Analysis

1- Identify the problem:

Shopping and buying products from physical stores can be difficult sometimes for some people. For example, for individuals who work every day five days a week, it might be difficult for them to go and shop and buy what they need as they might finish work late or they might be tired. In addition, some large companies who always need simple electronic items such as hard disks, mouse and keyboards or even USBs might find it time consuming or costly to send someone to purchase those items from physical stores on a regular basis, which might impact the company's productivity as the employee will need to travel and wait for queues etc. Accordingly, my idea will solve this problem by creating an online store for electronic items.

The online store will allow customers to create an account so they can find, select and buy the specific items they need by searching for the name of the item on the website. They can add the items to a basket, so even if they do not intend to buy the product immediately, they can reserve it and purchase it later. The website will provide different payment options and the customer can select the most suitable option for them. The payment method they use will be stored in a database along with their account details such as email address, phone number and address etc. Through this, it makes online shopping easier as they do not have to enter their bank details every time they want to purchase an item. After the customer purchases an item, the store will be notified, then they will prepare the item/s and then ship it to the customer using the address provided. In addition, unlike in physical stores, before purchasing an item in an online store, the customer can read reviews about the item as well as frequently asked questions about it and whether it's suitable for them to purchase or not, also they can write a review themselves about whether the product helped them or not and they can rate the product.

2- Computational Methods:

In my project, Abstraction can be used in order to ignore unnecessary details of the website such as icons, colours etc. Instead, we can focus more on the functionality of the website and make sure it's working properly and to a high standard. For example, I can concentrate on the payment methods and make sure it works and have all the necessary validations rather than spending too much time on the design and the aesthetics of the form, or I would make sure that products are presented in a clear and understandable way rather than worrying about putting them in tables etc.

Furthermore, another computational method can be used in my project is Decomposition. This means breaking big and complex tasks into smaller parts that are more manageable. For instance, I can break down the process of creating a register and a login system by firstly creating the inputs so the user can type in their details, next I can validate the inputs

separately to make sure that the user enters their details in the correct form for each input. Finally, I can add aesthetics to the inputs and output them to the user.

Algorithmic thinking is another computational method. This means thinking the same way a computer would think. This can be achieved by using diagrams such as flowchart. In the design stage, I will use flowcharts to design an algorithm and identify the exact steps, and determine each possibility and the potential outputs, then I will convert this flowchart into code.

Other Computational Methods:

- Searching:

In a normal physical store, in order for the customer to find a specific product, they will need to ask a member of staff in that store. This can be annoying sometimes as there might not be enough employees to help everyone, or an employee might be new and struggle to find the product for the customer. Therefore, searching for a product can be a difficult task. However, my online store would be much easier and more convenient, in which I will build a search engine on my website that will include all keywords that are related to the products. So the customer can just type the name of the product in the search bar, and then he/she will be provided with all the products that are related to that keyword. As a result, it's more efficient and quicker than traditional physical stores.

- Sorting:

Sorting means organising data (in my context, products) and displaying them in a presentable and a clear form to the customer/user. In a physical store, products are sorted according to their category, so customers might find it difficult to search for a product in all those categories as the store might be big so they would have to keep walking around the shop to find their product which can be inconvenient. In my online store, the customer can select the category of the product they want from a list of categories, then they can search for that product by typing the name of it, which saves a lot of time and effort.

- Querying:

Finding information about products in a physical store can be quite difficult sometimes, as the customer has to look for an employee to ask their question about the product, in some cases, the employee might not know the answer which can lead to frustration and inconvenience. Therefore, my online store will include a database that will have all the information about the products, so the customer can get any information they want about the product on the website. In addition, there will be a frequently asked questions section which might help the customer to find the answer to their questions.

- ## Filtering:

When a customer wants to find a product with certain criteria, they will have to spend a lot of time searching and asking people or employees in the store. Accordingly, my online store will provide a filtering feature, which allows the customer to filter what they are searching for based on price, category, type etc. This will make the customer find the product they want much faster and purchase it, whilst in physical stores, the customer might end up getting frustrated which reduces the chances of making a purchase.

- ## Analysing large data sets:

In a traditional physical store, bookkeeping might be on paper or on spreadsheets. This can be time consuming and confusing, as there is a higher chance of human error, which can negatively affect the business. My online store will record any product that has been sold in an organised way in a database automatically. This will make it easier for the store manager to control and manage the sales and see which products are performing better than others much faster and in a more efficient way.

3- Stakeholders:

- **Customers** are the most important stakeholders as they are the main target audience. They can make an account on the website to allow them to purchase products by browsing or searching the product only by typing its name, also they can filter the options they have (e.g. based on price, type etc). Then they can add the products to a basket and pick a payment method to proceed to checkout. This will help customers save time and effort and order what they need just by clicking a button while going to the physical store.

- **Business Managers** are another important stakeholder. Their role is to manage and maintain the business such as bookkeeping, how different products are performing, access to the databases etc. They will have an account different from the customers' accounts, in which they can add or remove products, or even edit a product's ad such as description, images etc.

- **IT Managers** are also important stakeholders. They will have to consistently maintain the website and make sure that it's working properly in order to provide a good customer experience. In addition, they will have to communicate with business managers to see if the website needs any new features or editing any features etc.

- **Suppliers** are other stakeholders. Their account on the website will allow them to access a limited amount of information such as information about products and the amount of stock for each product. This will help them to identify whether they have to

deliver more stock to the business or provide deals or discounts for the business for the products that are performing well as the business will order more of those products.

