Food insights & analysis based recommendations

21-22J-058

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INTRODUCTION

The choice of food is an important element of our daily activities because of a wide range of ingredients, food and personal tastes. Choosing the correct food at the appropriate moment seems to be a hard job for many.

RESEARCH PROBLEM

- Choosing food is a daily task due to the abundance of possibilities.

- We can't see how a food is prepared just by looking at it.

- Someone deciding our next dish would be useful.

- People are still unaware of the nutritional value, benefits, and drawbacks of their food choices in connection to their health.
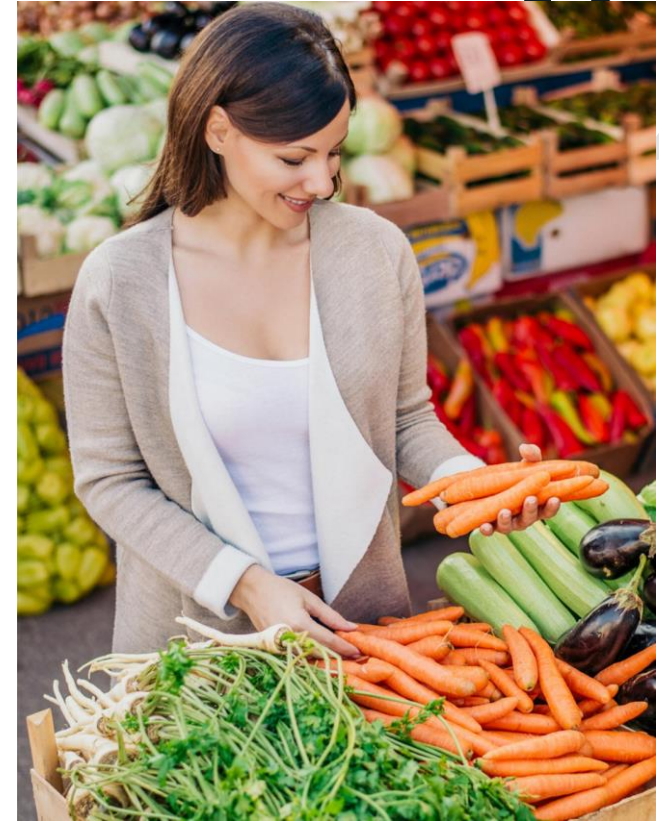
- Providing proper food knowledge to the audience paraphrase

- Providing food insights and recommending the best recipe according to the users medical condition.

- Build a user preference classification model to evaluate user profiles and train along with the recipe dataset and predict the most suitable recipe for a target user.

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OVERALL SOLUTION AS A SYSTEM DIAGRAM
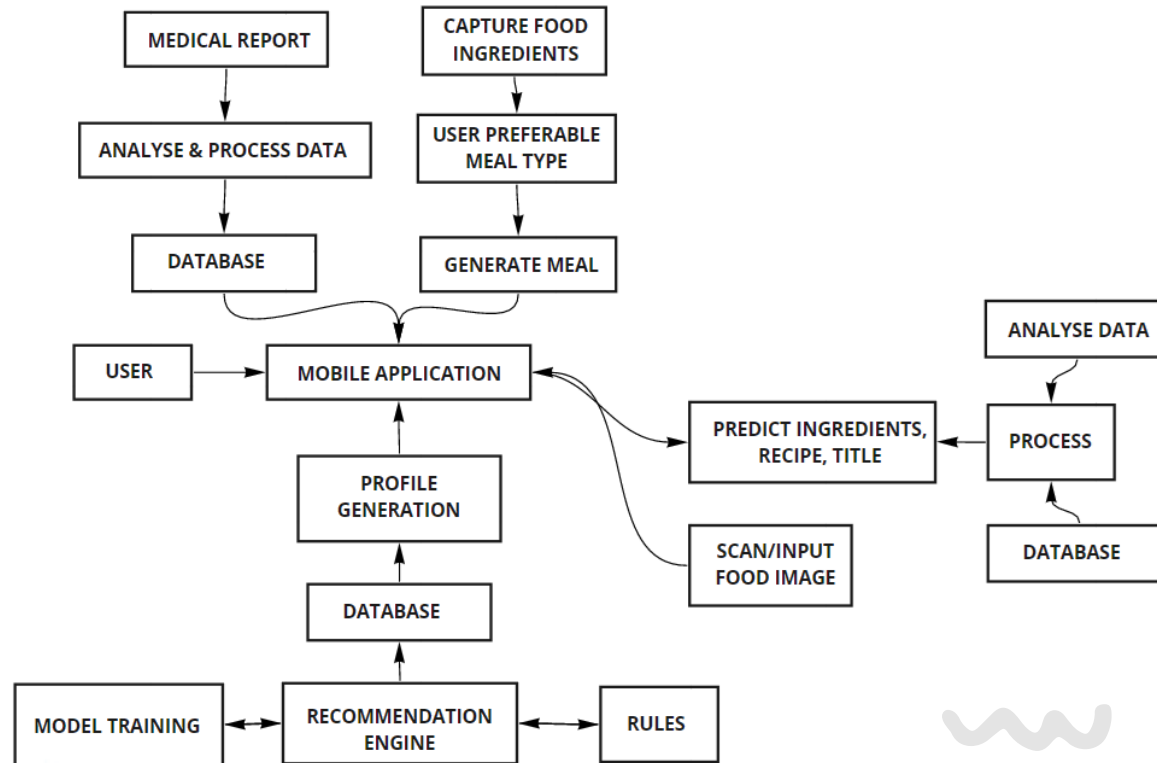
INTRODUCTION
TO THE OVERALL PROJECT

