

Department of Computer Engineering

CNG350 | Software Engineering

SRS FULL REPORT

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1 Introduction

This document provides information about web-based online bookstore platform.

1.1 Purpose

The purpose of the project is to enable users to buy and rent books on an online platform, access detailed information about books, and join in live channels and chats about books with other users.

1.2 Scope

The online bookstore platform allows users to register the system, and to browse and see further details about the books. The system has a database to record user and book information.

The system allows users to purchase the books or rent for a while. The system has a payment system to get card information of the users. In addition, the system has a 3D secure method to ensure the security of this information.

The online bookstore allows book lovers to join a live streaming channel and interactive chat to interact with other users, and discuss their ideas and reading experience about the books by using Youtube.

1.3 Related Work

In the real life, there is website which is called BOOKSRUN similar to our project. This site also offers google to sign in quickly as in our project, it also offers Facebook for quick signup. In our system, only admins can add book to the system, but in BOOKSRUN, any user can add the books for selling or renting the book. Also, as in our system, user can buy or rent books. There are 3 options for browsing by author, by title that are same for our system also. However, BOOKSRUN gives opportunity to search books by their barcode which does not exist in our system. After browsing, possible books are listed to user, as in our system. After that, website also gives opportunity to user add book to their cart as in our system, but there is difference that to go check out minimal charges need to be 10 dollars. There is a view of order history in this website also called as "myorders". If there are not any orders, system display no orders exist, as in our system. The user on the website is directed to a new page where frequently asked questions are answered by clicking the "Support" button on the navbar menu. Additionally, if the user cannot find their question and its answer on this page, they can click the "Contact Us" button and fill out the form sent by the system on this page to record their issues in the system and allow admins to see them, as in our system. The BOOKSRUN system does not provide users with the opportunity to listen to books being read aloud and to interact with each other through live chat, as is available on our system.

1.4 Product Overview

1.4.1 Product Perspective

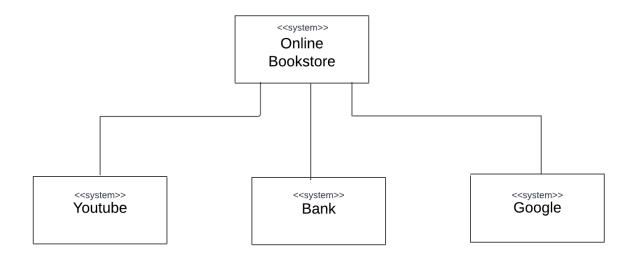


Figure 1: Modelling Context Diagram

1.4.1.1 System Interfaces

Bank

The external system, bank, allows users to perform payment processes.

Youtube

This external system allows users to join a live streaming channel, interact with other users by using live chat.

Google

This external system allows users to receive email about the system, rented book duration and reminder email. In addition, unregistered users can use Google to register the system.

1.4.1.2 User Interfaces

Sign-Up Interface

This interface gets the information required to register the website and send these data to the database. The unregistered users can register the system as a user or admin.

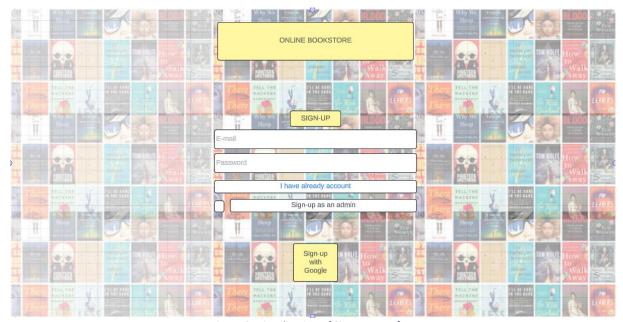


Figure 2: Visualization of Sign-up Interface

Payment Interface

This interface allows the users to complete their payment by getting their credit card information and send a request to the bank to achieve the payment process.

