Nick Cheepchiewcharnchai

Crosby Merch website

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# Analysis

## Identifying problem

Recently, Crosby house has come up with ideas of some merchandise which we would like to sell to the pupils within the house. However, we do not actually have a proper system set up for buying and selling them yet. It will be confusing and hard for the person in charge to create and send out a form before finally being able to go through the results one by one only after making sure that everyone has filled in the form. We are also hoping that we will be able to add more items to the collection of merchandises in the future. This will result in a more complicated and longwinded process to deal with over time, due to the need for someone to physically process the data.

## Project description

I intend to create a shopping website for pupils to buy the house merchandise. They will be able to choose the item, quantity and size (when available) that they wish, these items will be added to their ‘shopping cart’ before confirming purchase at the checkout. I want the ‘admin’ of this website to be able to add new items or remove existing items to the merch list at any point. They should easily be able to see what items each person had bought from this website, including any details (quantity & size).

## Stakeholders and interviews

In this section I will be interviewing my stakeholders using a set of questions that I have made to help me to design a website that will fit their needs. The questions are as follows:

Questions for Admin

What makes a good merch selling website?  
 - Does the aesthetics of a website affect your experience?  
 - What types of devices should the website be compatible with?  
 - Which pages of the website need the most attention?  
 - What key information/features should be on the homepage

What are the current problems with the current solution?  
 - Does the current solution function as it should?  
 - Have you had any negative experiences with the current solution?  
 - What do you think is currently missing from the current solution?

What functionalities are needed for those using the website?  
 - What will customers need to be able to do?  
 - What functionalities will the admins need?  
 - How will the system of the website work?

Questions for customers

What makes a good website for a restaurant?  
 - Does the aesthetics of a website affect your experience?  
 - What types of devices should the website be compatible with?  
 - Which pages of the website need the most attention?  
 - What key information/features should be on the website?

What are the current problems with the current solution?  
 - Does the current solution function as it should?  
 - Have you had any negative experiences with the current solution?  
 - What do you think is currently missing from the current solution?

**Current Head of house, Admin – Julian Lee**

As the head of house is it Julian’s responsibility to gather everyone’s order and process them. This is why he will be a good stakeholder for this project, acting as the admin of the website. He will be able to use this website to hopefully make his job at gathering orders from everyone easier.

Does the aesthetics of a website affect your experience?  
 “Definitely, I think that the aesthetic of a good website should attract the customer to be more likely to buy our merch. I want the website pages to be able to complement and enhance the aesthetic of the merch itself. However when talking about aesthetic of the website on admin’s side, I don’t think that it matters that much, as long as the website is laid out so that it is easy to use.

What types of devices should the website be compatible with?  
 “I want the website to be compatible with my laptop since that is when it is easiest for me to do my work. My phone tends not to be used for work so I don’t really need it to work on the phone, I don’t mind if it works on the phone as well or not because I will most likely not be using it on my phone anyways.”

Which pages of the website need the most attention?  
 “I think that the page which will display all of the merch will be the most important, as that would be where the customers are first introduced to each merch items. If they are attracted to the merch from this page in the first place then it will be likely for them to buy the merch.”

What key information/features should be on the homepage?  
 “I do not really think that a home page is important for this merch website, as long as the merch display page is attractive, then that page can act in itself as a homepage to welcome the users.”

Does the current solution function as it should?  
 “The current solution works fine, however it does not provide the aesthetic and description of each items like I would prefer it to.”

Have you had any negative experiences with the current solution?  
 “When I have to collect and process the data of the orders, it was really hard for me to keep track of who wants which item. I also had the problem of people sending in their order at different times which made me forget which ones I have already processed and which ones I haven’t done yet, it was very time consuming to have to try and figure out what has been added to the list of orders and by whom. Another problem is that the form that is sent out only allows one reply from each person, this means that once someone has sent their form, they cannot change their mind to get more/less items. That means that people will have to talk to me in person and it is quite hard to keep track of all of those requests.”

What do you think is currently missing from the current solution?  
 “The current solution is a Microsoft forms, therefore when I look at responses from each person it will show up with their email address, which I may not be familiar with each person’s email address. This meant that I had to spend extra time to work out who the order actually needed to made for, slowing down he process even more.”

What will customers need to be able to do?  
 “Customers should be able to view all the merch that is available to them and choose which ones they would like to order. They should be able to place multiple orders and at any time that they would like.”

What functionalities will the admins need?  
 “I would like the admins to be able to create and accounts, so that it is easier for me to remember names instead of emails. I would also like to be able to view each orders that has been made and who is was made by, and show if the order has been processed or not. Apart from adding and deleting accounts admin must also be able to edit the available merch and put a front and back picture of the merch on the website.”

How will the ordering system of the website work?  
 “Once the pupil places an order, I’ll be able to see the details of their orders and that will allow me to make a list of all the merch that is needed. I should be able to check that a transaction has been made and I will then get the orders ready. After everything is done I should be able to mark the orders of as finished.”

**Pupil of Crosby House, Customer – Genta Yamanouchi**

As one of the pupils in Crosby house, Genta will be a good stakeholder for this project because he will be the user of this website. In particular he has already ordered two merch items which means that he has used the ordering form beforehand and will be able to judge the difference between the existent solution and the new solution.

Does the aesthetics of a website affect your experience?  
 “Yes it does. I find that a website that look appealing to me makes me want to buy from it more. Probably because if the quality of the website is high, then most likely the quality of the merch will also be high.”

What types of devices should the website be compatible with?  
 “I have tried to do online shopping on my phone before but I found that it was too inconvenient, the picture were too small and I was only able to see one item at a time as I was scrolling down, which is why I always do my online shopping on my laptop. I also find that the only time where I actually have time to properly browse for items is when I am on my laptop.”

Which pages of the website need the most attention?  
 “I think that when I look at a shopping website, the most important page is the item browsing and individual item displaying page. This is because those pages are where I will actually make my decisions of which items I will actually want to buy. The browsing page lures me into a specific item, and on it’s specific page, the details on the items will truly let me decide if I want to buy it or not.”

What key information/features should be on the website?  
 “When it comes to a shopping website I think that the ability to be able to browse items and see the items in the basket before I checkout is very important. It is also important for me to be able to see the order that I have made, and the item that I am waiting for. Since they are all important aspects of a shopping website, I really want to be able to move from one page to another very easily.”

Does the current solution function as it should?  
 “The current solution works, but not very well. It currently isn’t very attractive and the Microsoft form feels so far away from being a proper selling mechanic for the house merch.”

Have you had any negative experiences with the current solution?  
 “It doesn’t allow me to buy more than one of the same item, which I had wanted to do. It was also kind of hard to browse and choose the items because of the way Microsoft forms lays it out.”

