Project Requirements Specification

Amortization Calculator

August 27, 2020

Group 3 – Team Charlie

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| **Revision Number** | **Date** | **Description** | **Name** |
| **1** | **August 27, 2020** | **Initial Document** | **James Lisle** |

**Project Requirements Specification**

**Subject**

The Amortization Calculator will provide a user the ability to determine any of the four variables used in the formula shown in figure 1 dependent on the other three variables being provided. The user will also have the option of displaying an amortization schedule showing the number of payments over the life of the loan and the breakdown of interest and principal for each.

where

* A = loan payment per term
* P = loan principal
* r = interest rate per term
* n = total number of payments

**Figure 1 – Amortization Equation**

Month Payment Principal Interest Balance

1 1278.96 1225.84 53.13 13774.16

2 1278.96 1230.18 48.78 12543.98

3 1278.96 1234.54 44.43 11309.45

4 1278.96 1238.91 40.05 10070.54

5 1278.96 1243.30 35.67 8827.24

6 1278.96 1247.70 31.26 7579.54

7 1278.96 1252.12 26.84 6327.43

8 1278.96 1256.55 22.41 5070.87

9 1278.96 1261.00 17.96 3809.87

10 1278.96 1265.47 13.49 2544.40

11 1278.96 1269.95 9.01 1274.45

12 1278.96 1274.45 4.51 0.00

where

* A = 1278.96
* P = 15000
* r = 4.25%
* n = 1 year (12 months)

**Figure 2 – Amortization Schedule**

**Functional Requirements**

1. The System will provide a GUI interface.
2. The System will provide the user a form to enter 3 of 4 variables.
3. The System will validate the variables at entry and calculation.
4. The System will provide the user with an error message when validation fails.
5. The System will calculate and display the missing variable.
6. The System will communicate with the backend loan calculation service
7. The System will allow the user to create an amortization schedule.

**Non-functional Requirements**

1. The System will not store any user provided data other than to receive, calculate, and display the missing variable and if selected an amortization schedule.
2. The System will not provide authentication or authorization.
3. The System will not be guaranteed to be available.
4. The System will not be guaranteed to be scalable.
5. The System will not be guaranteed to be reliable.

**System Requirements**

**Client**

1. The Amortization Calculator requires a computer with at least 4 GB memory, multicore CPU(s), and connectivity to the internet.
2. The Java Runtime Environment (JRE) version 8 or greater must be installed.
3. LoanCalcClient.jar must be installed

**Server**

1. Installation of the LoanCalcService.war file into the Heroku Cloud environment

**Definitions**

Amortization is the process of reducing a debt by applying regular payments over the length of a loan

Loan Amount represents the magnitude of the loan

Loan Payment represents the amount of money to be paid on a regular basis that will reduce the balance of the loan.

Loan Interest Rate represents the amount charged as a percentage of the loan amount for each period in the term

Loan Term represents the number of payment periods for the loan

Amortization Schedule is a report showing the characteristics of a loan (amount, payment, interest rate, and term) and a table that has the payment of each term of the loan consisting of principal, interest, and the remaining loan balance