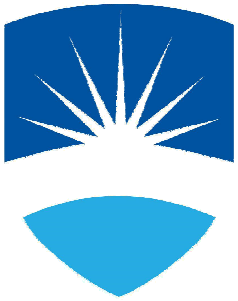

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Table of Contents

1. Executive Summary

1.1 Project Overview

The Bar Management System Project aims to build up a software to ease the Management of a Bar/Coffee Shop Business Management through efficiently implementing an easy-to-use GUI with the following functionalities: Users/Admin will be able to login and each have their own session. Admin can add new user/new category. Waiter can sell items (decrease stock) and generate bills. Admin will be able to access selling reports and the information of stock. He must also be able to add and remove items from the stock. The admin will be able to filter their sales and customer data to help grow their business. For instance they want to filter their sales by brand, product type, season, time of the year or other trends. The ability to filter such reporting data is very important so the owner can easily see which product is being sold most and less or where he is doing most of the profit etc. and not all systems have this ability.

The software will also offer all the features listed below:

- Keeping track of sales
- Keeping track of purchases
- Understanding which product sells better
- Understanding which product is more profitable
- Ensuring your taxes are computed correctly

1.2 Purpose and Scope of this Specification

The Bar Management System will be designed with the purpose to have the capabilities and features to help operate and manage a specific bar. A management system may be called as the heart of the bar as it includes many features and functions that make running in this case the bar more efficiently and ultimately more profitable.

It will make it easier for the owner of the bar to track all the business data sales down to the last cent. Also we are going to design a menu which will be easy to configure and setup. Sound like a no brainer but it is an essential consideration because there are so many systems on the market that can make your life very difficult when all you want to do is make a simple menu updates or pricing changes. It will be designed with the purpose to be easy for users and management to use as all the want is to take orders quickly, split checks, change tables and item quantities etc.

2. Product/Service Description

Every Business needs a point of sale system to keep track of everything happens in that Business. It is one of their biggest assets. Our software will help these businesses (Bars) to have control on everything that they need. It will be more like a team experts working behind the scenes, making sure everything is going quickly and efficiently.

This software will be very beneficial for such businesses in many directions such as:

- *It will save time.*
    1. It will speed up the checkout process. Every time a client order something the receipt will be printed immediately after his completed order so they do not have to wait for the bartender or waitress to do the calculations.
    2. Speed up inventory management. With a built-in inventory the manager will not have rifle through many options when an order is done. It will be automatically deducted from the current inventory so they will not have to do it manually.
    3. Faster payroll processing. The system will automatically compute payrolls and can even print out a pay slip for your employees.
    4. No need to dig your receipts. The manager or the staff can search for any transaction that they want by using the search tool, no matter how old this transaction is.
- *You will know everything*
    1. Sales reports up to the last minute. It will let the manager know how much they are selling and if they are on track or not
    2. Real-time inventory tracking. With real time inventory tracking and management, the system will alert the users of this software when they are running low.
    3. Employee attendance monitoring- The manager will be notified and see who is coming in earlier and who late.

2.1 Product Context

Our software will be related to a specific bar in this case Romario's Bar. It will be used from the employees of the bar such as waitress bartender and the manager who will have access on every detail of the software.

2.2 User Characteristics

There will be two type of users who will interact with the system

- owner of the bar (Manager)
- the waiters
- other general characteristics that may influence the product

a)Owner of the bar

-For our project the owner of the bar is also the manager. The manager maintains the list of the products, controls the inventory and the wages. He also should control the income of the day,month, year as well as the profits. In addition to that, we can set a period of time that keeps the list of all products sold since and then delete them after the period ends. The manager can sort it selects some products as well as some other functions that will allow him to have a better interface of his products.