4- Similar Applications:

1- Currys PC World:

Currys PC World is an electronic retailer operating in the UK and has many shops around the country. The shop has an e-commerce website as well which provides the same type of products they have in their physical stores, but with more features such as free delivery etc. The website allows customers to create an account in order to purchase products and receive emails about their deals and discounts. When a customer creates an account, they would be able to save their bank card details and add any products they want to a basket, then they can either purchase the product straight away or save it for later. In addition, the website allows the user to order the product online and then collect it from the physical store. Therefore, the website provides another feature which is showing the location of their stores, so the customer can pick the nearest branch and visit the store.
The homepage of the website is very simple to deal with and user friendly. The store has utilised the use of graphics and aesthetics to provide a good interface. One of the sections they have included on their homepage is "This week's top deals". This section informs the user about the best deals and discounts for different products in that particular week, this will attract the customers and encourage them to purchase those products, also it saves a lot of research time for customers by allowing them to see the best deals in the homepage instead of going and finding the best deals manually by themselves and asking people etc which can be difficult. Another feature is that they included all the different categories they have (e.g. Computing, Gaming), at the top of the page on the homepage. This will help customers to navigate through the website easily and explore all the different sections which increase the chance of them buying different products.

The website's link: https://www.currys.co.uk/gbuk/index.html

- ## Benefits of the website:

    One benefit of this website is that they have summarised the most important discounts and deals on the homepage as well as the unique features of the business (e.g. Free Delivery) which will attract customers and increase their web traffic. Another benefit of the website is that they have focused more on the functionality of the website and the features to make the user experience as good as possible.

- ## Drawbacks of the website:

One drawback of the website is that the design of the website is not very eye-catching so the website does not look very attractive, also some people might not see it as a professional website. This can reduce web traffic and so decrease sales. Another drawback of this website is that its search engine is not very specific, for example, when I searched for an "HP Monitor", the search engine provided me with HP printers which suggests that the search engine does not show relevant information to the keyword that was typed in the search engine.

- ## Ideas I will take AND not take:

One of the ideas that I'm considering implementing on my website is the best deals sections on the homepage. This is because it will save customers time by informing them about the best deals and discounts, which might increase the chances of them buying the product as well as giving them the best user experience.
Another feature is the business unique features (e.g. "Order online & collect safely") at the top of the homepage. This will inform the customer about the best features of the business and why they should use it. In addition, it will make marketing easier as it increases the chances of conversions and that customers will take action.
However, one thing that I did not like about the website is the simple design which it doesn't have various colours which I will avoid in my project. Instead, I will try and make a more attractive design and add more colours to the website making it eye-catching.
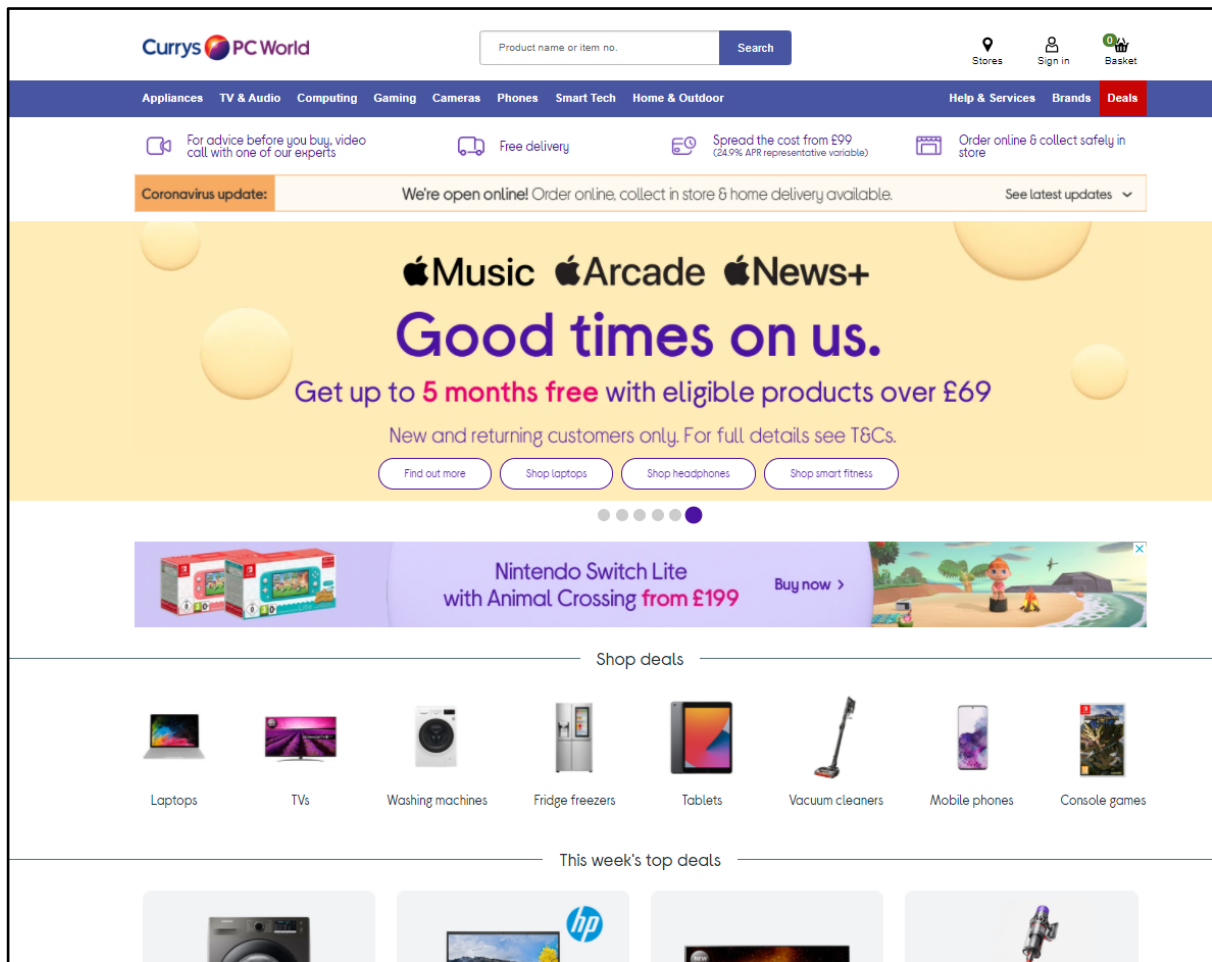
2- Asos:

ASOS PLC is a British online fashion and cosmetic retailer. The company was founded in 2000 in London, primarily aimed at young adults. The website sells over 850 brands as well as its own range of clothing and accessories, and ships to all 196 countries from fulfilment centres in the UK, USA and Europe. The website allows customers to browse through the website and explore different products and sections of the website without an account. However, if the customer wants to purchase a product, he/she will need to create an account and add their bank details in order to confirm the purchase. In addition, creating an account will allow customers to add products to a basket or to favourites to reserve or save the item for later purchases. A feature of this website is the "My Returns" section. This will allow customers to return any item they did not like or even track their returns by using a tracking number. In conclusion, I think the website is a successful web page as it has useful features that provide a good customer experience.

The website's link: https://www.asos.com/men/

- ## Benefits of the website:

  The website utilises the use of machine learning to collect shoppers' data and analyse it in order to provide specific recommendations to each user based on their previous purchases.
  Another benefit is the use of a colourful design. The website has included many different bright colours with grey being the main colour, this will be eye-catching as it will attract the customer more.

- ## Drawbacks of the website:

  The main page of the website (when you first use the website) can be a little bit confusing when the customer first uses the website. The reason is that it's a very short page with only a couple of pictures and a navigation bar, but if the user clicks on either Men/Women then he/she can see the other sections.
  As I mentioned before, the website has used many different bright colours and I considered it a benefit, but sometimes using a lot of different colours with several pictures on a page can be distracting and confusing.

- ## Ideas I will take AND not take:

  One of the aspects that I'm considering on my website is the colours. I will try and make the website colourful using bright colours to get the attention of the customer. However, I'm not going to use too many colours (like ASOS) on the website as it can be distracting to the customer. Instead, I will use a few bright colours (at least more than 2 colours). Another feature is a recommendation system in which I will suggest products that are similar to what the customer has purchased in the past. In addition, one thing that I will not take into consideration is the confusing homepage, instead, I will attempt to make the homepage as simple as possible.
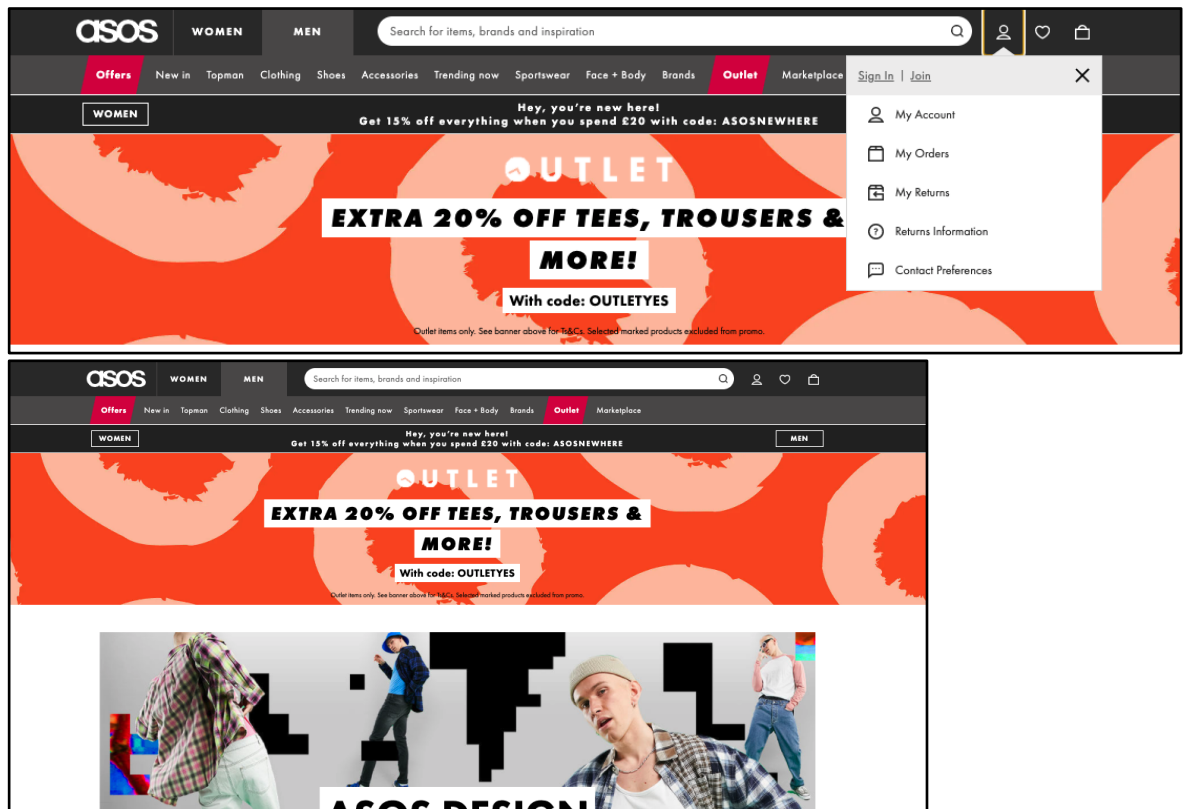
3- Amazon:

Amazon.com, Inc. is an American multinational technology company based in Seattle, Washington, which focuses on e-commerce, cloud computing, digital streaming, and artificial intelligence. Amazon's e-commerce website provides a huge range of products that have good quality and at a reasonable price. The customer is able to use the website, browse through it and explore different products without creating an account. However, if the customer wants to purchase a product or subscribe to one of the website services (e.g. Amazon Prime) then the customer will need to set up an account with their email address, and then they will get a confirmation email to verify their account. Having an account will allow customers to get discounts and deals, also they would be able to add a product to a basket to save the item for later purchases.

The navigation bar of the website is very simple and useful due to the functionality and features it has. For example, in the navigation bar, it tells the customer what address the product they order will be delivered to, so if the customer wants to change the address or add a new address he/she can simply click on the address and take the action they want. Furthermore, it allows the customer to track their returns and orders with the "Returns & Orders" section in the navigation bar.

Overall, I think the website has a successful design with useful functionality that provides the user with a good experience.

-   ## Benefits of the website:

    The website supplies customers with a massive range of products with a suitable and organised layout which attracts customers from all over the world.
    The website allows the customers to filter their options with a very sophisticated system, in which the filtration options change based on the product the customer has searched for. For example, the filtration options for pens are different to the filtration options for hard disks in terms of brand, price etc. Therefore, the website includes all the brands and types of filtration options for each product.

-   ## Drawbacks of the website:

    The homepage of the website includes a large number of sections, which in my opinion I think can lead to confusion for some users and might leave them puzzled.
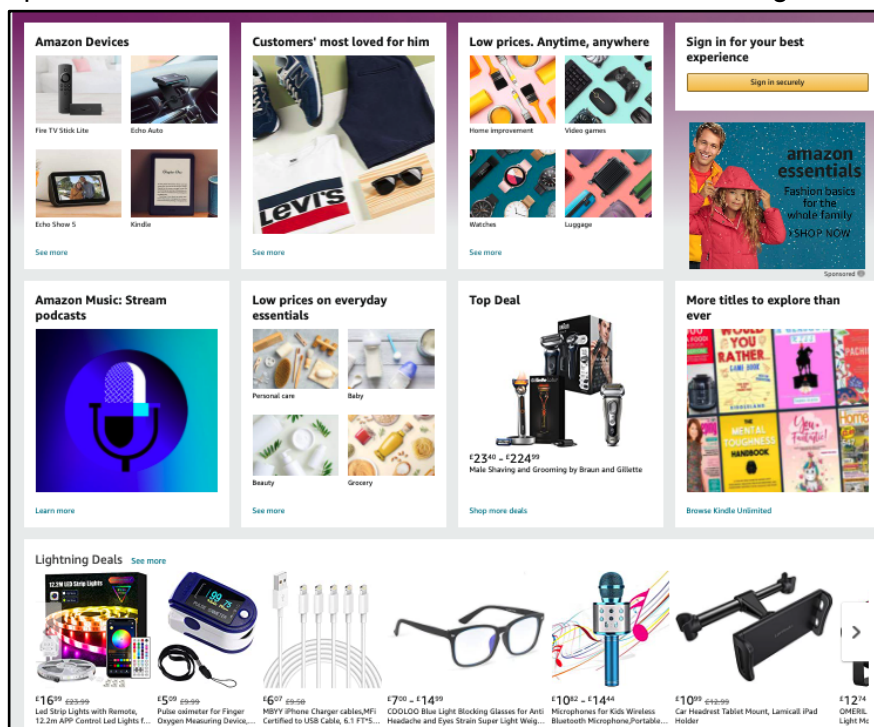
-   ## Ideas I will take AND not take:

    A feature that I'm considering applying to my e-commerce website is the address in the navigation bar to allow customers to change their address or add a new address easily without having to go to the account settings and change from there which can be time-consuming and confusing for some customers.
    Another feature is allowing customers to choose a category before searching for an item by having a list of all the categories on my website next to the search bar. This will provide more accurate results for the customer which will save their time and make them satisfied.
   On the other hand, one thing that I will not take from Amazon's website is the layout of the homepage. Instead, I will try and make my website's homepage as user friendly as possible to keep customers satisfied and deliver a good user experience.
    The website's link: https://www.amazon.co.uk/

4- Walmart

Walmart Inc. is an American multinational retail corporation that operates a chain of hypermarkets, discount department stores, and grocery stores in the United States, headquartered in Bentonville, Arkansas. The company was founded by Sam Walton in 1962 and incorporated on October 31, 1969. The company has an e-commerce website that allows its customers to shop online and like any other online store, the customer can browse through the website and search for different products, but in order to purchase and order a product, they will have to set up an account with their email address.

