Innovation and Leadership 2019

Group 6 – Preliminary Project Plan

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# Overview

In today’s world, people have little knowledge regarding how to plan their daily meals and follow dietary requirements. We aim to improve this lacking ability and by doing so, hope to build the self-confidence of our customers.

The app we had in mind would aid users in building a healthy but affordable meal plan. The app consists of databases that store information on products from various different shops all relevant to the user’s location. Our customers include any individuals aiming to improve their diet and exercise routine.

The main focus of the app is that a user will be able to enter various preferences such as dietary preference (vegan, banting, vegetarian, etc.) as well as the user’s required calorie intake and the app will then formulate a diet plan (breakfast, lunch, dinner and snacks) that fit in with the user’s preferences. As a further extension, the app will also take into account the user’s budget and location and will adjust according to these restrictions. Finally, the app will present the user with a full meal plan as well as the various shops that provide the products incorporated into the meal plan and their prices.

There will be no cost for the application as it is intended to be free of charge unless we plan to offer a premium package in the future. The project will take about 3 months to complete and will be divided into the following main categories (explained later in detail):

* Scope and goal definition: where we will assess the problem at hand and then come up with a solution to solve it
* Research and stakeholder requirement definition: researching all the info needed to solve the problem and develop a useful and user friendly application
* Design and data storage: we will be setting up the databases that will be used by the application to save user details, meal items and prices and gym details. User interface will be designed
* Development: the project will be coded and put together with continuous review. This would be the most time consuming task of the project
* Testing: Unit and system tests will be executed on the final product
* Presentation: The final product will be presented and all team members will be assessed.

(by Darren Oosthuizen + Luke-Juergen Mross)

# Project Goals

## Functionality goals

The functionality of the app must meet the minimum standards that have been set, namely:

1. Must conform to the dietary restrictions set by the user.

2. Page transition must be smooth.

3. Must be user friendly.

## Strategic goals

The financial objectives that have been made and carried out. For this project it has been decided that the app will initially not charge an amount to the user who downloads it, but advertisements will be on the app as to sustain it for future maintenance and bug fixes. A subscription will be available and a fee is attached to that. When a user subscribes the advertisements will be removed and they can enjoy an add free experience.

## Business goals

Vision & Mission: To promote a healthier lifestyle and to show consumers that it is not only possible but affordable with this app at their fingertips.

As stated above, it also applies to the goals and objectives that want to be achieved.

## Technological goals

This app will be available on all known platforms such at Google Play (Android) and the App store (iOS). Multiple programming languages and development platforms will be used to support the application. Online database functionalities will be implemented.

## Quality goals

With our quality goals we aim to please with a user friendly interface. We aim to provide top quality recipes and accurate pricing on products from different stores in the user’s area.

## Organisational goals

The portability of this app lies in the hands of the user. It could be used anywhere in South Africa and at any time, depending on whether the user has access to their mobile devices.

## Constraints

At this moment a few of the developers do not have the adequate knowledge to code a program of this magnitude. Another constraint is that with all the outside probabilities and life of the developers (who are still students) it could take a considerable amount of time to develop this app.

(by Annette Pienaar + Dian Potgieter)

# Project Scope

## Possible Deliverables

* Ability to choose from a variety of meal plans (e.g. Vegetarian, Vegan etc) or input your own dietary requirements and preferences.
* Can input any allergies that you have (e.g. Gluten, Milk, Tree Nuts etc).
* Contains a database containing average prices and location for different food products from various shops.
* Average prices and locations are updated regularly.
* Provides a few recipes for breakfast, lunch and dinner, as well as any health tips for cooking, that conform to the selected dietary restrictions.
* Distance to stores are displayed from lowest distance to highest distance depending on your location.
* Nutritional value of the ingredients are stated and the healthiest ingredient options are listed first.
* Use a login/user system so that the user can have their own profile to store their information and progress.
* User can input any weight goals they may have. Graphs can be made to monitor progress using regular user updates.
* BMI Calculator.
* Notifications for when targets or goals are achieved.
* Quick store options, such as garages, will also be stated.
* Monitors daily calorie intake. The average woman needs around 2000 calories per day, and the average man needs around 2500 calories. The formula : can be used to calculate the users personal daily calorie needs.

