



# HTAPS

**HofTAPS**

**Online Textbook Exchange**

**Product Requirements Specification**

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## **1. Introduction**

### **1.1 Project Scope**

It is often a hassle for college students to find and purchase a textbook for class. After going through all this work purchasing textbooks, students then end each semester with books they no longer need, which they may have spent hundreds of dollars on. HofTAPS aims to create a quick and easy way for Hofstra students to sell their old textbooks to other Hofstra students who need one for a class.

HofTAPS allows Hofstra students to sell their old textbooks to other Hofstra students. This requires:

- 1.1.1 Account Registration: Hofstra students enter their student ID, number, Hofstra, email, and a password
- 1.1.2 Add Textbooks to be Sold: Students can add a textbook by including the book's title, author, ISBN number, the condition of the book, a price they wish to sell it for, and any other information they wish to list.
- 1.1.3 Search Engine: A way for interested students to search and browse for textbooks using title, author and ISBN number.
- 1.1.4 Automatic Textbook Removal: Once a textbook is sold, it is automatically removed from the database
- 1.1.5 Automatic Email Communication: If a buyer is interested, an email is sent to the buyer to initiate the sale. A sale confirmation email is sent to the buyer notifying them that the sale has been approved.

### **1.2 Use**

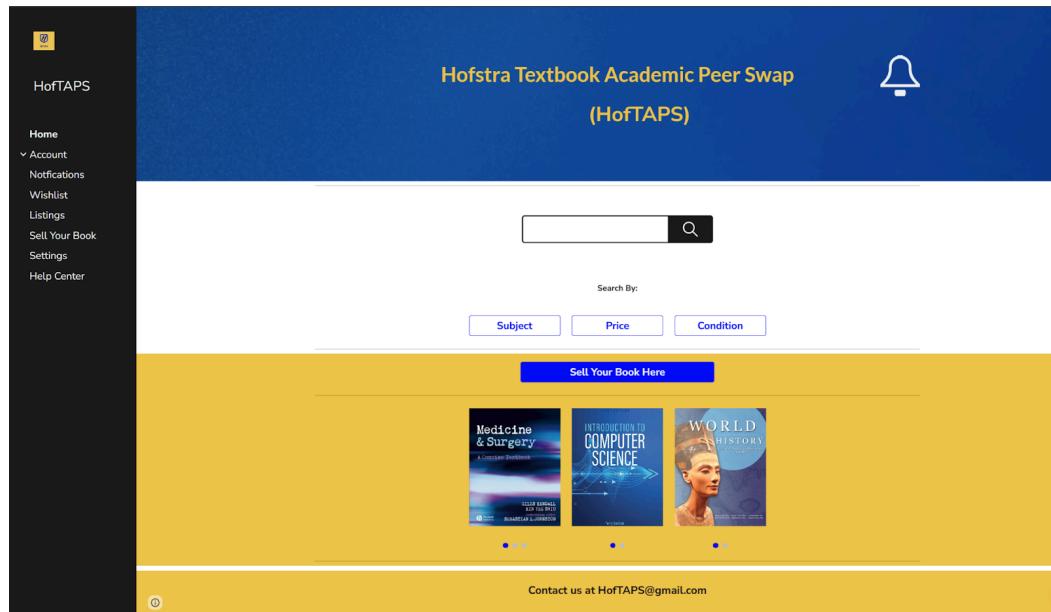
The purpose of the textbook exchange software is to allow Hofstra students to easily buy and sell textbooks. Students who have a textbook that they no longer need list the book by entering the book's title, author, ISBN number, the condition of the book, and the price they wish to sell it for. Other students who wish to purchase a textbook can search for a desired textbook by these specifications, see results, and make a purchase.

## 1.3 Technology Use

- 1.3.1 Front End: React is used to create a simple, clean, user-friendly experience
- 1.3.2 Back End: Firebase allows for all user and textbook information to be stored and allows for easy access. Java allows for easy integration with the Amazon API and our front end frameworks.
- 1.3.3 API: Amazon's API allows for information about each textbook to be gathered and shared to allow users of the site to see all the information they may need about a particular textbook, including title, authors, and cover image.

