<nodebucket>

TECHNICAL DESIGN DOCUMENT

|  |  |
| --- | --- |
| **Author** | *Shane Hingtgen* |
| **Last Updated** | 8/15/2023 5:34 PM |
| **Version Number** | *0.1.0* |

**Version History**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Date | Reason for Change | Version |
| *Krasso, Richard* | *10/17/2019* | *New document format* | *3.0.0* |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Table of Contents

[SECTION 1: INTRODUCTION 3](#_Toc142489796)

[1.1. Purpose 3](#_Toc142489797)

[1.2. Terminology 3](#_Toc142489798)

[1.3. User Personas 3](#_Toc142489799)

[1.4. User Stories 3](#_Toc142489800)

[1.5. Work Estimations 3](#_Toc142489801)

[SECTION 2: PROCESS DESIGN 3](#_Toc142489802)

[2.1. Sitemap 3](#_Toc142489803)

[2.2. Prototypes 3](#_Toc142489804)

[2.3. ORD (Object Relational Diagram(s) 3](#_Toc142489805)

[2.4. NoSQL Data Structure 3](#_Toc142489806)

[SECTION 3: FUNCTIONAL DESIGN 4](#_Toc142489807)

[3.1. Overview of the Design 4](#_Toc142489808)

[3.2. Functional Design 4](#_Toc142489809)

[3.3. Feedback/Comments 4](#_Toc142489810)

[SECTION 4: QA TESTING 4](#_Toc142489811)

[4.1. QA Test Plan 4](#_Toc142489812)

[4.2. Unit Tests 5](#_Toc142489813)

[SECTION 4: REFERENCES 5](#_Toc142489814)

# SECTION 1: INTRODUCTION

## Purpose

The purpose of this application is to with a secure way to manage tasks. Tasks should have two columns, ToDo and Complete with multiple categories to organize. It must have a log in page. In addition, the application should have a home page, about us page, contact us page so users know what the company is about and has a way to contact if needed.

## Terminology

|  |  |
| --- | --- |
| **Name** | **Comments** |
| *MEAN Stack* | *MongoDB, Express, Angular, and Node.js* |
| *VS Code* | *Development IDE* |
| *SoapUI* | *API testing tool* |
| *MongoDB Compass* | *Database development IDE https://www.mongodb.com/* |
| *Angular Material* | [*https://material.angular.io/*](https://material.angular.io/) |
| *Flex-layout* | [*https://github.com/angular/flex-layout*](https://github.com/angular/flex-layout) |
| *Node.js* | https://nodejs.org/en/about |
| *Express* | https://expressjs.com/ |
| *Angular Material* | https://material.angular.io/ |

## User Personas

# Persona 1 - Dan Patel



(Pexels, 2020)

## Age: 43

## Gender: M

## Job Title: Software Developer

## Marital Status: M

**Characteristics**: healthy, wears glasses because he is blind without them, loves gaming with his kids, very knowledgeable programmer

## Short Bio: Dan is an experienced software developer, having been working in the industry for almost 20 years. He is married with children. Dan enjoys spending time with his family and going on vacations to foreign countries. Very computer savvy, knows computers very well, and in his free time attempts to make games with unreal engine as a hobby for his kids.

**Feature Most likely to use:** Will use dev features for creation of tasks, will even use tasks and sign in

**Feature to Not likely to use:** home, contact, or about

**Application Needs:** He needs VS code, node, angular, express, mongoDB

**Computer Skill:** Advanced

**Hobbies:** Creating Video Games, Trips to different countries

**Future Vacations:** Greece

**Social Media Accounts:**

Facebook, Twitter, LinkedIn

# Persona 2 - Steven Prior



(Miroshnichenko, 2020)

## Age: 35

## Gender: M

## Job Title: Marketing Manager

**Characteristics:** Athletic, glory days was his college football days playing for Bellevue University, very motivated

## Marital Status: Single

## Short Bio: Steven is a Marketing Manager for a large engineering firm. He enjoys marketing many products for his employer. He has been in this management position for almost 3 years now. He is single and has no kids. He loves sports and sports betting. He is a very organized and hardworking individual.