What do you think is currently missing from the current solution?  
 “I think that the biggest issue that the current solution has right now is the browsing mechanic, as it is very inefficient. It would be helpful to also have some kind of total so that I know how much I am spending without having to calculate it myself. And something that isn’t really a problem but would really contribute to my experience of buying the merch is to have the buying process by aesthetically pleasing.”

**Conclusions made from interview:**

From the interviews with my stakeholders, I now have an idea of what I should be including into my website, both for the functionality of the admin and the customers.

On the management side of the website:

* No need for aesthetics, because efficiency in functionality is more valued
* Need to be able to work on laptops/PC
* Need to be able to add and remove users
* Need to be able to add and remove merch items, being able to insert the front and back pictures for each item
* Need to be able to see contents and details of each orders made by each user
* Need to be able to see and change the processing status of each item in and order

On the customer side of the website:

* The website must be aesthetically pleasing
* Need to be able to work on laptop/PC
* Need to be able to easily browse through all merch items
* Need to be able to place multiple orders
* Need to be able to choose size and quantity of each merch item before adding to basket
* Need to be able to see the total cost of the basket
* Need to be able to traverse between basket and merch display page
* Need to be able to see all orders made and see its processing status

## Justifications of how the solution can be solved by computational methods

This problem will be well suited for a computer since the data can easily be entered and processed. Because there will be a lot of data that needs to be processed (e.g. total cost for each person, total number of each merch in each sizes that needs to be ordered and for who), the computer will be able to accomplish these tasks much faster than humans. From the side of the customers, it allows convenience for them to be able to do the online shopping from anywhere and at any time, which gives them more freedom in browsing and selecting product. It will also allow many people to be able to browse and order the merch at the same time.

**Thinking ahead**

The inputs I will need for my solution to work, include customer data such as their login details of their school system, which will be collected manually by us to be used as the login for this website. Additionally, data of merch items will be needed to create the list of clothing on the website. Input will also be required from admin to sign orders off when they have been completed, so that the process of checking orders off orders can be ran smoothly.

The outputs my system will give include the total cost of a the merch purchased. Customers may also have an online receipt as an output (showing the total amount of money that they spent). The system will also display the status of each item (e.g. ordered, received, completed).

My website may potentially have reusable components. For example, the CSS of my website could be used across multiple pages of my website (homepage, shopping page, checkout etc.) as it is logical and aesthetically pleasing that each page of my website follows the same colour scheme and design features.

**Thinking procedurally**

I am breaking up the problems into smaller steps so that it will be easier for me to come up with many little solutions that will join together to solve the entire solution. The problems are as follows:

Placing an order:

* The customer should be able to login
* The customer needs to see a list of all the merch
* The customers should be able to add merch items into their basket
* Customers need to make payments for their orders

Preparing an order:

* Admin needs to be able to see the orders placed by all end users combined into one
* The admin need to be able to sign off orders once they are complete
* Orders that are signed off should be removed from the display after a certain amount of time.

Delivering an order:

* Admin need to know which belong to which individual end user

**Thinking logically**

Branching and looping will be needed for some aspects of my solution. For example, once a customer has added an item to their shopping cart, they can either choose to loop back to browse for more items, or they can choose to proceed to checkout and pay to confirm purchase.

A diagram of a customer

Description automatically generatedA diagram of a customer

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Start

## Research

### Current solution

Currently, the house merch system is ran using a Microsoft forms which lists each item and size individually. It is quite time consuming for Julian to have to look at what each person has ordered and then to write them down one by one. It is also an inconvenience for the pupil since they have to go through the entire list of items just to look for one that they actually wanted to buy. Although it is still quite straightforward since there are still only 8 items, but as we go on and there are more and more merch then it will grow to become a big problem for both Julian and all of the students.

**limitation of current solution**

Although this is a working solution, it is not very efficient for both the admin or the customer. I have listed some limitations of using a Microsoft forms below:

Basic customisation options  
Whiles Microsoft forms allows for a certain degree of customisation in terms of design and layout, its options are relatively basic compared to a proper e-commerce platform that offer extensive customisation to match the brand identity and improve user experience. Since the form only allows the pupil to choose a size of the item that they want, it means that they are only able to get no more than one of each item from the website.

Form can only be used once  
Once the form has been summited, the pupil cannot go back to change what they have submitted. Or even to look at their response. Not being able to have access to the form once it has been summitted means that pupils will only be able to buy merch once, if they change their mind and decide that they want to buy another item they that will not be possible for them. This also means that Julian will have to create and post a new form every time a new item has been added to the list of existing merch.

A screenshot of a computer

Description automatically generatedA screenshot of a computer

Description automatically generatedA screenshot of a computer screen

Description automatically generatedA screenshot of a shirt

Description automatically generatedNo shopping cart functionality  
The lack of a shopping cart ability may make it hard for the pupils to keep track of which item they had chosen to buy. This will become a big problem and waste of time when the list of merch has grown significantly.

### Similar solutions

Similar solution 1 : H&M website (men’s section)

A group of men posing for a picture

Description automatically generated

This is the display page of items that are sold by H&M for men

Features identified:

* Allows you to search for items quickly and easily by clicking on the navbar located on the left side of the screen, bringing you to a different page with only the items mentioned
* Allows you to like each add item to ‘favourite’ by clicking on the heart on each photo of the item, which can checked by the navbar at the top of the page
* Each item shows you the name and the price of the item as well as the colour that they are provided in
* Has arrows on the photos to allow you to look at other photos of same item without having to click onto the page of the item
* A screenshot of a phone

  Description automatically generatedAllows you to view items in different sort orders: recommended, Newest, Lowest price, Highest price
* Has a filter that allows you to only search for items which fits a description that the want:

A collage of a person wearing a black shirt

Description automatically generated

This is the display page of the item once you click onto them

Features identified:

* Scrolling up and down the page will allow you to see the different photos of the item on the left side of the screen whilst the ‘add to cart’ is fixed onto the right side of the screen
* You can choose which size you would like from the selection that they offer
* There is an accessible size guide to the right of the size selections
* You can check the details of the item under the ‘add’ on the bottom right of the screen: Description & fit, Material, Care guide
* A collage of clothes

  Description automatically generatedA pair of pants and socks

  Description automatically generatedOnce you scroll to the bottom of the page you will be able to locate a ‘style with’ section, suggesting you some other items that may go well with the one you are currently browsing, you can traverse left and right on this section to see more options
* Beneath the ‘style with’ section there is a ‘Others also bought’ that shows you which items were other people tend to buy together with the one you are currently browsing

A screenshot of a sign in form

Description automatically generated

This is the sign in page for the H&M website

Features identified:

* Accessible on the navbar at the top if every page
* A simple popup page that does not require you to be redirected to a different link
* Can choose to show password but otherwise would be hidden by replacing each letter with indistinguishable dots.
* Has a ‘Remember me’ checkbox which allows you to be automatically signed into the website once reopened through the same device
* Has a ‘Forgot password?’ to allow you to change/ recover your password when forgotten
* When incorrect login details has been entered, an error message is displayed in red

A screenshot of a login form

Description automatically generated

A screenshot of a computer

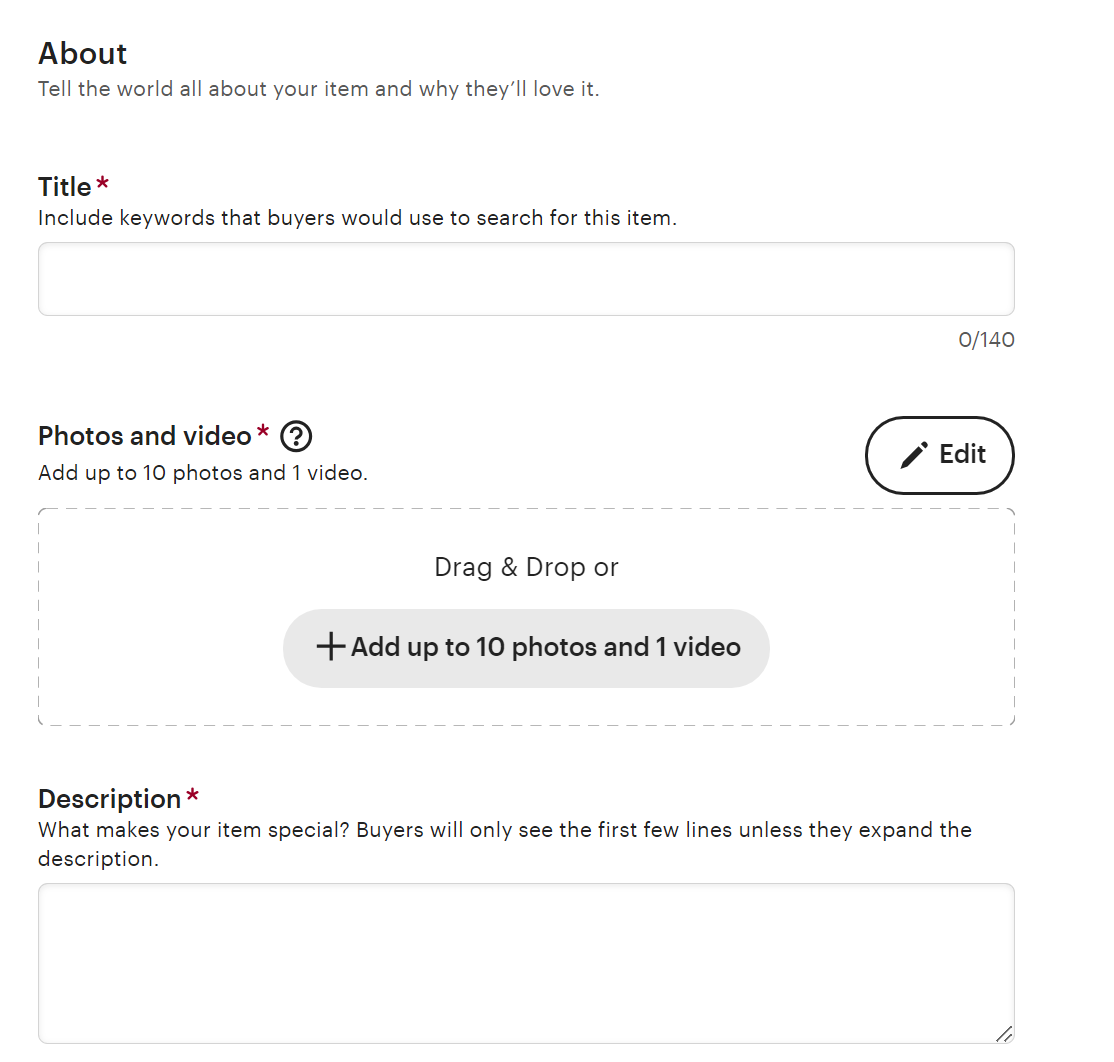
Description automatically generated

This is the ‘Shopping bag’ page which lists your item before you checkout and pay

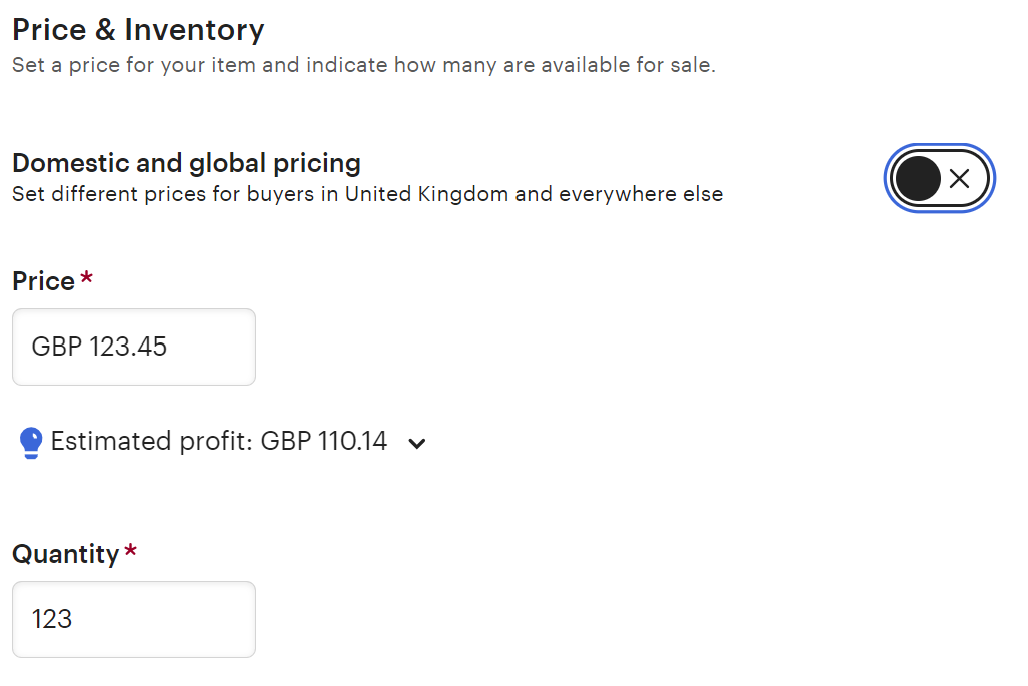
Features identified:

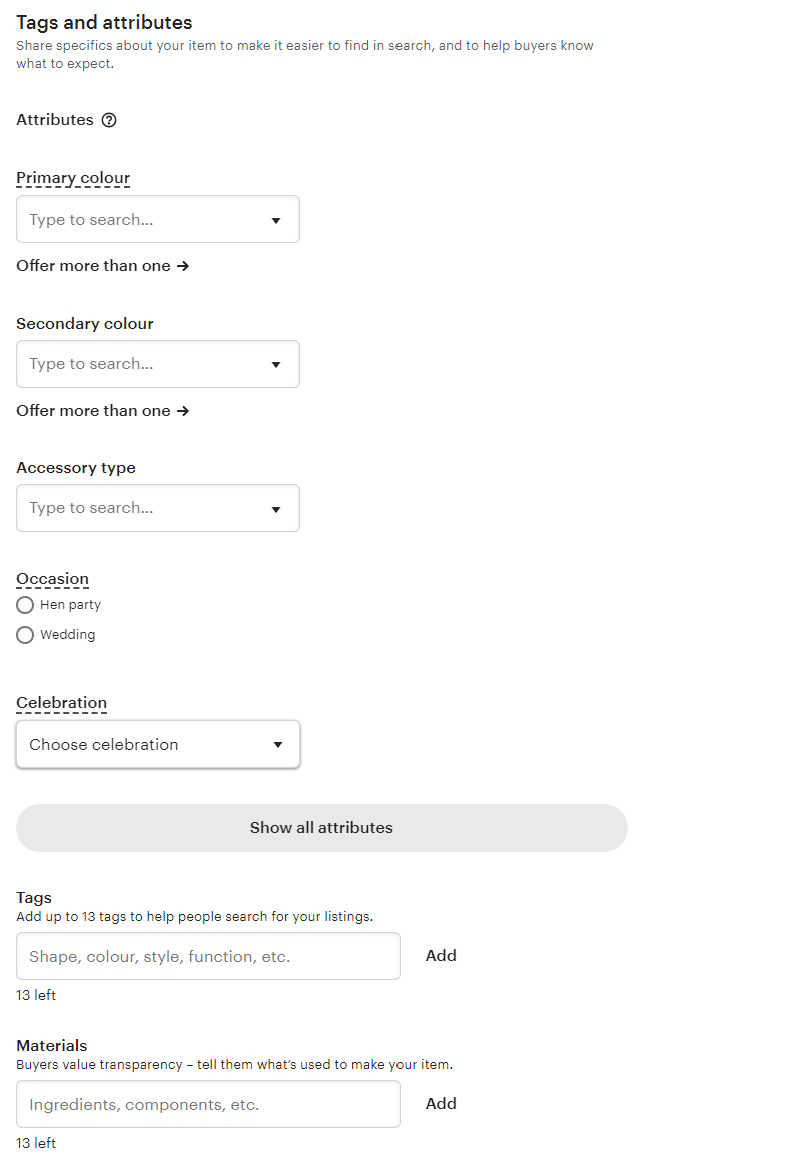
* Shows pictures and details of each items (e.g. name, individual cost, size, quantity, total cost)
* Allows the user to get rid of an item in the basket just by clicking the bin icon located on each of the items
* Shows the applicable discount on each item, on the picture of the item
* Shows the total cost of the order on the right, directly above the checkout button
* Shows the methods of payments available to be made by the customer

Similar solution 2 : Etsy (setting up a shop)

In this section, I will be looking at the process of adding an item onto an online shop in Etsy, so that I can know what inputs are asked for in the process of adding an item and whether they are optional or not.

* Name of item (required)
* Add photos and video (at least one required, maximum ten photos and one video)
* A white background with text

  Description automatically generatedWrite a description of the product (required)
* When the photos are added, a thumbnail must be chosen from one of the entered photos
* Price per item (required)
* A screenshot of a computer

  Description automatically generatedQuantity of stock (required)
* Colour of the item – primary and secondary (not required)
* Item tags, keywords, to help searching for item easier (not required)
* Material of item used for information provided to customer (not required)
* A screenshot of a web page

  Description automatically generatedWhether or not the item is physical or digital (required)
* A screenshot of a box

  Description automatically generatedThe item category (required)
* Information on how item will be delivered (required)

### Method of payments

In this section I will research the potential methods of payment that I can use for my project.

**Credit/debit:**

Pros:

* Convenience for customer – Very easy for pupils to make transactions since they just have to enter some card details
* Convenience for admin – The admin will have to do no work in checking that transactions are successful since that can be done by the computer itself
* Speed of transactions – The transaction requires little to no time to be sent through, meaning the purchase can be confirmed really quickly
* Recurring payment capability – If card details are saved onto their device then it will be easy for a pupil to purchase from the website easily every time

Cons:

* Safety of card details – I am not familiar with creating a system online that will take the card detail from someone and making a transaction, this may lead to safety issues for the students cards details
* Purchase confirmation (OTP) – To ensure that the purchase is being made by the owner of the card, an OTP must be used to confirm. I am not familiar with how it will work and how to incorporate messages through phone numbers. Apart from this pupils in the 3rd-4th form does not have access to their phones which means that they will not be able to access their OTP number.
* Availability of card – Although most pupils will have access to a debit card, some may not, and it is unfair if someone without a card would like to purchase the merch.
* Technological illiteracy – Some pupils are still not used to making purchases online since they are still young. They may be scared away from making purchases even though they might want to get the merch.

**Bank transfer:**

Pros:

* Convenience for customer – Very easy for pupils to make transactions as long as they have a bank account. The process of transferring money trough bank accounts are relatively simple.
* Pay by parents – if a student does not have a bank account, the transfer can also easily be done by their parents in their stead.
* Low safety risk – I will not have to be scared of security problems like for a card detail which may be leaked onto the internet.
* No need for a system to be set up – Since I am not in charge of the bank applications, it means that I will not need to set up any kind of system in terms of transferring money from one to another.

Cons:

* Delay of transactions – Transactions may not be instant, sometimes taking up to days before they are cleared, which may delay the confirming process of the purchase.
* Transfer fees – Money transfers from one bank to another may have transfer fees. The transfer fees will differ for each bank which is unfair towards the pupils, especially for overseas students.
* Human error – being in a boys boarding house, sometimes pupils are not very cautious and may transfer money to a wrong account number. In that case there is nothing that I will be able to do for the money that has be incorrectly transferred.
* Human management – the admin is required to check the bank balance every time someone makes a transaction, they also need to check which transactions are made by who by looking at account numbers, and if the amount of money that is received is correct. Only then will the admin be able to confirm the purchase made by the pupil.