## 1.4 UI Design

### 1.4.1 Home



## 1.4.2 Account

The screenshot shows the HofTAPS account interface. On the left, a dark sidebar menu includes links for Home, Account (selected), Account History, Notifications, Wishlist, Listings, Sell Your Book, Settings, and Help Center. The main content area has a blue header bar with the word "Account". Below it is a large white area containing a black user icon placeholder. To its right, user information is displayed: Name: Gene Erik, Email: Genorik@hofstra.pride.edu, Password: masked, User Rating: ★★★★☆, Change Password, and Delete Account. At the bottom of this section is a blue button labeled "Change Profile Picture". A yellow footer bar at the bottom of the page contains the text "Contact us at HofTAPS@gmail.com".

## 1.4.3 Account History

The screenshot shows the HofTAPS account history page. The left sidebar is identical to the account page. The main content area is divided into several sections: "Currently Selling" (listing "Dr. House: PatientCare" by Gregory House), "Placed Offer on" (listing "Commentaries on the Gallic War" by Julius Caesar), "Previously Sold" (listing "DON'T GO TO JAIL!" by Saul Goodman), and "Previously Bought" (listing "Medical Marijuana" by Dr. James Wilson). Each listing includes the title, author, edition, subject, condition, user rating, price, and seller information.

Title	Author	Edition	Subject	Condition	User Rating	Price	Seller
Dr. House: PatientCare	Gregory House	1st	Medicine	Like New	★★★★☆	\$90.00	Gene Erik
Commentaries on the Gallic War	Julius Caesar	1st	History	Good	★★★★	\$20.00	Even Range
DON'T GO TO JAIL!	Saul Goodman	1st	Law	Poor	★★★★	\$74.00	Gene Erik
Medical Marijuana	Dr. James Wilson	10th	Medicine	Fair	★★★★	\$40.00	Mike Duket

#### 1.4.4 Notifications

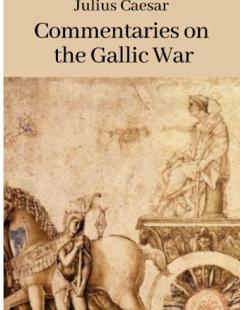
The screenshot shows the 'Notifications' section of the HofTAPS website. On the left is a dark sidebar with a yellow icon and the text 'HofTAPS'. Below it are links: Home, Account, Notifications (which is highlighted), Wishlist, Listings, Sell Your Book, Settings, and Help Center. The main content area has a blue header 'Notifications'. It displays four notifications:

- Selling**: Dan Mazzara has made you an offer of \$88.48 on PatientCare 1st e.d by Dr. Gregory House. Buttons: Accept (blue) and Decline.
- Buying**: Joe Lagrassa has accepted your offer of \$65.43 on Medical Malpractice 10th e.d by James Wilson. Text: Email them at: JLagrassa@hofstra.pride.edu to arrange pick time and location.
- Selling**: David Piccolissimo has made you an offer of \$98.35 on PatientCare 1st e.d by Dr. Gregory House. Buttons: Accept (blue) and Decline.
- Buying**: The textbook Public Speaking by Ron Burgundy has been sold to someone else.

At the bottom, a yellow bar says 'Contact us at HofTAPS@gmail.com'.

#### 1.4.5 Wishlist

The screenshot shows the 'Wishlist' section of the HofTAPS website. The sidebar is identical to the Notifications page. The main content area has a blue header 'Wishlist'. It shows a single item:

**Julius Caesar**  
**Commentaries On The Gallic War**  


**Title:** Commentaries On The Gallic War  
**Edition:** 18th  
**Author:** Julius Caesar  
**Subject:** History  
**ISBN:** 4015516079  
**Condition:** Good  
**Price:** \$20.00  
**User Rating:** ★★★★  
**Seller:** Even Range  
**Offer Place:** \$13.45

A small red link 'Remove From Wishlist' is visible next to the price. At the bottom, a yellow bar says 'Contact us at HofTAPS@gmail.com'.

