

Changemakers: Creativity and Value Creation

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Assignment 1 ideation and project management

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Task 1 - Ideas and innovation

Sunday, March 8, 2026 2:27 PM

Part 1

Innovation plays an important role on development of modern society as it helps improve the way people live and work. It refer to the process of developing new ideas, technologies and solution that solve problems that make everyday tasks easier. Many of the technologies used today such as mobile applications, online platform and digital tools were created through innovative thinking. [1]

Creativity is linked to innovation because new ideas start with creative thinking. Creativity allows individuals to look at problems from different perspectives and develop new ways to solve them. Innovation the focuses on turning these ideas into practical solution that can be used in real life. [1]

Innovation is important for this project as software and digital systems are constantly evolving. New applications and platforms are developed to improved productivity, communication and access to information. These technological innovations helps people complete tasks more efficiently and provide solution to everyday challenges. [2]

Part 2

Ideation:

Student study planner

Develop a digital study planner for university students. The application will allow users to organise assignment , deadlines and study sessions in one place. It could also include reminders and progress tracking to help student manage their time more effectively.

Meal planner

An application that helps students plan affordable melas. Users would be able to enter or a pictures of the ingredients they have and the system would suggest meals they can cook. The application will also show estimated calorie information to support healthy eating and budgeting.

Habit tracker dashboard

Developing a habit tracking system that allows users to monitor daily activities such as studying or exercising. The application would also include a dashboard showing progress, streaks and completion rates to encourage consistency and productivity.

Student marketplace website

Similar to Facebook marketplace but for university students to buy and sell items such as textbook, electronics or furniture. The platform will allow users to create listings and browse items within the university community, helping students save money and reuse resources

Project title: ingredient based meal planner

Aim: the aim of this project is to designed develop a web based application that helps university students plan affordable and nutritious meals by allowing them to enter ingredients manually or upload images of available ingredients and receive meal suggestions with estimated calories information.

Objectives

- Research common challenges university students face when planning meals on a limited budget
- To design a user friendly interface that easy to use
- To develop a system that suggest possible meals based on the ingredients provided
- Estimate calorie information for suggested meals

Description: this project focuses on the development of a web based meal planning application designed for university students who often face limited budgets and time when preparing meals.

The application will allow users to enter ingredients they currently have available or upload a picture of the ingredients. Based on the input, the system will suggest meals that can be prepared using those ingredients. [5],[10],The application will also provide estimated calorie information for each suggested meal to help students make more informed nutritional choices. The main goal of the system is to support student in preparing affordable, filling meals while reducing food waste and making better use of the ingredients they already have. [11],[12]

Part 3 Research

Food and nutrition: I have research several food and nutrition API to see what data sources could be used to support the calorie estimation feature for the application. Nutrition APIs allow access to large databases that contain information about food ingredients, recipes and nutritional values such as calories. This data can be used to help the system generate meal suggestions and provide estimated calorie information for users.

I have researched many APIs to help support the application these include: FatSecret, Edamam, nutritionix, calorie ninjas and rapidAPI nutrition APIs. Fat Secret provides a large food database with millions of food items and includes information such as allergens and images.[6] Edamam offers useful features such as recipe analysis, diet labels and meal planning tools which could support the meal suggestion functionality of the application. Nutritionix is also commonly used for food data, especially for restaurant and packaged foods and includes features like barcode lookup.

Other services such as calorie ninjas focus on quickly estimating calorie values based on ingredient input, while rapidAPI allow developers to access multiple nutrition related APIs through one platform. By researching and comparing these different APIs, it becomes easier to understand what data sources could potentially be integrated into the system for my application.

Overall, this research help identify reliable food databases that could support the system in generating meal suggestions and providing useful nutritional information for users.

Web development resources and tools

Web development tool such as MDN web doc, provide useful guidance on technologies such as HTML, CSS and JavaScript. These technologies help form a clear foundation for the interface and functionality for an application. Resources like MDN provide clear explanations, example and support on development process and help ensure the application works properly across different device and browsers. [7],[8],[9]

One of the feature on the application is allow users to upload images that can be analysed by a system to identify objects and ingredients. Image recognition is commonly used in many modern applications such as food tracking apps and visual search tools. To ensure that the feature work, I have research several technologies that can help doing it. Tools such as google cloud vision and food recognition APIs like edamam can analyse images and identify food items. These tools can be used to detect ingredients from uploaded images and help generate meal suggestions in the application.