**House bank:**

Pros:

* Convenience for customers – pupils will easily be able to put the amount of money spent onto a bill that will be retracted off their house bank after the purchase has been confirmed.
* Money flexibility – House bank allows students to go into debt which can be paid of by cash/money transfer at a later time. This allows for pupils to be able to make purchases when they don’t have money on them, but can pay back easily at a later time either by them or by their parents.

Cons:

* Consent of purchase – Student may use house bank to buy merch without their parents’ permission, this may cause issues from the parents perspective, since their child is spending their money without permission
* Debt collection – When many pupils go into a lot of debt, it starts becoming an issue to get everyone to pay it off. It will be an inconvenience for the admin of the house bank.

**Cash:**

Pros:

* Convenience for customers – cash is easily accessible by everyone, and is a form of payment that is accepted by people. It does not create extra steps for pupils to go through to have to confirm their payment.
* Speed of transaction – Although it may take a while to check the amount of money, however once that has been done, the purchase will be confirmed immediately.

Cons:

* Change of cash – By taking in cash as the payment method, a change of cash is required. However, there is not always the correct amount of change providable by the Admin.
* Different currencies – Being in a boarding house, some over seas pupils may not have much GBP cash that is available to them.
* Human requirement – Paying with cash will require a human to receive and give change to the pupil. They have to manually check the amount of cash received against the amount of cash required, which will be time consuming. Sometimes if there is no one to receive the cash then it will mean that purchases are not able to be made.

## Solution Proposal

### Features of solution

#### Shared Features:

* **Login Page**

**Feature**: Both admins and users will access the same login page, where they log in with secure credentials.

**Explanation**: Having a unified login page simplifies the user interface, as the same page is used for both admins and users. The system will differentiate the user roles after login, directing admins to the appropriate admin dashboard and users to their browsing page, where the aesthetic requirement will be met as needed.

* **Logout Function**

**Feature**: A logout option in the navbar that takes user and admins back to the login page.

**Explanation**: This provides users and admins with a secure and convenient way to exit the site, ensuring that their session ends properly and their information is protected. It aligns with the security requirements for customer accounts.

#### Customer Features:

* **Browsing Page with Product Display**

**Feature**: A browsing page that displays all available merchandise, with product images, names, and costs.

**Explanation**: This satisfies the customer requirement to easily browse through all merchandise. The inclusion of pictures, names, and prices makes it visually appealing, aligning with the need for an aesthetically pleasing website. It allows customers to quickly identify items they are interested in.

* **Search Bar and Filter Options**

**Feature**: A search bar and filters to refine the product list by category, size, price range, etc.

**Explanation**: This feature enhances the user experience by allowing customers to efficiently find specific items or narrow down their options based on preferences. It ensures the website meets the customer need to easily browse and sort merchandise.

* **Sorting Options for Products**

**Feature**: Ability to sort products by price, popularity, or newest items.

**Explanation**: Sorting helps customers navigate through the items in an order that makes sense to them, whether they are looking for the cheapest, newest, or most popular products. This option ensures a better browsing experience and satisfies the need for easy product navigation.

* **Detailed Product Pages**

**Feature**: Clicking on a product takes the user to a detailed page with high-quality images, descriptions, and specifications.

**Explanation**: This allows customers to explore the product in detail, ensuring they can make informed decisions before purchasing. It also satisfies the need to view item details like size options and costs clearly, which is essential for a smooth shopping experience.

* **Size and Quantity Selection**

**Feature**: The option for users to select the size and quantity of the item before adding it to their basket.

**Explanation**: This addresses the customer need to choose size and quantity before adding to the basket, ensuring they can tailor their order to their exact requirements. It supports the goal of placing multiple orders and customizing purchases.

* **Add to Basket Functionality**

**Feature**: The ability to add selected items (with chosen size and quantity) to the shopping basket.

**Explanation**: This feature allows customers to build their order by adding products they want to buy to the basket. It’s essential for fulfilling the need to place multiple orders and makes the purchase process easier.

* **Basket Page with Item Details and Total Cost**

**Feature**: A basket page that displays all items, their quantities, prices, and the total cost of the basket.

**Explanation**: This feature ensures transparency, allowing customers to see the total cost before finalizing their order. It also aligns with the need to display all orders and the total cost of the basket, making it easier for customers to track their spending.

* **Item Removal from Basket**

**Feature**: The option for users to remove items from the basket before completing their purchase.

**Explanation**: This adds flexibility, allowing customers to adjust their order if necessary, which supports the customer need for ease of use and customization during the shopping process.

* **Purchase Button to Complete the Order**

**Feature**: A purchase button that, once clicked, clears the basket and marks the items as purchased.

**Explanation**: Since no online transactions are required, this feature allows customers to finalize their orders without handling sensitive payment data. It meets the need for a simple, safe purchase process while removing the complexity of online transactions.

* **Purchases Page with Order Status**

**Feature**: A dedicated purchases page where customers can see all their past orders and their processing status (unprocessed, processed, finished).

**Explanation**: This feature allows users to track their orders and understand where each one stands in the fulfilment process. It satisfies the customer need to see all orders made and check the processing status, providing clarity and transparency in the order lifecycle.

* **View Details of Past Orders**

**Feature**: Clicking on any past order will display its detailed contents, including the items purchased and their status.

**Explanation**: This feature enhances customer experience by providing detailed insights into previous orders. It aligns with the need to view order histories and understand exactly what was purchased, offering better customer support and tracking.

* **Cancel Unprocessed Orders**

**Feature**: Only unprocessed orders can be cancelled by the user.

**Explanation**: This feature adds flexibility and control for the customer over their orders, allowing them to cancel an order if it hasn’t yet been processed. It meets the customer need to manage orders in real time and helps avoid frustration if changes need to be made.

* **Navbar for Easy Navigation**

**Feature**: A consistent navbar at the top of every page with links to "Browse," "Basket," "Purchases," and "Logout."

**Explanation**: The navbar ensures seamless navigation between different sections of the website. This feature satisfies the need to easily traverse between the basket, merchandise display, and purchase history without confusion or additional steps.

#### Admin Features:

* **Admin Homepage**

**Feature**: The admin homepage acts as the central hub for navigating to various management sections: **Items Management**, **Orders Management**, and **Accounts Management**.

**Explanation**: This page is designed for efficient workflow by organizing key management functions into distinct sections, allowing admins to quickly choose what they need to work on.

* **Items Management Page**

**Feature**: Admins can view, add, and remove items from the inventory. The list displays item details such as item name, price, description, and type.

**Explanation**: The page mirrors the browsing display on the customer side, allowing admins to efficiently manage the product catalogue. Admins can add new items with necessary details (name, price, description, type) and remove outdated or irrelevant items from the inventory to keep the product offering current.