-We can also leave space to future changes in the system. If the owner decides to leave his job as manager and hire another one. This can require another profile that we will enable if the owner is not the manager.

b)The Waiters

-The waiters will be able to control the whole interface except for the manager's options. At first he will login, then the tables will appear on the screen. He can select the table for further options like making an order, adding another order or closing the table. There will be the options for two printers when making the order, one for the manager and one for the clients. The waiter can see the day's income and the products sold that day. When he closes his turn, he logs off and makes place the other waiter. The other waiter's turn starts with 0 income and he can see his income also the first waiter. He cannot change the income of the other waiter. Turns are interchangeable and leave no effect on the system.

c)Other general characteristics

-We will leave space for further improvements on the systems that may apply further changes

2.3 Assumptions

-It is assumed that the business is registered by their representative
-It is assumed that the waiters and manager already work on an system so they know how to use one.
-It is assumed that there are two printers and the computer to install the software
-It is assumed that the system should notify the manager at the end of the day, if the products' count is at some level that triggers this alert.
-It is assumed that the waiters after making the order cannot take it back, if the receipt is printed.

-It is assumed that the manager cannot make any changes in the end of the day after the daily income is closed.
-It is assumed that the waiters do not exchange passwords
-It is assumed that the the users shall have a web browser installed in their devices.
-It is assumed that every event that occurs in the software system is logged.
-It is assumed that a monthly and yearly inventory is made by an accountant according to the law.
-We may encounter other assumptions as we work on our project

2.4 Constraints

- The project is constrained by an accounting audit. He will examine if the bar's financial statements are accurate.
- It is also constrained by an external government audit.
- Each major operation should be secured by a password that only the user specified for that action can know.
- We may encounter further constraints

2.5 Dependencies

- The system should recognize the drivers of the printers
- We may encounter other dependencies while working on the system

3. Requirements

3.1 Functional Requirements

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
BR_01	The software should provide different interfaces for users and administrators	The view for waiter and administrator will be different	2	28/03/2018	Aleks Tare/Ogers Ruda
BR_02	The system should check if the user exists in the database	Given that the specified username and password is already registered in the database	1	28/03/2018	Ogers Ruda/Romario Balukja
BR_03	The user accounts should be secured with passwords	The password should fulfill the regular expression rule specified by the team and the password textbox should hide the text.	2	28/03/2018	Renato Saliu/Aleks Tare
BR_04	Upon login the software should present the user with the products list and a tab for categories to filter these products	The basic interface to be used by the waiter to select a specific product	1	28/03/2018	Renato Saliu/Ogers Ruda
BR_05	The user is able to add products to the currently opened tab and print it	Adding, removing and finalizing a tab for a certain table	1	28/03/2018	Renato Saliu/Romario Balukja

BR_06	The administrator is able to add/remove user accounts	Ability to edit the list of waiters who can access the software	2	28/03/2018	Aleks Tare/Romario Balukja
BR_07	The system should apply the VAT automatically	At the end of each tab (before printing) the VAT (20%) will be calculated and displayed separately in the tab	3	28/03/2018	Romario Balukja/Ogers Ruda

3.2 Non-Functional Requirements

3.2.1 User Interface Requirements

The user interface for the software shall be compatible to any Windows OS as long as they support the Windows Application Format.

Initially the employee will see a login screen where he/she can insert their credentials: username and password. If the login is successful the user is redirected to their appropriate view. Administrators can access the system by creating other user profiles.

In the case of the regular user the next view would be that of the products provided by the Bar and the ability to add them to the currently opened tab list.

3.2.2 Usability

Learnability

- Administrators will be introduced with a quick guide on how to use their interface
- The regular user interface is aimed to be built with a minimal user-friendly design
- The software is designed to be easy to learn and intuitive

3.2.3 Performance

This system is designed to work on a single terminal for each bar. The terminal can be accessed by only one person at a time. Future updates might include the ability to interact simultaneously with multiple user terminals.
The performance shall depend upon hardware components of the client/customer. Retrieval and access of data for each entity shall be processed in a few milliseconds

3.2.3.1 Capacity

The Windows Application will be able to handle calculations of multiple tabs and collect data from each closed tab. It will only be constrained by the size of the database since it does not require much computational speed.

