1. Introduction

It is noted that good health and well-being is important to people. It was founded by the United States that people don't follow precautions or ways to good health. This document is focused on addressing one of the seventeen UN goals (UN Goals, 2016). Under the 17 UN Sustainable Development Goals, the goal chosen will be the 3rd which is named good health and well-being. The problems associated with this goal chosen will be addressed. The proposed solution to these problems will also be discussed. The project description will also be detailed for better understanding of the system as well as both the advantages and disadvantages of using specific data structure to solve the problems identified (UN Goals, 2016).

2. Problem Description

The most common problems associated with this goal are sicknesses from the various foods ingested, not exercising, not taking precautions as well as using illegal substances (UN Goals, 2016). It has also been found that many problems are caused by what we intake which makes us sick, things we should and should not do to maintain our good health and well-being. Substance abuse can pose threats to our health which can end up ruining our well-being, not exercising can also play a role in ruining our good health, lack or shortage of water in our body can also trigger our health (UN Goals, 2016).

Furthermore, the lack or shortage of fruits and vegetables in our body can also lead to sicknesses due to shortage of nutrients needed to keep the body healthy. Sometimes the reasons can be due to lack of employment which means one will not be able to afford buying basic needs to maintain lifestyle and mostly regular visits to the nearest hospital or clinic for checkups. To solve the above mentioned, a system is proposed as discussed on the next section (UN Goals, 2016).

3. Proposed Solution

To solve problems associated with this goal, a system will be built which will ask a series of questions to the user based on how they live their daily life and then the system will be able to gather answers and evaluate them then finally be able to provide feedback to the user suggesting on how they can change for a better health and well-being. The system will have a Graphical User Interface that will contain questions and the user will simply click on a yes or no to each specific question and then he/she will be given the feedback by the system. The description of the system is discussed on the next section.

4. Project Description

The system will be using a Graph Abstract Data Structure as a basic functionality and within the graph are the vertices and edges (Goodrich, 2015). The graph will be implemented using Adjacency Map for this system and this is because the edges related to each vertex should be tracked. As part of auxiliary operations, the graph will also use data structures such as Array List to store all the answers provided by the user and another one to store the edges connecting the vertices. Each of the following (3.1 to 3.3) will be implemented in its own class to maintain abstraction (Samata, 2004).

4.1. Graph

This will be the abstract data type that will perform the basic functionality of the system. It will connect the vertices and edges. Once the system starts, it will be populated by the vertices(questions) as well as the edges (for feedback). The graph is undirected (Goodrich, 2015).

4.2. Vertex

Vertex will have its own name (question) and will use an Array List to store the edges or friends connected to it. It will be a part of the graph.

4.3. Edge

Edge will contain the two (2) vertices it connects and the length between these vertices. Depending on what the length is between the vertices, it will return the smallest length (or distance from vertex one to vertex two) based on the two vertices it connects. These are undirected since direction will be a two way.

4.4. Graphical User Interface

The Graphical User Interface will be populated by the vertices (questions) when the user selects a "new assessment" to start answering the questions. The user will answer one question at a time by simply clicking a yes or no on the confirm dialog that will pop up after selecting new assessment. As the user answer the questions, the graph's edges (already added) will be ready to provide feedback based on the answers provided by the user.

After answering each question, the user will only have two options, its either submit the questions to continue or exit the application. The interface will then display feedback after the user had clicked on submit button and will give the user an opportunity to either start a new assessment or exit the system. [Please see the appendix for visual representations of the above explained].

5. Advantages and Disadvantages

5.1. Advantages of graph abstract data type
- Graph allow relationships between vertices (questions)
- Easily connected by edges which store two vertices and cost between them
- Make it easier to find shortest path from one vertex to another
- Easily implemented using array or list dictionary data structures

