*source code recommendation*

project charter

Version 3*.0*

*02/08/2019*

VERSION HISTORY

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| --- | --- | --- | --- | --- | --- |
| **Version #** | **Implemented**  **By** | **Revision**  **Date** | **Approved**  **By** | **Approval**  **Date** | **Reason** |
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| 2.0 | Conor Russell | 1/28/2019 | Group 3 | 1/28/2019 | Revised Draft |
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# Introduction

## Purpose of Project Charter

The Source Code Recommendation (SCoRe) project charter documents and tracks the necessary information required by decision maker(s) to approve the project for funding. The project charter should include the needs, scope, and resource commitment as well as the project’s sponsor(s) decision to proceed or not to proceed with the project. It is created during the Initiating Phase of the project.

The intended audience of the SCoRe project charter is the project sponsor and team leaders.

# project And Product Overview

The aim of this project is to create a repository for source code and a source code requirement search engine. This will be accomplished during the Spring 2019 semester and has an expected completion date of May 6th, 2019. It will be completed through the work of Missouri State University Computer Science students via on campus and online collaboration.

# Justification

## Business need

### This project aims to increase productivity of software development project by the following:

### Improve retrieval speed of source code segments from a dataset/database of previous development projects.

### Decrease production time and cost by utilizing previously developed software solutions.

### Develop an organizational standard of code design for inclusion in the database/dataset

### Increased maintainability of source code.

### Increased uniformity and modularity of systems

# Scope

## Objectives

The objectives of the Source Code Recommendation are as follows:

* Implement a search engine.
* Store source code in understandable, retrievable, minimal format.
* Return code recommendations
* Add new code to the back-end dataset for future recommendation

## High-Level Requirements

The following table presents the requirements that the project’s product, service or result must meet for the project objectives to be satisfied.

| Req. # | Requirement Description |
| --- | --- |
| 1 | A database must be constructed to store source code |
| 2 | The database must be searchable |
| 3 | A search shall return source code recommendations |
| 4 | A user interface must be implemented |

## Environment/platforms/tools/technologies

### The project will utilize a web-based Graphical-User-Interface (GUI) that is connected to a database of previously developed source code mapped to specific keywords. The GUI will allow users to search via an English text-based search query. For these purposes, project development will be completed using the Python programming language to create the system’s middleware, Flask Alchemy for the manipulation of the SQL database and containing the database, and Angular and Electron for the creation of the web-based user interface.

### The project scope will be limited to functioning on Personal Computers; mobile devices and smart phones are outside the concern of the project at this stage. Operating systems that will be utilized will primarily be Windows 10(32/64bit) and Linux; OSX may be utilized to test functionality to cover all potential development OS environments.

## Major Deliverables

The following table presents the major deliverables that the project’s product, service or result must meet for the project objectives to be satisfied.

| Major Deliverable | Deliverable Description |
| --- | --- |
| Dataset | Dataset of source code for the searching and extracting of code. |
| Application | Full application with user interface for inputing desired software requirements and display searched code from dataset. |
| Research Paper | Final report of status of project |
| Software Requirement Specification | The specifics and requirements of the project. |

## Boundaries

For the implementation of this project the decision has been made to limit the scope to Python source code. Flask Alchemy will be utilized for SQL database manipulation.

The algorithm for searches will be limited to a basic search that will provide rapid results within 2 seconds or less relative to hardware limitations. An optional improved advanced search that provides more accurate results outside the bound.

The results themselves will display the retrieved matching requirements and a snippet of the related source code.

# Duration

## External Timeline

|  |
| --- |
| 02/11  03/04  03/25  05/06  Final Report  Completed  Developed Prototype  System Model  Completed  SRS & Project Plan  04/17  QA Overview |

## Internal timeline

03/01

03/15

03/25

05/10

Final Demo Version

Completed

Combine Aspects

Front –End user interface

04/17

QA Testing

Database Mapping

02/20

Search Engine Prototype

# Acceptance Criteria

## Criteria

The criteria required for the acceptance of this solution are the following:

1. Allow input of software requirements then output the applicable python source code pertaining to a desired functionality.
2. The source code that is recommended is from a data set of previously developed code.
3. Input and output are interacted with via a front-end user interface.

# Project Organization

## Roles and Responsibilities

This section describes the key roles supporting the project.

| **Name & Organization** | **Project Role** | **Project Responsibilities** |
| --- | --- | --- |
| Dr. Razib Iqbal & Mazharul Islam  Missouri State University | Project Sponsor | These individuals will be responsible for acting as the project’s champions and providing direction and support to the team. In the context of this document, these individuals will approve the project scope represented in this document. |
| Billy Janson  Missouri State University | Project Manager / Scrum Master | This individual will provide oversight and assistance as needed during development of the project regarding the completion of project milestones. In addition will function as a developer on the project. |
| Elliott Campbell  Missouri State University | Front-End Developer | This individual will focus on the implementation of a front-end interface for use with back end systems. Aspects in scope include UX and web application implementation. |
| Tyler Medlin  Missouri State University | Developer, Researcher – Neural Networks & Machine Learning | This individual will perform research on neural networks and machine learning as it relates to the implementation of the search algorithm that could be utilized to improve functionality of back-end systems. In addition will function as a developer on the project. |
| Tristin Cory  Missouri State University | Developer / Researcher – Semantic Search Algorithms | This individual will perform research on semantic search methodologies as it relates to the implementation of the search algorithm that could be utilized to improve functionality of back-end systems. In addition will function as a developer on the project. |
| Conor Russell  Missouri State University | Developer / Documentation Manager | This individual will ensure consistent and clear technical documentation throughout development. Compile documentation into a clear and concise report document. In addition will function as a developer on the project. |
| John Zickafoose  Missouri State University | Developer / Flex Member | |  | | --- | | This individual will assist as needed in any of the above roles during the project development. In addition will function as a developer on the project. | |

## 

## Stakeholders (Internal and External)

1. Dr. Razib Iqbal
2. Mazharul Islam
3. Jared Hall

## Communication Distribution

Information related to the project will be dispersed among several repositories dependent on the type of information.

* All development source code will be made accessible in a project repository on GitHub.
* Tracking of project tasks will be done through a combination of Slack and Trello, and Discord.
  + Slack will be utilized for daily check-in on tasks to track time to completion.
  + Trello will track overall completion of tasks in relation to sprints during agile development.
  + Discord will allow for virtual meetings and remote work capability.
* Immediate group communication will be done utilizing Slack to receive feedback or ask questions.
  + The use of specific channels will diffuse the information to avoid overload on members unrelated to a task.
* The Office 365 shared OneDrive will be used to distribute research, project, and technical documentation.
* Email will be used to communicate with stakeholders to coordinate any necessary meetings.

## MEETING

The team members developing this project will meet on every Friday at 9am to 11am and every Wednesday from 1:30pm to 3:30pm. Additional meetings may be coordinated as necessary and will be dependent on group member’s schedules.

Meetings with Mazharul or Dr. Iqbal will occur in the Wednesday timeslot as progress is made or questions arise.

# project Charter approval

The undersigned acknowledge they have reviewed the project charter and authorize and fund the SCoRe project. Changes to this project charter will be coordinated with and approved by the undersigned or their designated representatives.

|  |  |  |  |
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| Signature: |  | Date: |  |
| Print Name: |  |  |  |
| Title: |  |  |  |
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