Clifford Systems Requirements Specification

Version 1.0

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1   Executive Summary

1.1   Project Overview

Our product will feature an application that will be used by manufacture companies to manages the orders given by different distributors that want to work with that factory products. Clients will be able to make different orders and receive information regarding when the order can be shipped.

1.2   Purpose and Scope of this Specification

In scope

The following points are intended to show the core mechanics of this application:

● This project is intended to ease management of supply and production in certain company.
● Help clients make simpler and more concise orders without needing to physically discuss with the executives of the user company.
● Manage manufactured products by keeping in mind the maximum capacity of the magazine and the order of the distributors.
● Keep track of sales and make sure there are no problems.
● Manage employees in the same screen without having to disturb their environment.

Out of Scope

● Cross – platform usage so clients can order anytime and anywhere.
● Predict future sales so we can manufacture certain products at a higher rate when needed.
● Automate certain mechanics that will ease the burden on employees when dealing with manufacture production.

2   Product/Service Description

2.1   Product Context

Our application can be used by any product manufacturer. Although we are tailoring it into the food industry for now, small changes can be done to benefit any manufacturer in any industry. Application will have 2 main user interfaces: 1 for employees to manage all orders and processes happening from inside the company and another for customers who can schedule orders from anywhere.

2.2   User Characteristics

There are 3 main user classes:

Clients:

- These will be different companies that want to buy company products.
- Registration will be done by employees physically.
- Without logging in, clients can see the product lineup in a front page.
- Upon logging up, these clients can order what products they like.
- These orders will be handled by employees which will also display an approximate time when the order can be put through.
- Clients can see their current orders, finished orders and several info related to them.

Employee:

- These will be using a different interface that only deals on the company side.
- They can register new users who want to trade with the company.
- Employee accounts will only be registered by admin.
- Every employee must log in to start their shift.
- Upon logging in, they can see the current progress of the company, i.e. current magazine stock for different products, daily production by the manufacturer and pending orders.
- Pending orders can be viewed and once the employees are sure, they can approve their requests and manually schedule a date for pick up or leave it to the system to find out.

Admin:

- Admin will be a higher rank that can manage all the employees.
- He can register new employees and also delete both customers and employee accounts.
- Oversee the daily performance of the employees.

2.3 Assumptions

The application will be mostly used by the web. Clients can access the website to log in and make orders from anywhere with both phone and computers. On the other hand employees will feature a web application for starting but will eventually be converted into a windows application for faster responses.

2.4 Constraints

Possible constraints:

- Migrating data from the old application to the new one can be time consuming.
- Clients need to be connected to the internet to issue orders.
- In case of technical problems, they have to email the support team to fix them.

Dependencies

List dependencies that affect the requirements. Examples:

- No dependency is required.

3 Requirements

3.1 Functional Requirements

Clifford Systems Requirements:

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
CS_01	Customers will use client accounts, having a username and password. Additional account info includes company name, address and phone number.		1	18/04/22	
CS_01	Customers should be able to see different products without having to log in.		1	18/04/22	
CS_02	Logged in customers can order products in different amounts and work with special requests.		1	18/04/22	
CS_03	Customers should be able to contact technical support whenever they encounter a bug or a problem in the system.		2	18/04/22	
CS_04	Employees will use their own accounts, having a username and password.		1	18/04/22	

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
CS_05	Employees should be able to review orders and either accept or reject them.		1	18/04/22	
CS_06	Employees should be able to observe the stock of the magazine.		1	18/04/22	
CS_07	Employees should be able to view factory production for a certain period of time.		1	18/04/22	
CS_08	Employees should be able to register new clients that want to work with the company.		1	18/04/22	
CS_09	Admin should be able to register and delete employees, as well as clients.		1	18/04/22	
CS_10	Admin should be able to look over employees. Check their performance daily and observe their rejected and approved orders.		2	18/04/22	
CS_11	Admin should be able to access support tickets and reply to them.		2	18/04/22	
CS_12	Employees and Admin should be able to look at predicted productions in upcoming months.		3	18/04/22	
CS_13	Customers can change their credentials using an automated process.		3	18/04/22	

3.2 Non-Functional Requirements

3.2.1 Product Requirements

3.2.1.1 User Interface Requirements
Client Interface

- 1. At the top of our page there will be a nav bar that will contain our logo on the left , a search bar and on the right side two icons. One of the icons is for the client account and the other one is for the shopping cart.
- 2. Below the nav bar the page will be divided into two parts where the left side will be significantly smaller as it will host the list of the function that can send the user to a different page for other information such as : Shop, Products, Categories, History and Contact Us.
- 3. The right side will be more complex, it will contain a big box with sliding photos(these are going to our promotion products as an example), below them there are going to be 3 rows of 4 columns with pictures of the product and their names.

