TABLE OF CONTENTS

Chapter 1: Introduction #

1.1: PROJECT BACKGROUND #

1.1.a: Previous Work #

1.2: PROBLEM LANDSCAPE #

1.3: PROJECT Goal #

CHAPTER 2: PROJECT MANAGEMENT AND TOOLS #

2.1: PROJECT MANAGEMENT

2.1.a: Project Management Tools #

2.2: PROJECT PLANNING #

2.2.a: App Development Methodology #

2.2.b: Scope #

2.2.c: Challenges #

2.2.d: Risks #

2.2.d: Identified Tasks #

Chapter 3: dESIGN #

3.1: REQUIREMENTS #

3.2: ARCHITECTURE #

3.2.a: Class Diagram #

3.3: METHODOLOGY

3.3.a: LUIS API #

3.4: CHALLENGES #

3.4.a: Changing of requirements #

3.4.b: API request/respond efficiency #

3.4.c: Azure account #

3.5: DATABASE #

3.5.a: Challenges #

3.5.b: Approach #

CHApter 4: Implementation #

4.1: TOOLS #

4.1.a: Ide #

4.1.b: Debugging #

4.1.c: Other Tools #

4.2: APPLICATION #

4.2.a: UI #

4.2.a: Content #

CHApter 5: testing #

5.1: TEST PLAN #

5.2: TEST REASULTS #

CHApter 6: Evaluations #

6.1: PROJECT PLANNING #

6.2: DESIGN #

6.3: IMPLIMENTATION AND TESTING #

6.4: FUTURE DEVELOPMENT #

6.5: GAINED LESSONS #

6.6: CONCLUSION #

CHApter 7: REFERENCES #

Chapter 1: Introduction

**Abstract**

The food we eat will have a profound effect on our health. Everybody has a strong opinion, diverse assertions about What is Healthy Nutrition. Changes in diet help many health problems including obesity, diabetes and certain risk factors for cancer and heart disease. Diet is the science of how food and nutrition effect on human health. Therefore, People around the world seeking to maintain their weight by limiting junk foods and eating more nutrient foods. For this an automated Dietitian is required to help people improve their health.

Smart dietician bot is a AI system that can gather daily intake of calories, weight, body type, height, age, working hours (Activity Level) and analyze the given data and consult as a real dietician. Most importantly this dietician can take health condition (like diabetes or cardiac patients) into account and suggest their meal plans and suitable workout routines. Furthermore, this provides full details of the nutritional formula required for the body and necessary amount of calories to burn fat/maintain BMI, Increase with the plan by answering some queries.

This is appropriate for users who need to improve their health. Also appropriate for users who need to prevent from certain risk factors and to have care and consultation. Also people can be in touch with the nutritional formula required for their body.

Artificial intelligent bot become visible as an important research area in recent past. Study about existing work on dietician Artificial intelligent bot useful for construct, a new solution.

1.1: Project Background

**-Natural Language Processing-**

Natural Language Processing (NLP) is the study of letting computers understand

human languages[3]. Without NLP, human language sentences are just a series of

meaningless symbols to computers. Computers don’t recognize the words and don’t

understand the grammars. NLP can be regard as a “translator”, who will translate

human languages to computer understandable information.

Traditionally, users need to follow well-defined procedures accurately, in order to

interact with computers. For example, in Linux systems, all commands must be precise.

A single replace of one character or even a space can have significant difference.

However, the emergence of NLP is changing the way of interacting. Apple Siri [4] and

Microsoft Cortana [5] have made it possible to give command in everyday languages

and is changing the way of interacting.

In this project, we are going to use the API provided by Microsoft called Language

Understanding Intelligent Service (LUIS)[6]. It contains a bunch of well-developed REST

APIs. We will take time to read the documentations and more details will show in future

reports.

**-Machine Learning.-**

Machine Learning (ML) is an area of computer science that ​"gives computers the ability to learn without being explicitly programmed"[7]. The parameter of the formulas is

calculated from the data, rather than defined by the programmer. Two most common

usage of ML is Classification and Regression. As shown in figure1[8], Classification

means to categorize different types of data, while Regression means to find a way to describe the data. Basic ML program will have two stages, ​fitting

​ and ​predicting.

​ In the fitting stage, the program will be given a large set (at least thousands) of data. The

program will try to adjust its parameter based on some statistical models, in order to

make it “fit” the input data best. In the predicting stage, the program will give a

prediction for a new input based on the parameters it just calculated out. For example,

the famous Iris flower dataset [9] contains the measurement of several features of three

different species of flowers, such as the length of sepals and petals. A well-defined ML

program can learn the pattern behind this feature and give prediction accordingly.

In this project, we will use the Microsoft Azure Machine Learning Studio [10]. It is a

platform for implementing and testing ML models. The backend is on Microsoft’s cloud

service, which make the calculation much faster than personal computers.

**Previous work**

3.1 AI Bots AI bot (or Chatbot) is a computer program that conduct conversation via audio or

textual messages, and is widely used now. It typically use Natural Language process

techniques to analyze input sentence and generate outputs. There are currently two trends in the development of AI bots. The first one is to be as ​Human-Like

​ as possible and try to pass the Turing Test. One of the most famous contests in this area is the

annual Loebner Prize.

Another trend is trying to provide help to users, with users knowing that definitely they

are talking to a bot and the bot can help them finish some specific jobs. Apple’s Siri,

Microsoft’s Cortana and Google now can be categorized as this type.