**Feature Most likely to use:** Would like to see about us to determine if working with this company is a good investment and a contact page. Also, a tool for tracking tasks

**Feature to Not likely to use:** Likely to use the application to leverage his work position even further.

**Application Needs:** Task management, log in, about us, and contact us, needs phone numbers.

**Computer Skill:** Mid-High

**Hobbies:** Watching sports, especially football and soccer, likes to play ultimate frisbee and golf

**Future Vacations:** Italy

**Social Media Accounts:** Facebook, Twitter, LinkedIn, TikTok, Instagram

# Persona 3 - Miriam Nuero



(A. Piacquadio, 2020)

## Age: 50

## Gender: F

## Job Title: Project Manager

**Characteristics:** Ready to retire, content with work position, loves her job but happy to be off work. Looking forward for vacations with this newfound life of no kids in the house. Loves her kids and is proud of them. Very organized individual which relates to her job position.

## Marital Status: Widow

## Short Bio: Miriam Nuero is a recent widow when her husband passed away last year. Miriam has 5 kids and is not only a dedicated mother but enjoys her position as a project manager at a mid-sized engineering firm. She manages projects for the field employees and works remotely. She only uses computers at work and currently manages her projects through excel. Would like an easy way to manage tasks. Probably is using her computer much besides work and Facebook. Avid reader.

**Feature Most likely to use:** most likely to use tasks to help with project management

**Feature to Not likely to use:** probably doesn’t care about the about us page or contact page unless the feature is broken, gets work done and closes laptop

**Application Needs:** Tasks manager, log in

**Computer Skill:** mid level, not really looking to learn more computer skills

**Hobbies:** Reading romance novels, sitting at the beach, and travelling to visit her kids

**Future Vacations:** Mexico

**Social Media Accounts:** Facebook to keep track of her kids

## User Stories

|  |
| --- |
| Dan Patel  **Story** |
| As a technical user I need API documentation for task endpoints So I can integrate task management into our custom tools |
| As a technical user I want a CLI for quick task creation To streamline adding tasks without leaving the terminal |
| As a technical user I need to categorize tasks by project So I can easily filter tasks related to specific projects |
| As a technical user I need webhook support for task updates To receive real-time notifications in our development chat |
| As a technical user I want keyboard shortcuts for task actions To navigate and manage tasks more efficiently |

|  |
| --- |
| Steven Prior  **Story** |
| As a user I need task prioritization To focus on high-priority tasks and meet campaign deadlines |
| As a user, I want to be able to separate tasks by client to be able to keep them organized |
| As a working professional, I need to be able to work on mobile due to my busy schedule |
| As a marketing manager, I need to plan and execute a social media campaign to promote our upcoming product launch. |
| As a user I need a high level of security so my clients data is protected |

|  |
| --- |
| Miriam Nuero  **Story** |
| As a user, I want access secure in order to honor NDAs I have signed with clients |
| As a project manager, I need to create tasks to lead kickoff meetings for a new client project. |
| As a pm I need a way to change project status to complete so I can keep track of what’s been complete |
| As a Project Manager, I want to efficiently assign tasks to team members and track their progress to ensure the project stays on schedule and meets its objectives. |
| As a pm I need to have a way to prioritize tasks in order so I can see which deadlines are coming up |