* **Add New Item Functionality**

**Feature**: Admins can add new items to the inventory by entering details such as item name, price, description, and type.

**Explanation**: This feature allows the admin to expand the product catalogue by adding new items. The type field allows categorization for easy filtering on the customer-facing browsing page.

* **Remove Item Functionality**

**Feature**: Admins can remove items from the inventory, preventing them from appearing in the customer catalogue.

**Explanation**: The ability to remove items ensures that outdated or out-of-stock products are no longer displayed to customers, which helps maintain a streamlined and accurate catalogue.

* **Orders Management Page**

**Feature**: The Orders Management page allows admins to view and manage customer orders, categorized by Unprocessed, Processed, and Finished.

**Explanation**: This page helps admins track and manage the progress of orders, from receipt to fulfilment. The orders are categorized to ensure that unprocessed orders are handled first, followed by processing and completion.

* **Order Details and Status Management**

**Feature**: Admins can view the details of each order, including items, quantities, and total cost. They can update the status of orders (unprocessed, processed, finished).

**Explanation**: The ability to manage order status allows admins to keep track of the fulfilment process and ensure timely processing. Admins can move orders through various stages (unprocessed → processed → finished) based on their current status.

* **Account Management Page**

**Feature**: Admins can view, add, and remove customer accounts. Each account includes details such as username, name, email, and order history.

**Explanation**: This feature enables admins to manage the user base, ensuring they can control customer information and facilitate account creation or removal when necessary. Admins can also access detailed order history for each customer.

* **View and Manage Customer Baskets**

**Feature**: Admins can view customer baskets associated with individual accounts and manage the order status (processed, finished).

**Explanation**: This function allows admins to directly interact with customer orders, making it easier to process orders manually by users.

* **Add New Account Functionality**

**Feature**: Admins can create new user accounts by entering details such as name, username, and password.

**Explanation**: Admins have to manually add new customer accounts, since this e-commerce website is only limited to the members of Crosby House.

* **Remove Account Functionality**

**Feature**: Admins can remove customer accounts from the system.

**Explanation**: This feature gives admins the ability to delete inactive accounts (when students leave school), ensuring that user data is kept up to date and accurate.

* **Navbar for Navigation**

**Feature**: The navbar at the top of every page includes links to Items Management, Orders Management, Accounts Management, and a Logout option.

**Explanation**: The navbar provides consistent and intuitive navigation throughout the admin interface, ensuring that admins can easily switch between management sections and securely log out when finished.

* **Consistent Layout and Interface**

**Feature**: All admin pages (Items Management, Orders Management, Accounts Management) share a consistent design, including the layout, structure, and navigation options.

**Explanation**: A consistent design improves the user experience by reducing confusion and ensuring that admins can focus on their tasks without needing to relearn the layout on each page.

### Limitations of solution

One of the main limitations of this solution is the absence of an integrated payment system. This decision stems from the concern of handling online financial transactions. As I am not confident in managing sensitive financial data, there is a legitimate fear that, in the event of an error, transactions could be mishandled, potentially leading to financial losses or fraud. Therefore I have chosen to use the house bank system as a means to pay instead, this means that the admin will need to use a separate system to handle users’ expenses.

Another key limitation of the proposed solution is the lack of consideration for hosting the website on an external server. While the website can be developed locally using as XAMPP (for a local webserver), there are no current plans for setting up a live, publicly accessible hosting solution. This means that the website will not be available for public access or use unless hosted on a server, which is essential for real-world deployment. This limitation is justified in the context of the project’s scope, as hosting and deployment require specific technical expertise, and these decisions are being deferred in favour of focusing on the website’s core functionality and local testing instead.

## Hardware and Software requirements

### Hardware Requirements

This solution won't require me to purchase any hardware. Instead, I’ll use the school computers to run a local web server via XAMPP (described in software requirements). If I decide to explore hosting options later, it will likely be through an external company that offers a free hosting plan.

### Software Requirements

For website development, I’ll be using Visual Studio Code, which offers full support for HTML, CSS, Bootstrap, JS, and PHP. The design of the webpages will rely heavily on CSS and Bootstrap, as both stakeholder groups highlighted their importance for visual appeal. Furthermore, VS Code seamlessly integrates with GitHub, allowing me to automatically save and back up my progress externally.

For local hosting, I will use XAMPP, which provides an Apache web server and a MySQL database. I’ll manage the database using phpMyAdmin, making the process of working with the database more user-friendly.

## Success Criteria

### Shared Criteria

1) **Login Page Security and Access**

**Success Criteria**: Users and admins must be able to log in with valid credentials, and the system must prevent unauthorized access. Upon entering the correct credentials, users and admins must be sent to their respective pages.

**Justification**: Ensuring that only authorized users can access the admin panel is critical for the security and integrity of the system.

**Measurable Test**: **All** attempts to login with invalid credentials will not allow you to proceed any further. When entering correct credentials users and admins must **always** be sent to their respective pages.

3) **Website Responsiveness**

**Success Criteria**: The website should be fully functional across different devices (laptops, PCs, tablets, smartphones).

**Justification**: A responsive design ensures that customers and admins can access the site on any device, improving accessibility and customer satisfaction.

**Measurable Test**: There should be **no** **broken features or design issues** on mobile, tablet, and desktop devices. This can be checked by performing cross-device testing to verify that all features (navigation, product browsing, adding to basket, etc.) work seamlessly on various screen sizes.

### Customer Criteria

1) **Ease of Navigation**

**Success Criteria**: Customers can easily navigate between pages (Browse, Basket, Purchases, Logout) without confusion or excessive clicks.

**Justification**: Smooth navigation ensures a user-friendly experience, which is critical for customer satisfaction.

**Measurable Test**: Users should be able to move between pages in no more than **2 clicks**.

2) **Product Browsing Efficiency**

**Success Criteria**: Customers should be able to find products efficiently using search, filters, and sorting options.

**Justification**: Fast and efficient product browsing enhances the shopping experience, directly impacting sales and customer satisfaction.

**Measurable Test**: Customers should find the product within **1 minute** of using filters or search options.

3) **Add to Basket Functionality**

**Success Criteria**: Customers can successfully select size, quantity, and add an item to the basket without errors.

**Justification**: The ease of adding items to the basket ensures a smooth purchasing process, which contributes to higher conversion rates.

**Measurable Test**: Item is added to users’ basket **without encountering errors**.

4) **Basket Page Interaction**

**Success Criteria**: Customers can view and manage the contents of their basket, including removing items and seeing the total cost.

**Justification**: A functional and intuitive basket page is essential for preventing abandoned carts and improving the user experience.

