Lab 3
Use Case Modelling and Product Backlog

Group - 20

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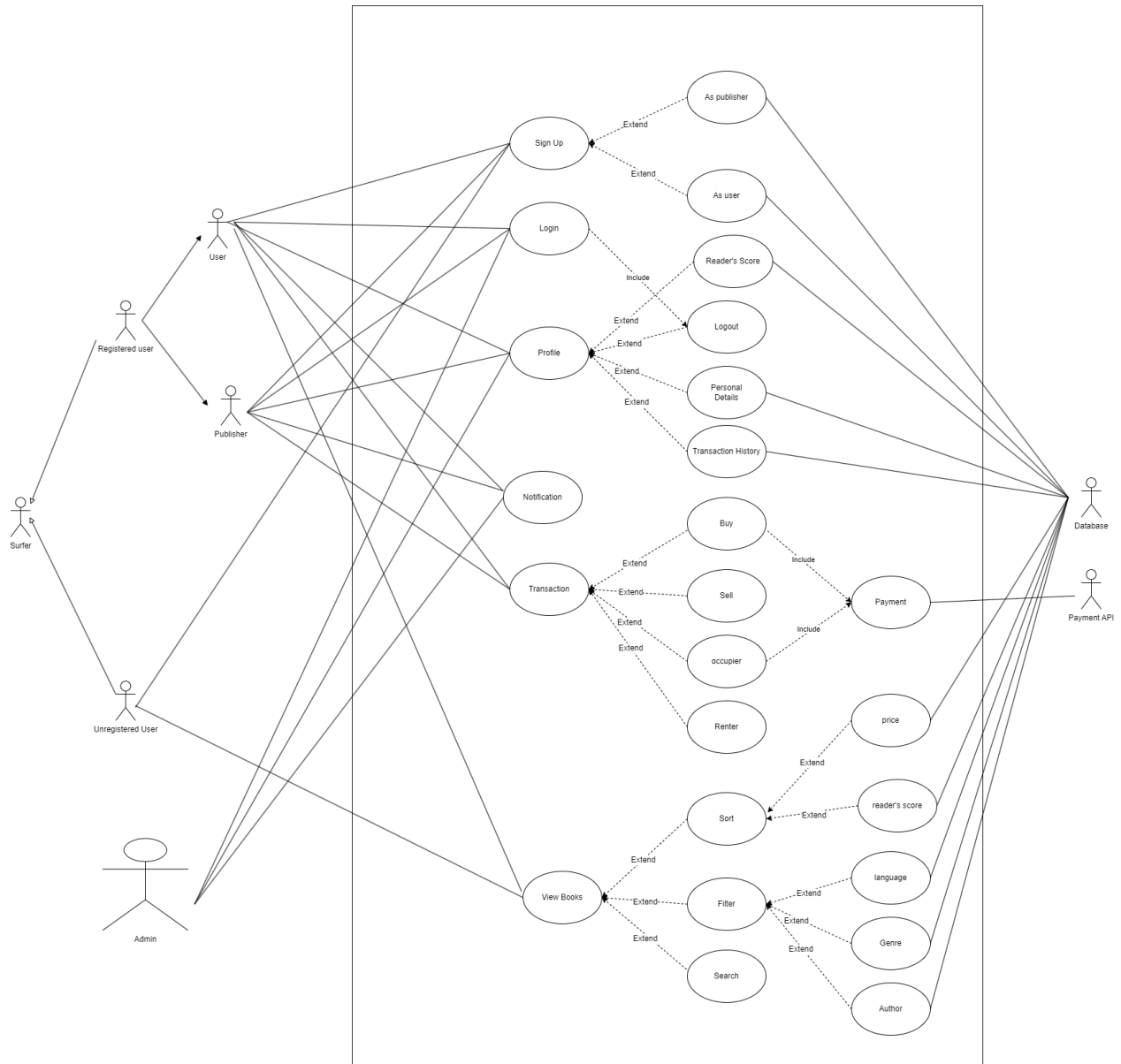
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Task 2: User Stories and Product Backlog

Here is the Table which contains the acceptance criteria for each user story thus making our product backlog