One of the best features of the website is the "Pickup & Delivery" section which works like a real-life supermarket. There is a Cart on the right-hand side of the page that acts as a trolley, the customer can browse through different products and if they want a product they can simply click on "Add to cart". At the bottom of the Cart, there is a subtotal that keeps adding up the prices of the products and provides a total price for the customer. When the customer finishes shopping. he/she can click on "Check out" to confirm the order and choose a payment option to pay for the order.
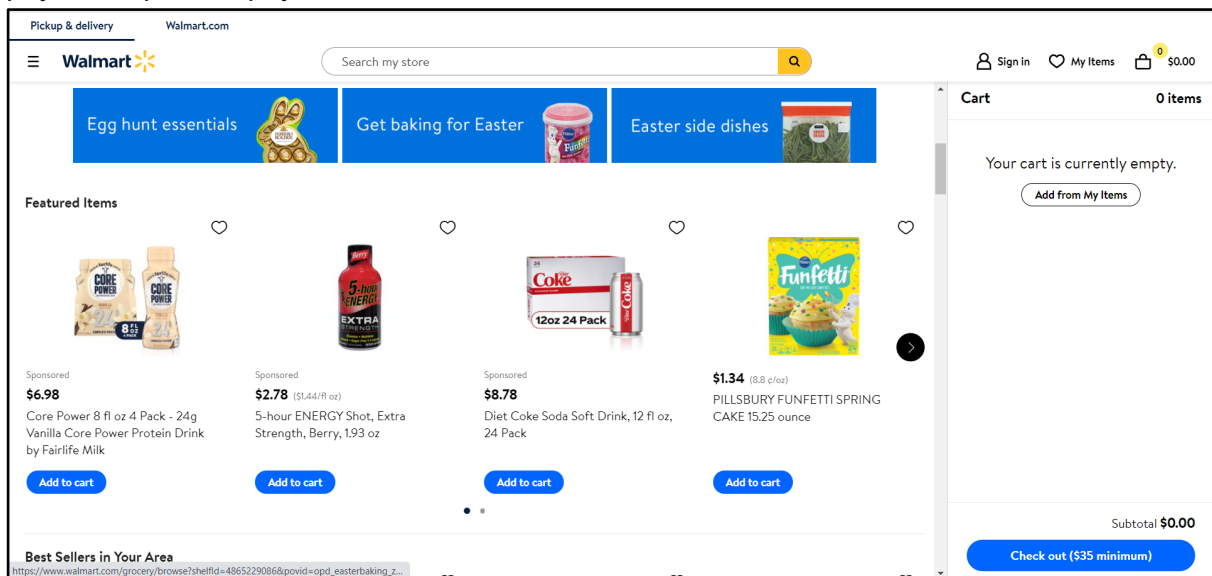
- ## Benefits of the website:

A simple and user-friendly interface as well as an organised homepage. This is useful because not everyone has the capability of dealing with technology, so if the homepage is simple and straightforward then it will attract more customers to the website.

Another useful feature is the sidebar on the homepage. I think this is a very functional feature as it helps the user to navigate through the website much easier. For example, in the sidebar, the customer can track their orders, change location, search for local stores and much more.
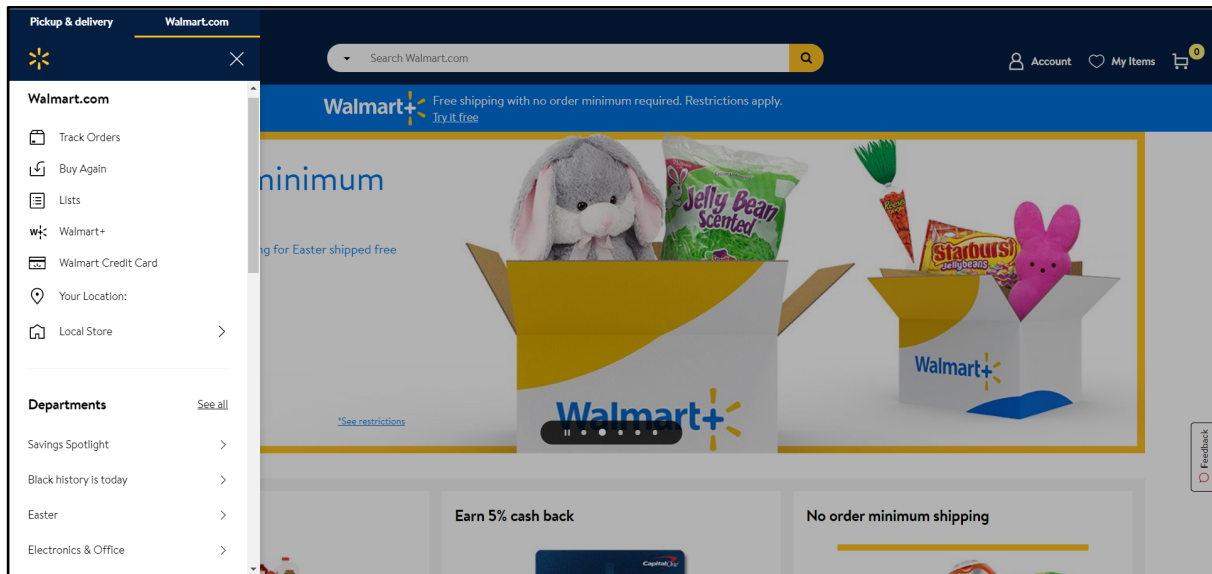
-   ## Drawbacks of the website:

    The website does not have a section that summarises all its deals and discounts for customers. This might not be convenient for customers as they will have to search manually for products they have deals and discounts on.
    Another drawback is that the website does not have a filtration system for products, so if the customer searches for a product he/she might be able to filter the options in terms of brands etc, but not in terms of price, and location etc. Therefore, the filtration system is not very sophisticated.