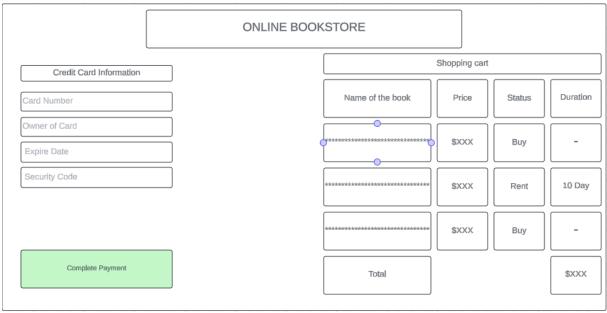


Figure 3: Visualization of Payment Interface

Shopping Cart Interface

This interface allows the users to display the books which are added to the shopping cart. They can add or delete any books from the cart, or they can continue the payment process.

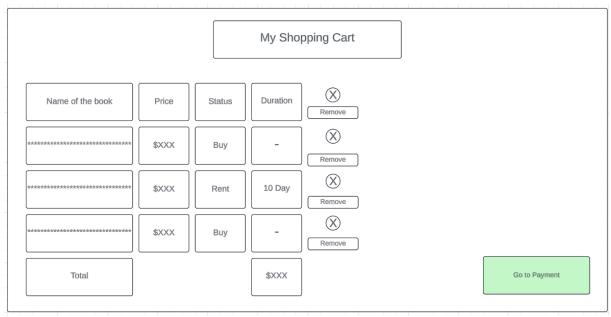


Figure 4: Visualization of Shopping Cart Interface

Dashboard Interface

The users can display this interface to reach the books, and access the shopping cart. In addition, the users can join a live streaming channel thanks to this interface. By using this interface the users can view trend books and browse a book in the catalog in order to choose what they want. Moreover, they can add the chosen books to the shopping cart for buying or renting.

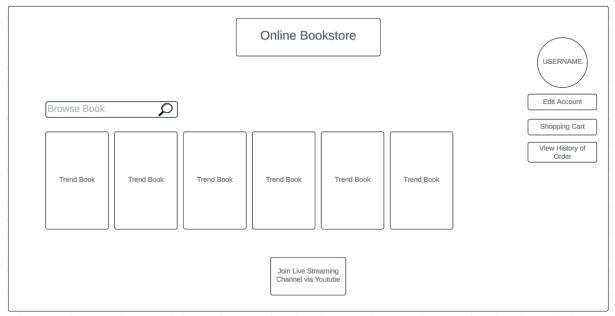


Figure 5: Visualization of Dashboard Interface

Admin Interface

Admins of the website can use this interface to manage and display the issues which are reported by the users. After resolving the issue, they can mark it as resolved.

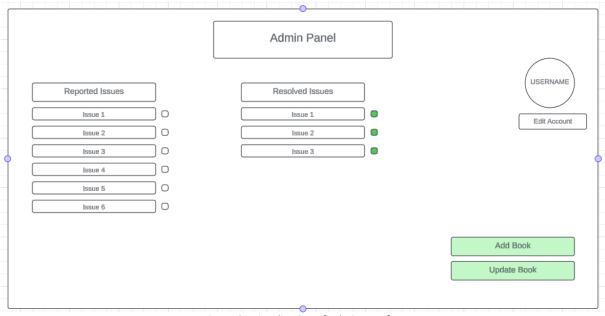


Figure 6: Visualization of Admin Interface

Super Admin Interface

The super admins can reach the login activities of admins and give permission to the login requests of them. Moreover, super admin can view admin list.