RESEARCH QUESTION

- Existing methods fail to predict multi-criteria recommendations.

- Not informed of components' nutritional worth

- No idea what to pick for any diagnostic

- Reasons for not knowing exactly what we are eating and how it was cooked.

09/19/2021

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Information Technology

- Providing user recipes based on user preferences using machine learning.
- Existing researches are conducted more from a narrower perspective.
- Cooking skill level of the user is neglected when it comes to food recommendation system.

RESEARCH QUESTION

- Users not having the proper expertise in cooking.
- Users sticking to the same recipe
- Existing models not accurate enough when it comes to multi criteria recommendation.
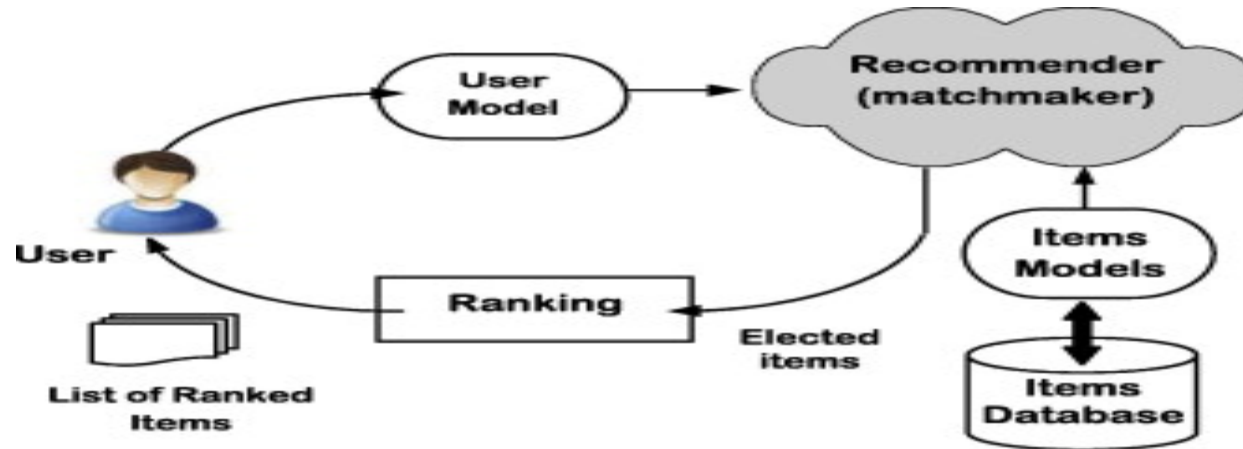
SPECIFIC &
SUB OBJECTIVES

Provide recipe based on user preference.

- Get users preferences from user.
- Classify the user based on personal attributes.
- identify user comments about the food recipes
- Able to track users recipe history

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RESEARCH METHODOLOGY
TECHNOLOGIES , ALGORITHMS

- Demographic based filtering technique.
- Lexicon based sentiment analysis.

