FamilyMealPlanningAppX

Sue is a dietician who has been working for 25 years. During her career, she has gained much experience and knowledge in helping individuals with both managing their weight and their different dietary requirements. With so much conflicting information out there (such as the internet and other non-qualified 'experts'), it is easy for individuals (even those working with a dietician) to become confused about what they should be eating, and what healthy eating is all about.

When Sue began her career, most of her clients were interested in losing weight and she assisted by both educating her clients, as well as helping them by preparing a meal plan that fit their lifestyle and dietary requirements, in order to help achieve agreed upon weight goals. As the years passed, she noticed that her clients' needs have become more complex, especially due to an increase in individuals suffering from different food allergies and intolerances. She has also noticed that people's eating habits have changed, and more clients are wanting to become vegetarian or vegan and others will only eat organic foods. As such, she is constantly needing to modify her information booklets and her meal plans to account for specific dietary requirements and intolerances.

Here is some information on some of the dietary requirements (including allergies and intolerances for certain food), that clients present with, in a typical work week:

Food Allergies

A food allergy is an abnormal immune response to food, which is not to be confused with food poisoning. This abnormal response ranges from mild (for instance, itchiness) to severe (known as anaphylaxis). Severe responses can be life threatening. This response can be immediate or several hours after exposure. The cause of food allergies is unknown. In some instances, allergies experienced during childhood may be resolved when the person becomes an adult. Common allergies include peanuts, eggs, shellfish, however this varies by location[4]. In Australia, food allergies are estimated to affect 1-2% of adults and 4-8% of children under 5 years of age, with as much as 10% of children under the age of one[5]. Another common allergy is related to gluten. Non-celiac gluten sensitivity (NCGS) (gluten sensitivity) is an immune reaction. Once foodstuff containing gluten is removed, intestinal and/or extraintestinal symptoms improve[3]. Sue does not diagnose food allergies, but rather refers clients to a specialist if they complain of certain symptoms. It is not simple to diagnose an individual with a food allergy and it can require a medical history, elimination diet, skin prick test, blood tests for food-specific IgE antibodies, or oral food challenges[5].

Food intolerances

Food intolerances are different to allergies, in that they are not immune responses. They refer to digestive problems that occur after certain foods are eaten. People suffering from food intolerances typically remove or restrict those items from their diet, in order to avoid the consequences of eating those foods. A low FODMAP diet consists of restricting or removing fermentable carbohydrates (FODMAPS) from one's diet. This sort of diet is recommended for people suffering from irritable bowel syndrome (IBS)[1]. Similarly, lactose intolerance is quite a common intolerance caused by a decreased ability to digest lactose; a sugar found in dairy products. Individuals who suffer from lactose intolerance, have varying amounts of lactose they can tolerate, before symptoms develop[2].

Vegan and vegetarian

For the purposes of understanding veganism as it relates to Sue as a dietician, we will limit this explanation to veganism with respect to dietary choices only, with a focus on some of the different variations (and no discussion on the reasoning behind the variations). Vegans do not eat meat, eggs, dairy products and any other animal-derived substances. Strictly this also includes honey. Some people will eat eggs, milk and honey[6]. A pescatarian is

someone who will eat fish and seafood in an otherwise vegan diet[8]. Veganism is not generally recommended for children or adolescents, for women during pregnancy or for a woman breastfeeding. Some people look for substitutes such as tofu[6], and some turn to a dietician to help ensure that their bodies are getting all the nutrients and protein that their bodies need.

Diabetes

Sue usually tries to remove or limit sugar from meals to help clients lose weight and eat in a healthier way. She also has some clients that suffer from diabetes, which is a group of metabolic disorders characterised by high blood sugar[7]. There are different types of diabetes and sufferers will see an endocrinologist[6] who will provide information as well as dietary modifications. Sue has some clients who suffer from diabetes, and clients who have family members who suffer from diabetes, and are concerned that they may be predisposed to the disease.

Organic food

Organic food is food grown and produced through following standards set out for organic farming. The production may include practices on recycling resources and/or only using specific pesticides and fertilisers[9].