**Measurable Test**: Users should be able to remove items and see an updated total cost **correctly**.

5) **Order Placement and Purchase Completion**

**Success Criteria**: Customers can place an order successfully by clicking the "Purchase" button and clearing the basket afterward.

**Justification**: A smooth purchase process is essential to close the sale and fulfil the customer’s intent to buy.

**Measurable Test**: Success in order placement and the **basket clearing**, once order is placed it should be **visible in the purchases page**.

6) **Order Status Visibility**

**Success Criteria**: Customers should be able to view the status of their orders (unprocessed, processed, finished) and check the contents of past orders.

**Justification**: Clear visibility into order status provides transparency and reduces customer uncertainty, increasing trust.

**Measurable Test**: Users should be able to view a **correctly shown order status** of each basket.

7) **Unprocessed Basket Cancellation**

**Success Criteria**: Users can cancel unprocessed orders from their purchases page.

**Justification**: Giving customers control over unprocessed orders helps reduce dissatisfaction and provides flexibility.

**Measurable Test**: Users should have the ability to cancel unprocessed orders successfully, which will be **removed from their purchases page**.

### Admin Criteria

1) **Efficient Access to Management Sections**

**Success Criteria**: Admins must be able to navigate between **Items Management**, **Orders Management**, and **Accounts Management** pages without delays.

**Justification**: The efficiency of navigating between sections directly impacts the overall productivity of admins, as they need to switch between these sections frequently.

**Measurable Test**: Admins should be able to access any pages from the homepage with no more than **5 clicks**.

2) **Items Management – Add/Remove Item Functionality**

**Success Criteria**: Admins must be able to add new items and remove existing ones easily and seamlessly.

**Justification**: Item management is crucial for maintaining an up-to-date and accurate product catalogue, which is essential for customer satisfaction.

**Measurable Test**:

* + The time taken to add an item should take no longer than 1 minute (assuming item details has been decided on)
  + The time taken to remove an item should take no longer than 1 minute

3) **Orders Management – View and Manage Order Status**

**Success Criteria**: Admins must be able to view order details and change the status of orders (Unprocessed, Processed, Finished).

**Justification**: Proper management of order statuses ensures smooth processing of items to customers.

**Measurable Test**:

* Admins must be able to update the order status in **less than 1 minute**.
* The order status should update in the system **immediately**, and the status change should be reflected across all relevant pages.

4) **Order Content Details**

**Success Criteria**: Admins must be able to view all items within an order, including quantities and the total cost.

**Justification**: Being able to view order contents allows the admin to verify and process orders accurately.

**Measurable Test**: Admins should be able to process the details of any order within **1 minute** of selecting an order.

5) **Account Management – Add/Remove User Accounts**

**Success Criteria**: Admins must be able to add new user accounts and remove existing ones when necessary.

**Justification**: Account management ensures that the system only contains approved users.

**Measurable Test**:

* + Admins must be able to add a new user account in **less than 3 minutes**.
  + Admins must be able to remove user accounts in **less than 1 minutes**.

6) **View and Process Customer Baskets**

**Success Criteria**: Admins must be able to view customer baskets and change the order status from Unprocessed to Processed or Finished through their account page.

**Justification**: Processing customer orders efficiently is vital to ensure that customers receive their items in a timely manner and that orders are tracked properly.

**Measurable Test**: Admins should be able to change the status of any order from Unprocessed to Processed or Finished in **less than 1 minute** through the account page.

7) **Navbar Consistency and Navigation**

**Success Criteria**: The navbar should be consistent across all pages, allowing easy navigation between the various management sections.

**Justification**: A consistent navigation structure ensures that users and admins can easily move between sections without confusion, improving efficiency.

**Measurable Test**: All pages (excluding the login page) must contain a navbar that will take you to **correct** pages. Navbar of users and admins should be different for the respective side and should always **look the same throughout all pages**.