Functional requirements

- Login & Signup Interface for User.
- Generate the user model based on collected data.
- Predict the best recipe from the database.
- Track user history.

Non - Functional requirements

- Performance
- Usability
- Availability
- Security

RESEARCH METHODOLOGY

WORK BREAKDOWN STRUCTURE

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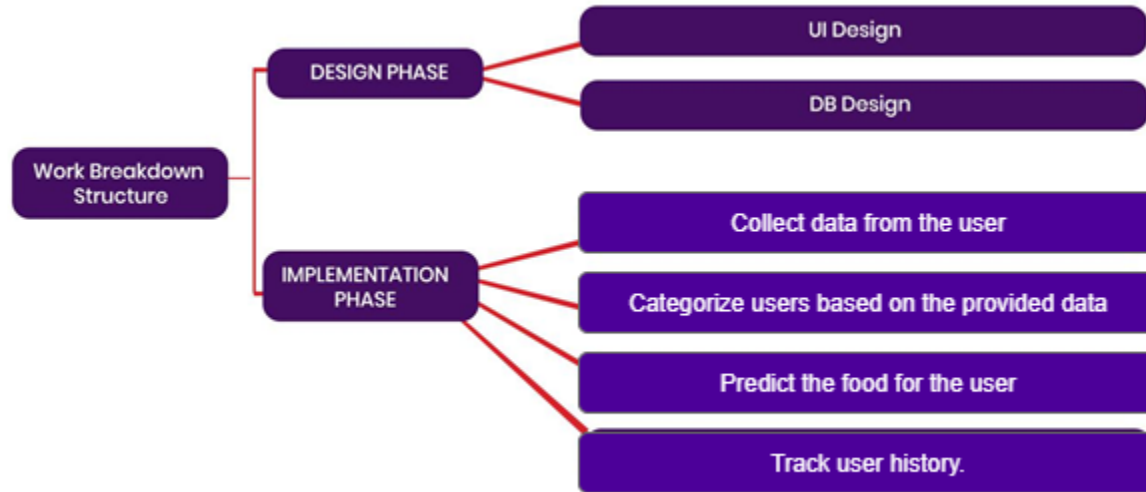
Identify the product audience & market to them.

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SUPPORTIVE INFORMATION

BUDGET

Expenditure Description	Budget
Web service Hosting cost	10,000
Marketing	10,000
Other Expenses	4000
Total	24,000

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REFERENCES

[1] Tossawat Mokdara, P. P. (2018).Personalized Food Recommendation Using .
Seventh ICT International Student Project Conference.

[2] Cataldo Musto, Christoph Trattner, Alain Starke, and Giovanni Semeraro. 2020. Towards a Knowledge-aware Food
Recommender System Exploiting Holistic User Models. In UMAP '20: ACM Conference on User Modeling,
Adaptation and Personalization, July 14–17, 2020, Genova, Italy. ACM, New York, NY, USA, 5 pages.
https://doi.org/XX.XXX/XXXXXX.XXXXXX

[3] Pugsee and M. Niyomvanich, "Sentiment Analysis of Food Recipe Comments", ECTI-CIT, vol. 9, no. 2, pp. 182-193, 1.

[4] https://www.ijert.org/research/recommender-systems-types-of-filtering-techniques-IJERTV3IS110197.pdf

[5] https://developers.google.com/machine-learning/recommendation/content-based/basics

[6]https://security-informatics.springeropen.com/articles/10.1186/s13388-015-0024-x

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Information Technology

Introduction

Identify the image and predict the ingredients from a food image and provide details on how it was cooked.

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RESEARCH
RESEARCH GAP

After several researchers found that there is recipe identification Applications are available with few drawbacks and my component will solve those drawback,

- Traditionally, the image-to-recipe problem has been formulated as a retrieval task, where a recipe is retrieved from a fixed dataset based on the image similarity score in an embedding space. Not surprisingly, these systems fail when a matching recipe for the image query does not exist in the static dataset.

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RESEARCH QUESTION

- Reasons for not knowing exactly what we are eating.

- Reasons for having confusion on identifying meal ingredients and how it was cooked.

