Online Loan\_APP

TECHNICAL DESIGN DOCUMENT

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# SECTION 1: INTRODUCTION

## Purpose

**Background:**

Loan\_APP is a free to use, online loan calculator. This APP, when supplied the loan principle, interest rate, and term of a loan, will calculate the correct monthly payment and total interest paid for the life of the loan. The APP will be available online and will be free to use. The APP will cater to a wide range of users from casual, professional, and academia users alike.

**Goals:**

* Establish a functional application that accepts principle, interest rate and term.
* Use the formula: A = P(r(1 + r)^n) / ((1 + r)^n -1) to calculate the payment.
* Calculate total interest paid and display to user.

## Terminology

|  |  |
| --- | --- |
| **Name** | **Comments** |
| MEAN Stack | MongoDB, Express, Angular, and Node.js |
| VS Code | Development IDE |
| SoapUI | API testing tool |
| MongoDB Compass | Database development IDE |
| Angular Material | <https://material.angular.io/> |
| Flex-layout | <https://github.com/angular/flex-layout> |

## User Personas

## The core users of the site will be:

* Product Owner
  + Owner and administrator of the website.
* Professionals
  + Banking and finance professionals using the calculator in their daily routines.
* Casual users
  + Random users browsing the internet for a loan calculator.

**Persona: Product Ownerr**

Name: Mark Wilson

Age: 31

Occupation: Business Owner/Consultant

Hobbies: online gaming, baking, cycling, spending time with family.

Goals: To create a suite of online, financial tools to be used in the banking and finance sector.

Biographical: Mark has been employed in the financial sector for approximately 7 years. Mark’s previous experience was a loan officer at small regional bank. Currently he works as a consultant for many fortune 500 companies.

Computer skill: So-so. Mark has a layman’s level of experience with computers, though he is learning more and more each day. What he doesn’t know, he looks for on YouTube to supplement his knowledge.

Needs of the application: Mark would like to not only use the site as a tool, but also as a way to promote his consulting business.

Important Features: Mark would like to monitor statistics to see how many users are accessing his site. Mark would like a way to modify an About and Contact page with his current information.

Unimportant Features: None.

**Persona: Professional user**



Name: Eric Munstadt

Age: 42

Occupation: Finance Analyst II for Chase National Bank.

Hobbies: Sailing, track-day racing, antique collecting.

Goals: Mark is successful in his career and was recently promoted. Mark’s career goals are to break into management in a few years. He’s also building a 2017 Mini John Cooper Works into a formidable track-day car. His dream is to run on the Nürburgring in the next year or so.

Biographical: Mark has never been married nor does he have kids. While open to settling down, his career keeps him busy and on the move. Mark does have a companion, a French Bulldog named Marcel who’s never too far from his side.

Computer Skill: Moderate: Mark uses the computer for his daily work, and as a result has built up very good knowledge of this tool. Not only can he install/uninstall programs, but he has also dabbled in creating simple batch scripts that he uses in his daily work.

Needs of application: Mark needs a simple tool to provide some basic, but accurate information that he can use to compare against other calculations from other vendors. Mark will primarily use his laptop to access the application.

Unimportant Features: Mark doesn’t care about “fluff”. He doesn’t care how pretty the application looks, just so long as it’s functional and the information is accurate, and he can get to it quickly.

**Persona: Casual User**

Name: Allison Shu

Age: 20

Occupation: Full time student studying Economics at UC Berkeley.

Hobbies: Hanging out with friends, travelling abroad, volunteers at local animal shelter.

Goals: Allison is pursuing a master’s in economics. She would like to work in government, or for a large non-profit such as the American Red Cross.

Biographical: Born into a military family, Allison has seen much of the world. Her love of travel is a result. Allison would like to travel every continent on the planet. Recently she’s been using the internet to find family in eastern Asia (where her mother is from).

Computer Skill: Good. She’s comfortable using a computer but doesn’t consider herself an “expert”. She knows enough to search the internet for solutions to problems she may be having, and can generally follow instructions written to solve them.

Needs of application: Allison needs a simple loan calculator to help with schoolwork. In her assignments she’s often asked to calculate a payment for a loan instrument. She would like an interface to use on a mobile device.

Unimportant Features: None. She just wants an easy to access site.

## User Stories

|  |  |  |
| --- | --- | --- |
| User Stories | Story Points | Time Estimate |
| As a casual user, I want an easy way to input information, so I can see the results quickly. | 5 | 24 hours |
| As a casual user, I want to be able to use the application on a mobile device, so I can access it on the go. | 8 | 40 hours |
| As a casual user, I want a clean interface, so I can find the information I need without a lot of searching. | 5 | 24 hours |
| As a professional user, I want to locate the payment amount, so I can use that information in my daily work. | 3 | 16 hours |
| As a professional user, I want the information returned to be accurate, so I can use the application to verify other vendor figures. | 5 | 24 hours |
| As a professional user, I want the application to look at least professional, so that when I use it others won’t think I’m using some cheap random app. | 5 | 24 hours |
| As a product owner, I want a contact and about page, so that I can relay my information to users using the site. | 3 | 16 hours |
| As a product owner, I want the ability to change information on the site, so I can keep users abreast of changes with me. | 3 | 16 hours |
| As a product owner, I want the ability to monitor use statistics, so I can see often the site is being used. | 5 | 40 hours |

## Time Estimations

See story points column in previous section.

# SECTION 2: PROCESS DESIGN

## 2.1. Prototypes

<https://marvelapp.com/prototype/1933b85e/screen/90727480>

Main screen

Graphical user interface

Description automatically generated

About Page

Graphical user interface, text

Description automatically generated

Contact Page

Graphical user interface, application

Description automatically generated

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

Diagram

Description automatically generated