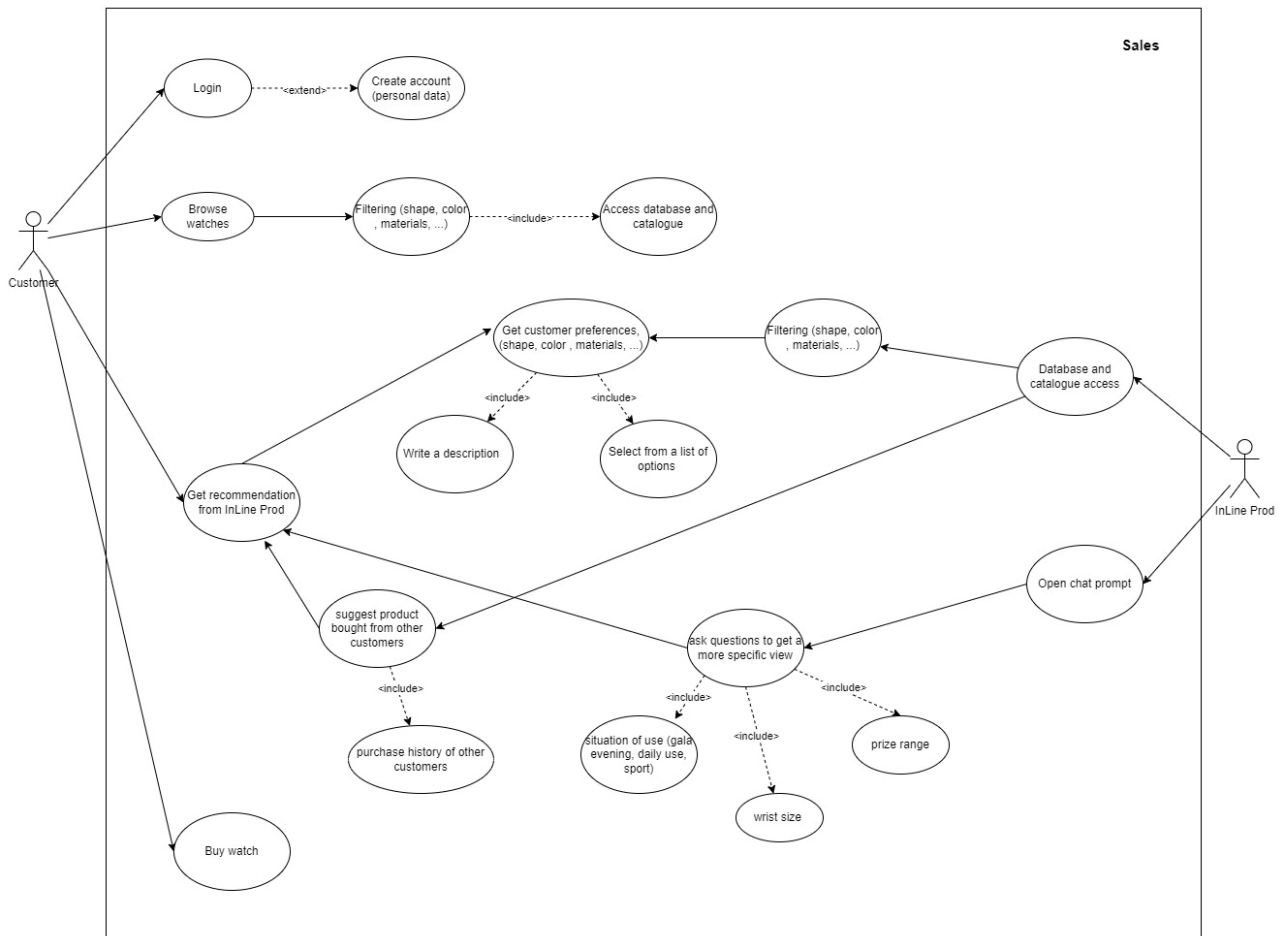Pietro Belfanti, Gabriele Bottinelli

Assignment 4

1) IT Infrastructure

In orderl to run the LLM with a software like Llama index we would need the following IT infrastructure:
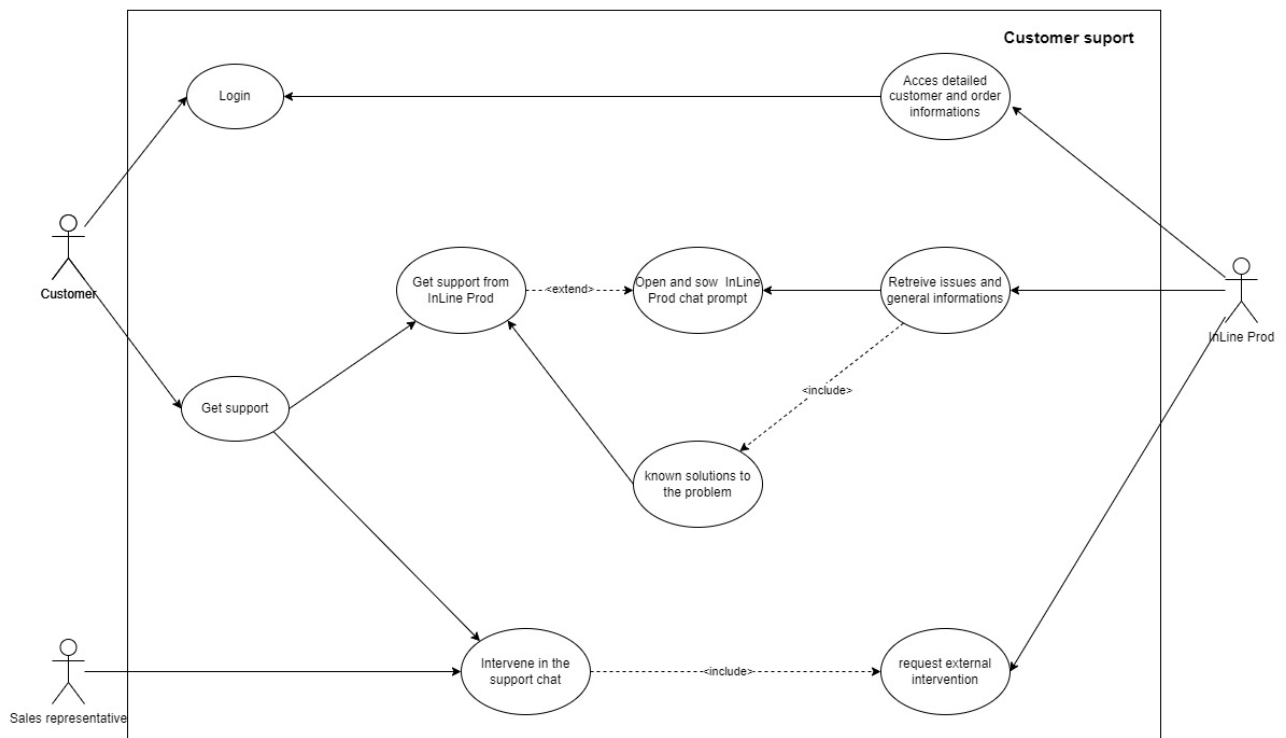
- LLM Server
    - High-performance CPU (at least 16 cores)
    - At least 128 of RAM for handling data with efficiency
    - Fast storage like SSD or NVMe, several terabytes
    - High-performance network