As these dietary requirements may only influence one member of the family, the family has a few options.

1. Everyone eats the same meals based on the meal plan created with the help of the dietician.
2. The family eats the same as before and a separate meal is made for the individual with the meal plan.
3. The family eats the same as before and substitutions are made for the member of the family who cannot eat an item/s in the recipe.

Here are a couple scenarios explaining the different options that a family could have when one member of the family follows a specific meal plan,

Scenario 1- The family is having spaghetti bolognese for dinner and one member of the family does not eat onions or tomato as part of a low FODMAP diet.

The person cooking the meal may remove some meat and make that separately with other flavours and spices (option 3). Another option would be that everyone in the family eats the spaghetti bolognese without onions and tomato (option 1). The family member with the meal plan can eat something completely different, as that family member may think that spaghetti bolognese isn't really spaghetti bolognese without onions or tomato (option 2),

Scenario 2- The family is having spaghetti bolognese for dinner and one member of the family is vegan.

All members of the family would eat a vegan meal plan if one member of the family becomes vegan, so in this instance they could use a meat-free substitute and make the spaghetti bolognese as before (option 1). Another option would be for the person cooking the meal to make a portion with the meat-free substitute and the rest as before (option 3). There is also option 2, where the family member who is vegan can eat something different.

Sue wants to create a family meal planner that will help clients such as these described in the scenarios above. She also believes there is a market for family meal planners, based on her experiences with the clients she has helped over her 25 years in the industry.

She knows that some people have chosen to use services such as 'Lite n Easy' or 'Marley Spoon', but she has many clients who like to cook and want to be involved in meal preparation. She believes individuals will pay for the convenience because, they appreciate that the complexity of family meal planning has been removed. Sue sees an opportunity to create an app that will help individuals manage their diets and their family meals effectively

based on their food preferences and food intolerances/allergies. Although there are many websites and apps that address these issues, she has not yet found one that provides a holistic response and that she can direct clients to. She wants to create an app that will help simplify meal planning. She intends to give the app to her clients for free, but at a cost to anyone else who wants to download it.

Hue (Sue's daughter) is an entrepreneur and has brainstormed ways to market the app and make it (more) profitable. She sees a market for some niche companies to advertise. For instance, companies that create food substitutes, such as brands of tofu or different types of non-dairy milk could be interested in advertising. Gluten free stores and restaurants (e.g., vegan restaurants) may also want to advertise as this may be a good way to increase their client base.

Sue and her daughter Hue have discussed and decided to each contribute $15000 (total= $30000) on an initial project to create an app for Sue's business. In the first phase, after the development, they plan on releasing the app and will wait 6 months after the release, to see if their prediction is correct and there is a gap in the market – that there is a demand for this FamilyMealPlanning app. If they decide that it is a worthwhile venture, they will contribute more money for a second development where they will add more functionality. They have approached DevCo to do the development. DevCo have decided to take on the initial project and have agreed to complete the initial project in 6 months. The first stage of the project is the creation of 'FamilyMealPlanning' app. These are the key elements of this initial development phase (phase 1).

The user should be able to create a Family Profile with basic signup information including-

· email, password,

· and a name (the name they wish to be referred to).

The profile should be a family profile and should contain each member of the family (for that single logon). For each family member there should be an option to add dietary requirements. The system should provide dietary options (e.g. lactose intolerant, gluten free, sugar free etc) that the user can choose. These options should be clear and the process of adding the data should also be intuitive. For instance, an option could be 'No sugar'. In this instance it should be clear if the requirement is for diabetes or healthy eating/weight loss. Linked to this the user should be able to add a substitute(s) if necessary. For instance, if one of the family members is lactose intolerant, the user can add 'almond milk' as a substitute.

All this data is manually added by the user when they sign up to the app. The user can modify the data at any time. For instance, a family member may initially be a vegan who eats eggs, but at a later date change their mind and no longer eat eggs. Similarly, a child may have an allergy to nuts which they outgrow. The interface should allow for modifications.

