Post Condition:** | Database has updated book catalogue. |
| **Successful Scenario:** | 1. Manager logs in with manager permissions. 2. Proceeds to GUI version of the Django database admin. 3. Manager clicks, add, update, or edit book. 4. Manager enters new information and images, or manager removes old book from database. |
| **Alternative Scenario (s)** | 1. The manager cancels changes and logs out. |

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| **Use Case:** | Manager adds voucher codes |
| **Actor (s):** | Manager |
| **Goal:** | Add voucher codes which will reduce price when entered at checkout. |
| **Overview:** | Voucher is stored in database for use. |
| **Pre-Condition:** | Manager is logged in with permissions. |
| **Post Condition:** | Customers can now enter voucher code at checkout and receive a discounted price. |
| **Successful Scenario:** | 1. Manager logs in with manager permissions. 2. Proceeds to GUI version of the Django database admin. 3. Manager clicks vouchers and adds a voucher code, discount amount and date of validity. 4. Clicks save. |
| **Alternative Scenario (s)** | 1. Code is no longer valid and total price remains unchanged. |

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| **Use Case:** | Registered Customer reviews |
| **Actor (s):** | Registered Customer |
| **Goal:** | Registered Customer successfully leave a review |
| **Overview:** | Customer will land on homepage and select log in, if not already logged in. Customer will click the review page and if they want to give feedback with the services provided, the Customer can leave a review on the review page. |
| **Pre-Condition:** | The Customer must be registered. |
| **Post Condition:** | The Customer has made a successful review. |
| **Successful Scenario:** | 1. Customer logs in 2. Selects review page 3. Clicks the text box 4. Leaves a review 5. Exits page |
| **Alternative Scenario (s)** | 1. The Customer exceeds the text box character limit 2. Unable to leave a review |

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| **Use Case:** | Customer uses contact us |
| **Actor (s):** | Customer |
| **Goal:** | Customer successfully contacts us |
| **Overview:** | Customer will land on homepage and select log in, if not already logged in. Customer will click the Contact us page. Customer will input info necessary to contact the online bookstore. |
| **Pre-Condition:** | The Customer must be on the website |
| **Post Condition:** | The Customer has successfully contacted the online bookstore |
| **Successful Scenario:** | 1. Customer goes into the website 2. Customer clicks the contact us page 3. Inputs the required fields data 4. Contacts the online bookstore 5. Exits page |
| **Alternative Scenario (s)** | 1. The customer does not have the required data 2. The customer is unable to contact the online webstore |

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| **Use Case:** | Customer uses refund |
| **Actor (s):** | Customer |
| **Goal:** | Customer successfully refunds the selected product |
| **Overview:** | Customer will request a refund. Constraint will be checked to match user to product purchased. |
| **Pre-Condition:** | The Customer must be on the website |
| **Post Condition:** | The Customer has successfully refunded product. |
| **Successful Scenario:** | 1. Customer goes into the website 2. Customer clicks the refund button 3. Inputs the required fields data 4. Customer receives payment equivalent to items purchased |
| **Alternative Scenario (s)** | 1. The customer did not purchase items |

# Goals

## Iteration 1 (Prototype) – Delivery date: **5/3/21 – 10pm**

* We will meet for our scrum session on Microsoft teams to discuss the iteration and determine our approach for completing tasks on **16/2/21 at 9am**.
* Tasks set out:
* Develop a working system with core functionality.
  + Initialize and fork repository.
  + Create models.
    - Users
    - Products
    - Admin
  + Develop views, templates, and URLs.
  + Develop add, update, and delete functionality by Admin.
  + Design templates.
    - Base.html
    - Navbar.html
    - Products pages
    - Sign up/in/out.
    - Styling
* Paginator & Search functionality.
* Cart application.
* Design a series of tests to verify that the system is working correctly.
* Document any issues or problems encountered.
* Write a 700-word iteration reporting work completed.

## Iteration 2 (Prototype) – Delivery date: **26/3/21 – 10pm**

* By the time we have reached iteration two we plan to have a well-built foundation with basic functionality to build upon.
* We will meet on Microsoft teams for our scrum session to discuss the approach for our next iteration on **9/3/21 at 9am**.
* Tasks set out:
  + We will now implement additional functionality such as:
    - Strip payment API.
    - Orders app.
    - Thank you, page.
    - Contact us page.
    - Sign up, sign in & sign out.
    - Vouchers functionality.
    - Many to many mapping
      * This will allow us to add the same product to multiple categories, e.g., ‘Crime’ & ‘Thriller’.
    - Incorporating the Django ‘Slug’ field.
  + More testing for our newly implemented code.
  + Removal of any residual bugs from previous tests.
  + Submit a 700-word report on work completed.

## Iteration 3 (Final Iteration) – Delivery date: **26/4/21 – 10pm**

* We will meet on Microsoft teams on **13/4/21 at 9am** for our scrum session to discuss our approach for the final iteration**.**
* At this stage of the project, we will have completed all coding and testing of the functionality of our website and be focusing on testing and making minor adjustments to improve overall functionality and appearance where necessary.
* We will prepare our final iteration documentation and our final prototype for review before **10pm** on the **26th of April 2021.**
* The documentation will include:
  + A table of contents, numbered headings, page numbers and references
  + An outline of each member’s responsibility and participation within the project
  + An introduction to the project, including project plan and requirements document.
  + Reports for each iteration (Iteration 1, Iteration 2 & Iteration 3).
  + Concluding paragraph highlighting the achievements of the project, any shortcomings and what could be improved by future enhancements.
  + The document should be bound with a cover page indicating:
    - Title of project
    - Names & Student IDs of students
    - Name of Supervisor

# Assessing Feasibility

## Financial Feasibility

This website will be created as an amateur project without labor costs. The tools we have decided to use in developing our project are open source, and the hosting service we have chosen is free of charge. So, our current expenses for the project total are €0.

## Technical feasibility

The tools which we intend to use are:

* HTML5
* CSS
* JavaScript
* Python
* Django

The three members of our team all have relevant experience and knowledge in all the listed technologies and our technical skills have been determined to be sufficient based on our work history.

## Resource and time feasibility

The resources required for this project are:

* Programming devices (laptops/computers)
* Hosting space (freely available)
* Programming tools (open source)
* Programmers

We have concluded that there will be no issue in having access to all the necessary resources we need to produce our final product.

The time we have been allocated for each iteration of the project is 3 weeks which we have deemed perfectly feasible based on previous projects.

## Risk feasibility

Expert understanding of our chosen technologies is not evident amongst the team, although confident, we may assume likelihood of running into time consuming issues while trying to implement functionality into our project with the use of multiple coding languages.

It is our understanding from personal experience that the time that has been allocated to complete our project should be sufficient to allow for coding issues to arise and be dealt with accordingly, using online tutorials and forums such as stackoverflow.org, brainstorming amongst each-other and conferring with our supervisor.