Sr.No	User Story	Acceptance Criteria
1	**As a** user, **I want** to search for books by title, author, and genre, **So that** I can quickly find the books I'm interested in.	Search bar allows users to input keywords for book searches. Search results display relevant books with basic information (title, author, genre).
2	**As a** user, **I want** to view detailed information about a book, **So that** I can decide if I want to rent or lease it.	Book details page shows synopsis, author, price, availability, and reviews
3	**As a** user, **I want** to leave a rating for the user who gave the book on rent, **So that** I can share my feedback and help other users choose who to rent the book from.	Users can rate a book owner and leave a numerical rating. Ratings are displayed on the book's detail page for other users. Users can only rate an owner after a successful rental transaction
4	**As a** user, **I want** to view my past rental history,	Users can see a list of previously rented books with details (title, author). History should be available for at least the past 12 months.

	So that I can keep track of the books I've rented.	
5	**As a** user, **I want** to cancel a rental before it is shipped, **So that** I can change my mind without being charged.	Users can cancel a rental order if it hasn't been shipped yet. A confirmation email is sent after cancellation.
6	**As a** user, **I want** to rent a book for a specific duration, **So that** I can read it without purchasing the book outright.	Users can select a book and choose a rental duration (e.g., 1 week, 1 month). After selection, the book is added to the cart with rental details and pricing. Users can complete the checkout process with secure payment. A confirmation email is sent with rental details (book title, duration, due date). The rental appears in the user's profile, with the due date and an option to extend.
7	**As a** user, **I want** to list my book for rent on the website, **So that** I can earn money by renting it out to other users.	Users can access the book listing feature from their profile. Users can enter the book's details (title, author, genre, condition, rental price). Users can select rental duration options (e.g., 1 week, 1 month). The system displays a confirmation once the book is successfully listed. Users receive a confirmation email with the listing details.

		The listed book appears in the user's profile. Users can edit or remove their book listing at any time.
8	**As a** user, **I want** to log in to my account on the website, **So that** I can access personalized features, manage my rentals, and view my profile	Users can access the login page from the homepage. Users can enter their email address and password to log in. Users receive an error message if the credentials are incorrect. Users have the option to reset their password if they forget it. Upon successful login, users are redirected to their profile or dashboard. Users can remain logged in during their session (with an option to log out).
9	**As a** new user, **I want** to create an account on the website, **So that** I can rent or lease books and manage my profile.	Users can access the registration page from the login page. Users can enter required information (name, email, password). Users receive a confirmation email after successful registration. Users can log in to their new account with the registered credentials.
10	**As a** user, **I want** to reset my password if I forget it, **So that** I can regain access to my account.	Users can request a password reset by entering their email address. Users receive a password reset link via email. Users can create a new password through the link.

		A confirmation message is sent after the password is successfully reset.
11	**As a** user, **I want** to extend the rental or lease period of a book, **So that** I can keep the book for a longer time if needed.	Users can request an extension from their profile or rental/lease page. Users can select the additional duration and see the new cost. The extension is processed and updated in the user's account. A confirmation email is sent with the updated rental/lease details.
12	**As a** user, **I want** to update my profile information, **So that** my account details are current and accurate.	Users can access the profile settings page from their dashboard. Users can update personal information (name, email, password, address). Changes are saved and reflected immediately. Users receive a confirmation message when updates are successful.
13	**As a** user, **I want** to view the expiry date of my book lease and have options to renew, **So that** I can decide whether to extend or return the book.	Users can see the expiry date of their leased books in their profile or lease history. Users are provided with options to renew the lease or return the book. Notifications are sent as the lease expiry date approaches, with renewal instructions.
14	**As** an admin, **I want** to add, update, or remove payment methods,	Admins can access the payment methods management section. Admins can add new payment methods, update existing ones, or remove outdated ones.