## Time

It will be time consuming to develop as it is very ambitious. Different phases of the development process will take different amounts of time, for example, data collection regarding the prices of the food options should take around 1 to 2 weeks.

## Cost

Cost is directly related to time. The longer it takes to develop, the more it will cost. In the case of this project, it will cost many hours of hard work to complete the project within the given timespan.

## Quality

To maintain the quality of the app, the data will be updated regularly to ensure users receive the most recent and accurate information possible.

## Impact

It will have a large impact as long as it is advertised correctly, because so many people have the desire to eat healthy, but do not know how to manage their intake and costs. As well as helping clients, this application will also help suppliers selling their products.

## Innovation

By incorporating everything we want to incorporate, we believe that our application will be very unique. A high level innovation leads to a high impact level.

## Research to be performed

Research will be carried out to determine the technological platforms that will be used for development. Data will also be collected regarding the types of meal plans, allergies, food suppliers and prices.

## Technologies Used

Preliminary decisions have been made and the chosen technologies used for development would include Xamarin.forms that provides support for Android, iOS and universal Windows. Azure cloud based database technologies will be implemented as data storage.

It has later been decided that a C# Windows Forms version will also be developed for additional platform support.

(by Rashmika Kalan + Luke Geyser)

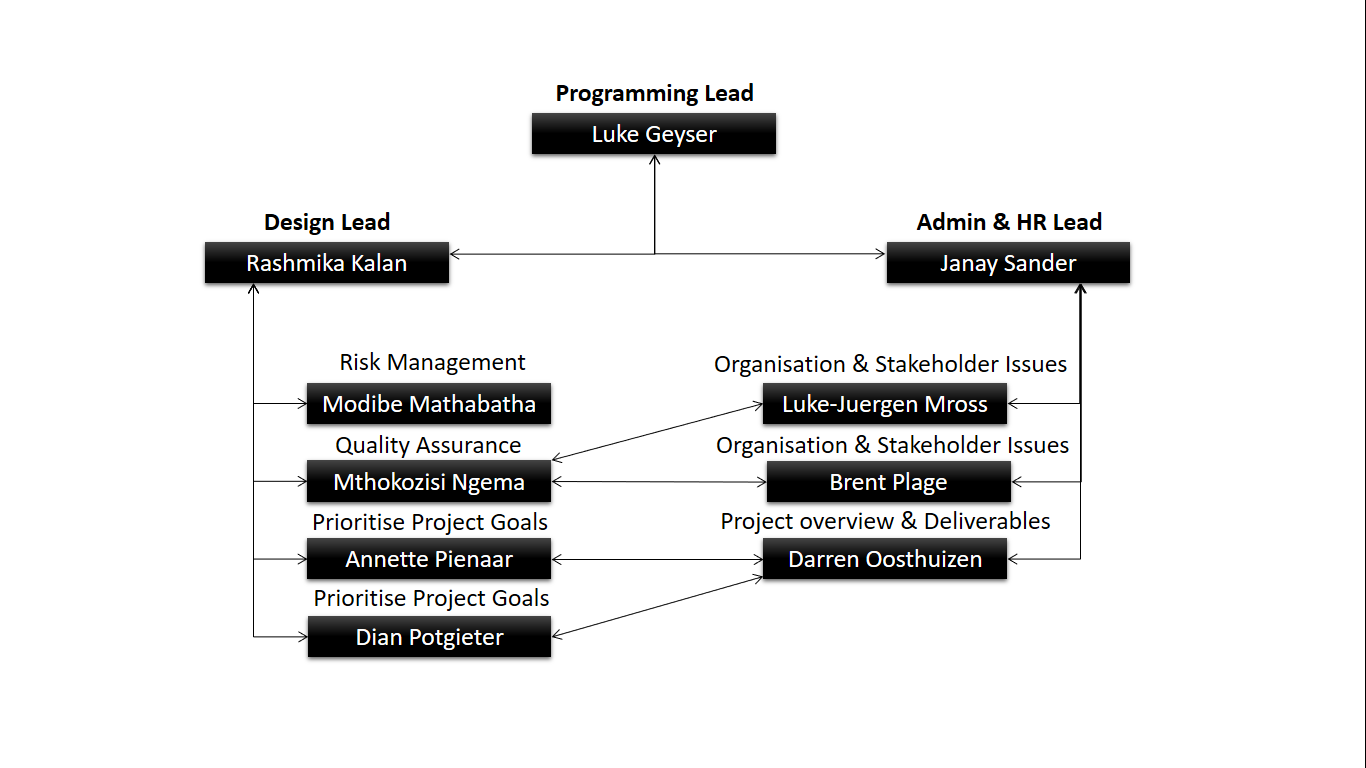
# Stakeholders, Issues and Environment

The project environment details all factors that influence the project, whether it be internal or external factors. The following are factors that will influence our project specifically:

* Shops – Our team will need to go to various shops in order to collect data such as product price and number of calories each product has in order to fill in a database that can accommodate any type of diet plan. This can be time consuming because it requires that the team go to various shops to capture data. The main cost in this scenario is time and possibly transport fees.
* Dietitians – The team will also need to approach a trusted dietitian gather information on different types of diet plans and what they consist of. This will most likely come at kind of monetary cost.
* Geographic location – Our app must be able to cater towards most potential users. Seeing as our users do not all live in one place, the team will be forced to gather data from as many shops in various locations as possible in order to suit our restraint that the app offers all product suggestions within a certain user’s location radius. Also being able to access shop and user locations will require the use of Google Maps which may incur some monetary costs.
* Unique Preferences – The app is designed to meet the unique preferences of each user. What this means is that the team must be able to accommodate any particular preference that the user may have (such as vegetarian, vegan, banting, etc.). This will require the app to make adjustments to diet plans and will ensure that a user’s diet plan is completely suited towards said user.
* Cost – Another feature that needs to be incorporated to the app is that it must be able to offer a user the most affordable diet plan. This will require the team to sort through the prices gathered by various shops to determine which product is the cheapest (which can be very time consuming).
* Team skills – Moving to an internal factor that plays a big role in the implementation of this app is the skills of the team to design this app. The idea is that this will be a mobile app and therefore is required to be coded in a suitable programming language. Seeing as none of the team member can code in the required programming language, it will take a fair bit of time to learn the language to code the app.

(by Luke-Juergen Mross + Brent Plage)

# Project Organisation



(by Janay Sander)