- Action could be taken to make a people use a app to guide their diet related to their health status.
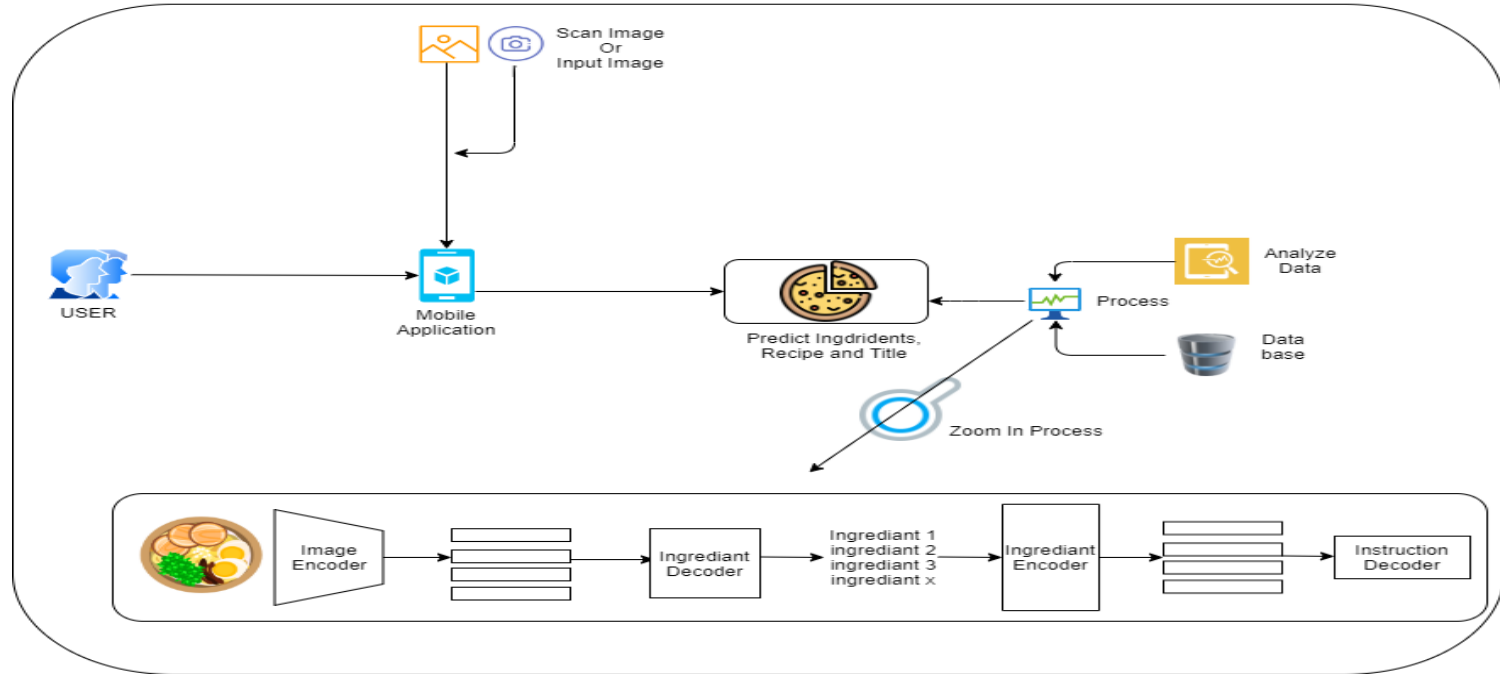
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Main Objective

- Providing food insights and recommending the best recipe according to the users preference.
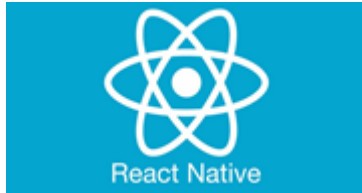
Sub Objective

- Food Image identification and finding the ingredients and cooking method.
- Identify the mean and capture them.
- Analyze the data and generate the output

