SYSTEM DESIGN DOCUMENT

Automated Dispatcher

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Introduction

The purpose of this System Design Document is to provide a description for how the Automated Dispatcher will be constructed. The role of the Automated Dispatcher application is to automatically assign tasks in a team as efficiently as possible.

Purpose

The purpose of this System Design Document is to provide a description for how the new Automated Dispatcher will be constructed. The Systems Design Document was created to ensure that the Automated Dispatcher design meets the requirements specified in the Automated Dispatcher project requirements documentation. The System Design Document provides a description of the system architecture, software, hardware, database design, and security.

System Overview

The Automated Dispatcher is designed as an enterprise software tool which is compatible with and leverages existing hardware and infrastructure.

The new Automated Dispatcher will provide the following capabilities:

- automatic dispatching of tasks to the employees based on the following criteria:
    - employee skill level
    - current workload of all employees
    - task skill requirement
    - task priority
- possibility for the manager to overview all the tasks, regardless of their status (In Progress, Completed, ...), and manually change task details (currently assigned employee, end date, ...)
- possibility for the programmers to see all the current tasks assigned to them organized in a list and the option to see the details for each individual task

Roles and Responsibilities

The following table defines the Automated Dispatcher System Design roles and responsibilities. This table also serves as the list of points of contact for issues and concerns relating to the Automated Dispatcher System Design.

Ciucur Daniel	Team Leader	Organize the team and help team during implementation
Tuns Adrian	Programmer	Implement app and provide tests for it

Opra Andrei	Programmer	Implement app and provide tests for it
Iovescu Andrei	Programmer	Implement app and provide tests for it

Project References

The following is a list of references. It should be noted that some of these documents are periodically updated and if more detailed information is needed, they should be referred to individually.

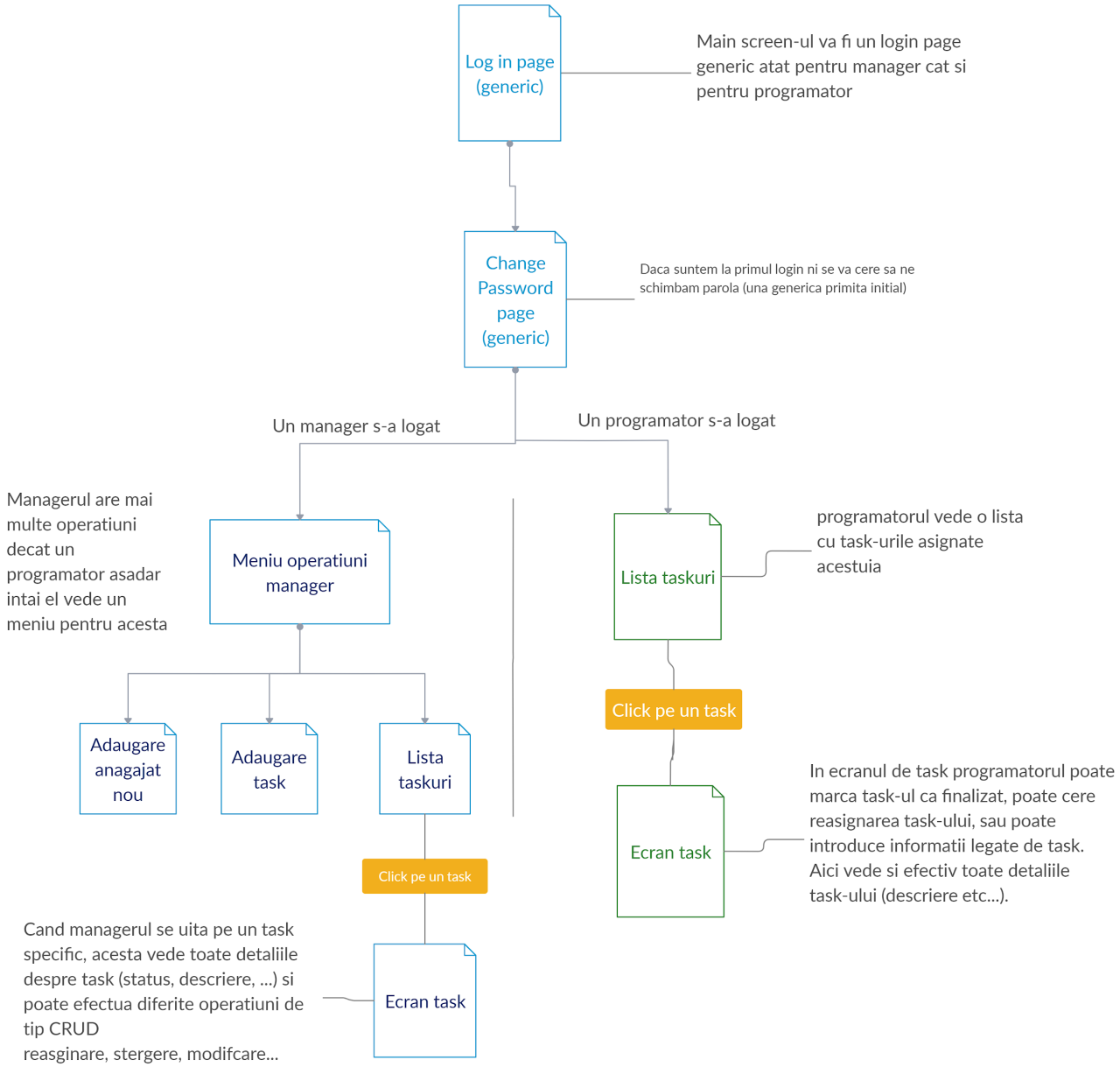
From team shared drive:

- Technical Documentation
- Requirements Document
- User Manual Document
- Mockups diagrams
- Database diagrams

More information can also be taken from weekly meetings that take place on Discord between the team members.