-   ## Ideas I will take AND not take:

    One of the ideas that I'm considering implementing in my eCommerce website is sidebar navigation. I will try and create a sidebar that has the key pages of the websites such as location, tracking orders, returns etc. The reason I'm considering this idea is that I want to provide a perfect user experience and make shopping much easier for customers.
    Another idea that I might apply on my website is the "Pickup & Delivery" section, as this makes it easier for customers to purchase products by adding them to their cart straight away without having to add them to a basket first and then proceed to check. On the other hand, one thing that I will not take from this website is not having a deals and discounts section. This is because having deals and discounts sections increases the chances of customers purchasing as they might find the products they want for a cheaper price and so purchase it.
    The website's link: https://www.walmart.com/

5- Essential Features:

1- Registration

The registration feature is almost the most important feature of the website as it allows users to create and set up an account by providing information such as first name, last name, email address, phone number and address etc in order to utilise all the features of the website such as purchasing products etc. As they create an account, all their information will be stored in a database so they don't have to worry about creating an account every time they use the website.

2- Login

The login feature allows users to access the account that they have created in the registration process from anywhere, on any device and at any time only by inputting two pieces of information, email address/username and password. The information they input will be compared and matched to the information that is stored in the database, and if it matches then the user will be granted access to their account.

3- Basket

This feature is important because users don't have to pay for each item individually. Instead, as they shop and browse through the products they can simply add the products they want to the basket and then at the end, they can proceed to check out and pay for all the items together.

4- Favourite items

The favourite items section gives the ability for customers to save items they have liked and come back to them later. This helps users because if they don't want to purchase a product at a specific time, they can save and reserve the item for later, also it helps them track the product and check if there are any discounts or deals on the product as the website will update the product consistently.

5- Category selector next to the search bar

The category selector helps the website produce more relevant and accurate results when a customer searches for a product. For example, if the customer selects a specific category (e.g. laptops) and they search for (e.g. MacBook air) then the search engine will only search for that particular keyword in the laptops category, therefore, it produces more accurate and relevant search results.

6- Sidebar navigation

The animated sidebar navigation feature will make the website user friendly as it allows the user to see all the key pages and sections of the website in one place and navigate through them easily. This feature works by opening and closing the sidebar navigation, in which there will be a button at the left top corner of the page, and when the user opens the navbar, they will be able to see all the key features, pages and categories of the website (e.g. deals and discounts page, different product categories).

7- Deals and Discounts section

This feature will include all the products that have discounts or deals on them. The website will search through the database for any products that have a deal or a discount on them, then it will add the products to the section. This will attract the customers and inform them about the best deals in a simple and clear form which increases the chances of them purchasing a product.

8- Different types of accounts for different users:

The different types of accounts will give distinct features for each type of user. For example, the account of the business manager will have different features from the customer account, such as editing, removing or adding products. There will be various types of accounts, for instance, business managers' accounts, customers' accounts, suppliers' accounts.

9- Reviews:

Users will be able to write and read reviews for each item to give an honest opinion about it, also they can give a rating for the item, and then the system will calculate an average rating for each item. This is helpful when other customers want to buy a product, these reviews will help them to make a better decision. In addition, Managers will be able to reply to the reviews and comments to improve the website and the service.

10- Checkout:

This feature will allow users to order a product/s and pay for it, which is the whole aim of the website. The system will ask for their bank details and the payment methods they want to use in order to confirm the order, so they can successfully purchase the product.

6- Limitations:

- Programming Language Limitations:

I have decided to create a website for my project idea. This means I need to use web development languages such as HTML, CSS and PHP. However, I don't have much experience with these languages as I rarely use them. Therefore, I will need to spend a good amount of time practising these languages and learning all the techniques etc. to make my project as efficient as possible. As a result, this might cause a time limitation, this is because if I spend too much time learning these languages and learning how to debug them, then it might slow down the progress of the development of my website and I might not be able to implement all the features I want, and so my project might not be as complex as required.

- Software Limitations:

I will be using Windows on the school computers to develop my website which is acceptable. However, I have a macOS at home, so if I need to work on my project at home then it might be a little bit challenging in which I will need to install the software I use on the school computers but the macOS version of that software, also I will need to back up my project on two devices, my own device and the school's device. As a result, this can slow down the progress of my project and might cause technical problems such as forgetting to back up or compatibility issues.

- The complexity of the project Limitation:

My project idea for an eCommerce website, suggests that it would have a large number of features within the website (e.g. login, registration, basket, checkout), some of them might be uncomplicated and easy to implement, but some of them can be complex and difficult to add to the website. Therefore, if I add too many complex features such as a recommendation system etc. then it can lead to confusion, or if I wasn't able to implement those features I might feel demotivated which can affect the progress of the project negatively.

7- Hardware and Software requirements:

Software Requirements:

- ## HTML, CSS, Javascript and PHP:

  As I mentioned earlier, I will create a website for my project idea, therefore, the best languages that are dedicated to web development are HTML, CSS, JS and PHP. These languages are necessary to develop the website as I will need HTML to structure the website and add all the required elements such as inputs, forms etc. I will need CSS to add style and aesthetic features to the elements on the website, also I will JS to make my website more interactive (e.g. animated elements). Finally, I will use PHP to implement the server-side of my website. For Instance, I can add validations for my inputs, and implement all the functionalities of the website.