    - LLM framework, libraries, drivers, …
- Document Retrieval Server
    - High-performance CPU (at least 32 cores)
    - At least 128GB to 256GB of RAM for managing document indices.
    - Indexing software
    - High-bandwidth network connection for serving document retrieval requests.
    - Index storage size depends on the number of documents indexed and their size. I can estimate an amount from 20 to 100+ terabytes
    - Separate storage for database related data
- Database Server
    - High-performance CPU (at least 16 cores)
    - At least 64GB of RAM to manage and access the database efficiently
    - SSD for high-speed storage (1-10 TB)
    - DBMS for document storage and document retrieval
    - High-performance network to serve the documents to the LLM server
- Other
    - Robust security protocols
    - Firewall
    - Data encryption
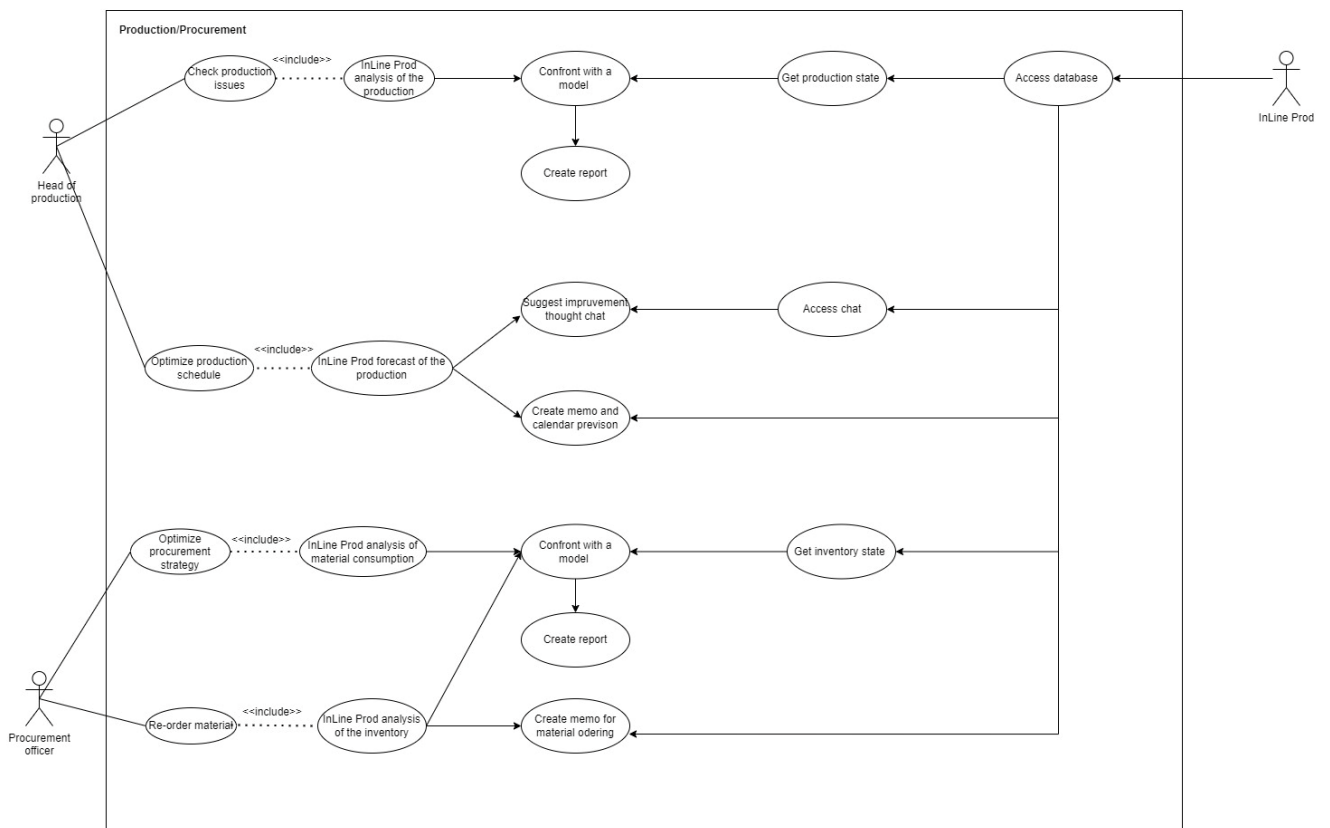   - High-speed connection with sufficient bandwidth to allow multiple users simultaneously