- 4.At the end of the products there will be a list to change the page of the products that we are looking at.
- 5. When we click on a product the page will change. Going into a page that has more photos of that product with a big one above them. On the left of the photos there will be a description of the product and its packing specifics.
- 6. Below both of them there will be the price , quantity of the product that we want. On the right of them there will be a button to add the order into the shopping cart.

Employee Interface

- 1.The employee interface will consist of 3 parts. The top part will be the nav bar that will consist of the logo in the left side and of the user box in the right side.
- 2.The part below the nav bar will be divided into two parts. The left part will consist of 20% of the screen space and will show the list of functions that the employee can use. The will be put in the column view.
- 3.On the right part of the screen that will occupy 80% of the screen real estate it will contain boxes that each have their specific functions. Depending on the size of the screen that will be used the number of boxes displayed in a row will vary. In difference form the functions that will be shown in the list is that the ones in the boxes are the one the employee will use more frequently and can be easier to spot like : Daily Production, Clients, Register Clients, Supply Overview, Production Magazine Overview etc.

Admin Interface

- 1.From the point of construction the admin interface will be the same as the employee interface as they will have the same design.
- 2. What will change is the number of boxes as the admin has power to make changes that are out of the employee scope. As : deleting clients, registering new employees, overviewing employees, seeing the profit margin and seeing all the distributors etc.

3.2.1.2   Usability

- There will be a manual shown when the clients open the webpage.
- On every functional button, there will be a small description when you hover over them.
- For employees, a written guide will be provided to all of them.
- UI will be intuitive for both sides, being very minimal so users will not get confused at any of the functions.

3.2.1.3   Efficiency

3.2.1.3.1   *Performance Requirement*
- Client Web Page should be able to handle up to 1000 users simultaneously.
- Average number of clients per week should be around 100 clients.
- Since there will only be 1 employee that will handle the orders at one time, only 1 employee account will be connected at a given time.
- For automated responses, the application should handle up to 50 orders per second.
- Latency for an order to be shown on the employee side should be under 1 second.

3.2.1.3.2   *Space Requirements*
- Each order will feature a simple json-like structure that can go up to 5kB of data.
- These orders will be accompanied by their respective schedule and other written instructions from the employees for a total of 10kB of data.
- On average, we should need a total of around 5MB of data on a weekly basis.

- This sums up to 260 MB data needed for all orders in a year.
- Factory databases are much simpler , needing only the data for different products which will only get updated on place. On the other hand , daily production should be kept on a separate database that will add another 10kB per day.
- Total yearly production will need 3.6MB of data.

3.2.1.4   Dependability

Availability

- The Web Page should be running 24/7 so clients can see the products and even make orders at any time.
- Employees will have 2 shifts. Each shift will be 8 hours, 8:00 to 16:00 and 16:00 to 00:00. At these times, any order can be reviewed by the corresponding employee.
- Admin page will be available at any time the administration wants to check anything related to clients and employees.

Reliability
- The application should be reliable for any time of the day between 5:00 up to 4:00 the next day.
- Sometimes there can be maintenance that will be scheduled between 4:00 to 5:00 since there won't be much traffic during that hour in the morning.
- For other days, the system will be active at any hour.

Monitoring
- Daily production from the factory should be updated every 2 hours so the employees can take the latest data before proceeding with the orders.
- Every transaction should be logged and the admin can keep track of these logs on his screen.

Maintenance
- Every time we need to update the system. We should temporarily save the pending orders before proceeding.
- Then we can proceed with 1 hour downtime on the servers between 4 AM to 5 AM.
- Once the maintenance is complete, the orders are added back to the server.

Integrity

3.2.1.5   Security
- Every user, be it client or employee, will be hashed when saved on the database.
- APIs will be protected using OAuth and using only https connections.
- Every function of the system will be done with RESTful APIs which will be stateless, so authentication will not depend on sessions.
- Databases will only be accessed by the backend admin. Employees can only see data but not change anything except orders.
- Employee order responses will be logged to the admin in case the employee account has been breached from the inside.
- Orders and accounts cannot be deleted or changed unless the admin wants to. In that case, the admin activity will be logged into a separate file so other higher ups can loop for suspicious activity.