## 1.4.6 Listings

Sort by: Price: High to Low ISBN: 9784257118206 [Filter By: v]

Title: PatientCare Edition: 1st  
Author: Dr. Gregory House Subject: Medicine  
ISBN: 9784257118206 Condition: New  
Price: \$100.00 User Rating: 4 stars  
Seller: Lerry Smith DETAILS

Title: PatientCare Edition: 1st  
Author: Dr. Gregory House Subject: Medicine  
ISBN: 9784257118206 Condition: New  
Price: \$100.00 User Rating: 4 stars  
Seller: Carl Lomard DETAILS

Title: PatientCare Edition: 1st  
Author: Dr. Gregory House Subject: Medicine  
ISBN: 9784257118206 Condition: Like New  
Price: \$90.00 User Rating: 4 stars  
Seller: Goms Erik DETAILS

Title: PatientCare Edition: 1st  
Author: Dr. Gregory House Subject: Medicine  
ISBN: 9784257118206 Condition: Poor  
Price: \$90.00 User Rating: 3 stars  
Seller: Mark Rover DETAILS

## 1.4.7 Individual Listings

Individual Listing

Title: PatientCare Edition: 1st  
Author: Dr. Gregory House Subject: Medicine  
ISBN: 9784257118206 Condition: New  
Price: \$100.00 User Rating: 4 stars (4)  
Seller: Lerry Smith DETAILS

Front Cover: Annoye Description: The author had to patient care, Dr. Gregory House explains how to make patients feel comfortable, calm, and welcomed while undergoing near death experiences.

Back Cover: Seller Description: The text book is still sealed in the original wrap. Slight tear on the wrap but other wise in perfect condition.

Spine:

### 1.4.8 Sell Your Book

Sell Your Book

Enter book ISBN  
Enter Book Name  
Enter book Author  
Choose Subject [v]  
Select Book Condition [v]  
Enter Asking Price  
Write a Description of the condition of the book! ex. writings in pages )

Please Provide Three Pictures, One of the Front, One of the Back, and One of the Spine

Front Cover      Back Cover      Spine

Select File      Select File      Select File

Publish Listing

### 1.4.9 Settings

Settings

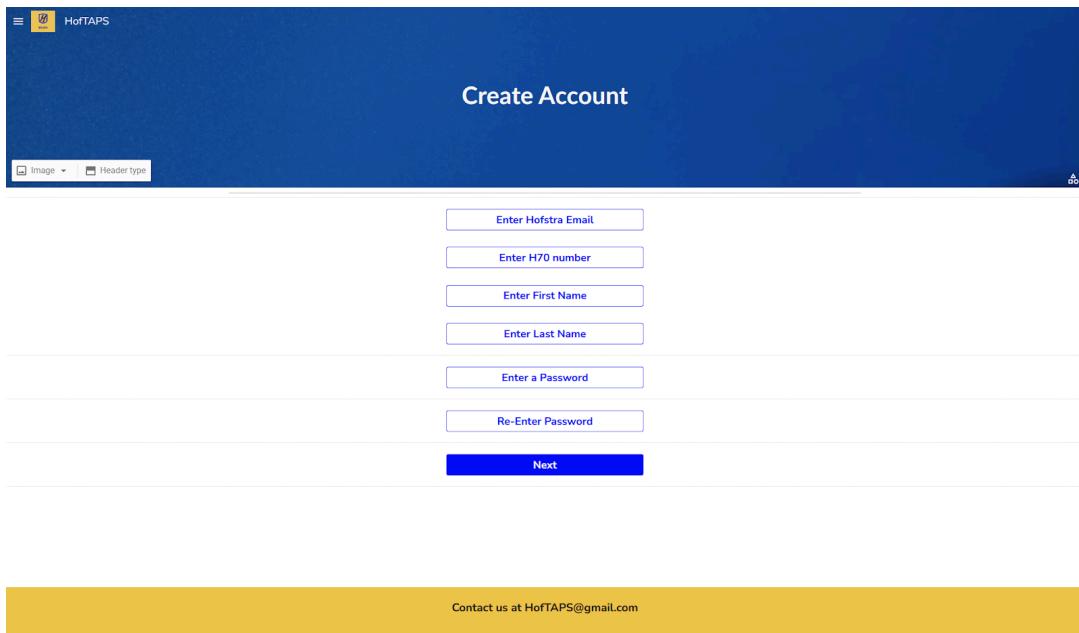
Account

Add Email to Notifications

Clear Account History

Contact us at HofTAPS@gmail.com

#### 1.4.10 Create Account



A screenshot of a web-based form titled "Create Account". The form consists of several input fields and a "Next" button. At the bottom, there is a yellow footer bar with contact information.