3.2.3.2 Availability

- The system should be available during bar working hours
- It should only be accessible by waiters/bartenders and the managers
- Not limited to one specific operational location
- The system should be reliable and operational at the required time

3.2.3.3 Latency

There are no latency requirements except for the tab(receipt) print request sent to the operating system who connects it with the printer afterwards

Manageability/Maintainability

3.2.3.4 Monitoring

The system will provide a stock and transaction view which will be accessible only from the administrator view. This particular window will also serve as a logging interface which will store and retrieve data from the previous transactions..

3.2.3.5 Maintenance

MySQL is used for maintaining the database and the Windows Application Form is used to fetch and send data from/to the database. In case of a failure, a re-initialization of the program is recommended. If it is not the case, that means that the server may be down, so the user needs to wait for the system administrator to start the database server.

3.2.3.6 Operations

- login of staff users/admin
- CRUD of staff users
- Adding/Removing items from the currently opened tab
- Finalizing/Printing Tab and adding it to the database
- Review of previously closed tabs (admin eyes only)

3.2.4 System Interface/Integration

The system is operational as long as it is provided with a suitable and functional database (MySQL) and will be integrated only in the Windows Platform Applications.

3.2.4.1 Network and Hardware Interfaces

The system will not be distributed over a network interface however we must specify that it is suited to be accessed with a touch screen over a Point-of-Sale device which operates over the Windows Operating System.

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3.2.4.2 Systems Interfaces

The system will be able to print out a final tab with all the products' names, quantities and values and the calculated total. Occasionally it will also publish the happy hour discounts.
The tab structure to be sent to the database and printer is as follows:
[Bar Name]
[Date and Time]
[Products List][Quantity][Value]
[if applicable: Discount text]
[Total]

3.2.5 Security

Besides the username and password authentication the system does not require many more security measures, although some basic important rules still apply. The following explains these initial rules.

3.2.5.1 Protection

- The system will not include a register function on the login screen
- Auto-logging of tabs closed by each employee

- If an employee wants to change his username or password, the administrator must be notified
- The password will be encrypted at the time of registration

3.2.5.2 Authorization and Authentication

- Users will be authenticated with a username and password.
- If a user tries to log in to the application with a username which is not defined in the database, then the user should not be logged in. The user shall be notified about login failure.

3.2.6 Data Management

Employee Information

-accessed upon login

-has access of user views (unless role=admin)

-uniquely represented by id

-name, surname

Product Information

-accessed through the main products view more frequently

-accessible from each employee

-uniquely represented by id

-product name

Tabs/Receipts

-accessed after closing each tab and saving it

-accessible from each employee

-date and time

-active employee name

-products list

-total

3.2.7 Standards Compliance

Even though the VAT Receipt is printed separately, the system will be designed to apply the necessary calculations for VAT and print them within the Receipt. This complies with the The Republic of Albania State Law: "LIGJ 92/14 PER TATIMIN MBI VLEREN E SHTUAR" and will ensure the transparency of the system when compared with the official printed coupon for the application of VAT.

3.2.8 Portability

The system is currently being developed in C# which offers many portability opportunities. However the team has decided to develop the system as a Windows Application and the portability and compatibility with other systems will depend on future updates.

3.3 Domain Requirements

System should operate in a bar/coffee shop and also be able to add and update Employees, process payments, print out receipts and store tabs information in the database

4. User Scenarios/Use Cases

Provide a summary of the major functions that the product will perform. Organize the functions to be understandable to the customer or a first time reader. Include use cases and business scenarios, or provide a link to a separate document (or documents). A business scenario:

- Describes a significant business need
- Identifies, documents, and ranks the problem that is driving the scenario
- Describes the business and technical environment that will resolve the problem
- States the desired objectives
- Shows the “Actors” and where they fit in the business model
- Is specific, and measurable, and uses clear metrics for success

In here you may define the written user scenarios tested in the UCED Application given to you.