# Project Schedule

## Summarized Work Breakdown Structure

**1. Scope and Goal Definition**

1.1 Communication Management

1.2 Resource Procurement

1.3 Scope Development

1.4 Risk Management

1.5 Quality Management

1.6 Budget

1.7 Scheduling

1.8 Finalise Project Plan

**2. Stakeholder Requirements**

2.1 Research existing similar applications

2.2 Document all stakeholders and users

2.3 Regulatory Compliance

2.4 Reporting and Presentation

2.5 Specify UI requirements

2.6 Define Technology Requirements

**3. Design Application**

3.1 Define functional and non-functional specifications

3.2 Process Models

3.3 Design UI

3.4 Design Database

3.5 Define platform and development language specifications

**4. Develop Application**

4.1 Define and describe product features

4.2 Setup development environment

4.3 Develop UI

4.4 Develop Database

4.5 Code Development

4.6 Debugging

**5. Testing**

5.1 Setup test environment

5.2 Develop test plan

5.3 Unit testing

5.4 System testing

5.5 Develop/Update test report

**6. Presenting Final Product**

6.1 Finalise Documentation

6.2 Finalise Administration

6.3 Present Project (by Janay Sander)

## Detailed Work Breakdown Structure

|  |  |  |  |
| --- | --- | --- | --- |
| **ACTIVITY** | **DESCRIPTION** | **PERSON**  **RESPONSIBLE** | **DURATION** |
| 1.1 | * Establish reporting frequency * Presentation procedures * Establish meeting frequency | Rashmika Kalan | 1 day |
| 1.2 | Collect food information:   * Checkers * Pick ‘n Pay * Woolworths * Spar * Dischem | * Brent Plage * Dian Potgieter * Luke-Juergen Mross * Darren Oosthuizen * Annette Pienaar | 2 weeks |
| 1.3 | * Establish project overview * Determine project deliverables * Excluded features & issues | * Luke Geyser * Darren Oosthuizen | 2 weeks |
| 1.4 | * Establish risks * Generate risk management procedures | Modibe Mathabatha | 1 week |
| 1.5 | * Determine how to ensure quality * Determine how to improve app & app security | * Luke Geyser * Mthokozisi Mgema | 1 week |
| 1.6 | * Plan project budget if costs are involved * Predict future costs/possible revenue | Janay Sander | 1 week  (continuous updates may be necessary) |
| 1.7 | * Develop work breakdown structure * Allocate time to different tasks | * Janay Sander * Rashmika Kalan | 1 day |
| 1.8 | * Develop project plan * Insert research done | * Rashmika Kalan * Janay Sander | 1 week |
| 2.1 | * Research similar applications * Document findings | Modibe Mathabatha | 1 week |
| 2.2 | * Establish stakeholders and users * List and describe stakeholder requirements | * Luke-Juergen Mross * Brent Plage | 1 week |
| 2.3 | Research laws and regulatory requirements of a dietary project | Annette Pienaar | 1 week |
| 2.4 | * Develop report/presentation of current findings * Prepare final project proposal | * Janay Sander * Mthokozisi Ngema | 2 weeks |
| 2.5 | * Determine what UI is required * Document main project features | * Rashmika Kalan * Darren Oosthuizen | 2 weeks |
| 2.6 | * Define types of technology required * Determine platforms and research capabilities * Report functional & non-functional requirements to consider | * Luke Geyser * Dian Potgieter | 2 weeks |