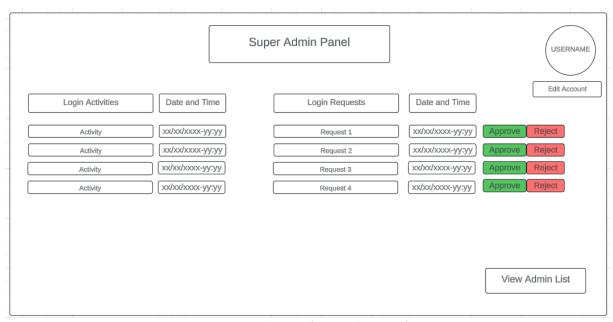


Figure 7: Visualization of Super Admin Interface

1.4.2 Product Functions

- 1. The system shall allow the user to buy or rent books.
- 2. The system shall allow the user to join a live streaming channel and interact with the other users via Youtube.
- 3. The system shall allow the user to further details about the book.
- 4. The system shall allow the user to add the books to the shopping cart.
- 5. The system shall allow the user to view the history of order.
- 6. The system shall allow the user to register to the system via Google.
- 7. The system shall allow the user to pay the total amount of price of the bought and rented books via credit card.
- 8. The system shall allow the super admin to manage permission and login requests of admins.
- 9. The system shall allow the unregistered user to register the system.
- 10. The system shall allow the admin to manage reported issues and mark them as resolved.
- 11. The system shall allow the user to edit their account.
- 12. The system shall allow the user to browse the books by title, author or category.
- 13. The system shall allow the user to receive reminder email via Google.
- 14. The system shall allow admin to add or update a book.

1.4.3 User Characteristics

Users

The users can be regular book readers or students. In order to use the website, the users must have an email account. Furthermore, the users should have a valid credit card to buy or rent the books. Also, users should be over 18 years old because of making a valid payment.

Admins

The admins of the system should have technical knowledge about the website and they should be prepared to solve the problems that users may face. They are also responsible from adding new books, and updating existing books.

1.4.4 Limitations

Database Management

As the data entered in the database increases, there may be limitations in terms of data processing speed and storage capacity.

Server Capacity

As the number of people using the system increases, problems such as system slowdown and users not being able to log in to the system may occur depending on the server capacity.

External system corruption

Problems may occur when connecting to external systems. Connection problems with Google may affect email communication. Bank connection issues can be limiting when making payments. A connection problem with YouTube may limit users from accessing live channels.

1.4.5 Assumptions and dependencies

Internet Connection

Users who want to log in to the system must have a reliable and stable internet connection.

Assumptions are made regarding users having access to reliable internet connections to seamlessly browse, purchase, and interact with the system.

Suitable and Sufficient Stock

It is assumed that the books that users see in the system are already available for purchase and rental.

1.5 Definitions

N/A

2 Specific Requirements

2.1 External interfaces

Table 1: System Interfaces to interact with External System

System Interface	Functionality	Input	Output
Bank	Buy or rent a book	Price of the process User name Card Information Bank Account Number	Transaction Result
Youtube	Join live streaming channel	User name E-mail Address	Show the live streaming channel and chat history
Google	Create new account	User name E-mail Address Password	Verification Message
Google	Receive reminder Email	E-mail Address User name Duration of the book	Email about the duration of the book

2.2 Functions

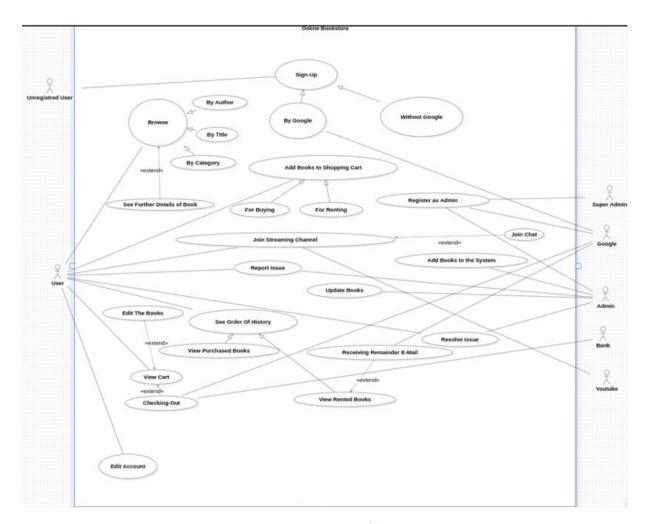


Figure 8: Use Case Diagram of the System

Table 2: Use Case Description of Sign-up without Google

Use case	Sign-up without Google	
Actors	Unregistered User	
Cross references		
Typical Course of Events		
Actor Intentions	System Responsibility	
1- User presses sign-up button.		
	2- System sends form to user for filling details.	
3- User enters details		
4- User submit the form		
	5- System takes form and create account.	
	6- System asks for validation via entered e- mail	
7- User validate account by clicking link in the e-mail		
	8- System sends confirmation message to user about registration is successful	
Alternative Courses		
5- If the entered details like e-mail is saved in the system before, system should display error		
message.		