By using reliable documentation when developing features such as ingredient input, image uploads and meal suggestions, it helps make the application more responsive, accessible and easier for university student to use.

Links:

<https://github.com/api-evangelist/calorie-ninjas>
<https://calorieninjas.com>
<https://www.fatsecret.com>
<https://www.edamam.com>
<https://www.nutritionix.com>

Web development:

<https://www.w3schools.com/html/>
<https://www.w3schools.com/css/>
<https://www.w3schools.com/js/>
<https://developer.mozilla.org/en-US/>

Task 2 – Project management

Sunday, March 8, 2026 2:27 PM

Project scope

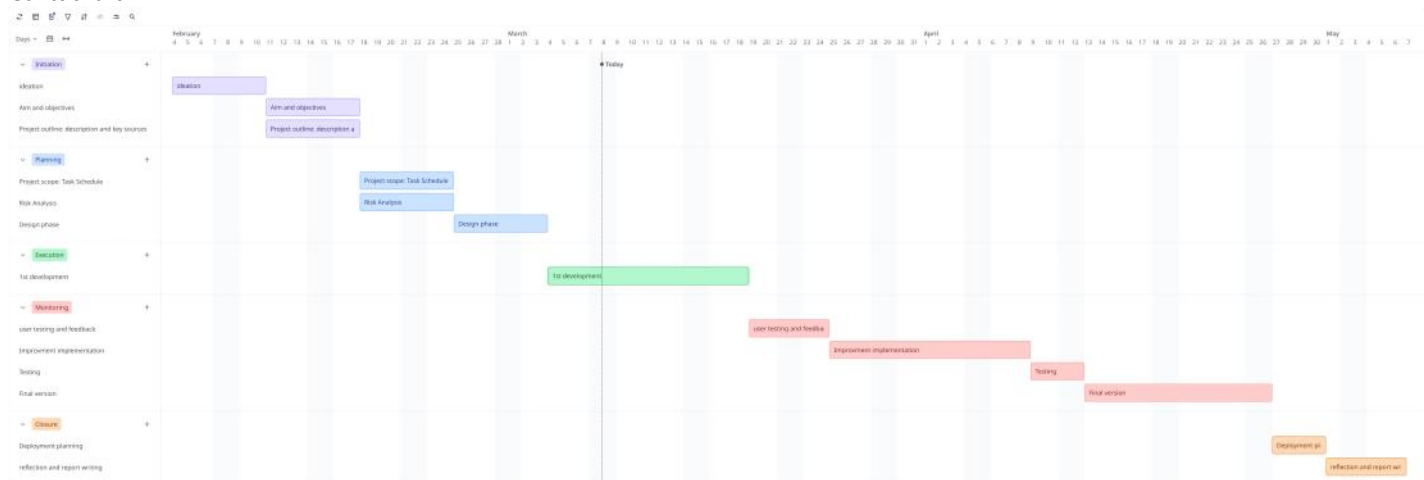
The proposed project is the development of a web-based meal planning application designed for university students. Many students find it difficult to plan meals because they have limited time, ingredients and budget. Sometimes students may have ingredients at home but are unsure what meals they can actually cook with them. This application aims to solve that problem by helping students discover simple meal ideas based on what they already have.

The main idea of the system is an ingredient-based meal suggestion tool. Users will be able to enter ingredients manually or upload a picture of the ingredients. For each suggested meal, the application will also display estimated calorie information so users can understand the nutritional value of the food.

The application will be developed using common web technologies such as HTML, CSS and JavaScript to create a simple and easy-to-use interface. Development tools such as Visual Studio Code will be used during the development. A database may also be used to store recipe information, ingredients and calorie data that will support the meal suggestion system.