	So that users can have secure and current payment options for rentals and leases.	Admins receive confirmation when changes to payment methods are successfully made.
15	**As** a user, **I want** to receive notifications for important actions (e.g., book rentals, returns, payment confirmations), **So that** I can stay informed about my account activities.	Users receive notifications for successful transactions, due dates, and returns. Notifications are displayed on the user's dashboard and sent via email. Users can enable or disable specific notifications in their profile settings.
16	**As** a user, **I want** to filter book listings by genre, author, and language, **So that** I can find books that match my preferences more easily.	Users can apply filters by genre, author, and language on the book listing page. The system displays only the books that match the selected filters. Filters can be cleared or modified at any time.
17	**As** a user, **I want** to sort book listings by price and reader's score, **So that** I can quickly find affordable books or top-rated ones.	Users can choose to sort books by price (low to high, high to low) or reader's score (best to worst). The book listings are re-ordered based on the selected sorting criteria. Users can change the sorting option at any time.
18	**As** a user, **I want** to receive book recommendations based on the reviews I leave, **So that** I can discover books similar to those I've enjoyed.	The system analyzes user reviews and recommends books with similar themes, genres, or authors. Recommendations are displayed in the user's profile or sent via notifications. Users can choose to save recommended books to their wishlist or view more details.

19	**As** a user, **I want** to log out of my account, **So that** I can secure my account after using the platform.	Users can log out from their profile or any page. Logging out redirects the user to the homepage. A message confirms the user has logged out successfully.
20	**As** a user, **I want** to view my reader's score on my profile, **So that** I can see how others have rated my interactions on the platform.	The reader's score is displayed on the user's profile page. The score is updated based on recent ratings from other users. Users receive notifications when their score changes.
21	**As** an admin, **I want** to verify publisher accounts, **So that** only legitimate users can list books for sale.	Admins receive notifications when new publisher accounts are created. Verification steps include reviewing business details and identification on the basis of the ISBN no. Publishers are notified via email when their account is verified or rejected.
22	**As** a renter, **I want** to report any damage to a rented book, **So that** I am not held responsible for damage I didn't cause.	Users can report book damage by submitting a form through their rental history. Photos and a description of the damage can be uploaded with the report. The system notifies both the platform and the owner of the damage claim. Users receive confirmation that their damage report has been submitted and is under review.

23	**As** an Admin, **I want** to be able to manage the books/content in the system, **so that** I can ensure inappropriate or outdated content is removed or updated.	The admin can view a list of all books. The admin can filter books based on genre, author, language, etc. The admin can remove books that violate content policies. The admin can mark books as "featured" for promotional purposes. The admin receives a success or error message when removing or updating books.
24	**As** a User, **I want** to purchase a book, **so that** I can gain permanent access to the content.	The user can add books to the cart. The user can proceed to checkout to finalize the purchase. The system calculates the total cost, including taxes if applicable. The user can select a payment method (credit card, digital wallet, etc.).
25	**As** a user, **I want** to update the information of a book I listed, **So that** I can correct or improve the details to attract more renters.	Users can access their listed books and edit details (e.g., price, description, condition). Changes are saved and reflected immediately in the book listing.
26	**As** a user, **I want** to add books to a wishlist, **So that** I can easily find and rent or purchase them later.	Users can add any book to their wishlist from the book detail page. The wishlist is accessible from the user's profile.

		Users can remove books from their wishlist at any time or move them to their cart for rental or purchase.
27	**As** a publisher, **I want** to list books for sale on the platform, **So that** I can reach potential buyers.	Publishers can access the "Sell a Book" feature from their profile. They can input book details (title, author, price, condition). The book is listed under the available books section after successful submission. Publishers receive a confirmation email when a book is listed for sale.
28	**As** a user, **I want** to track my book sales, **So that** I can monitor my earnings and sales performance.	Users can view a sales dashboard showing their books' performance. The dashboard displays total sales, earnings, and books sold. Users can filter the sales by date range, book title, or genre.
29	**As** a user, **I want** to remove a book from the listings, **So that** it is no longer available for purchase or rental.	Users can access the book listing management page. Users can remove books from the platform with a "Remove" button. Removed books no longer appear in search results or available books. Users receive a confirmation email when a book is successfully removed.