Table 3: Use Case Description of Sign-up with Google

Use case	Sign-up with Google
Actors	Unregistered User, Google
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- User presses sign-up with Google button.	
	 System asks for Google account e-mail and password.
3- User provide these details.	
	4- System asks for saving Google account.
5- User selects whether save or not.	
	6- System sends a form to user for filling other details.
7- User provides these details.	
	8- System sends a verification message to the user account is created successfully
Alternative Courses	

4- If the entered Google account does not exist, the system should display an error message, and asks for entering again valid Google account.

Table 4: Use Case Description Browse by Category

Use case	Browse By Category
Actors	User
Cross references	See Further Details
Typical Course of Events	
Actor Intentions	System Responsibility
1- User selects the browse by category.	
	2- System sends to user list of available
	categories.
3- User selects categories.	
	4- System will search the books based on given
	category or categories.
	5- System sends back to user list of matched
	books.
6- User can select the books for adding to	
cart.	
Alternative Courses	

- 6- If the user wants to see details of the book before adding the cart, then details will be displayed (see See Further Details use case)
- 5- If there is not any available film based on the selected categories, system should display error message.

Table 5: Use Case Description of Browse by Author

Use case	Browse By Author	
Actors	User	
Cross references	See Further Details	
Typical Course of Events		
Actor Intentions	System Responsibility	
1- User selects the browse by author.		
	2- System asks user to enter author name and surname.	
3- User enter the author		
	4- System searches the books according to given author name.	
	5- System sends back to user list of all books by that author.	
6- User can select the books for adding to		
cart.		
Alternative Courses		

- 5- If the system cannot find given author name, it should display error message.
- 6-If the user wants to see details of the book before adding the cart, then details will be displayed (see See Further Details use case)

Table 6: Use Case Description of Browse by Title

Use case	Browse By Title	
Actors	User	
Cross references	See Further Details	
Typical Course of Events		
Actor Intentions	System Responsibility	
1- User selects browse by title		
	2- System asks user to enter title of the book.	
3- User enters the title of the book		
	4- System searches the books based on the given title.	
	5- System sends this book to user.	
6- User can select the book for adding to		
cart.		
Alternative Courses		
5- If the system cannot find given title, it should display error message.		
5- If the given title is a part of series, system should send back to user list of all series.		
6- If the user wants to see details of the book before adding the cart, then details will be displayed (see See Further Details use case)		

Table 7: Use Case Description of See Further Details

Use case	See Further Details
Actors	User
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- User can select book from list that is coming from browse activity.	
	2- System sends back to details of the selected book.
Alternative Courses	
N/A	

Table 8: Use Case Description of Add Books to Cart for Buying

Use case	Add Books to cart for Buying
Actors	User
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- User can select book or books for adding to the cart.	
	2- System asks user to enter you want to buy or rent this book.
3- User choose buying the book.	
4- User should press add to cart.	
	5- System adds books or book to cart with status of buying.
	6- System should send confirmation message about they are added to cart.
Alternative Courses	
N/A	

Table 9: Use Case Description of Add Books to Cart for Renting

Use case	Add Books to cart for Renting
Actors	User
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- User can select book or books for adding to the cart.	
	2- System asks user to enter you want to buy or rent this book.
3- User choose renting the book	
4- User should press add to cart.	
	5- The system asks the user for the duration they want to rent for.
	6- System adds books or book to cart with status of renting and duration information.
	7- System should send confirmation message about they are added to cart.
Alternative Courses	
N/A	

Table 10: Use Case Description of View Cart

Use case	View Cart
Actors	User, Google, Bank
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- User goes view cart page by clicking	
	2- System sends the list of all unpaid books
3- User can select the particular book.	
4- User can edit selected book.	
	5- System calculates total charge and display to
	user.
6- User goes to check-out page by clicking	
check out button.	
	7- System asks for shipping details.
8- User enter the shipping details.	
	9- Systems asks for card detail.
10- User enter the card details.	
	11- System sends payment details to bank.
12- Bank completes the payment.	
	13- System sends confirmation e-mail to user via google.
Alternative Courses	
2- If the cart is empty, system should display no current books added to card.	
13- The system should display an error message to the user if the payment fails due to reasons	
such as insufficient credit or invalid card information.	