The user should be able to upload recipes to the app to use in their FamilyMealPlanning. The format of the upload can be .pdf, .doc, .txt. The user should also be able to add a URL link with the recipe. These recipes should all be stored and should have the functionality to be added to a calendar. This calendar will be the basis of the FamilyMealPlanning app. When the user opens up the calendar, they can view what recipe they are using to cook dinner that night (from the list of recipes uploaded).

In this initial development (phase 1), the user should be able to click on the recipe in the calendar. When the user views and uses the recipe, it should provide suggestions for substitutions to the ingredients (for instance replace milk with almond milk if one of the family members is lactose intolerant), based on the dietary options set up during the family profile creation. Please remember: this is an initial development of the product (phase 1) and **does not include all the functionality described in the case scenarios.**

About the company DevCo: DevCo was formed by 6 students who completed their Master of Information Technology degree at the University of Melbourne in 2019. Due to COVID-19, many of the projects they spent time on were helping clients set up their remote working environments, and providing tech support. They are also involved in and completing a few other development and upgrade projects for some of their clients. They are excited and eager to start this project.

Please answer the following questions based on the information in the case described above.

Section 1: Short Research Questions

1. Identify a major goal for the *initial development* of the software product. (maximum 50 words – 1 mark)

2. Identify the value of the software product for Sue. (maximum 50 words – 1 mark)

Section 2: Extended Research Questions

3. Identify 3 **high** level features (functions the IT solution should provide) in the initial software product *(the initial development ONLY)* and categorize their priority as high (must have), medium (good to have) or low (can do without). Give a justification for the chosen priority of each requirement. (3 marks) You can use the following table with an example of a high-level feature (which does not count as one of your 3 features).

Requirement	Priority	Justification
A user can set-up a family profile	High	The user needs to set-up a family profile to use the functionality provided by the FamilyMealPlanning app. This is a core feature of the app and high priority as without it, users cannot set-up their dietary requirements and the app will not be able to provide any recommendations or modify recipes based on dietary requirements.

4. Identify two challenging characteristics (characteristics that would make the project difficult) of this IT project (*the initial development*) and discuss why you consider them challenging. (maximum 200 words – 2 marks) *

5. Identify and justify three things that can go wrong – *risks*, resulting in the project (*the initial development*) not achieving the intended goal/s. Ensure that you identify risks that are unique to the characteristics of this case study, rather than generic risks that can occur in **any** project. Examples of generic risks are project members leaving the project; running out of budget before completion; IT security risk, a good user

interface (please note: this is not an exhaustive list of generic risks). Describe the *impact* each of these risks could have on the business, project and/or the software product. (maximum 250 words - 3 marks) *

*For both Q4 and Q5, please ensure that by your explanation of the characteristic it is clear that it is a challenge and not a risk (Q4) and a risk and not a challenge (Q5).

Section 3: Discussion

6. Discuss two possible lifecycle models you would consider for the project SDLC model. This should include the pros and cons of each of your choices referring to specific project <u>characteristics and risks **you** have identified</u>. Use case study references to support your argument. Please do not provide a lengthy description of the models, you can assume the marker has basic understanding of the model. Furthermore, use outside references (at least 2 references) to further expand your discussion (maximum 800 words – 6)

7. From the 2 possible choices you described in Q6, choose the most suitable SDLC and justify your choice referring to specific project characteristics and risks you have identified. (maximum 200 words – 2 marks)

Section 4: Ethics

8. Question to be released at a later date and due week 12 (2 marks)

 Quality and presentation: -2 marks

<u>Please note:</u> I have used Wikipedia references to explain terms that may not be familiar to students. I caution students to think before using Wikipedia in your responses. While the references used in the case study are to illustrate some non-familiar and domain specific concepts in a lucid and simple manner, academic arguments (such as your answers in the Assignment) should make use of scientific references only. For more information on referencing, please refer to the university guidelines (and additional resources) at the link below.

[recite (unimelb.edu.au)](unimelb.edu.au)

References

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