30	**As** a publisher, **I want** to offer a discount on my books, **So that** I can attract more buyers.	Publishers can apply a discount to any book from the listing management page. Discounts are shown in the book listing with the original price crossed out. Publishers can set the duration for the discount to be active. Publishers receive confirmation when the discount is successfully applied.

Stakeholders:

User - Regular users who list and swap books.

Admin(Us) - The one who manages the users and content.

Publisher - The organizations who sell books on the system.

Payment API - The payment gateway will be directed to other API.

Task 3: Sprints and Estimation

<u>Sprint 1</u>: User sign up and registration

Function Point Estimation For Sprint 1

Description	Low	Average	High	Total
EI	0 x3	0 x4	1 x6	**6**
EO	0 x4	0 x5	0 x7	**0**
EQ	1 x3	0 x4	0 x6	**3**
ILF	0 x7	0 x10	1 x15	**15**
EIF	0 x5	0 x7	0 x10	**0**

Total Unadjusted Function Points (TUFP): 6 + 0 + 3 + 15 + 0 = 24

(0=no effect on processing complexity; 5=great effect on processing complexity)

Scale	(0 - 5)
Data communications	3
Heavily used configuration	2
Transaction rate	3
End-user efficiency	5
Complex processing	4
Installation ease	1
Multiple sites	2
Performance	3

Distributed functions	2
On-line data entry	3
On-line update	4
Reusability	4
Operational ease	3
Extensibility	3

Processing Complexity (PC): 42

Adjusted Processing Complexity (PCA) = 0.65 + (0.01 * PC) = 0.65 + (0.01 * 42) = 1.07

Total Adjusted Function Points (TAFP): PCA * TUFP = 1.07*24 = 25.68

Estimated Time (Assuming 3FPs per person per week): TAFP/(3*10) = 25.68/30 = **1 week**

<u>Sprint 2</u>: User login

Function Point Estimation For Sprint 2

Description	Low	Average	High	Total
EI	1 x3	0 x4	1 x6	**9**
EO	0 x4	0 x5	0 x7	**0**
EQ	1 x3	0 x4	0 x6	**3**
ILF	0 x7	0 x10	1 x15	**15**
EIF	0 x5	1 x7	0 x10	**7**

Total Unadjusted Function Points (TUFP): 9 + 0 + 3 + 15 + 7 = 34

(0=no effect on processing complexity; 5=great effect on processing complexity)

Scale	(0 - 5)
Data communications	5
Heavily use configuration	2
Transaction rate	4
End-user efficiency	4
Complex processing	3
Installation ease	2
Multiple sites	2
Performance	3
Distributed functions	1
On-line data entry	0
On-line update	1
Reusability	3
Operational ease	3
Extensibility	3

Processing Complexity (PC): 36

Adjusted Processing Complexity (PCA) = 0.65 + (0.01 * PC) = 0.65 + (0.01 * 36) = 1.01

Total Adjusted Function Points (TAFP): PCA * TUFP = 1.01*34 = 34.34

Estimated Time (Assuming 3FPs per person per week): TAFP/(3*10) = 34.34/30 = **1.2 weeks**

<u>Sprint 3:</u> Profile building

Function Point Estimation For Sprint 3

Description	Low	Average	High	Total
EI	1 x3	0 x4	1 x6	**9**
EO	1 x4	1 x5	0 x7	**9**
EQ	0 x3	0 x4	0 x6	**0**
ILF	0 x7	0 x10	1 x15	**15**
EIF	0 x5	0 x7	0 x10	**0**

Total Unadjusted Function Points (TUFP): 9 + 9 + 0 + 15 + 0 = 33

(0=no effect on processing complexity; 5=great effect on processing complexity)

Scale	(0 - 5)
Data communications	1
Heavily use configuration	2
Transaction rate	2
End-user efficiency	3
Complex processing	4
Installation ease	3
Multiple sites	2
Performance	5
Distributed functions	5
On-line data entry	5
On-line update	5

Reusability	4
Operational ease	3
Extensibility	2

Processing Complexity (PC): 46

Adjusted Processing Complexity (PCA) = 0.65 + (0.01 * PC) = 0.65 + (0.01 * 46) = 1.11