## Work Estimations

|  |  |  |
| --- | --- | --- |
| **Story 1** | **Points** | **Work Hours** |
| As a technical user I need API documentation for task endpoints So I can integrate task management into our custom tools   * Create a POST API **Work Hours**:1 * Create a GET API to recall the tasks **Work Hours**: 1 * Create a DELETE API to remove tasks **Work Hours**: 1 * Create a way to edit tasks **Work Hours**: 1 * API Testing Integrate communication into POST API **Work Hours: 1** * Site integration **Work Hours**: 1 | 3 | 6 |
| As a technical user I want a CLI for quick task creation To streamline adding tasks without leaving the terminal   * Integrate communication into POST API **Work Hours**: 1 * Integrate communication into GET API **Work Hours**: 1 * Integrate communication into GET edit API **Work Hours**: 1 * Integrate communication into DELETE API **Work Hours**: 1 * Create Messages for creation of tasks **Work Hours**: 1 | 1 | 5 |
| As a technical user I need to categorize tasks by project So I can easily filter tasks related to specific projects   * Create a list of categories in todo **Work Hours**: .5 * Create a way to separate Categories in todo **Work Hours**: .5 * Create way to move categories into complete **Work Hours**: 1 * Create a list of categories in Complete **Work Hours**: .5 * Create a way to separate Categories in complete **Work Hours**: .5 | 3 | 3 |
| As a technical user I need webhook support for task updates To receive real-time notifications in our development chat   * Need way to send messages to dev chat for 400 errors **Work Hours**: 3 * Need way to send messages to dev chat for 500 errors **Work Hours**: 3 * Need way to create a way for connection to APIs into teams **Work Hours**: 3 * Need way to create a task for errors **Work Hours**: 2 * Need a separate chat for notifications **Work Hours**: 1 | 5 | 12 |
| As a technical user I want keyboard shortcuts for task actions To navigate and manage tasks more efficiently | 1 | 1 |
| **Story 2** | **Points** | **Work Hours** |
| As a user I need task prioritization To focus on high-priority tasks and meet campaign deadlines   * Add categories to API creation **Work Hours**:1 * Add way to sort by date **Work Hours**: 1 * Add way to sort by category **Work Hours**: 1 * Add way to sort by priority **Work Hours**: 1 * Add way to create priority **Work Hours**: 1 | 1 | 5 |
| As a user, I want to be able to separate tasks by client to be able to keep them organized   * API for Task creation **Work Hours**:1 * API to call for tasks **Work Hours**: 1 * API to edit tasks **Work Hours**: 1 * Add clients to API Creation **Work Hours**: 1 * Add way to filter by client **Work Hours**: 1 | 5 | 5 |
| As a working professional, I need to be able to work on mobile due to my busy schedule   * Create Task page mobile friendly **Work Hours**: 2 * Create sign in page mobile friendly **Work Hours**: 2 * Create home page mobile friendly **Work Hours**: 2 * Create contact us mobile friendly **Work Hours**: 2 * Create about us mobile friendly **Work Hours**: 2 | 3 | 10 |
| As a marketing manager, I need to plan and execute a social media campaign to promote our upcoming product launch.   * Draft campaign strategy **Work Hours**: 1 * Draft campaign ads **Work Hours**: 1 * Find advertisers **Work Hours**: 1 * Appoint a someone to social media associate **Work Hours**: .5 * Launch campaign **Work Hours**: .5 | 3 | 4 |
| As a user I need a high level of security so my clients data is protected   * Encrypt passwords **Work Hours**: 5 * Hashout typed passwords **Work Hours**: 1 * Add two factor authentication **Work Hours**: 3 * Add layer of security to DB **Work Hours**: 2 * Lockout frequent invalid userid or passwords **Work Hours**: 1 | 5 | 12 |
| **Story 3** | **Points** | **Work Hours** |
| As a user, I want access secure in order to honor NDAs I have signed with clients   * Document NDA’s **Work Hours**: 1 * Separate log ins for clients **Work Hours**: 1 * Encrypt clients data **Work Hours**: 6 * Determine NDA requirements **Work Hours**: 1 * Implement requirements **Work Hours**: 6 | 5 | 15 |
| As a project manager, I need to create tasks to lead kickoff meetings for a new client project.   * API for task creation **Work Hours**: 2 * API to edit tasks **Work Hours**: 2 * API for assigning tasks **Work Hours**: 2 * API to call tasks in sort tasks **Work Hours**: 2 * Formal application to present tasks **Work Hours**: 4 | 1 | 12 |
| As a pm I need a way to change project status to complete so I can keep track of what’s been complete   * API to create projects **Work Hours**:2 * Category for project status **Work Hours**: 2 * API to fetch projects by status **Work Hours**: 2 * Filter projects for status **Work Hours**: 2 * Formal UI to view projects **Work Hours**: 4 | 1 | 12 |
| As a Project Manager, I want to efficiently assign tasks to team members and track their progress to ensure the project stays on schedule and meets its objectives.   * API for task creation **Work Hours**: 2 * API to edit tasks **Work Hours**: 2 * API to delete tasks **Work Hours**: 2 * API to assign tasks **Work Hours**: 2 * Filter by dates **Work Hours**: 1 | 3 | 9 |
| As a pm I need to have a way to prioritize tasks in order so I can see which deadlines are coming up   * API to create projects **Work Hours**:2 * Category for project priority **Work Hours**: 2 * API to fetch projects by priority **Work Hours**: 2 * Filter projects for priority **Work Hours**: 2 * API to assign tasks projects **Work Hours**: 2 | 1 | 10 |