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SYSTEM DIAGRAM

TECHNOLOGIES , ALGORITHMS

RESEARCH METHODOLOGY

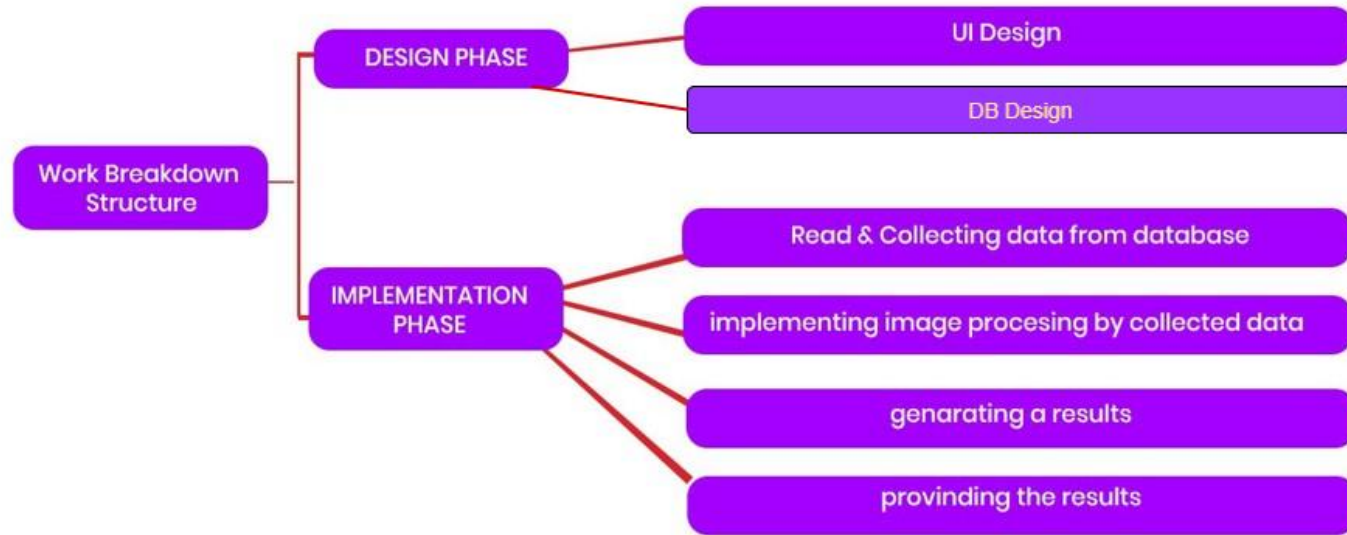## SYSTEM, PERSONAL & SOFTWARE SPECIFICATION REQUIREMENTS

Functional

- Image processing on identifying food ingredients and recipe

- According to collected data analyze and train them.

- Generate output from analyzed data.

Non-Functional

- Performance
- Usability
- Availability
- Security

- Main purpose of this app is target audience is foodie and health conscious people who wants to know what they are eating.

- Our app can integrated with food review sites and food delivery site so customer can know exactly what they order. So our app will be play major part for growth of their business.

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SUPPORTIVE INFORMATION
BUDGET

Since the research is a mobile application budget allocation for hardware component is less and it is planned to develop in software's which are free to use. Therefore, budget is allocated only for travelling and expenses for internet usage. In addition, a small amount of budget is allocated for any paid software's that are required for the research in future.

REFERENCES

[1] Luis Herranz, Shuqiang Jiang, and Ruihan Xu. Modeling restaurant context for food recognition. IEEE Transactions on Multimedia, 2017.

[2] Shota Horiguchi, Sosuke Amano, Makoto Ogawa, and Kiyoharu Aizawa. Personalized classifier for food image recognition. IEEE Transactions on Multimedia, 2018

[3] Weiqing Min, Bing-Kun Bao, Shuhuan Mei, Yaohui Zhu, Yong Rui, and Shuqiang Jiang. You are what you eat: Exploring rich recipe information for crossregion food analysis. IEEE Transactions on Multimedia, 2018.

[4] https://www.researchgate.net/publication/329734580_Inverse_Cooking_Recipe_Generation_from_Food_Images

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IT18228618

J. Abishek Prashanthan

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INTRODUCTION

- Choosing the appropriate food appears to be a challenging task

- Dietitians and caregivers can use this food suggestion system to help themselves prepare meals.

- Develop recipes based on the user's choices and an image provided to the app.

- The user can keep track of their meal components by processing their medical statistics.