APPENDIX

The appendixes are not always considered part of the actual Requirements Specification and are not always necessary. They may include

- Sample input/output formats, descriptions of cost analysis studies, or results of user surveys;
- Supporting or background information that can help the readers of the Requirements Specification;
- A description of the problems to be solved by the system;
- Special packaging instructions for the code and the media to meet security, export, initial loading, or other requirements.

When appendixes are included, the Requirements Specification should explicitly state whether or not the appendixes are to be considered part of the requirements.

Appendix A. Definitions, Acronyms, and Abbreviations

Define all terms, acronyms, and abbreviations used in this document.

Appendix B. References

List all the documents and other materials referenced in this document.

Appendix C. Requirements Traceability Matrix

The following trace matrix examples show one possible use of naming standards for deliverables (FunctionalArea-DocType-NN). The number has no other meaning than to keep the documents unique. For example, the Bargaining Unit Assignment Process Flow would be BUA-PF-01.

For example (1):

Business Requirement	Area	Deliverables	Status
BR_LR_01 The system should validate the relationship between Bargaining Unit/Location and Job Class.---Comments: Business Process = "Assigning a Bargaining Unit to an Appointment" (Priority 1)	BUA	BUA-CD-01 Assign BU Conceptual Design	Accepted
		BUA-PF-01 Derive Bargaining Unit-Process Flow Diagram	Accepted
		BUA-PF-01 Derive Bargaining Unit-Process Flow Diagram	Accepted
BR_LR_09 The system should provide the capability for the Labor Relations Office to maintain the job class/union relationship.---Comments: Business Process = "Maintenance" (Priority 1)	BUA	BUA-CD-01 Assign BU Conceptual Design	Accepted
		BUA-PF-02 BU Assignment Rules Maint Process Flow Diagram	ReadyForReview

For example (2):

BizReqID	Pri	Major Area	DevTstItems DelivID	Deliv Name	Status
BR_LR_01	1	BUA	BUA-CD-01	Assign BU Conceptual Design	Accepted

BizReqID	Pri	Major Area	DevTstItems DelivID	Deliv Name	Status
BR_LR_01	1	BUA	BUA-DS-02	Bargaining Unit Assignment DB Modification Description	Accepted
BR_LR_01	1	BUA	BUA-PF-01	Derive Bargaining Unit-Process Flow Diagram	Accepted
BR_LR_01	1	BUA	BUA-UCD-01	BU Assign LR UseCase Diagram	ReadyForReview
BR_LR_01	1	BUA	BUA-UCT-001	BU Assignment by PC UseCase - Add Appointment and Derive UBU	Reviewed
BR_LR_01	1	BUA	BUA-UCT-002	BU Assignment by PC UseCase - Add Appointment (UBU Not Found)	Reviewed
BR_LR_01	1	BUA	BUA-UCT-006	BU Assignment by PC UseCase - Modify Appointment (Removed UBU)	Reviewed
BR_LR_09	1	BUA	BUA-CD-01	Assign BU Conceptual Design	Accepted
BR_LR_09	1	BUA	BUA-DS-02	Bargaining Unit Assignment DB Modification Description	Accepted
BR_LR_09	1	BUA	BUA-PF-02	BU Assignment Rules Maint Process Flow Diagram	Accepted
BR_LR_09	1	BUA	BUA-UCD-03	BU Assign Rules Maint UseCase Diagram	Reviewed
BR_LR_09	1	BUA	BUA-UCT-045	BU Assignment Rules Maint: Successfully Add New Assignment Rule	Reviewed
BR_LR_09	1	BUA	BUA-UCT-051	BU Assignment Rules MaintUseCase: Modify Rule	Reviewed
BR_LR_09	1	BUA	BUA-UCT-053	BU Assignment Rules MaintUseCase - Review Assignment Rules	Reviewed
BR_LR_09	1	BUA	BUA-UCT-057	BU Assignment Rules MaintUseCase: Inactivate Last Rule for a BU	Reviewed
BR_LR_09	1	BUA	BUA-UI-02	BU AssignRules Maint UI Mockups	ReadyForReview
BR_LR_09	1	BUA	BUA-TC-021	BU Assignment Rules Maint TestCase: Add New Rule (Associated Job Class Does Not Exist) - Success	ReadyForReview
BR_LR_09	1	BUA	BUA-TC-027	BU Assignment Rules Maint TestCase: Modify Rule - Success	ReadyForReview
BR_LR_09	1	BUA	BUA-TC-035	BU Assignment Rules Maint TestCase: Add New Rule (Associated Job Class Does Not Exist) - Error Condition	ReadyForReview
BR_LR_09	1	BUA	BUA-TC-049	BU Assignment Rules Maint TestCase: Modify Rule - Error Condition	ReadyForReview