| 3.1 | * Decide on final functional & non-functional requirements * Report chosen features | Luke Geyser | 3 weeks |
| 3.2 | * Flow diagrams of main features * Class diagrams * Rich picture designs | * Annette Pienaar * Dian Potgieter * Luke-Juergen Mross * Darren Oosthuizen | 2 weeks |
| 3.3 | * Layout of the UI * Colour scheme * Document final UI decisions | * Mthokozisi Ngema * Brent Plage * Modibe Mathabatha | 2 weeks |
| 3.4 | * Define classes based on class diagrams * Define fields and relationships * Draw relationship diagram | * Rashmika Kalan * Janay Sander | 2 weeks |
| 3.5 | * Document chosen development technologies * Establish language specifications & additional settings | Luke Geyser | 1 week |
| 4.1 | * Document updated product features and present findings * Continuous project evaluation | * Annette Pienaar * Dian Potgieter * Luke-Juergen Mross * Darren Oosthuizen * Mthokozisi Ngema * Brent Plage * Modibe Mathabatha | Continuous  (Updates given periodically at meetings) |
| 4.2 | * Installing necessary software and tools * Create a shared GitHub repository | * Rashmika Kalan * Janay Sander * Luke Geyser | Continuous  (various software/tools may be needed throughout development process and GitHub repository will be used constantly) |
| 4.3 | * Develop UI according to documented decisions * Test display and functionality of UI | * Janay Sander * Rashmika Kalan   Reviewed by   * Luke Geyser | 3 weeks |
| 4.4 | * Develop database & relationship diagrams using chosen platform * Establish coding connection to database | * Rashmika Kalan * Luke Geyser   Assistance from   * Janay Sander | 3 weeks |
| 4.5 | * Write code * Link UI * Manipulate database | * Luke Geyser * Rashmika Kalan * Janay Sander | Continuous |
| 4.6 | * Run debugging processes * Report coding performance and provide continuous feedback | Janay Sander | 2 weeks |
| 5.1 | * Provide simulation data to test project output * Install project on to needed text platforms | * Luke-Juergen Mross * Darren Oosthuizen * Brent Plage | 2 weeks |
| 5.2 | * Establish and document a well-defined process for testing * Define procedures and steps involved | * Modibe Mathabatha * Dian Potgieter | 1 week |
| 5.3 | * Start unit testing process * Report test results | * Rashmika Kalan * Luke Geyser * Janay Sander | 2 weeks |
| 5.4 | * Start system testing process * Report test results | * Rashmika Kalan * Luke Geyser * Janay Sander | 2 weeks |
| 5.5 | * Use test reports to develop an updated test result document * Present test results | * Mthokozisi Ngema * Annette Pienaar | 1 week |
| 6.1 | * Document all results of product * Develop final presentation including planning, development & testing | Janay Sander | 2 weeks |
| 6.2 | * Document all work done by team members | Rashmika Kalan | 2 days |
| 6.3 | * Present final solution | * Janay Sander * Rashmika Kalan * Luke Geyser * Annette Pienaar * Dian Potgieter * Luke-Juergen Mross * Darren Oosthuizen * Mthokozisi Ngema * Brent Plage * Modibe Mathabatha | Not Applicable |

