Construction Company Management System Requirements Specification

Version 1.0

April 15, 2020

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1. Executive Summary

1.1 Project Overview

It seems that many businesses in our country still uses the old version of keeping information for their workers like using notebooks or excel .In the cases of constructing companies they do not have a specific program that shows that the project they are working in currently or how the work is divided between their workers . The business we are helping to solve this problem is a construction company named “Druri –Shqip shpk” .

This company is using excel to keep the working days for each worker to account their payment based on their working days. As for the project they are currently working with, they do not have a proper database to keep all the project and which worker is currently working on that project. They also use only an accounting program for the economist for the material use but that program do not include which materials was used on that project .

For these reasons we have decided to create a program which will help this construction company , it will digitalize the information on working days for each worker including on which project they are currently working. The owner will have it easier to have all the information of the project in his computer and it will also help them as a reminder if a worker requests days off. It will also help the economist and engineers to not forget all the materials bought for each project.

1.2 Purpose and Scope of this Specification

In order for a construction company to get a project well done, it is needed that every employee to coordinate their work with each other. So, the main purpose of our Construction Company Management System is to build a communication bridge between every employee in the business.

Currently, the business owner is gathering and organizing all data manually and he is doing mostly anything on his own. This program will make sure that engineers cover the processes of planning and coordinating different projects. Also, engineers have to declare the materials

they will be using and this will go straight to the economist. This way, the economist will take care of the financial part of every project submitted by engineers as well as the inventory part.

In the end, this leaves the owner to only take care of approving or disapproving projects and also, taking care of workers and assigning them in the projects he approves.

This software will help in organizing the work of the company and since everyone is doing their part , it will be less time-consuming. The tracking of the resources and assets, as well as monitoring of the costs, progress and the performance of the workforce will be easier. This way the business can achieve what is called competitive advantage in the existing market.

2. Product/Service Description

2.1 Product Context

This software is a desktop application which is going to provide the best solution to the management. The system will help the company with the daily activities also cover the processes of planning, coordinating and controlling different projects that are executed by existing teams in the company. This will cover most of the work done by hand which is time consuming, not efficient and can lead to certain misunderstanding or problems

2.2 User Characteristics

There will be three main users where each user will have their personal window to work. In the login window will be a selection box to choose the logging user who's working

1. Owner (admin) window
   a) Create, remove, update employees (beside the work field employee, it includes team leader and economist as well)
   b) Read days off requests and approve them
   c) Approve or decline the project suggested by the team leader

2. Team Leader window
   a) Create, remove, update projects
      (-this info about the project will also show at admin's page the moment it is created
      -when creating the project he will give details also for the amount of materials they need and the deadline for the project to finish)
   b) Assigns workers to projects
   c) Report the materials used daily and the amount.(this information goes directly to the economists page)

d) Make notes about the daily work done (which will show at owner's page)

3. Economists
   a) Mark in and out hours (to calculate their salary)
   b) Makes days off requests for the workers
   c) Keep track of the inventory
   d) See for each worker the work days from the day he selects to another day and calculate the payment
   e) See for each project the materials use

2.3 Assumptions

On this Application:

- It is assumed that every user has access to a computer.
- It is assumed that the admin will have access and also have the power to add users and also employees to the system(CRUD functionalities)
- It is assumed that the computer devices that will use the application will have Windows or Linux operating system
- It is assumed that admin will have access to everything that other users post.
- It is assumed that the application will be secure and the data will be confidential.
- It is assumed that every user like admin, economist, and team leader will be trained to use this application before starting to use it.