3.2.2   Organizational Requirements
Creation of customer accounts will be handled by employees, rather than creating it themselves.
Employees should always log out before finishing their shift in order for the next employee to start his shift.

3.2.2.1   Environmental Requirements
The product will be mainly accessed by PC/laptops powered by the Windows operating system.

The website for the clients however can be accessed by any type of device at any time and space.

3.2.2.2   Operational Requirements

Our product is a mix of web pages which will be used by the clients in order for the client to make different orders depending on their request but also an application for the employee and the admin for them to accept the orders and also to check the production of the factory.

3.2.2.3   Development Requirements

The technologies used in this project will be:
- Front-end: HTML , CSS , JavaScript (possibly css frameworks for better styling)
- Back-end: Python with Django framework

3.2.3   External Requirements

3.2.3.1   Regulatory Requirements

The client should accept the fact that the primary data will be provided by the employee as well as the fact that the data regarding the orders that client makes will be checked by the employee and by the admin.

3.2.3.2   Ethical Requirements

- The client must accept for their credentials to be created by the employee and also all their data regarding the orders to be shared by the employee and the admin.
- The employee should accept that all the data that he will be providing to the company will be checked by the admin in order for the work rate to be as efficient as possible.

3.2.3.3   Legislative Requirements

Our applications will comply with all the necessary Albanian laws, regarding the protection of the data of the client (in terms of the usage of the web page). All the sensitive data regarding the information of the client and also their orders will remain confidential and between the client and the company, without sharing with third parties.

3.2.3.3.1   Accounting Requirements

The website will be completely free and only accessible by the clients of the company, not requiring any kind of monetary transaction.

3.2.3.3.2   Security Requirements

The system will provide a security of data encryption which will mainly focus on the passwords being hashed in order for the employee or the admin not to have access to the clients account.

3.3   Domain Requirements

The domain requirements for our project will be a good responsive web page for the client, in order for them to have easy access to the products and also make orders accordingly to their needs. Also the application for the employee and the admin will be a simple yet compact solution for all their needs according to the requirements of each position.

4   User Scenarios/Use Cases

User Scenarios:
1.Client successful log-in:
- Client goes into the E shop web page, where he is firstly presented with the login form.
- The client will then enter its username and password.
- After that the client will have access to the E shop.

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2.Client forgot username or password:
- When the client tries to login but is unsuccessful because he has forgotten his password.
- He will make an email request to the admin of the factory which will bring him a new password.
- He can then change that password from the Client account.

3.Client opens the webpage without logging in:
- When the client opens the web page without logging in then they can only see the login form that needs to be fulfilled.

4.Client opens the webpage after logging in:
- After the information is input in the form and it is checked, then the client is sent into the E shop where he can look at the products and have access to all the functionalities of a client.

5.Client makes an order:
- After the client is logged in he can look into the products. He can select a product. This will bring into the spotlight that product with more information about its price, name, quantity in a box and box dimensions. The client can choose the quantity of product that he wants and then click the button to add to cart.
- When he has finished selecting the products that he wants, he will go to the cart button, there is a list of products that he has chosen. Here the client clicks make an order and the new order is sent.

6.Client failed to make an order:
- When the client is trying to make an order, the system will fail and a red text will be shown to the client.
- Now the client should click on the upper right corner of the screen, the button "Customer Support".
- On this menu, the user should click "Create a Ticket".
- Inside the ticket, the client should write information related to what he was doing and what failed.
- The client will then press send and wait for confirmation from the support team.

7.Client checks his orders:
- After the client has finished checking the products that he likes they can view the selected product in his account.
- He will click the account button located in the upper right corner.
- There he can see the orders that he has previously made and the preview of the order that he is making.
- He can check to make sure that the products selected are how he wants, and in the end he will click the button to confirm that order.

8.Employee successful log-in:

- The employee is firstly presented with the log in panel, he will then enter his information to be logged in.
- After the employee is logged in by pressing the login button he is greeted with the main page that shows to him all the functions that are available to him.
- In the upper right corner is the name of the employee that is logged in.

9.Employee checks magazine stock:

- One of the functions that the employee can do after he is logged in he can see the products magazine stock by clicking the button with the magazine logo.
- When the employee views the stock he can see different categories that are stored in the magazine, and the number of products stored there.
- He can see the products that are understocked and that need to be produced more as well as the products that are overstocked so their production needs to be dialed back.