(by Janay Sander + Rashmika Kalan)

# Risk Management

* Project risk management plans are the thoughts-of mapping that can identify, anticipate and employ solutions in case the project encounters unexpected issues.
* Usage of User Centered Design Canvas tool as a strategic plan to helping weighing risk and improvements and therefore focuses on both user and business side.
* Exploring competitor’s products gives an opportunity to discover what is working because users will likely expect our project to offer similar functionalities as the competitor. This will help save time because of the competition as a reference.
* We also have a direct competition; which is basically people and/or companies who are doing the same thing as we are doing, hence the pressure for best product.
* We then have to share the same customers or even make them become ours solely.
* Risk management plan consists of the following attributes:
* Process – entire process to be used to be used for identifying, analyzing, evaluating and mitigating risks throughout the project life circle.
* Budget – risks on costs of the project as in there bound to be changes from when the budget starts and as it proceeds.
* Work breakdown structure – how and when to include the strategies involved in the risk management plan.
* Risk register – frequency of reviewing the risk register is to feature in the project risk management plan.
* Roles and responsibilities – plan enables the project member to know sole duties and responsibilities in case the project encounters issues with risks attached.
* Reporting structure – elaborates the situation of encountering a risk and in whole hands to the decision needs to lie.
* Risk categories – categorizing risks for proper arrangement of issues.

A complete risk management plan will be documented at a later stage.

(by Modibe Mathabatha)

# Communication, Reporting and Presenting

* Communication:
* Open lines of communication
* Can ask for help, assistance or guidance as needed
* Meetings:
* 2 meetings a week:
  + - * + Tuesdays: discuss any issues for tasks/reports due for the week
        + Fridays: Presentations (if necessary) or give second years the reports and deliverables of tasks from that week. Discuss tasks and deliverables that are due for the next week.
* Presentations:
* Will present whenever required
* Person/people responsible for task/s being presented will present unless otherwise arranged.

Media for Presentations:

* PowerPoint presentations
* Videos if required

(by Rashmika Kalan)

# Quality Assurance

Quality is of critical importance in this project as customers expect recent prices of advertised products. For the purpose of this project, quality can be ensured by updating the cloud database regularly, but once the product is deployed to the real-world industry, this procedure will no longer be valid. Future data quality can be ensured by creating supplier portals to upload price changes.

Complete test management plans must be implemented throughout the project to ensure bug-free quality code. Results will be recorded periodically and updates will be implemented regularly. To further ensure quality software, the latest, stable development tools will be used throughout the development process.

Security is also of great importance as user data will be saved by the application. A user-friendly sign-in or sign-up facility will be included to ensure only valid customers can use the features. Privacy settings will also be incorporated into the customer profile to prevent unauthorised data sharing.

Procedures to ensure quality throughout development will be generated and documented at a later stage.

(by Mthokozisi Mgema + Luke Geyser)