Table 11: Use Case Description of See Order of History of Purchased Books

Use case	See Order of History of Purchased Books
Actors	User
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- User goes to history of order page by clicking	
	2- System offers user two options purchased or rented books.
3- User choose purchased books.	
	4- System sends the list of purchased books.
Alternative Courses	
3-If the user does not have any purchased books system should display that no purchased book.	

Table 12: Use Case Description of See Order of History of Rented Books

11	Con Onder a Cittata and David Books
Use case	See Order of History of Rented Books
Actors	User, Google
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- User goes to history of order page by clicking.	
	2- System offers user two options purchased or rented books.
3- User choose rented books.	
	4- System sends to user list of rented books and their durations.
Alternative Courses	
4-If there are not any rented books, system should display that no rented books available	
5- System sends e-mail to user when the per Google.	iod of rented book or books is about to end via

Table 13: Use Case Description of Register as Admin

an admin is not approved to the user who fills the form.

Use case	Register As Admin
Actors	Admin, SuperAdmin
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- Unregistered user clickes the register as admin.	
	2- System sends form to unregistered user.
3- User fills this form.	
4- User submits this form.	
	5- System sends form to superadmin in the system.
6- Super admin gives approval to user to login as an admin.	
	7- System sends e-mail that contains autogenerated password for registering to system as an admin to approved user by the super admin.
Alternative Courses	
7-If the super admin did not approve the form, system should send e-mail your authorization as	

Table 14:Use Case Description of Add Books to the System

Use case	Add Books to the System
Actors	Admin
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- Admin opens a form to create new book.	
	2- System asks details of the book.
3- Admin enter details.	
4- Admin clickes the add book button.	
	5- System sends confirmation message about new book is added.
Alternative Courses	
5-If admin enters invalid details, system should display error message	

Table 15: Use Case Description of Update Books to the System

Use case	Update Books
Actors	Admin
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- Admin click the update books button.	
	2- System sends list of available books in the system.
3- Admin selects one of book from list.	
	4- System asks for new details.
5- Admin enters the new details.	
6- Admin pushes the update book button.	
	7- System show confirmation message about selected book is updated
Alternative Courses	
N/A	

Table 16: Use Case Description of Report Issue

Use case	Report Issue
Actors	User
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- User click the report issue.	
	2- System loads the new page with form for filling by the user.
3- User enter issue with details.	
4- User pushes submit issue button.	
	5- System returns to user main page.
	6- System sends confirmation message about your issue is added successfully.
Alternative Courses	
N/A	

Table 17: Use Case Description of Resolve Issue

Use case	Resolve Issue
Actors	Admin
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- Admin opens a new page from admin panel by clicking to view reported issues to see reported issues.	
	2- System sends to admin a list of reported issue.
3- Admin select one of the reported issue.	
4- Admin solve this issue.	
5- Admin mark issue as resolved.	
	6- System delete this issue from list of reported issue.
Alternative Courses	
N/A	

Table 18: Use Case Description of Edit Account

Use case	Edit Account
Actors	User
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- User click the profile from menu.	
	2- System display user's information.
3- User change their information.	
4- User press the apply changes button.	
	5- System sends confirmation message that your changes is saved successfully.
Alternative Courses	
N/A	

Table 19:Use Case Description of Join Streaming Channel

Use case	Join Streaming Channel
Actors	User, Youtube
Cross references	
Typical Course of Events	
Actor Intentions	System Responsibility
1- User click the join live streaming channel via YouTube button from the main page.	
	2- System loads the new page that contains list of available live streaming.
3- User selects one of the streams.	
	4- The system directs users to the YouTube livestream where the stream is taking place.
5- YouTube provides a live chat area for users.	
Alternative Courses	
2-If there is not any available stream for any book, system should display no current stream.	