- Keep track of what they should eat and avoid to stay healthy while considering their tastes.
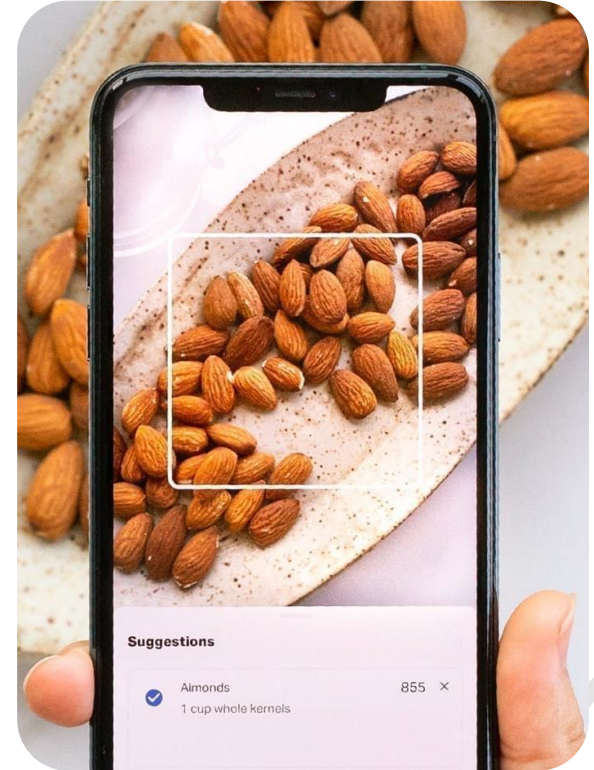
- There are many applications available for keeping track of personal diet but in the majority of situations, this information must be entered manually each and every time.

- Recommend foods that the user does not enjoy and out of reach for the majority of people.

- The program offer meal options based on the user's grade level

- Suggest and encourage users based on their diagnosis

- Doesn't aware of nutritional value of ingredients

- Has no idea what to choose for whatever diagnosis

- Many couldn't afford a personal caregiver.

- There are apps for personal diets, but the most of them will not apply in real life.
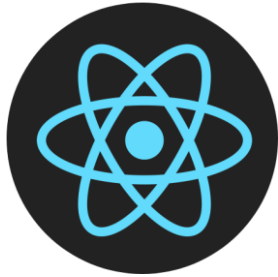
- Capture Ingredients and recognise them