2.4 Constraints

The application will conceivably have the following constraints:

- Each employee has to first show to the economist's office
- The users of the application should have basic knowledge of the application
- The users have access of the application only in the computers where it is installed

2.5 Dependencies

Dependencies of the application:

- The application needs to run in a computer
- Project cannot start without the acceptance of the admin
- Also days off requests need to be accepted by the admin

- Admin cannot view the projects if they are not fully completed (detailed)

3. Requirements

3.1 Functional Requirements

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
BR_01	The system is implemented as a desktop application with three main users	Every operation will be involving these users	1	4/22/20	Kristiana Cukaj Marina Collaku
BR_02	The Admin account should have all the priviledges and must be able to enter in every users window.	In order to be in full control of what everyone is doing the admin should have access to different windows	1	4/22/20	Kristiana Cukaj Marina Collaku
BR_03	This system should provide the admin the right to add, edit and delete employees	This way if any changes are made in the business it will not be hard for the admin to adjust those changes in the system	1	4/22/20	Kristiana Cukaj Marina Collaku
BR_04	The Admin page is responsible of approving different projects suggested by the team leader.	Before team leader starts working on projects they send a draft of the project and it is up to the admin to approve them.	1	4/22/20	Kristiana Cukaj Marina Collaku
BR_05	Every user of the application will log in with a username and a password	To facilitate easier log in, the admin module will access the system without an email.	1	4/22/20	Greta Meckaj Marina Collaku
BR_06	The admin can add new employees by providing information such as: Name, Surname, Date of Birth, Position.	This will be one of the main operations of the admin account.	1	4/22/20	Greta Meckaj Marina Collaku

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
BR_07	The admin can view employees data in a tabular form where he can search and can make quick edits on data through the table or delete.	Through this option it will be easier to navigate through different employees	2	4/22/20	Greta Meckaj Marina Collaku
BR_08	The Admin page is responsible on approving the days off requests for the employees	By doing so it will be easier for the admin to not forget about who wants a day off	2	4/22/20	Erjona Gosturani Pavlina Hysko
BR_09	The admin page is responsible for making the required changes for any of the account as well as the username and password of that account	In this way the admin will be in full control of the application	3	4/22/20	Erjona Gosturani Pavlina Hysko
BR_10	The admin can open a page where he sees all the projects and their activity status.	Through this it will be easier to navigate all the projects	3	4/22/20	Erjona Gosturani Pavlina Hysko
BR_11	The team leader should specify his username and password and his position in order to open his page	This is a easy way to access the account and also secure	2	4/22/20	Kristiana Cukaj Erjona Gosturani
BR_12	The team leader must give information regarding the daily material usage along with the amount used	In this way it is easier for the team leader to communicate with the economist	2	4/22/20	Kristiana Cukaj Erjona Gosturani
BR_13	The team leader is responsible of creating new project by filling details and assigning workers for that project	By doing so it will be easier for the admin to control all the project	3	4/22/20	Kristiana Cukaj Erjona Gosturani

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
BR_14	The team leader must fill a form for the project he is creating	This way for every project there will be details which can be viewed easier	2	4/22/20	Pavlina Hysko Greta Meckaj
BR_15	The team leader should send this project as a request to the admin in order to approve them.	It will be easier for the team leader to access all the project from all team leaders	2	4/22/20	Pavlina Hysko Greta Meckaj
BR_16	The team leader can view all the details of the projects he is a team leader of	As the team leader is the engineer all the project he has done till now can be accessible	3	4/22/20	Pavlina Hysko Greta Meckaj
BR_17	The team leader can edit the details of the project he is currently working on or former projects	so if he also wants to edit work in progress projects	1	4/22/20	Kristiana Cukaj Greta Meckaj
BR_18	The economist can login with the username and the password set by the admin	The same as the team leader this is a secure way to log in	3	4/22/20	Kristiana Cukaj Greta Meckaj
BR_19	The economist account is responsible of showing who is showing up to work every day.	This is an efficient way to have the list of everyday working worker instead of having to write them down	3	4/22/20	Kristiana Cukaj Greta Meckaj
BR_20	The economist is sending days off request to the admin with the request of the specific worker	By doing so it will be easier for the economist to not forget about who wants a day off	2	4/22/20	Erjona Gosturani Marina Collaku
BR_21	The economist can view the daily usage of the material for the project as well as the amount used	As to make it easier for the economist to not forget nothing that the team leader buys this can be a help	3	4/22/20	Erjona Gosturani Marina Collaku