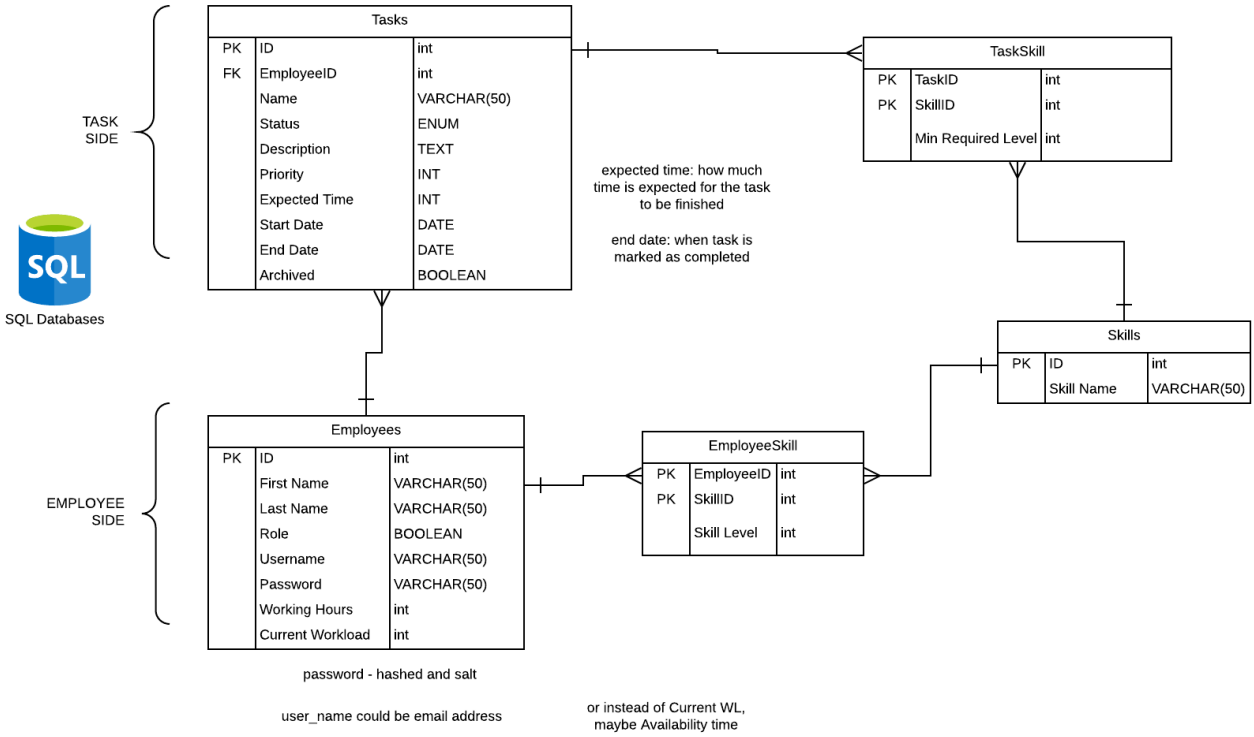
System Architecture

The project is made in ASP .NET as a web app which means there are not many system requirements. The app can run both on MacOS and Windows operating system.
Overall the app looks like this:



Database Design

The following is the scheme which will have tables for employees, either managers or programmers and for tasks.



Hardware and Software Detailed Design

- Hardware: The Automated Dispatcher solution leverages existing hardware architecture and design. No additional hardware design is required for the application.
- Software:
    - the application is organized in such a way that each page has the functionality, layout and the data that is working with, separated from each other so that if a component needs to be updated, there should be minimal changes done on the code. During development we tried to keep everything as dynamic as possible and avoid hard coded parts.
    - the main tools used for the creation of our project are:
        - Visual Studio: almost all the code for the project was made in the C# language using Visual Studio 2019 Community Edition
        - SQL Server: all the data regarding the tasks and employees is stored with the help of SQL Server
        - Creately: the tool we mainly used for creating the diagrams and illustrations

- Discord: all the online meetings have been conducted through the usage of this application

System Security and Integrity Controls

The Automated Dispatcher tool design incorporates several security and integrity controls to ensure that the system and its data are continually protected. This is done through a multi-tiered approach to ensuring data integrity is achieved through only authorized user functions and assignments.

The first design consideration is user authorization or permissions. All Automated Dispatcher users will be assigned an authorization level and permissions within which they will operate. These users will be unable to perform any Automated Dispatcher operations outside of their assigned areas. Managers will provide authorization levels and operating boundaries for each of their assigned users.