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Use Cases:

Sales

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Customer support:

Customer suport

- Customer
- InLine Prod
- Sales representative

- Login
- Acces detailed customer and order informations
- Get support from InLine Prod
- Open and sow InLine Prod chat prompt
- Retreive issues and general informations
- Get support
- known solutions to the problem
- Intervene in the support chat
- request external intervention

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Production:

Production/Procurement

- Head of production
- Procurement officer
- InLine Prod

- Check production issues
- InLine Prod analysis of the production
- Confront with a model
- Get production state
- Access database
- Create report
- Suggest impruvement thought chat
- Access chat
- Optimize production schedule
- InLine Prod forecast of the production
- Create memo and calendar previson
- Optimize procurement strategy
- InLine Prod analysis of material consumption
- Confront with a model
- Get inventory state
- Create report
- Re-order material
- InLine Prod analysis of the inventory
- Create memo for material odering

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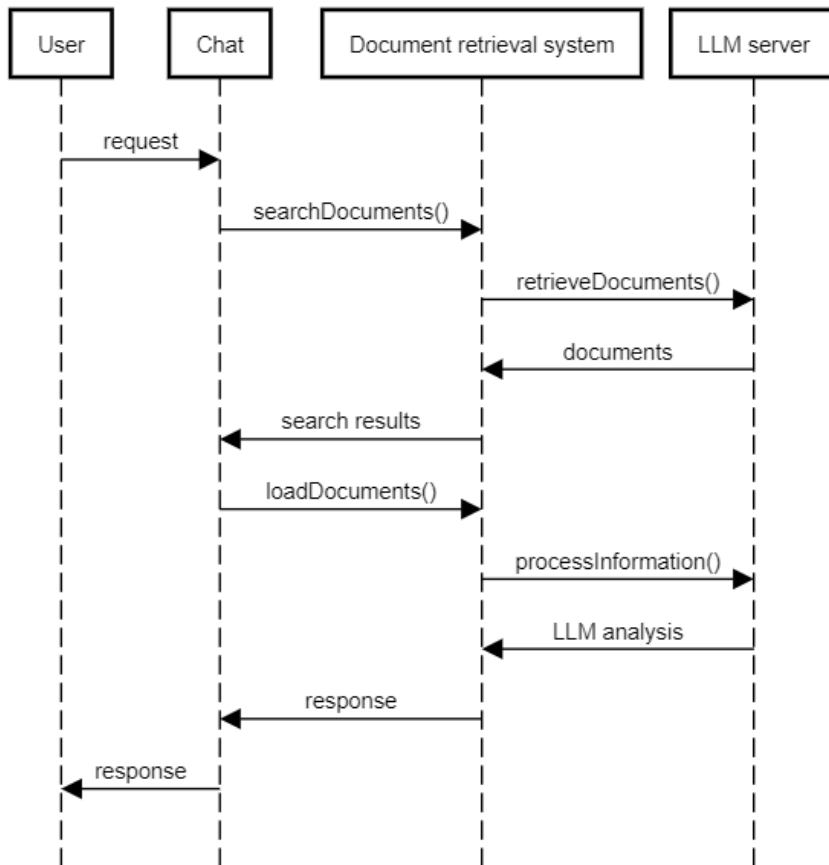<<include>>
<<include>>

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2) Sequence diagrams

Here is some sequence diagram examples.

Documents retrieval:

Recommend watches to user:

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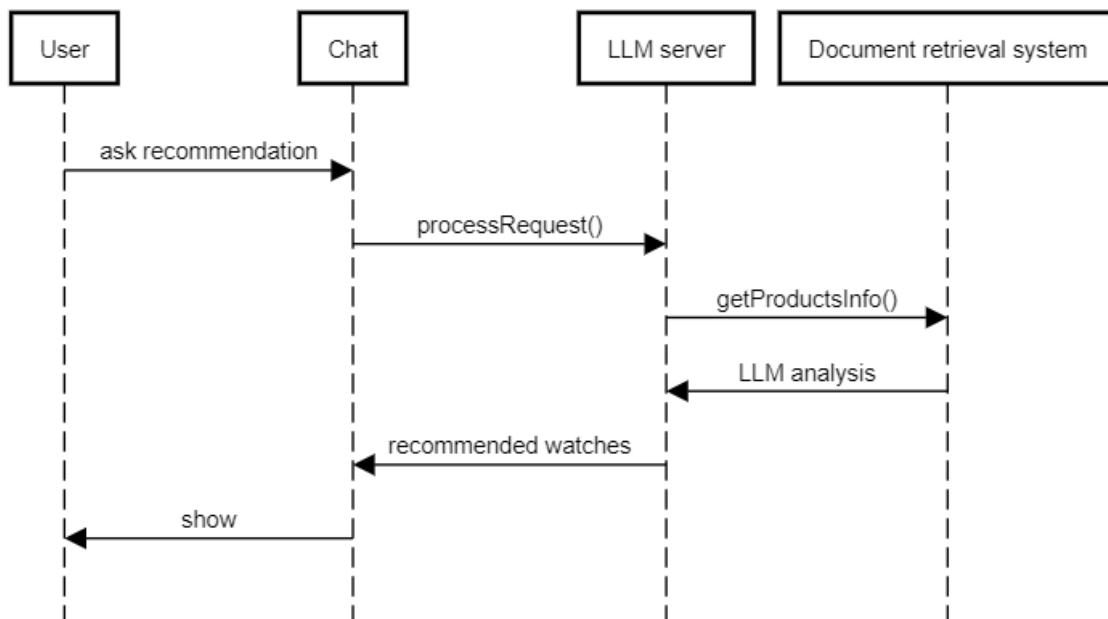
Re-order materials:

Class diagram:

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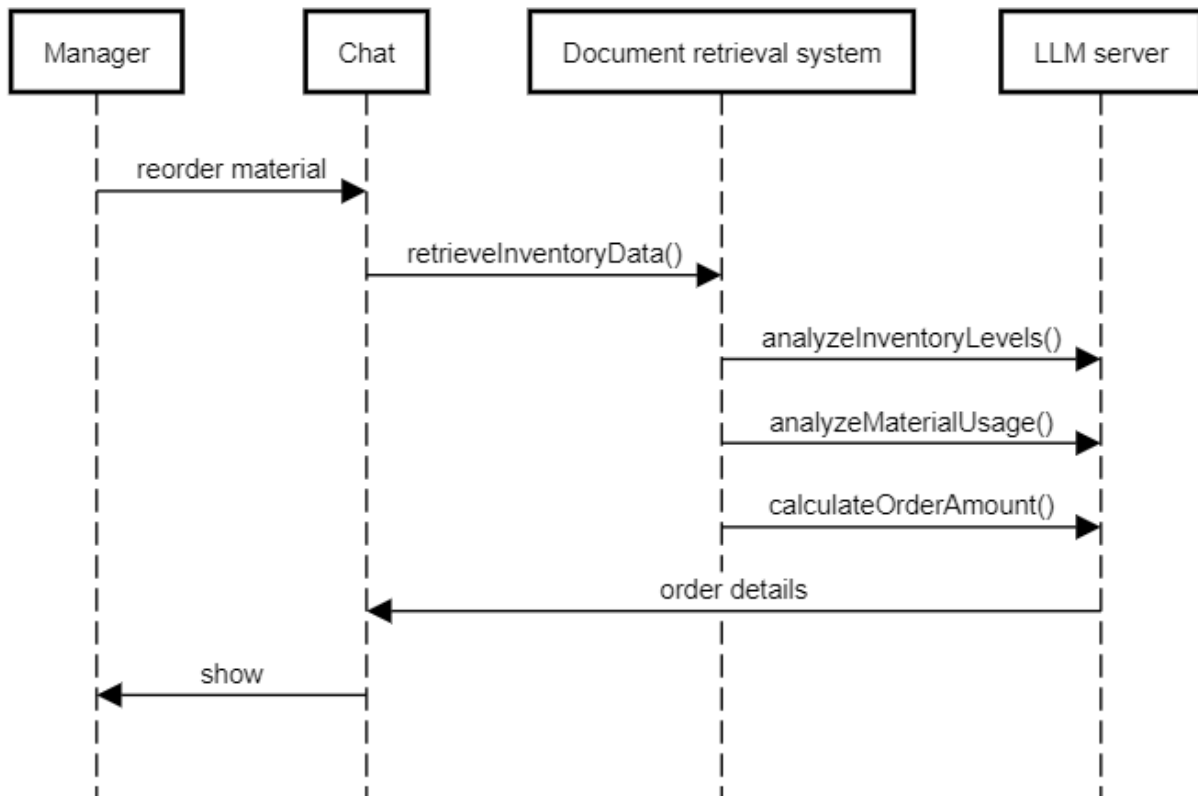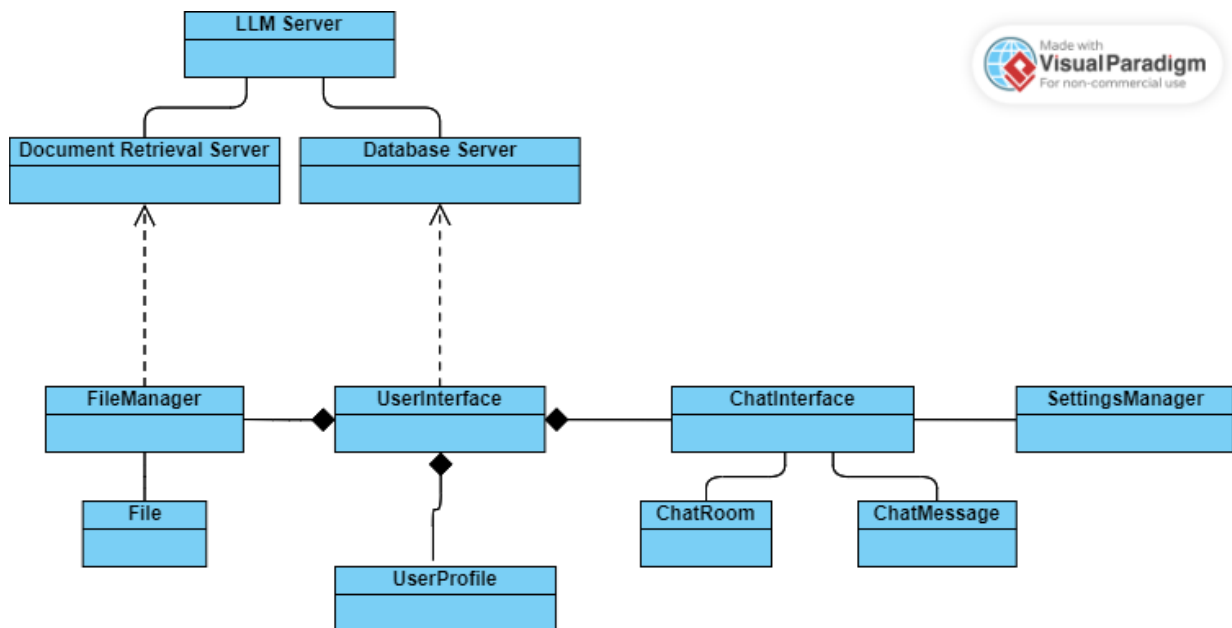
Operations:
- LLM Server
    - CalculateOrderAmount()
    - AnalyzeProcurement()
    - OptimizeProcurement()
    - AnalyseMaterialUsage()
    - AnalyseInventoryLevels()
    - ProcessRequest()
- Document Retrieval Server
    - RetrieveInventoryData()
    - SearchDocuments()
    - GetProductsInfo()
    - LoadDocuments()
- Database Server
- FileManager
    - AddDocument()
    - EditDocument()
    - DeleteDocument()
- File
- UserInterface
- UserProfile
    - EditEmail()
    - EditPassword()
    - EditPhoneNumber()
- ChatInterface
    - SendMessage()
    - ShowMessages()
- ChatRoom
    - getUser()
- ChatMessage
- SettingsManager
    - EditSettings()
    - ResetSettings()

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Prototypes:

Login page

InLine Prod

by Pietro Belfanti and Gabriele Bottinelli

🕐

Welcome

email

password

LOGIN

you don't have an account?
register here

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Chat:

Chat

Hello, could you help me find a watch based on some reccomendations?

Sure, could you please give me your preferences such as color, style, size, price range and material?

message InLine Prod...

| Q | W | E | R | T | Y | U | I | O | P |

| A | S | D | F | G | H | J | K | L |

⇧ | Z | X | C | V | B | N | M | ⌫

123 | 🌐 | 🎤 | space | return

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User Profile:

Chat   **Settings**   **Profile**   **Help Desk**   **Logout**

👤 Profile

Email: user@gmail.com
Password: *************
Full Name: User Test
User Type: Customer
Phone Number: 0761234567

Edit informations