Total Adjusted Function Points (TAFP): PCA * TUFP = 1.11*33 = 36.63

Estimated Time (Assuming 3FPs per person per week): TAFP/(3*10) = 36.63/30 = **1.3 weeks**

<u>Sprint 4:</u> View books

Function Point Estimation For Sprint 4

Description	Low	Average	High	Total
EI	1 x3	2 x4	1 x6	**17**
EO	0 x4	0 x5	1 x7	**7**
EQ	0 x3	0 x4	0 x6	**0**
ILF	0 x7	0 x10	1 x15	**15**
EIF	0 x5	0 x7	0 x10	**0**

Total Unadjusted Function Points (TUFP): 17 + 7 + 0 + 15 + 0 = 39

(0=no effect on processing complexity; 5=great effect on processing complexity)

Scale	(0 - 5)
Data communications	5
Heavily use configuration	4

Transaction rate	4
End-user efficiency	4
Complex processing	5
Installation ease	3
Multiple sites	2
Performance	4
Distributed functions	2
On-line data entry	3
On-line update	3
Reusability	4
Operational ease	4
Extensibility	2

Processing Complexity (PC): 49

Adjusted Processing Complexity (PCA) = 0.65 + (0.01 * PC) = 0.65 + (0.01 * 49) = 1.14

Total Adjusted Function Points (TAFP): PCA * TUFP = 1.14*39 = 44.46

Estimated Time (Assuming 3FPs per person per week): TAFP/(3*10) = 44.46/30 = **1.5 weeks**

Sprint 5: Buy clause

Function Point Estimation For Sprint 5

Description	Low	Average	High	Total
EI	1 x3	0 x4	0 x6	**3**
EO	0 x4	0 x5	0 x7	**0**
EQ	1 x3	0 x4	0 x6	**3**
ILF	0 x7	0 x10	1 x15	**15**
EIF	0 x5	1 x7	0 x10	**7**

Total Unadjusted Function Points (TUFP): 3 + 0 + 3 + 15 + 7 = 28

(0=no effect on processing complexity; 5=great effect on processing complexity)

Scale	(0 - 5)
Data communications	5
Heavily use configuration	5
Transaction rate	5
End-user efficiency	5
Complex processing	5
Installation ease	3
Multiple sites	2
Performance	4
Distributed functions	3
On-line data entry	4
On-line update	3
Reusability	3

Operational ease	4
Extensibility	2

Processing Complexity (PC): 53

Adjusted Processing Complexity (PCA) = 0.65 + (0.01 * PC) = 0.65 + (0.01 * 53) = 1.18

Total Adjusted Function Points (TAFP): PCA * TUFP = 1.18*28 = 33.04

Estimated Time (Assuming 3FPs per person per week): TAFP/(3*10) = 33.04/30 = **1.2 weeks**

<u>Sprint 6:</u> Sell clause

Function Point Estimation For Sprint 6

Description	Low	Average	High	Total
EI	0 x3	0 x4	1 x6	**6**
EO	0 x4	0 x5	0 x7	**0**
EQ	1 x3	0 x4	0 x6	**3**
ILF	0 x7	0 x10	1 x15	**15**
EIF	0 x5	0 x7	0 x10	**0**

Total Unadjusted Function Points (TUFP): 6 + 0 + 3 + 15 + 0 = 24

(0=no effect on processing complexity; 5=great effect on processing complexity)

Scale	(0 - 5)
Data communications	5
Heavily use configuration	5

Transaction rate	5
End-user efficiency	5
Complex processing	5
Installation ease	4
Multiple sites	3
Performance	4
Distributed functions	3
On-line data entry	4
On-line update	4
Reusability	5
Operational ease	4
Extensibility	2

Processing Complexity (PC): 58

Adjusted Processing Complexity (PCA) = 0.65 + (0.01 * PC) = 0.65 + (0.01 * 58) = 1.23

Total Adjusted Function Points (TAFP): PCA * TUFP = 1.23*24 = 29.52

Estimated Time (Assuming 3FPs per person per week): TAFP/(3*10) =29.52/30 = **1 week**