2.3 Usability Requirements

- The website should be easy to use for everyone, regardless of their familiarity or comfort level with the internet and technology. The instructions on the website should be clear and easy to understand.
- 2. The website design should consist of cohesive colors that complement each other.
- 3. Users should be able to access all functions of the website within three clicks.
- 4. Even if the user misspells the keyword while searching for a book using the keyword method, the site should still display the list of books that best match the keyword to the user.
- 5. The site should be designed to be usable with other devices such as telephone, tablet as well.
- 6. The website should have dark mode options for who want to prefer.
- 7. Users can click on popular books in the user dashboard to view the further details of the books and proceed with the purchase.

2.4 Performance Requirements

- The system shall handle browsing, adding books to cart within 2 seconds.
 Justification: Long waiting time decreases usability of the site.
- 2. The system should be able to serve at least 20000 users simultaneously.
 Justification: If users cannot use the site simultaneously, they need to wait each other for finishing their task and this causes long waiting time.

3. Purchased or rented books should be added to users' order history within 1 minute.

Justification: Existence of timely updating increases user satisfaction.

4. The system should send notification to the user when their reported issues marked as solved by the admin within 1 day.

Justification: increase the user satisfaction, and strengthening system support mechanism.

5. Checking out process should be done within 1 minute.

Justification: when checking out exceeds 1 minute, it causes user disappointment. Moreover, it can cause cancellation of cart.

2.5 Logical Database Requirements

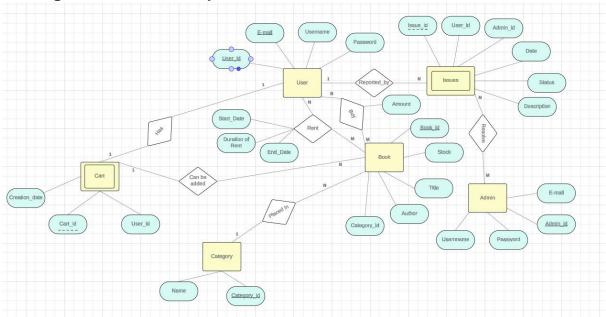


Figure 9: Logical Database Visualization

2.6 Software System Attributes

Reliability

Reg1: Mean time to failure of the site should not be less than 4 weeks.

Justification: important for serving without interrupt.

Req2: Percentage of events causing failure should be less than %1.

Justification: decreases the probability of the failure.

Req3: Probability of data corruption on failure should be less than %0.5.

Justification: important for protecting user data's, it helps to improve user

satisfaction.

Availability

Req1: Mean time to restart system after failure should less be than 5 minutes.

Justification: important for making site available as fast as when failure occurs.

Req2: Every night, backups of events occurring throughout the day should be

taken in the system.

Justification: In case of an error in the system, data corruption or loss may occur,

and in such a scenario, the backed-up data can be restored.

Security

Req1: The data in the database should be stored in encrypted form.

Justification: Malicious individuals attempting to steal data from the database

will encounter the encrypted form of the data. Therefore, they will not be able

to access important information such as users' credit card details if stored.

Req2: The system should log suspicious events or security breaches occurring

within the system into a log file.

Justification: important to identify vulnerabilities in the system quickly, and to

repair them

Req3: The system should renew the at least 15-character passwords used by

super admins to access the site via email every two weeks.

Justification: It is important to mitigate the risk of unauthorized access by

enhancing the security of passwords for users with super admin privileges in the

system.

Maintainability:

Req1: The site should be coded in a modular fashion.

Justification: When updates need to be made in the system, the relevant part

of the code can be quickly addressed for updates.

Req2: System and user interfaces should be documented, understandable

and readable.

Justification: The interface where the update is applicable should be easily

identifiable, and the update should be quickly implementable. Additionally, in

case of any issues within the system, the detection and repair of the problem

become faster.

Portability:

Req1: The system should be usable for different operating system such as Microsoft, macintosh, mobile operating system.

Justification: important to increase the potential user count.

Req2: The languages used in developing the system should be at least 80% compatible with other environments.

Justification: It makes the system more easily portable to different environments.

3 References

1 [GoodReads Books]. (2018). [Goodreads Staffers' Top Three Books of the

Year]. GoodReads.

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.goodreads.com%2Fblog%2Fshow%2F1433-goodreads-staffers-top-three-books-of-the-

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