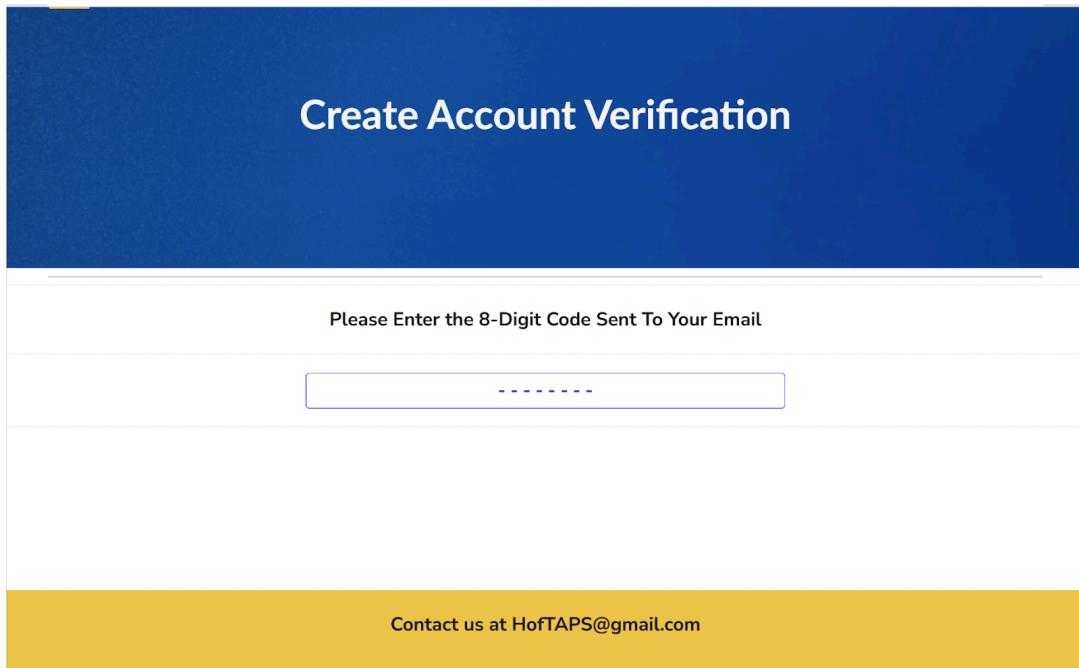
The form fields are:

- Enter Hofstra Email
- Enter H70 number
- Enter First Name
- Enter Last Name
- Enter a Password
- Re-Enter Password

A "Next" button is located below the password fields.

Contact us at [HofTAPS@gmail.com](mailto:HofTAPS@gmail.com)

#### 1.4.11 Create Account Verification



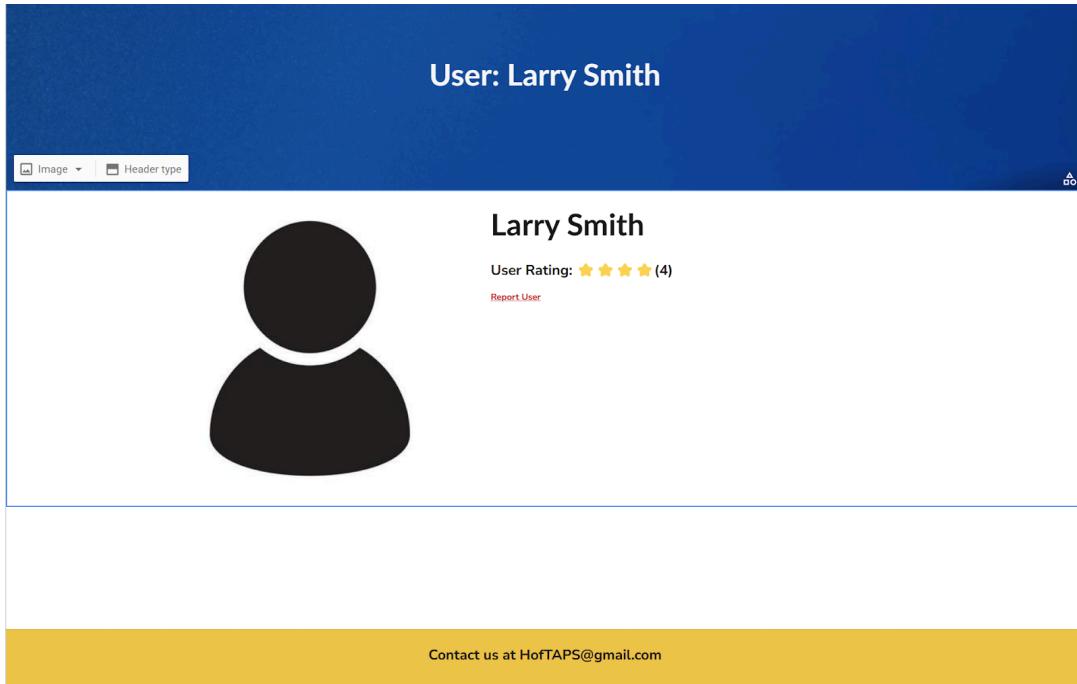
A screenshot of a web-based form titled "Create Account Verification". The form has a single input field for entering an 8-digit code sent via email.