For example (3):

BizReqID	CD01	CD02	CD03	CD04	UI01	UI02	UCT01	UCT02	UCT03	TC01	TC02	TC03	TC04

BizReqID	CD01	CD02	CD03	CD04	UI01	UI02	UCT01	UCT02	UCT03	TC01	TC02	TC03	TC04
BR_LR_01			X		X		X			X		X	
BR_LR_09	X			X		X			X		X		X
BR_LR_10	X			X					X		X		
BR_LR_11		X											

Appendix D. Organizing the Requirements

This section is for information only as an aid in preparing the requirements document.

Detailed requirements tend to be extensive. Give careful consideration to your organization scheme. Some examples of organization schemes are described below:

By System Mode
Some systems behave quite differently depending on the mode of operation. For example, a control system may have different sets of functions depending on its mode: training, normal, or emergency.

By User Class
Some systems provide different sets of functions to different classes of users. For example, an elevator control system presents different capabilities to passengers, maintenance workers, and fire fighters.

By Objects
Objects are real-world entities that have a counterpart within the system. For example, in a patient monitoring system, objects include patients, sensors, nurses, rooms, physicians, medicines, etc. Associated with each object is a set of attributes (of that object) and functions (performed by that object). These functions are also called services, methods, or processes. Note that sets of objects may share attributes and services. These are grouped together as classes.

By Feature
A feature is an externally desired service by the system that may require a sequence of inputs to affect the desired result. For example, in a telephone system, features include local call, call forwarding, and conference call. Each feature is generally described in a sequence of stimulus-response pairs, and may include validity checks on inputs, exact sequencing of operations, responses to abnormal situations, including error handling and recovery, effects of parameters, relationships of inputs to outputs, including input/output sequences and formulas for input to output.

By Stimulus
Some systems can be best organized by describing their functions in terms of stimuli. For example, the functions of an automatic aircraft landing system may be organized into sections for loss of power, wind shear, sudden change in roll, vertical velocity excessive, etc.

By Response
Some systems can be best organized by describing all the functions in support of the generation of a response. For example, the functions of a personnel system may be organized into sections corresponding to all functions associated with generating paychecks, all functions associated with generating a current list of employees, etc.

By Functional Hierarchy
When none of the above organizational schemes prove helpful, the overall functionality can be organized into a hierarchy of functions organized by common inputs, common outputs, or common internal data access. Data flow diagrams and data dictionaries can be used to show the relationships between and among the functions and data.

Additional Comments
Whenever a new Requirements Specification is contemplated, more than one of the organizational techniques given above may be appropriate. In such cases, organize the specific requirements for multiple hierarchies tailored to the specific needs of the system under specification.

There are many notations, methods, and automated support tools available to aid in the documentation of requirements. For the most part, their usefulness is a function of organization. For example, when organizing by mode, finite state machines or state charts may prove helpful; when organizing by object,

object-oriented analysis may prove helpful; when organizing by feature, stimulus-response sequences may prove helpful; and when organizing by functional hierarchy, data flow diagrams and data dictionaries may prove helpful.