Some assumptions made such as mobile development whether it was part of the initial design, It is also difficult to gauge how long or how difficult something is. Often over analyzing the tasks makes it seem more difficult than it probably is. Assumed we will be marking this in a social media campaign, project has NDA’s, mobile design, categories. We will now be implementing some of the ideas such as categories and mobile application. We assumed that we would need notifications to dev chat for real time support. Assuming that we would want keyboard shortcuts, which is another idea being implemented. Assumed we would need CLI for creating tasks. Some of these ideas are good, and if this were a project outside of class would be ideas fit for back log once the initial program has been completed. Due to lack of experience every task may take a bit to implement, may need to find outside resources to assist in password encryption if this application had password and security. Its also difficult to account for an roadblocks developers may have while creating the applications which could further push the amount of hours worked on the application. A lot of the points made during the stories left out the creation of a database, which may lead to a problem during development.

# SECTION 2: PROCESS DESIGN

## 2.1. Sitemap

## A diagram of a company Description automatically generated

## 2.2. Prototypes

[*https://www.eggradients.com/blog/ravenclaw-colors*](https://www.eggradients.com/blog/ravenclaw-colors) *House of RavenClaw Colors*

A screenshot of a computer

Description automatically generatedA screenshot of a computer

Description automatically generatedA screenshot of a contact us page

Description automatically generatedA screenshot of a computer error

Description automatically generatedA screenshot of a computer

Description automatically generatedA screenshot of a computer

Description automatically generatedA screenshot of a computer

Description automatically generated

Some best practices include a simple user interface for creating tasks. Keeping the form inputs short and in line will allow users to understand the form much better than having it on different parts of the page, or even too many form fields could lead to confusion. Short and sweet, makes it easy to use. Added a red trash icon but may also add text next to the Icon so users know where to delete tasks. Category is a drop-down menu and not a radio button, since we will start with five categories which seems like too many radio buttons. Login submits, create account button, and create task are all buttons to draw users’ attention.

## 2.3. ORD (Object Relational Diagram(s)

A close-up of a white background

Description automatically generatedA diagram of a diagram

Description automatically generated

## 2.4. NoSQL Data Structure

A screen shot of a computer code

Description automatically generated

# SECTION 3: FUNCTIONAL DESIGN

## 3.1. Overview of the Design

[This section will cover what you are envisioning the system will do, specifically any minimum / maximum value of a field, navigation, error handling, and logging. If there are exceptions, explain how they are handled and under what circumstances they will be generated/thrown]

## 3.2. Functional Design

[This section is a list of the design definitions for the requirements in the BRD]

|  |  |
| --- | --- |
| **Requirement #** | **Design Definition** |
| R – 5 | Sign In Page  Node.js API:   * Employees: * Function: findEmployeeById * Route: /api/employees/:empId   + Example: localhost:3000/api/employees/1007 * Swagger: localhost:3000/api-docs   SoapUI Unit Tests:   * findEmployeeById   Angular:   * signin.component.html * signin.component.css * signin.component.ts * security.service.ts * Route: localhost:4200/security/signin |

## 3.3. Feedback/Comments

[This section is for any addition comments/feedback that will help business and other team members better understand the solution you built]

# SECTION 4: QA TESTING

## 4.1. QA Test Plan

*[Weekly Test Cases]*

A test case template with black text

Description automatically generated

## 4.2. Unit Tests

*[Images of SoapUI Unit Tests]*

# SECTION 4: REFERENCES

Miroshnichenko, T. (2020, October 8). *Man using a laptop · Free stock photo*. Pexels. https://www.pexels.com/photo/man-using-a-laptop-5198239/

Pexels. (2020, October 2). *Man using a laptop · Free stock photo*. https://www.pexels.com/photo/man-using-a-laptop-5483063/

Piacquadio, A. (2020, May 2). *Confident businesswoman sharing information from documents in workplace · Free Stock Photo*. Pexels. https://www.pexels.com/photo/confident-businesswoman-sharing-information-from-documents-in-workplace-3757946/