Please Enter the 8-Digit Code Sent To Your Email

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Contact us at [HofTAPS@gmail.com](mailto:HofTAPS@gmail.com)

#### 1.4.12 User Profile



## 2. Product Description

### 2.1 Description

Jump into a dedicated textbook exchange for Hofstra students, this streamlined application allows a student with a textbook to connect with students who need a textbook, making for a cheaper, taxfree, and easier experience for both buyer and seller. The homepage makes actions clear and concise with search functionality that allows for multiple ways to search for that perfect textbook, as well as a carousel of textbooks that are hot on the market right now. Listings are easy to see and follow. When a seller accepts a buyer's offer, the listing is removed from the Listings Page in real-time. Listings can also be sorted in multiple different ways such as high to low price and by new listings. They can also be filtered by price, condition, and subject. If a user wishes to sell a textbook, the integrated Amazon API allows the seller to type in the ISBN while the website can handle the author, name, edition, and general description,

making selling a breeze. Creating an account is simple and limited to only people with a Hofstra email, ensuring a closed and safe environment for buyer and seller. The Wishlist allows for the user to keep track of those textbooks that they need in a simple place, while the notification center allows for the users to see up to date information about the books that they are buying and selling. Our User Rating System allows users to see who is trustworthy and who is not. Once a seller accepts a buyer's price, the buyer confirms the sale and both buyer and seller are left satisfied.

## **2.2 Features**

- 2.2.1 Search and Filters: Our search allows the users to search either by ISBN, author, or title. They can also filter their results by condition, price, and subject.
- 2.2.2 Wishlist: A user can add listings to their wish list with a click of a button and have all the textbooks they need in one place.
- 2.2.3 Notifications: Users have a real-time notification center to see if a seller has accepted or rejected an offer, if a buyer has placed an offer, or if a textbook that you are interested in has been sold.
- 2.2.4 Textbook Carousel: On the homepage, users see a carousel of recently sold textbooks, which is tracked by how many listings of a certain ISBN haven been closed recently.
- 2.2.5 User Ratings: Users give other users ratings based on their interactions. On the user profile, it shows their rating out of 5 stars and how many people rated them. Ratings are an average of the rating a user receives.

## **2.3 Operating Environment**

HofTAPS is designed to work on both desktops and mobile devices using browsers including Chromium based browsers like Chrome, Firefox, and Edge, as well as Safari. An internet connection or a mobile network is required to access the website.

## **2.4 Design**

Every user is able to buy and sell as well as have their own unique wishlist and account history.

When selling, the users indicate the subject of the textbook from a drop down menu, which allows buyers to easily look for which textbooks they want. The exchange of money takes place completely off platform, so no calculations need to be performed by the website. Notifications allow buyers to find out if their offer has been accepted and where they can accept.

## **2.5 Constraints and Challenges**

One of the biggest challenges is knowing when to remove a listing from the database. In the application, the listing is removed whenever the seller accepts a buyer's offer. This means that in a scenario where the deal falls through off platform, the seller would have to relist the textbook again. There are also rate limits on Amazon's API which affects the ability to gather information about the book such as the Amazon description.

