**SEIS 610 -03 –Software Engineering:**

**Meal Picker App**

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**INCEPTION**

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| **Version** | **Status** | **Version Date** |
| **5.0** | **Draft** | **2/26/2020** |

1. **Project Vision**

The web app, Meal Picker, guides users with meal options and recipes for a provided dietary need. Users will add macro data or calories (that users have already researched) into the app, and the algorithm calculates the macros and meal ideas. Users ask the app to provide meal ideas based on their desired number of macros or calories per meal.

Users also catalog food preferences by scanning bar codes of food items they enjoy. The app is connected to an API/Database of current nutritional values to find those food items and store for user for future use.

The five primary functions of the app are to enter calories, or to enter macros, make the nutritional database available, enter meal preferences, and ask for meal recommendations.

1. **Project Boundaries**

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| a. | This would be a web-based application written with JavaScript and Node JS, HTML and CSS. |
| b. | The nutrition values calculations are based on ingredients located in the API/Database. |
| c. | This tool would just highlight the dairy or nuts used in the meal but not any other allergy triggering information. |
| d. | This tool would not provide options for in person appointment with the nutritionists for customizing meal plan. |
| e. | Database and website will be hosted on cloud; hence the website might not be functional due to any down time with cloud infrastructure. |
| f. | Users can save their meal suggestions for one week at a time to save on server and hosting costs. |
| g. | There is potential legal liability for users who treat meal suggestions as actual medical advice. |
| h. | There are data privacy issues and a need for terms and conditions, and privacy policy |

1. **Requirements**

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| a. | As an end user I would like to find healthy meal options so I can balance my everyday diet. |
| b. | As an end user I would like to set a target weight so I can find some meal options to help me get to the target weight. |
| c. | As an end user I would like to save my meal plans for so I can refer back to them for ideas. |
| d. | As an end user I would like to select my favorite ingredients so the app can suggest meals that fit into my allotted macro or calorie requirements. |
| e. | As an end user I would like to enter the number of calories so the app can suggest meal options. |
| f. | As an end user I would like to review the final selected options so I can retrieve the meal plans. |

1. **Business Case and Initial Cost Estimate (20 points)**

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| a. | $150 per hour for design, development and database architecture = 1 Tomato |
| d. | 600 hours to completion |
| c. | Graphic Designer = 20 Tomatoes |
| d. | UI/UX Designer = 60 Tomatoes |
| e. | UI Engineer = 120 Tomatoes |
| f. | Software Engineer = 240 Tomatoes |
| g. | Database Architect = 30 Tomatoes |
| h. | Project Manager = 130 Tomatoes |
| i. | Total Development Cost = $90,000.00 or 600 Tomatoes |
| j. | Server Cost: (16GB/6 CPUs, 320 GB SSD disk, 6 TB transfer = $160/mo) x 2 = $240 per month |
| k. | Server Configurations: 2 Ubuntu servers: 1 Node JS, 1 MySQL |
| l. | $240 / $150 = 1.6 Tomatoes per month for servers (<https://cloud.digitalocean.com/droplets/new?i=f96076&size=s-4vcpu-8gb&region=nyc1>) |
| m. | Load testing costs for scalability = $299/mo = 1.993 Tomatoes (<https://k6.io/pricing>) |
| n. | Database API = $499/mo = 3.326 Tomatoes (<https://www.nutritionix.com/business>) |
| o. | Total Tomatoes = 605.3 Tomatoes |

1. **Identify Risks. (15 points)**

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| a. | Limited experience using JavaScript and Node JS in a web-based application. |
| b. | No experience with food calculations or writing an algorithm to calculate nutrition values. |
| c. | No experienced with the scientific chemical names of food and ingredients. |
| b. | Some of the team members would need training on SQL and database programming. |
| e. | There are fees associated with cloud hosting for an app and a database, as well as load testing to anticipate scalability. |
| f. | There is potential legal liability for users who treat meal suggestions as medical advice. |
| g. | There are data privacy issues and a need for terms and conditions, and a privacy policy |
| h. | There are some web sites available that suggest the meal options with nutrition values, but they all are very time consuming for users to key in all the information upfront. Rather it would help users to be prompt only for relevant information based on the previous options opted. |

1. **Candidate Architecture (5 points)**

A screenshot of a cell phone

Description automatically generated

1. **Non-functional requirements (Often called FURPS in Rational Unified Process)**

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| a. | **Functional:** Sensitive information would be encrypted when data is at rest and as well as on the GUI. |
| b. | **Usability:** user should be able to understand the progress of the App and be able to use without any guidance. |
| c. | **Reliability:** the app should be reliable and recognize a confirmation when user performs a meal selection. |
| d. | **Performance:** the app response should load the meal selected in 6 seconds or less, we wouldn’t want a hungry user waiting. |
| e. | **Supportability:** Website could handle 10,000 people at a time. Users can save their meal plans up to a week. After a week the data will be deleted. |

1. **Glossary.**

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| Daily Value | The amount of a nutrient (in grams, milligrams or micro grams) recommended per day for Americans 4years or older age. The nutrition fact labels lists the daily value for base 2000 calories daily diet. |
| Essential Nutrients | A vitamin, mineral, fatty acid or amino acid required for normal body functioning. |
| GUI | Graphical user interface. Interface used by users to enter and access information |
| End User | People who are performing actions or using the application. |
| Cloud Hosting | Server where web app will be hosted and accessed |
| Database | Server where user data will be stored |
| API | An application programming interface (API) is an interface used to communicate between two systems. |