The project will be completed through several stages including research, planning, design, development, testing and evaluation. The research stage will involve looking into student food habits, meal planning, challenges and web development technologies. [4] The design stage will include creating wireframes and system diagrams to plan the structure of the application. During development, the core features such as ingredient input, image upload and meal suggestions will be implemented. Finally, testing will be carried out to ensure the application works properly and is easy for users to understand.

Gantt chart



A Gantt chart was created to plan the different stages of the project and ensure the work is completed within the set timeframe. The chart outlines key project phases including research, design, development, testing and evaluation. [4] This helps organise tasks and monitor progress throughout the development process.

Completed project schedule

Task	Start date and end date
ideation	04/02/2026 – 11/02/2026
Aim and objectives	11/02/2026 – 18/02/2026
Project outline: description and key sources	18/02/2026 – 22/02/2026
Project scope: task schedule	22/02/2026 – 26/02/2026
Risk analysis	26/02/2026 – 01/03/2026
Design phase	01/03/2026 – 08/03/2026
1 st development	08/03/2026 – 18/03/2026
User testing and feedback	18/03/2026 – 22/03/2026
Improvement implementation	22/03/2026 – 27/03/2026

Final version complete	27/03/2026 – 30/03/2026
Deployment planning	30/03/2026 – 02/04/2026
Reflection and report writing	02/04/2026 – 06/04/2026

Risk and challenges [3]

Risk no	Risks	Impact	Contingencies
1	Time management	Medium	Create a clear project schedule and follow the gantt chart to ensure tasks are completed on time
2	Hardware failure	Medium	Regularly back up project files using cloud storage such as onedrive or github to prevent data loss
3	Technical difficulties during development	Medium	Use online tutorials, documentation and testing to solve coding or development issues.
4	Bugs or system errors	Medium	Perform regular testing and debugging during development to identify and fix errors early
5	Project becoming too complex	Low	Focus on core feature

Task 3 – Development method and design

Sunday, March 8, 2026 2:28 PM

Development method

For this project, I chose to use an agile development approach. The reason why I designed to use agile is because it is widely used in software development method that focuses on building systems through small stages called iterations.[1],[2] Instead of developing the entire application at once, the project is broken down into smaller tasks that can be completed step by step. Each stage of development includes planning, development and testing, which allow improvements to be made throughout the process.

Agile is suitable for this project because the application will be developed gradually while new features are added and tested. For example, the first stage of development may focus on creating the basic user interface where users can enter ingredients manually. The second stage may include implementing the ingredient image upload feature. After that, we can extend the system to generate meal suggestions based on the ingredients entered by the user and display estimated calorie information for each suggested meal.

Using agile also allows problems to be identified early during development. Since each feature is developed and tested separately, errors or bugs can be discovered and fixed before the next stage begins. This helps reduce technical issues later in the project and ensures the system works correctly before new features are added. [1]

Another advantage of agile is that it allows the project to remain flexible during development. If a feature becomes too complex or takes longer than expected, it can be simplified or adjusted in later stages. This is especially useful for student projects where time and resources may be limited.

Agile also supports continuous improvement through testing and feedback. For example, once the main features such as ingredient input and meal suggestions are implemented, the system can be tested to see how easy it is for users to interact with the application. Feedback from this testing can then be used to improve the interface, navigation and overall usability of the system. [1],[2]

Overall, agile development is suitable for this project because it provides a structured but flexible way to design, develop and test the application. By developing the system in stages and testing features regularly, the project can be managed more effectively while still allowing improvements to be made throughout the development process. This helps ensure that the final application successfully supports university students in finding affordable meals using the ingredients they already have.

Requirements specification

Project constraints

During the design phase of the project, several design documents were created to help plan how the system will function. These include a requirements specification and interface design planning. These design elements help define the functionality of the system and ensure that the development process is structured and organised.