# **3. System Features**

## **3.1 Main Page**

The system features of the HofTAPS homepage are designed for a user-friendly experience by facilitating the navigation of the website.

3.1.1 Search Bar: The search bar featured in the center of the main page has three central components: searching by subject, condition of the textbook, and price. The search engine is extremely polished, providing users with the best results for what they are looking for.

3.1.1.1 Search by Subject: The subject and condition settings have a drop down menu

where there are multiple options based on the user's preferences. The subject filter has general subjects like math, science, history, etc to narrow the search results.

3.1.1.2 Search by Condition: The condition setting has different options that show the state of the quality of the book being sold. Options include but are not limited to, "New", "Like New", "Poor" and other terms to describe the condition of the book listed.

3.1.1.3 Search by Price: The price filter is a slider showing a limited range of prices to fit the budget of the user. In addition to searching the textbook by name, the user can also type in the ISBN number to see the exact textbook they are looking for.

3.1.2 Sell Button: The sell button is shown on the center of the main page right below the search function. It redirects users to an interior page where the user can post listings for any textbook they want to sell. This button is highlighted in blue so it stands out among other features on the home page.

3.1.3 Featured Items: Featured Items are provided below the search function and the sell button. This section allows the user to browse through the image carousel of the featured books. If they are interested in looking even further into it, they can click on the image and are redirected to the book listing. There are always 3 featured books posted at a time based on popularity metrics on the site, which showcase which books are being looked at more often during that time.

3.1.4 Left Bar: The left bar on the upper left corner of the main page has an intuitive design, including a menu listing important sections of the website.

3.1.4.1 Home Button: The home button brings the user back to the home page.

3.1.4.2 Account Button: Right below the home button is the account button, which prompts users to their account page. If you click on the arrow next to the account button, a drop down menu is revealed providing additional resources related to having an account on this site. These drop down options are 'create an account', 'login', and 'account history'. They redirect the user to the respective pages. The

'account history' button redirects users to a history of bought or sold textbooks and shows analytics such as how much was spent on textbooks.

3.1.4.3 Notifications: Below the account button, there is a notification button. When clicked on, it shows any notifications a user might have received.

3.1.4.4 Wishlist: The Wishlist button redirects users to a list of textbooks that they added to their wishlist. Users add books to their Wishlist by clicking a star icon on the textbook listing.

3.1.4.5 Listings: The listing button brings users to a more detailed textbook search page. Users are provided with all the filters and search functions necessary, as well as the ability to view different listings posted by sellers.

3.1.4.6 Sell Your Book: Below the listing button feature is a sell button, which redirects the user to the 'sell' page. This sell button provides the same function as the other sell button in the center of the home page, but both are added for convenience.

3.1.4.7 Settings: The settings button brings the user to a page where they can change their account information.

3.1.4.8 Help Center: The help center button redirects users to a page where additional contact information is provided, including contact info for website support agents.

3.1.5 Contact Information: At the very bottom and center of the main page, there is a Contact Us section that includes text contact information in case of any questions or concerns. More information regarding contact details can be found in the help center page.

## 3.2 Listing Pages

3.2.1 Search Bar: The search bar is the center focus of the website. When loading the webpage, it is located at the center of the page. When browsing through books, the search bar is at the top of the page.

3.2.2 Left Bar: The left bar of the webpage holds multiple options related to the user's account.

They can choose to buy items, sell items from their account, can check their history of purchased books, and can manage their account's settings.

3.2.3 Filters: When searching for a book, a user can filter the options that appear through various qualities. They can filter books by subject, price, or condition.

3.2.3.1 Subject: When searching for a book, a user can filter results to show only textbooks of a particular subject.

3.2.3.2 Price Slider: The filter for price comes with a slider that can be used to select what price range a user is looking for.

3.2.3.3 Condition: The user can choose to only see books that meet a particular condition requirement.

3.2.4 Sort: Sorting changes the way items are displayed on the page. They can be sorted from:

- Highest price to lowest price
- Lowest price to highest price
- Names from A-Z
- Names from Z-A
- Date uploaded from oldest to newest
- Date uploaded from newest to oldest

3.2.5 Individual Listings on Listing Page: Once a user finds their textbook, they can click on it to bring them to the individual listing. This is where the user can see detailed information about the textbook and the seller, and where they can purchase the book.