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
BR_22	The economist can calculate the workers payment based on the selected period	Based on the calculation of the days worked * their daily wage	2	4/22/20	Erjona Gosturani Marina Collaku
BR_23	The economist page for the daily activity can be erased after the day passes.	At the end of the day for everyone who was clocked in will be deleted and saved in the system	3	4/22/20	Erjona Gosturani Marina Collaku

3.2 Non-Functional Requirements

3.2.1 User Interface Requirements

Our desktop application will be divided in 3 big divisions, admin team, leader and economist. The admin will be the owner, he will have access all over the system. The second division (users) will be for the team leader, and the third division user will be for the economist .As for the log in as password management there will be a page for this in the admin account.
We will focus on anticipating what users might need to do and will ensure that the interface has elements that are easy to access, understand, and use to facilitate those actions, while still keeping the application's design fresh and stylish.

Our system will consist of several pages, providing that it will manage an important part of the business .The admin is responsible for adding new users, such as team leaders , economists to the system, managing the existing ones and viewing their details. After registering a new user, he/she will provide them with their login information so that they can access the system. The first page is going to be a login page, where the username and the password of the user will be required. Admin, team leaders and economists face each a login interface where they must provide their personal username and password.
The admin also adds new workers that are not users of the application but are managed by the team leaders and economists. To accept and decline the project made by the team leaders

is the admin who makes decisions and also for days off. The admin will also view all the projects.
The team leader page is the engineer page , he is responsible of creating new project and including details about it this details also include which of the workers will work on that project. He is also responsible for adding the materials bought each day , which every time they click the button approve this information will go to the economists.
The economist is responsible of clock in for every worker and also to calculate their payment. He can also see the inventor created by the team leaders.

3.2.2 Usability

In software engineering, usability is the degree to which a software can be used by consumers to achieve objectives with effectiveness, efficiency, and satisfaction.
The main aim is to produce a software which must be easy and practical to use meaning that it would be very efficient and that each user can accomplish every task easily, quickly and with few or no user errors.

Our app system is easy is very easy to be updated and get adjusted quickly with these new arrangements, providing users a fast and reliable way of performing each operation.
Every operation will be context sensitive and obvious to what it is achieving, in order to make it clearer to the user. It proceeds and manages the errors quickly in such a way that every operation will be context sensitive.

It shall not be intimidating, frustrating and look as though it demands a lot of time and effort to complete a simple task.

Every user will have its own type of interface, with the attributes and actions they can perform there.

The application would be highly responsive in both design and data generator, which will be integrated in the app.

Even if the app is really easy to use ,In order to foster the user learning the system, a PDF manual would be included, providing necessary, step by step information to learn all type of users how to effectively use the system and achieve common tasks.

The software is user-friendly which makes it easy to work with.
Also it is secure.

3.2.3 Performance

The application is a desktop software which it means that can be installed on a single computer (laptop or a desktop) and used to perform specific tasks. The application is going to be used by 3 main users and doesn't need any internet connection. Users will have a high performance in completing a specific task of the management system.
The key features of desktop applications are the efficiency of the application is high and also these are highly customized as per user's requirements and flexibility.

1. Capacity

The software will work at the same time for the three main users. Every change made will be reflected on the database so automatically reflected to all the other users. The application it will be install by using CD drive, it works on the system's local server and runs only on a PC operating system such us Window. The software will have a maximum size of 70 mb.

2. Availability

- The application would be available 24/7, therefore you can access it any time.
- The desktop app will be available to the three main users that have a pc or a laptop device
- The application can be accessed in any geographical area.

3. Latency

Connection latency will vary depending on the location of the users and the virtual machines. Windows Virtual Desktop services will continuously roll out to new geographies to improve latency.