- Get Medical Statistics into digital form and store

- Analyse, Recommend Meals based on user medical statistics

- Suggest meal options to user

- Keep track on their diet

RESEARCH METHODOLOGY
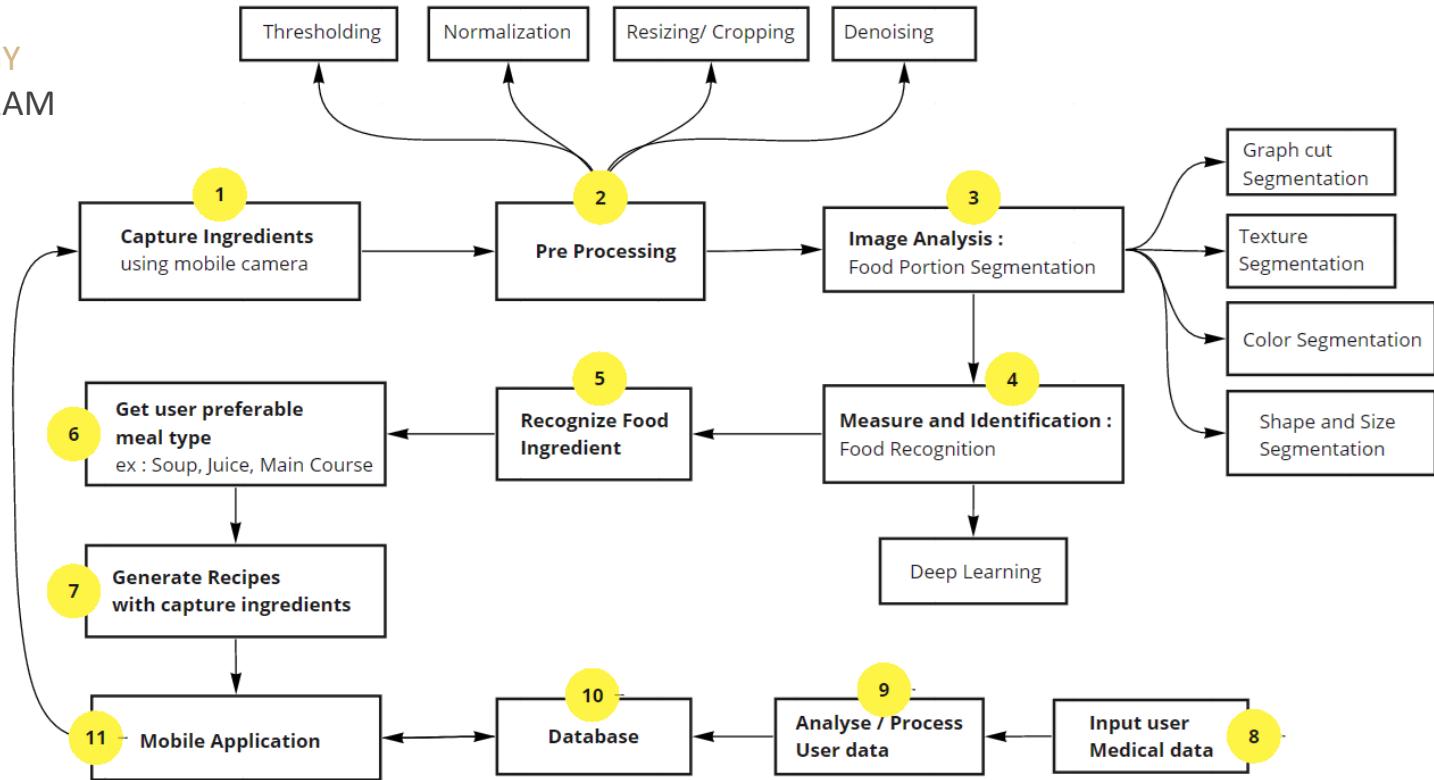
TECHNOLOGIES , ALGORITHMS

REACT NATIVE   PYTHON   TENSORFLOW   FIREBASE   CONVENTIONAL NEURAL NETWORK

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RESEARCH METHODOLOGY
SYSTEM, PERSONAL & SOFTWARE
SPECIFICATION REQUIREMENTS

- Identify Food Ingredients

- Generate Meal Options based on user preferences

- Guide pros and cons of what user applied

- Suggest fruits and vegetables according to use diagnosis

RESEARCH METHODOLOGY

WORK BREAKDOWN STRUCTURE

Design Phase

- User Interface Design
- Database Implementation

Backend Phase

- Data Preparation
- Data Analysis , Visualization and split data (Train, Valid, Test)
- Topic Modeling
- Feature extraction
- Transfer Learning, Training pre trained
- Deciphering Medical Stats

SUPPORTIVE INFORMATION
COMMERCIALIZATION

- This application will be more beneficial to both ordinary people and nutritionists.

- Nutritionists can provide more precise advice to their clients.

- The major target audience of this application are dietitians, nutritionists, and athletes, and it will be available on a subscription basis.

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SUPPORTIVE INFORMATION

BUDGET

- Marketing Website - 20,000 LKR

- Because the research is a mobile application, the hardware budget is limited and the software is free to use. Available on subscription basis. A limited fund is also set aside for future research software purchases.

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1. T. Mokdara, P. Pusawiro and J. Harnsomburana, "Personalized Food Recommendation Using Deep Neural Network," 2018.

2. Q. Yu, M. Anzawa, S. Amano, M. Ogawa and K. Aizawa, "Food Image Recognition by Personalized Classifier," 2018.

3. N. Choosri and S. Anprasertphon, "Hospital dietary planning system using constraint programming," Fifth International Conference on the Innovative Computing Technology (INTECH 2015), 2015, pp. 17-22, doi: 10.1109/INTECH.2015.7173363.

4. Kagaya, H., Aizawa, K. and Ogawa, M., 2014. *Food Detection and Recognition Using Convolutional Neural Network*. [online] researchgate.net. Available at: <https://www.researchgate.net/publication/266357771_Food_Detection_and_Recognition_Using_Convolutional_Neural_Network> [Accessed 18 November 2014].

THANK
YOU