- ## Visual Studio Code:

  In order to use all the languages I mentioned above, I will need to use a high-quality text editor. In my case, I have chosen to use Visual Studio Code. This is because it provides me with extensions that allow me to code faster and more efficiently. For instance, there is an extension that formats my code as soon as I save the code, this will make my code more readable and easier to debug, and so saves a lot of time.

- ## Photo editing software:

  In my e-commerce website, I will need to add the logo of the business website, also I will need to add pictures of the products and the categories. Therefore, I will need photo editing software to edit those pictures (e.g. adjust the size, remove background, or add background colour). However, I might not need to install photo editing software as there are online versions of that software, so I can use them and save time.

- ## Google Chrome:

  This software is necessary for researching solutions to solve any errors I might encounter during the development of my project, or even researching ways or methods that would allow me to implement a certain feature in my website. In addition, this software might help me find the perfect colours for my website using colour generators and then getting the colour hex. Finally, the most important reason for using this software is to run my website and view it so I can check the progress of the development.

Hardware Requirements:

- ### USB memory stick:

  This hardware requirement will allow me to store my project's file, so I would be able to work on my website from any device at any time which will speed up the progress of my project.

- ### Minimum Specifications:

  OS: Windows 7 with SP1; Recommended: Windows 10.
  CPU: Intel or AMD processor with 64-bit support.
  GPU: Nvidia GeForce GTX 1050 or equivalent; Recommended: Nvidia GeForce GTX 1660 or Quadro T1000.
  Monitor Resolution: 1280x800; Recommended: 1920x1080.
  Internet: An Internet connection is required to run the website.

8- SMART Targets:

1- Registration/Login:

- **S**: The registration page will allow users to enter their information such as first and last name, email address, phone number and address, then it would store those details in a database so when the user uses the website next time he can just use the Login feature just by entering their email address and password to access their account without having to create an account every single time. The information they enter when logging in to the website will be compared and matched to the information they used in the registration process which is stored in the database, and if it matches then the user will gain access to the website. The Registration and the Login forms will include specific validations to make sure that the user inputs the correct information the website needs. However, if the user enters incorrect information, they will be notified by an error message under the input they got wrong so they can try again.

- **M**: The registration form can be measured by creating an account and inputting all the required information, then I would check the database and see if the information I inputted is added correctly to the database. After this, I would go to the website again and log in using the information I used in the registration process and see if I can access the website. In order to make sure that the validations work, I can input incorrect information and see if I receive any error messages.

- **A**: This target is achievable as I have practised several times by creating a small scale login and registration forms using different languages. Therefore, I know the logic but I will just need to practice the syntax of the language which is PHP.

- **R**: This is relevant to my project as it's one of the most important features if not the most important. This is because users would not be able to utilise all the features of the website without having an account (e.g. purchasing products), so if the user does not create an account he/she might not benefit from the website. Therefore, registration and login is a key and relevant features.

- **T**: Implementing this feature will not take a long time as it is not complicated, therefore, it will be completed within the time frame.

2- User management system:

- **S:** The user management system will give different types of users different abilities or features when using the website. For instance, a customer account will enable the user to browse through the products and categories, add products to basket/favourite items, search for products or purchase products. On the other hand, an admin account will have the same functionality as a customer account but with a few more features such as editing, removing or adding products as well as changing the price of a product. Also, they can get a summary or a report of the number of sales and how each product is performing. Finally, a supplier account will enable businesses that supply this online store to see the amount of stock left, or how many of each product they have supplied is being sold so they can offer deals to the business if a product is performing well or bad. However, a supplier account will not include the features of a customer account such as purchasing products etc.

- **M:** This target can be measured by creating an account for each type of account I have mentioned above, then I would test all the features each type of account provides and make sure it's working. For example, I will test both customer and manager accounts simultaneously, in which I will purchase a product using my customer account, then I would go and check the summary of sales in my manager account and see if the product was added.

- **A:** This target is achievable although I don't know the exact method to implement this feature, I will research online and ask specialists so I can understand the logic behind it, and then I can implement it using javascript and PHP.

- **R:** This target is relevant to my project because it includes different types of users who can use the store, and it explains all the user permissions for each type of user which can allow a more secure and efficient website.

- **T:** Implementing this feature might be time-consuming as I need to research and practice any methods or algorithms I'm going to use before implementing it in my project, however, I think it will be completed within the time frame.

3- Category Selector next to the Search bar:

- **S:** A category selector will allow users to choose a specific category they want to search for an item within, for example, if the user wants to search for a specific type of laptop, then he/she will select the laptops category to narrow down and get more accurate results. This feature will be located next to the search bar in the header, so when users want to search for an item, they can simply click on the drop-down menu and select a category then they can type in the keyword or the name of the item.

- **M:** I would be able to measure this feature by searching for different items in different categories and checking if I get the results I want. However, firstly I will need to link the website with the database so I can get results for my search.

- **A:** This target is achievable as I have a little bit of knowledge about search algorithms such as linear search or binary search. However, I will need to practice these algorithms and do my research to determine which algorithm is more suitable and efficient for my target.

- **R:** This is relevant to my project as it's an online store, so customers/users will search for different products and items, so a category selector would provide them with a better user experience.