3.2.4 Manageability/Maintainability

1. Monitoring

The application's user interfaces will be simple and easy to be used which will minimize the possibility for any error or crash of the system. Firstly it will need two inputs, a username and a password that will redirect the user by its type to its corresponding page, in the log in page. In the case that inputs are not valid or not matched in the database an Error message will be displayed. During a crash, the system should restart as soon as the problem occurs by re-configuring the server.

The admin will have an access privilege among all other users who is followed by the manage , and so on with all the employees, depending on their specific duties.

2. Maintenance

The system will be very simple to use and the models are separated from each other with means that the transaction will occur separately, databases will loaded and the activities easy to process. But except of this, we will still make our test in order to define problems before occurring or fix the existing ones. …..

3. Operations

A user will be able and responsible to these operations:

- The users can log in and log out
- Create/remove new users (admin, manager)
- Assign tasks and schedule (manager)

3.2.6 Security

- The main platform that it will be used in MySQL for database.

· MySQL stores data in files in your hard disk. It stores the files in a specific directory that has the system variable "datadir".

- Another platform we considered using is Oracle for database as it is more powerful than MySQL.

- Oracle offers inline views, role based security, advanced replication which MySQL does not.

3.2.7 Data Management

- MySQL supports encrypted connections between clients and the server using the TLS.
- In MySql, statement logging is modified so that passwords do not appear in plain text.
- MySQL grants you with the security of the installation itself.
- MySQL *root account* does not permit anyone to access the user table in the MySQL database.

Authorization and Authentication

The primary function of the **MySQL** privilege system is to authenticate a user who connects from a given host and to associate that user with privileges on a database such as SELECT , INSERT , UPDATE , and DELETE . Additional functionality includes the ability to grant privileges for administrative operations.

3.2.8 Standards Compliance

Specify the requirements derived from existing standards, policies, regulations, or laws (e.g., report format, data naming, accounting procedures, audit tracing). For example, this could specify the requirement for software to trace processing activity. Such traces are needed for some applications to meet minimum regulatory or financial standards. An audit trace requirement may, for example, state that all changes to a payroll database must be recorded in a trace file with before and after values.

3.2.9 Portability

• An application that can operate in devices such as personal computers and laptops, without the need of an Internet connection.

3.3 Domain Requirements

The system manages everything related to our construction company, more specifically to organize better the work of Druri Shqip SH.P.K. That means the digitalization of basic work related activities of its owner and employees. To enter the system every employee should log in to verify the time he/she starts and ends the shift, also to send requests for day off to the owner. External users that are not part of the company's staff cannot enter the system.

4. User Scenarios/Use Cases

1. User logs in

    - User enters the username and password
    - User selects his position in the company
    - After checking with the database the user logs in

2. Admin adds new employee

    - Admin sees the table
    - Admin goes at the end of the table
    - Admin presses the button add new employee
    - Admin gives the necessary required information
    - Admin saves the new information
    - The information shows in the table

3. Admin removes employees

    - Admin sees the list of all the workers of the company
    - If any changes in the business, admin can remove the employee from the list

4. Admin makes changes in the accounts
    - Admin goes to the add accounts option
    - Admin makes the required changes
    - If new user, admin adds user

5. Admin looks at requests

    - Admin looks at all requests for days off
    - Admin approves or declines the requests

6. Admin opens project page

    - Admin goes to a different page
    - Admin can see all the different projects and their activity status
    - Admin can open the projects and look at the details
    - Admin approves or declines the projects sent as a request

7. Team leader logs in
    - He enters the username password and position team leader
    - He successfully logs in
8. Team Leader adds new project
    - Team Leader fills a form
    - He gives details needed
    - He assigns workers

9. Team leader reports materials
    - He enters the date
    - He enters the materials used
    - He also enters the amount used
10. Economist does the clock in
    - Economist writes who showed up at work
    - Economist also enters the date
11. Economist send the requests
12. Economist sees the reports of materials
13. Economist opens the calculate payment
    - He selects the period of time
    - He enters the daily wage
    - He calculates the summary