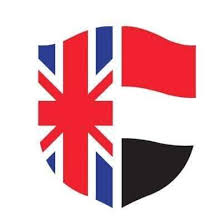
**Introduction to cloud computing**

**Phase1 proposal**

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1.1-idea: online clothing store

An online clothing store is a digital platform for cloths shopping that recently started to compete with offline stores. Customer can save time and effort using that digital platform.

1.2-Functions and their descriptions:

Function is how the platform works.

-create account: costumer first register with his personal details to save his identity on the store.

-search product: user search by a special keyword to get his target product faster

-filter product: shorten that search results by search filters: color, material, size, etc..

-navigate through pages: move through different pages of different products

-display product description: show details of the product including the features and specs.

-add product to shopping cart: placing products in shopping cart as they are prepared to be purchased

-add product to favorites: save products to fast access later

-checkout: purchase the product by entering payment info and proceeding the order

-update product availability: change in the availability is to be reflected in the stock levels and customers notifications

1.3-Services and their descriptions:

Service is what value the customer gained from that experience.

-leave feedback: customers share their opinions on that products they have tried.

-virtual fit: customers view how clothing products most likely to fit in reality.

-locate local brands: customers can know where is their targeted local stores located

-create store account: allow multiple retailers to have a store on that big combining online clothing store

- monitor customer behavior: done by tracking user interactions and time spent on each page to enhance shopping experience and tailor recommendations.

-choose payment method: select the preferred payment method thus entering customer’s relevant info

-apply promotion or discount: customers can reduce their purchased products costs

-track order: customer is real-time updated by the current condition, status and location of his arriving package

-customer support: customer inquiries or issues are solved using communication means with the agents

-return order: if the customer is not satisfied enough with that package, he can simply send it back to the store

-exchange order: if the customer found out a better product rather than his purchased one, he can simply exchange them.

-recommend product: suggest most probably products that the customer would like based on his tracked shopping behavior

-reward loyal customer: loyalty programs that awards customers of frequent or repeated purchases by discount or gifts.

2.1-Requirements:

1-business license to start that business

2-domane purchased with a domain name relevant to what is offered

3-suffienet inventory existed

4-several payment options existed

5-third party shipping and logistics existed

2.2-Rules:

1-clear product description so that the customer has the complete awareness with the product

2-complete informing with all prices associated like taxes, shipping, etc..

3-secured payment process so that the customer is protected from any targeted harmful attacks

4-implementing privacy policy where customer personal info is secured

2.3-Constraints:

1. Budget required for developing and hosting the web application
2. Limited stock in inventory, which can lead to stockout or overselling
3. High shipping fees
4. That product must be competing with other brands in the market
5. Website bugs, which can reduce purchases
6. A budget for advertising
7. Product is not delivered at the same instance like the offline shopping
8. A wrong item sometimes is shipped
9. Some retailers offer a higher price than that in the offline stores

2.4-Peculiarities:

1-unique branding, adding special visual aids to the website design, product photographing.

2-Unique Brand Story stating narrative behind that brand

3- products designed specially by that brand only, and if it becomes out of stock, they don’t restock it as to ensure that only a little segment from customer is wearing it.

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| --- | --- | --- | --- |
| 3-service | functionality | Functionality description | Used by |
| virtual fit | 1-customer insert his image  2-customer selects his outfit  3-display his final look | 1- where he selects the image wanted to be uploaded  2-where he chooses the clothing product.  3-done by transferring the clothing product and the customer image both fitted into a virtual appearance. | customer |
| locate local brands | 1-display all available local brands  2-customer choose his preferred local brand  3-display that local brand’s location | 1-customer can view a list of all the available local brands in the online clothing store  2- customer selects the brand he would like to further explore  3-The exact location of the selected brand is shown using a map. | customer |
| create store account | 1-form product description  2-add product to store  3-adjust pricing | 1-where product owner can write detailed description including all the specs and features of his product.  2-store owner can add new products to their platform to be purchased  3-retailer can set prices for his products based on trends and demands. | store owner |
| monitor customer behavior | 1-provide no of views of product  2-provide total views  3-provide time spend on product page | 1-count how many times a product had been viewed.  2-Aggregate the view counts across all given products for analysis  3-determine the duration customer spend browsing on an individual product page. | store owner |
| advanced search system | 1-search by “sustainability”  2-search by versatility: 3-search by cultural styles | 1-Customer make search results filtered based on being sustainable or eco-friendly.  2-Customer shorten search results based on number of ways it can be styled  3-customer can select based on countries clothing styles. | store owner |