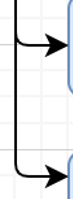
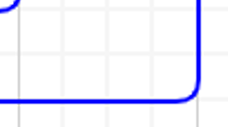
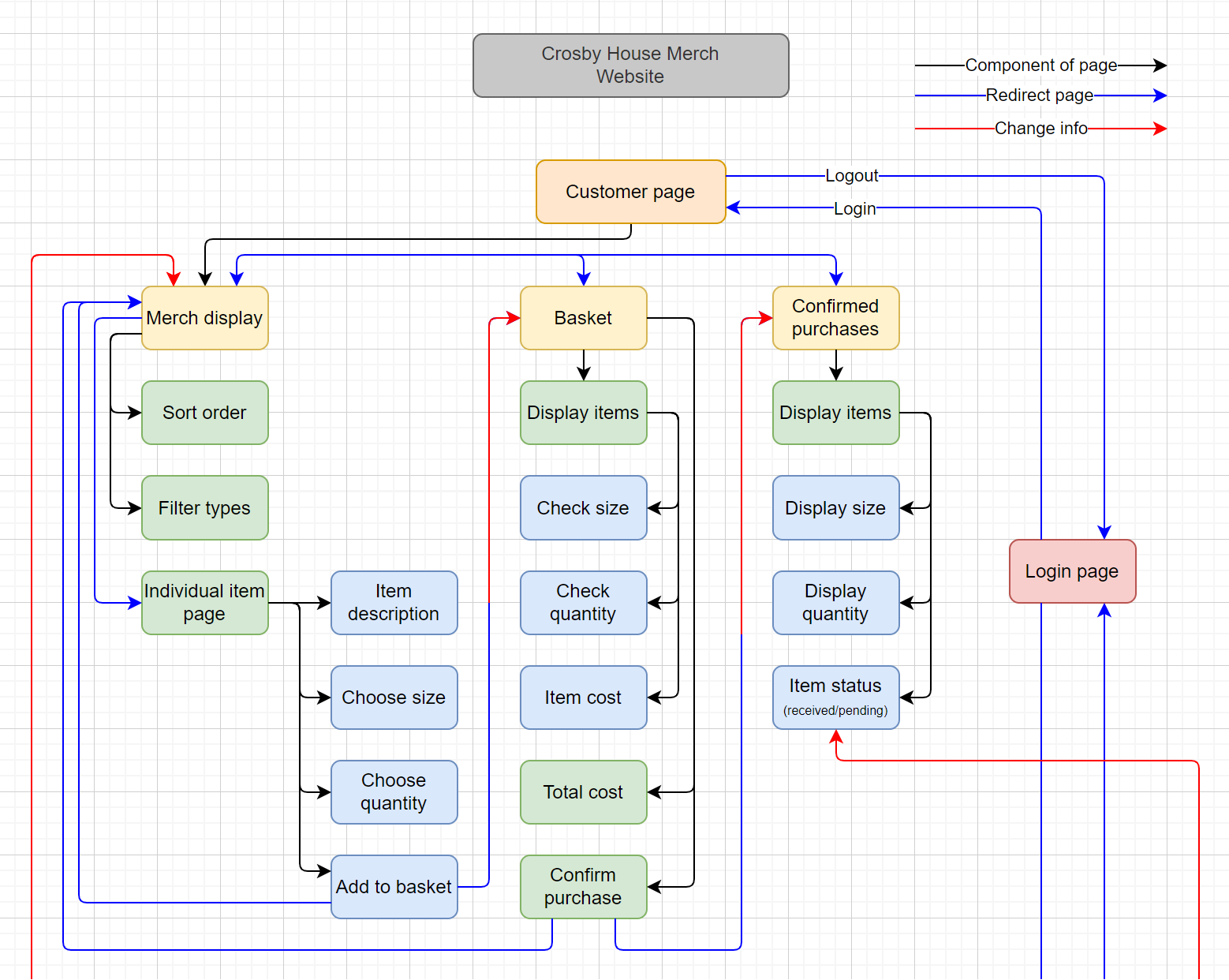
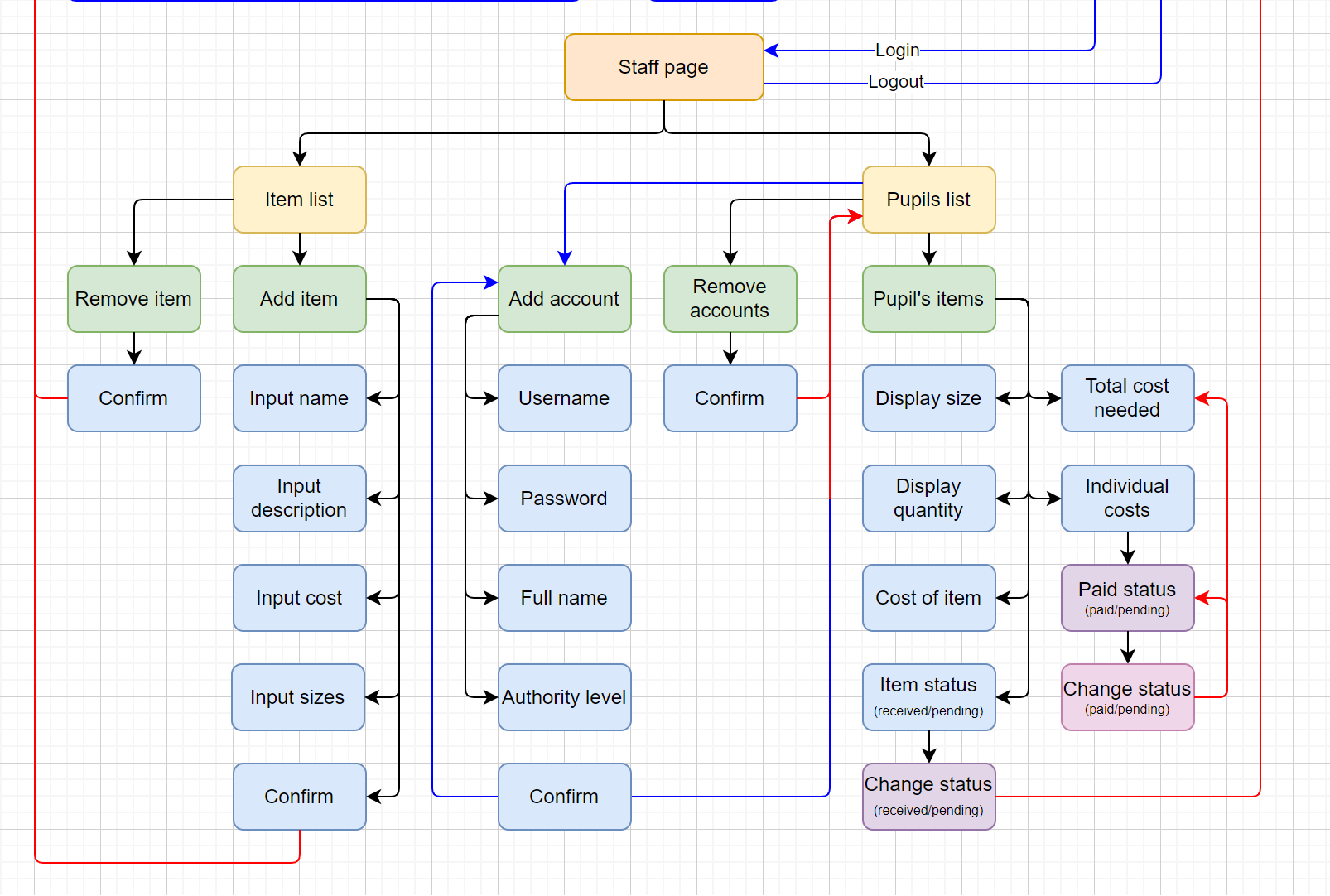
# Design

## Top Down Design

A diagram of a company

Description automatically generated

## Detailed Flow Diagram of Website



## Entity Relationship Diagram

A screenshot of a computer

Description automatically generated

## Tables

Table Users:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Validation | Typical Data | Justification |
| UserID | INT(4) UNSIGNED AUTO\_INCREMENT PRIMARY KEY |  |  |  |
| Firstname | VARCHAR(30) |  |  |  |
| Lastname | VARCHAR(30) |  |  |  |
| Username | VARCHAR(40) |  |  |  |
| Password | VARCHAR(25) |  |  |  |
| Authority | TINYINT(1) |  |  |  |

Table Order:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Validation | Typical Data | Justification |
| UserID |  |  |  |  |
| OrderID |  |  |  |  |

Table Order Contents:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Validation | Typical Data | Justification |
| OrderID | INT(6) UNSIGNED AUTO\_INCREMENT PRIMARY KEY |  |  |  |
| Item ID | INT(4) UNSIGNED AUTO\_INCREMENT FOREIGN KEY |  |  |  |
| ItemSize |  |  |  |  |
| ItemQuantity |  |  |  |  |
| TotalCost |  |  |  |  |

Table Items:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Validation | Typical Data | Justification |
| ItemID | INT(4) UNSIGNED AUTO\_INCREMENT PRIMARY KEY |  |  |  |
| ItemName | VARCHAR(30) |  |  |  |
| ItemDescription | VARCHAR(500) |  |  |  |
| ItemType |  |  |  |  |
| ItemCost |  |  |  |  |
| PicFront |  |  |  |  |
| PicBack |  |  |  |  |

# Development

# Testing

# Evaluation