10.Employee checks factory production:

- When in the main menu the employee clicks the factory production.
- Here he is presented in a form that he will fill the input for the production of the factory in the last hour.
- When the form is filled the employee clicks the enter. The information of the product is then added to the magazine.

11.Employee checks pending orders:

- When in the main menu the employee can click to check the pending orders.
- The pending orders are the ones that can't be directly completed by the magazine.
- Depending on the calculation there can be two options for the employee to click: if there are enough supplying mariale the product is put into production and if there isn't enough supplying materials then he clicks to order the needed materials so it will be produced later on.

12.Employee validates an order:

- In the moment that the order is sent the employee can look at that order together with the client that ordered it.
- He clicks on the order and reviews it if it is possible to be made by the factory for the time asked.
- He then puts the order as validated and into the making.

13.Employee checks his finished orders:

- In the main menu, the employee can see all the orders that are completed.
- For each confirmed order, the employee can inform the client.
- After the confirmation from the employee, the finished orders will disappear from the main menu, but the information for each order will be saved on the database.

14.Employee registers a new client:

- On the employee application, there is a separate part for the registration of a new client.

- When the employee clicks it, it will open a new tab with some fields that need to be manually completed by the employee, regarding the information for the client.
- After every field is completed, the employee can then choose to or not to add the new client.
- After this process, the employee sends the credentials to the client, in order for the client to navigate the website.

15.Admin successful log-in:

- The admin is firstly presented with the log-in panel, he will then enter his information to be logged in.
- After the admin is logged in by pressing the login button, he is greeted with the main page that shows to him all the functions that are available to him.

16.Admin checks employee statistics:

- When in the main menu, the admin clicks the statistics.
- Here he is presented with all the employees.
- The admin can choose any of the employees. After he chooses the employee, a new tab will show some information(name, surname, etc) and also all the statistics regarding the performance of the employee.

17.Admin checks all orders:

- In the main menu, the admin clicks all orders.
- A new tab will show all the pending and completed orders that have been made for that day.
- The admin has the option to choose any day he wants to check for the orders made and completed.

18.Admin registers a new employee account:

- In the main menu, the admin will be able to create a new employee account(if needed).
- When the admin clicks it, it will open a new tab with some fields that need to be manually completed by the admin, regarding the information for the employee.
- After completing the registration a message will be shown which will have the employee information.
- This will enable the employee to use the application and do different tasks such as: check factory production, check pending orders, check finished orders etc.

19.Admin deletes an employee account:

- In the main menu, the admin will be able to delete a current employee.
- When the admin clicks on this menu, a new tab will appear with all the current employees one after the other.
- The admin then can choose which employee account he wants to delete. After the delete process has been successful, a message will pop regarding the successfulness of the operation.
- This will stop the employee from using the application.

20.Admin deletes a client account:

- In the main menu, the admin will be able to delete a current client.
- When the admin clicks on this menu, he can choose which client he has to delete depending on different factors (the client does not want to be part of the company, violation of the rules or any other case)
- After this process the client won't be able to access his account anymore.

21.Admin solves technical support tickets:

- In the main menu, the admin will be able to see a menu regarding the technical support.
- When the admin clicks on this menu, a new tab will appear that shows all the active requests from the clients regarding a problem they want to be solved.
- The admin then reads the problem and contacts the required staff from the company, in order for the problem to be resolved.
- After the problem is resolved, the admin checks the request for the technical problem. In that moment, the clients will also be contacted and informed with the solution to the problem.

22.Admin changes username and password of a client:

- A client has sent a ticket to change his username or password.
- Ticket will provide the new username or password that the client wants.
- Admin opens this client's profile.
- On his profile, the admin clicks "User Settings" to open the menu for changing user settings.
- Inside User Settings, the admin will type the new password or username that the client requested.
- Finally the admin clicks save at the end of the page and then replies to the ticket.

23.Admin checks magazine stock:

- On the main menu, the admin will click the "Magazine" button.
- Magazine user interface will open, listing all the items and their current stock inside the magazine.
- On the top of the page, the maximum space and current occupied space will show. This will be calculated based on different stocks of products.
- Clicking on each different product will list all the different versions of that product and their respective stock. Here we can also see the daily production and other related data from the factory.

24.Admin checks factory production:

- There are 2 ways for the admin to check factory production.
- Normally he can click on the "Factory" button on the main menu. This will show general data for daily production on the magazine and a graph for the workload where the admin can filter by day, week , month and year.
- There will also be a list of products that are produced that day. Clicking any of them will show additional information for that product.