4-external service/API and integrating with internal services:

-API of hugging face and integrating with the internal service (virtual fit)

-API of google maps and integrating with the internal service (locate local brands)

-API of posthog and integrating with the internal service (monitor customer behavior)

-API of stripe and integrating with the internal service (choose payment method)

5-description of methodology solution:

Model-View-Controller (MVC), a software architectural pattern for software design and web development. It organizes and makes code maintainable by separating the application into components that are interconnected. Components are model, where data stored in MongoDB is managed and the business logic is represented. View (front end) acts as a presentation layer where data in model is presented to user in understandable format.it also acts as a user interface where user interact with to thus send his commands to controller, its build using javaScript and react/framework. Controller(backend) is the intermediary between the Model and the View. its responsible for processing user input and updating accordingly the model and the view. Where REST API server(controller) and MongoDB(model) are both deployed in the cloud.

5.1-cloud computing model that fit project:

service model:

these services are provided as a software (software as a service SAAS) and used by either customer or store owner. end-users don’t need to manage the underlying infrastructure or direct manage the database. Instead, he accesses applications over the internet. Store owner access that software and update the database through the user interface.

That user interface:

1-used by customer where he uploads his preferred image to thus selects his outfit and finally display his final look.

2- used by customer where he can display all available local brands and choose his preferred local brand and display that local brand’s location

3-used by store owner where he can form product description, add product to store and adjust pricing.

4- used by store owner where it provides him no of views of product, total views and time spend on product page

In addition to SAAS, there are other cloud computing models such as Platform as a service (PAAS) such as Microsoft Azure that provides a platform for a developer as to build and deploy and even manage applications without care about the underlying/cloud infrastructure(servers). other PAAS are Mongo, posthog or vercel analytics. Also, we have Infrastructure as a service (IAAS) as Microsoft azure again or vercel.

Cloud deployment models:

-Public cloud:

1- host the online store where the availability and scalability during promotions is achieved.

2- store much images and videos with respect to being accessible without a need to worry about servers

3-manage customer, inventory, order data

4-based on current demands/trends, it scales resources without imposing unnecessary costs

-Community cloud:

1-allow multiple stores to create account in the same sector, as clothing retailers do. Where the infrastructure costs are shared which will reduce the expenses of each firm.

2-ease the communication with suppliers and logistics

-Private cloud:  
1- protect customer sensitive data (personal info, payment details)

2-decrease responsive times

3-help implementing polices and security measuresBottom of Form

-Hybrid cloud: a combination of public and private:

-Developers can test their web applications.

- allows integration on-premises systems (if exists)

-provide efficient backup strategies

5.2-Cloud layers management approach:

Cloud provider cloud-based IT resources are provided by Microsoft azure

Cloud consumer: end-users: store owner, customers

Cloud owner: developer

5.3-Tools and programming languages that implement project:

1. React js: open-source JavaScript used to build user interface
2. Node js: open-source JavaScript runtime enables developers to execute JavaScript on the server side.
3. Microsoft azure: cloud service provider (what we will use)
4. vercel: developers use it as a cloud platform to build and deploy front end of their web applications.
5. MongoDB: NoSQL database management system that stores data in a document-oriented format
6. posthog: product analytics helps enterprises study user behavior within their application(what we will use)
7. Vercel analytics: shows to developers the real-time performance of their web application. It is a part of Vercel platform.