# Criterion A

## Problem Scenario

My client, **Mrs. Richa Mehrotra**, is the IB MYP segment coordinator at an international school. Every year, the school sends out a book list to the students with all the reference books that they would need for the upcoming school year. Although some teachers recommend that students contact their seniors to collect their used books, it is often difficult for students to find and connect with seniors who would be willing to pass down their used books. I met Mrs. Mehrotra to understand the situation better.

Having been a student in the same school for over six years, this is an issue that I have experienced as well. All the juniors buy textbooks and other study material for all of their subjects. The outgoing students from every MYP batch did not require their old textbooks anymore, and eventually these old books would end up being thrown out (as per observation, most people follow this behavior).

Although some students were already implementing a similar system at a personal level, there was no official/ automated channel for students to ask their seniors for old textbooks or notes. The current system was running purely on word of mouth and if students did not have personal contact with their seniors, they would miss out.

My client and I strategized a few ideas to combat this issue. A manual method to hand-down old books would be time wasting as people would have to physically sort through all the material to find the books they are looking for. It would also become difficult to segregate free and paid resources. This would also increase the librarian’s workload.

After much ideation, I proposed the final solution.

|  |
| --- |
| **Solution: “CIRCLE”, an online student community platform for students to buy, sell or donate used textbooks, calculators and student notes** |

## Rationale behind the proposed solution

My vision for the final solution is a site where senior students can list all the old textbooks and notes that they would be willing to hand down to their juniors. These would be sorted into different categories so that products can be easily located by customers. Customers can view all products available and view offers by different vendors for the same product. They will place a bid for a product and an automated mail will be sent to the vendor with the product request. Therefore, the solution would have successfully linked the senior and junior students.

The goal of this solution is to make it easy for students to transfer used books. As students already use a variety of different softwares for academic work, especially after two years of virtual learning, we did not want to introduce a brand new application for students to download. Therefore, the solution will be created as a website.

The front-end for this web-based solution will be written in HTML, CSS and Pug. HTML will be used to organize all the information that the users see, CSS will be used to style it and will be converted into a Pug.js template to make it dynamic. JavaScript will be used for the backend development of the solution. Node.js will be used for the development of the platform and executing the server-side code because of it’s efficient performance and easy development. MongoDB database will be used as it is fully cloud-based and facilitates easy changes. Express JS will be used to build the pages and link the database to the source code. I am comfortable with these frameworks making them a feasible solution.

## Success Criteria

1. Startup page that provides options for users to log into the portal or surf through the products available on the website without logging in
2. The home page loads within **\_\_ seconds**
3. Users should be able to **search** for products on the home page
4. The program should include an **effective and secure user authentication system** for users operating on both sub-domains. All users have to be authenticated before being able to carry out functionalities
5. The program should have an effective **role assignment system** to classify users across two different sub-domains; one for vendors who want to list their books/notes and the other for the customers who want to bid for the listed products.
6. Vendors should be able to access the following functionalities
   1. **Listing new products** onto the website
   2. **Editing** product information; program must update and save edits
7. Customers should be able to access the following functionalities
   1. **Navigating** through the website to find their desired product
   2. **Placing a bid** for a product they would like to procure
8. The website should display the following information about every product
9. The program should be able to **sort** the products by subject, condition and price
10. Store all products in an **inventory database**
11. The program should have an **efficient system for the addition of products** to the inventory database
12. The program should send an **automated email** to the vendor of the product once a user request has been placed
13. The program should send an **automated email** to the bidder once the request has been placed to the vendor
14. Users can edit their account passwords. The program must save an update these edits