Functional requirements:

ID	Title	Priority	Description
FR-01	Responsive design	High	Application should be able to open on any device [9]
FR-02	Accessibility	Medium	ensure that an application has an accessible tool that helps user that may need it[7],[8],[9]

FR-03	authentication	High	The system must allow users to register, login and manage their profile [4]
FR-04	Interface	Medium	The interface must be easy to navigate [4]

Non-functional requirements

ID	Title	Priority	Description
FR-01	Performance	Medium	The system should return meal suggestions within a few seconds
FR-02	Usability	High	The system should be easy to use and understandable for users
FR-03	Compatibility	Medium	The application should work on common web browsers such as chrome, edge and Firefox
FR-04	Maintainability	Low	The system should be easy to update or improve in future versions

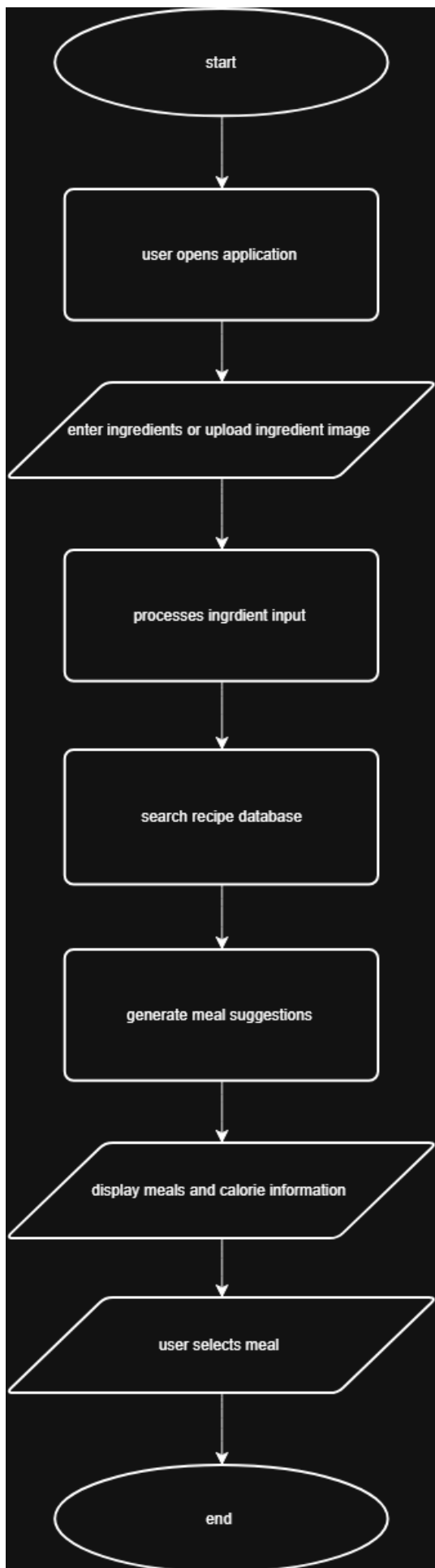
Security requirements

ID	Title	Priority	Description
FR-01	Data protection	High	User data should be protected and not shared without permission [6]
FR-02	Secure input	Medium	The system should validate user input to prevent errors or malicious input
FR-03	Authentication	Medium	If user accounts are implemented, the system should require secure login credentials
FR-04	Error handling	Medium	The system should handle errors safely without exposing sensitive system information

Testing and validation

ID	Title	Priority	Description
FR-01	Function testing	High	The system should be tested to ensure all details such as ingredient input and meal suggestions work correctly
FR-02	Usability testing	Medium	Testing should be conducted to evaluate how easy the application is for users to navigate
FR-03	Performance	Medium	The system should be tested to ensure it responds quickly when generating meal suggestions
FR-04	Bug fixing	High	Identified errors or bugs should be fixed before the final version of the system is completed

Design work [4]



The flowchart above shows how the system works and how it processes user input to generate meal suggestions. The process begins with an oval shape labeled 'start', which represents the beginning of

the system.

Next, a process or a rectangle shape is used to show the step where the user opens the application. After that, the system moves to an input and output process, where the user can enter ingredients manually or upload an image of the ingredients they have available.

The system then continues through several process stage. These represent the main operations of the system , including processing the ingredient input, searching the recipes database and generating possible meal suggestions .

Once the system has generated the results, an input and output is used to display the suggested meals and estimated calorie information to the user. The user can then view the meals suggestions provided by the system.

Finally, the flowchart ends with another terminator labelled end, which represents the completion of the system process.

Appendix and References

Sunday, March 8, 2026 2:28 PM

References

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