- **T:** Applying this feature might take a little bit of time as I need to research and practice before implementing it in my project, however, I think it will be completed within the time frame.

4- Creating a Basket/Shopping Cart:

- **S:** The Basket will allow users to add items to it and it will keep track of the total cost by adding up all the prices of all the items. Once a customer finished shopping and added all the items they want to the basket, they can click on the "Basket" button in the top right corner of the page, so they can double-check the items and whether they would like to make any changes such as altering the quantity of an item or removing an item etc. In addition, if a customer wants to save an item for later purchases they can add it to the basket and it will be reserved for them.

- **M:** This feature can be easily measured, this is because a button called "Add to basket" will be created under each product and then users can use that button to add different items to the basket. The total price can be checked by calculating the prices manually and comparing it to the total price calculated.

- **A:** This target is achievable although I do not know the exact method to apply this feature, I will do my research and ask specialists for help so I can understand the logic behind it, then I can implement it using javascript and PHP.

- **R:** This is relevant to my project due to the fact that it will make the process of shopping on my website more efficient and easier, which provides a good user experience and results in customer satisfaction.

- **T:** Applying this feature might be a little bit time consuming as I need to research and practice the methods that I will use before implementing it in my project, however, I think it will be completed within the time frame.

5- Sidebar Navigation:

- **S:** A sidebar navigation will be placed on the left-hand side of the page and it will be located in the header, this means it will exist on every page of the website and it can be opened or collapsed. The sidebar will be animated using javascript, so when the user clicks on the button to open, it will slide to the right and when the user wants to close it slide back and disappear. The sidebar navigation will contain all the sections of the websites as well as all the different categories. This makes it easier for the user to navigate through the website and they will be able to see all the different sections and categories in one place.

- **M:** The sidebar nav can be measured by testing whether the links added to the sidebar will redirect users to the correct URL, for example, when I click on the laptops category, it will take me to the page where it has all the laptops etc. In addition, I will test the animation by opening and closing the sidebar to make sure that it does not ruin any other content of the page.

- **A:** This is achievable as I have past experience with HTML and CSS, so I would be able to create the sidebar itself. However, I will need to conduct research on how to implement the animation of the sidebar.

- **R:** This is relevant to my project as it will help in providing a user-friendly interface, in which the user can navigate through the website easily and therefore have a good experience.

- **T:** Implementing this feature will not take a long time as it is not very complicated, therefore, it will be completed within the time frame.

6- Favourite Items:

- **S:** This feature allows the user to add any items they like to a list, maybe to save the item for later purchase or just to monitor the product to see whether there are any discounts or updates on that product. The difference between the Basket and the

Favourite items is that the price of a product won't be updated in the basket so if there are any sales, the products in the basket won't be included in the sales. On the other hand, items in the Favourite items section will be updated regularly. Therefore, Favourite items are useful when a user wants to save an item for a long period of time, whilst Basket is beneficial when the user wants to purchase the item immediately.

- **M:** I will measure the success of this target by adding different items to the Favourite items section, and then I will check if it has been added. After that, I would change the price of that product and see if it has been updated in the Favourite items section.

- **A:** This target is achievable although I do not know the exact method to implement this feature, however, I will do my research and ask specialists for help so I can understand the logic behind it, and then I can implement it.

- **R:** This is relevant to my project because it will provide better functionality to the website and it would make it user friendly which will result in a good user experience.

- **T:** Implementing this feature might take a little bit of time as I need to research and practice the methods that I will use before implementing it in my project, however, I think it will be completed within the time frame.

7- Reviews:

- **S:** The reviews system will allow users to share their opinions about a product and mention anything they liked or disliked about the product, also they would be able to rate the product out of 5 then the website will calculate an average rating for each product and display it in the website. This feature will help other customers to make their decision when purchasing a product because it shows them what other people think about the product.

- **M:** This target can be measured by writing a review for a specific product and then seeing if that review was added to the reviews table in the database and was displayed on the website under that product.

- **A:** This is achievable as the concept and the general idea is similar to some of the other targets I mentioned above, however, I still need to do my research and find out the best way to implement this feature as I don't have experience with this target.

- **R:** This is relevant to my project because it's logical that users can share their opinion about a product they purchased from this website, maybe to express their feelings about the product or help others make a decision.

- **T:** Building this feature might take a little bit of time as I need to research and practice the methods that I will use before implementing it in my project, however, I think it will be completed within the time frame.

8- Checkout:

- **S:** This target is essential for this project as this project is an e-commerce store. The checkout will allow customers to pay for their purchases by entering their card details, therefore, they can submit their order. Without this feature, the website would be incomplete and there would be no purpose for it.

- **M:** This target can be measured by adding a few products to the basket, then clicking checkout to be redirected to the checkout page. Then input all the details required and click save, after that we can check if those data were added to the orders table.

- **A:** This target is achievable as the concept and the general idea is similar to some of the other targets I mentioned above such as register because we need to make use of insert queries etc. However, I still need to do my research and find out the best way to implement this feature as I don't have experience with this target, also I need to research ways to make it as secure as possible as this target deals with sensitive information such as card details.

- **R:** The checkout system is relevant to the project as the whole point of the website is to allow customers to purchase products, so if they are not able to pay and submit their order, the website wouldn't fulfil its purpose.

- **T:** Building this feature might take some time as I need to research and practice the methods that I will use to deal with card numbers, CVV and expiry dates and validate them etc. However, I think it will be completed within the time frame.