### 3.3 Selling Page

3.3.1 Fields: When one sells a book, they must type its information for sellers. They must provide the book's:

- ISBN Number
- Title

- Author
- Edition
- Price
- Subject
- Description (Optional)

3.3.2 Image Uploads: A user must upload three pictures of the textbook they are selling. They must provide a picture of the front, the back, and the spine of the textbook.

3.3.3 Publish: When a user clicks publish, the textbook is added into the database and appears online for other users to find and purchase.

#### **3.4 Individual Product Information**

3.4.1 Layout: When a user sees a textbook they wish to purchase, clicking on the image will bring them to the product page. This shows the icon of the textbook and other information shown on the listing page, including the title, author, ISBN, and condition, all of which are listed to the right of the cover. The user can also see the name and rating of the seller and the images of the textbook that the seller uploaded. There is a button below the textbook information that allows the user to purchase the textbook.

3.4.2 Contact Seller: When a user wishes to purchase a book, clicking on the purchase button will automatically contact the seller that someone is interested.

#### **3.5 Purchasing**

3.5.1 Contact between Buyer and Seller: Purchasing a book automatically notifies the seller via email and an in-site notification. These will redirect the seller to the website, where they can approve the sale or cancel.

3.5.2 Completed Deals: Once a sale has been approved by the seller, the sale is closed and the textbook is removed from the listing.

- 3.5.3 Deals that Fall Through: If a seller rejects a sale or if the seller and buyer do not complete the deal within 7 days, the book is automatically removed from the database and it must be added again should the seller still wish to sell the book.
- 3.5.4 Database Updates: The database holding the textbooks will update accordingly to not only hold books that are available for purchase, but to also remove items that are already purchased, as well as to remove items that are no longer available. When a book is purchased, the confirmation the seller gives will remove it from the database so that it does not take up additional space. In addition, the 7 day period that checks for a confirmation ensures that if the seller is inactive, the book gets taken down and automatically removed from the database so that a user doesn't end up being misled by a listing that is not actually available to them.

## 3.6 Accounts

- 3.6.1 Authentication: Once a user creates an account, their email is validated via a unique validation code sent to their email on their personal device, which is then entered in the provided space on the website.
- 3.6.2 Registration and Login: Users enter their full name, Hofstra email address, Hofstra student ID, and a password to create an account. Their email is validated and their password is checked for security strength. Users can then login using their Hofstra ID and their password. All user information is encrypted.
- 3.6.3 Change Password: If a user forgets their password or if they wish to change it, they can click the "Forgot Password" link on the login page, which directs users to the change password form. The user enters their email, then a reset password prompt is sent to their email with a link to reset their password.
- 3.6.4 Account Details
  - 3.6.4.1 Personal Information: Each user account includes a user's full name and Hofstra email and ID number.

3.6.4.2 Account Management: Users can change their password and they can add security questions for added safety measures.

3.6.4.3 Notification Settings: Users can opt to turn on or off email notifications

3.6.4.4 My Listings: All of the textbooks listed by the user are seen here. They can see currently listed books, other users who are interested in their textbooks, and books they have previously sold.

3.6.4.5 Items Sold: Users can see all of the textbooks they have previously sold, what price they sold it for, and who purchased their book.

3.6.5 Ratings: Ratings for individual books are fetched from the Amazon API. Users can also rate other users based on their purchasing/selling experience out of 5 stars. These ratings are visible under user's profiles.

### **3.7 Notifications**

When a buyer wants to purchase a textbook, the seller receives a notification in their notification center in-site, as well as in their email. Buyers and sellers also receive notifications when a sale is completed or canceled.

### **3.8 Help Center**

3.8.1 Getting Started: Provides the user with an overview of how the platform works, as well as instructions on how to create an account, list a book, and purchase a textbook.

3.8.2 Contact Support: Emails of support agents are provided to the users if they have any questions or need technical support

### **3.9 Searching**

3.9.1 Search Engine: Searching will be optimized via a third-party search engine. This engine is customized to:

- Ensure typo tolerance and spellcheck

- Incorporate autocomplete suggestions
- Product attribute filtering
- Prioritize products listing based on popularity

3.9.2 Natural Language Processing: Allows users to search using Natural Language phrases instead of just keywords.

## **4. Interface Requirements**

### **4.1 Live Updating**

Through the use of APIs, the application will update textbook information real-time. Textbook availability is also updated real-time as books are listed and sold.

### **4.2 Page Responsiveness**

- 4.2.1 Fluid Grid Layout: Percentages and grid systems allow elements to scale and dynamically adjust column layout proportionally with screen size.
- 4.2.2 Breakpoints: Define specific screen size thresholds where the layout adjusts significantly
- 4.2.3 Content Prioritization: Ensure critical information and features are visible and easily accessible.

### **4.3 Categories and Search Filters**

Users can search for a book by name, subject, or ISBN. Book searches can be filtered by subject, price, and condition.

#### **4.4 Notifications**

A seller receives a notification when an interested buyer has purchased one of their listed textbooks. The buyer is notified when the seller has approved the purchase. The buyer is also be notified if the seller decides to cancel their order

### **5. Non-Functional Requirements**

#### **5.1 Efficiency**

- 5.1.1 Item Search Time: The interaction between the website requests and the API takes no more than three seconds, allowing for a more efficient user experience.
- 5.1.2 User Database: The website is able to accommodate at least 1,000 new user data simultaneously without overloading the database or degrading website functionality.
- 5.1.3 Page Loading Time: The user interface takes about 2-3 seconds of loading time to display textbooks retrieved by the API as well as between each page that the user navigates to under standard network conventions (10 Mbps or above).
- 5.1.4 Search Filters: The user can apply filters to their search to efficiently find their desired textbook.
- 5.1.5 API Retrieval: The API is able to handle at least 1,000 requests per minute

#### **5.2 Usability**

- 5.2.1 User Interaction with the Website: The user must be able to navigate the website with ease. Therefore, widgets and displays are being kept in an organized, user-friendly manner to ensure efficiency and performance.
- 5.2.2 Cross-Platform: Users are able to access the website on both mobile and desktop

platforms, ensuring full functionality of all features.

### **5.3 Space**

The account information is stored into a secured database. It is determined that 512 MB is sufficient to handle at least 1000 user data.

### **5.4 Dependability**

5.4.1 Error Handling: The website displays appropriate error messages to provide users information for debugging

5.4.2 Website Runtime: The website is in operation 99.9% of the time

### **5.5 Security**

5.5.1 Password Encryption: User account sign in information is encrypted to ensure confidentiality. The user is required to input username and password in which only the password is only knowledgeable to the user.

5.5.2 Notification Encryption: The website messaging system keeps all the notifications encrypted that may contain sensitive information.

5.5.3 User Encryption: Details regarding account information, date of birth, order numbers, payment information, etc. is identified and set as privileged information that will be encrypted and only accessed by authorized personnel.

5.5.4 Captcha: The website implements a captcha protocol to prevent users from deploying automatic bot attacks at the website

### **5.6 Maintainability**

5.6.1 Code Quality: The website structure code is written in a way such that the software is

scalable, allowing the admin to make modifications with ease. This includes using well-structured code using relatively similar naming functions

- 5.6.2 Scalability: The website is able to support new addition of textbook information with relative ease without any significant changes to structure code

## 5.7 Data Accuracy

All information regarding textbook details (i.e. ISBN, publisher, author etc.) is updated regularly.

## 6. Conclusion

HofTAPS is a modern and efficient web-based application in which students attending Hofstra University are able to efficiently locate and purchase affordable textbook options for their classes. In its entirety, HofTAPS aims to be a leading platform amongst other textbook-selling platforms and increase more freedom for users rather than restricting them to limited buying and selling options; the platform fosters an open marketplace where students can freely negotiate prices, communicate directly with sellers, and explore multiple purchasing methods to find the best deals. By prioritizing user autonomy, HofTAPS ensures a more dynamic textbook exchange experience. In addition, HofTAPS serves as a demonstration that other students may be able to implement in order to find and purchase textbooks within their college community. HofTAPS uses state-of-the-art databases alongside cybersecurity protocols like MongoDB. In addition, the website encourages users to communicate with each other through our integrated messaging system, allowing direct communication between users to encourage sales. HofTAPS is maintained, updated, and tested regularly for a more simple yet productive experience so that users may be able to make productive sales by selling old textbooks and/or finding textbooks for class to ensure academic prosperity.