5.2. Disadvantages of graph abstract data type
- Some algorithms are hard to implement using a graph
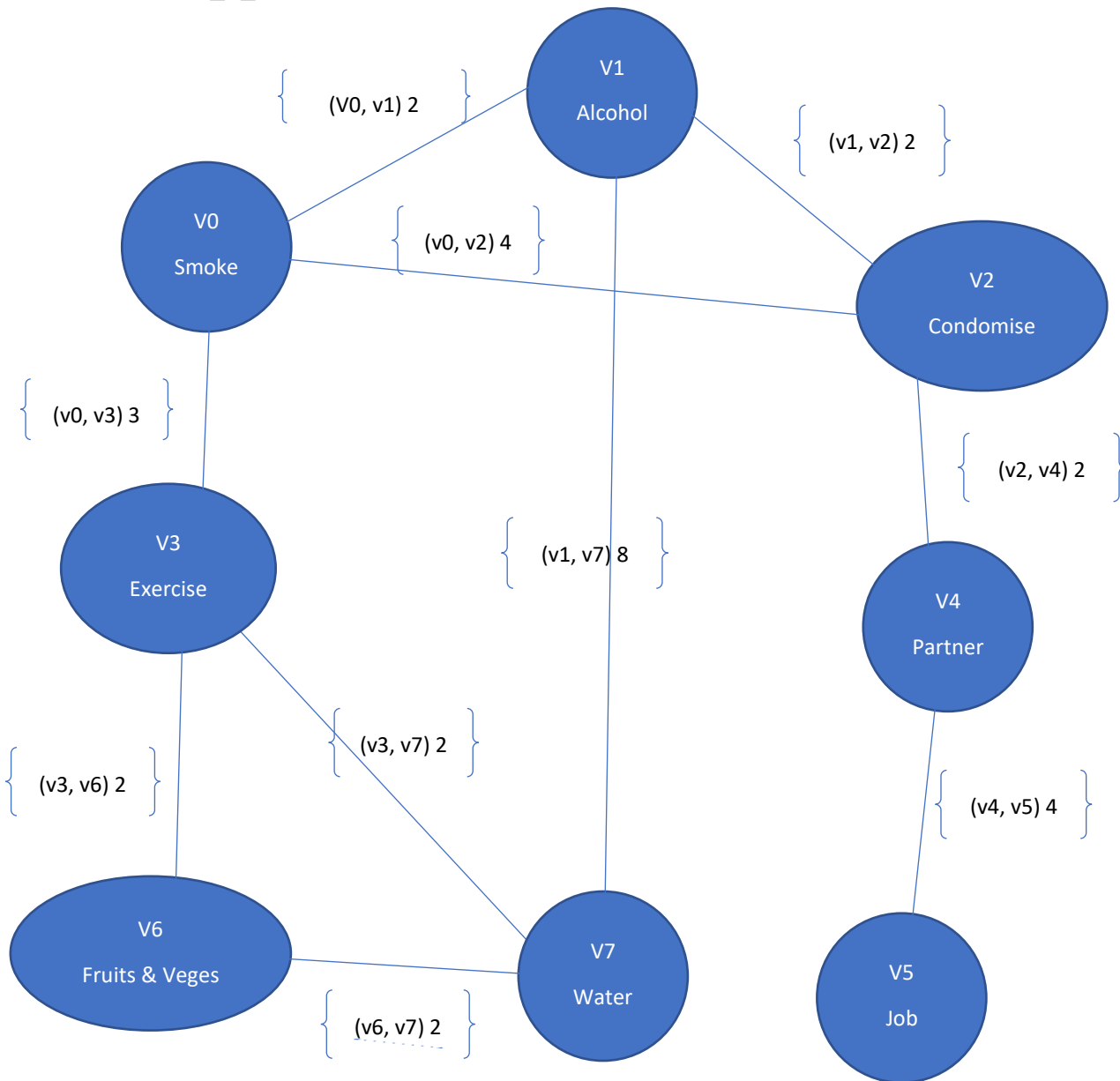- Memory usage is high when implementing a graph using some data structures

6.Conclusion

The theme of this project was focused on addressing one of the seventeen UN sustainable development goals. The goal chosen is Good health and Well-being. The approach used to solve the problems discussed in this goal is appropriate because the only way to solve a problem is by diagnosing it to understand the full picture, so the approach does it in a way of evaluating the user so that information about the user's health status is gathered and processed to provide a specific and relevant feedback.

The system will have come up with a way on how humans can maintain or improve their health and well-being by asking a series of questions and then suggest a way on how the user can better their health and well-being and by this the system would have tried to solve problems associated with good health and well-being in most areas of life. So, these support the idea that the system used a best approach to solve the problem and therefore it is fair enough to say it is well designed.
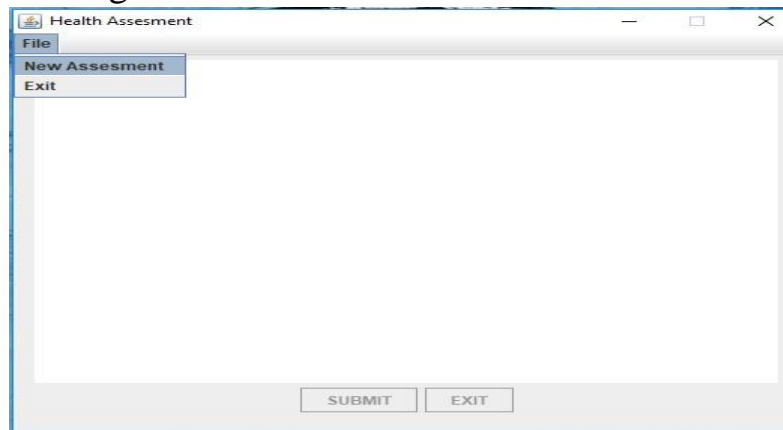
7. Appendix

V1 Alcohol

{ (V0, v1) 2 }

{ (v1, v2) 2 }

V0 Smoke

{ (v0, v2) 4 }

V2 Condomise

{ (v0, v3) 3 }

{ (v2, v4) 2 }

V3 Exercise

{ (v1, v7) 8 }

V4 Partner

{ (v3, v7) 2 }

{ (v3, v6) 2 }

{ (v4, v5) 4 }

V6 Fruits & Veges

V7 Water

V5 Job

{ (v6, v7) 2 }

7.1.

Graph ADT
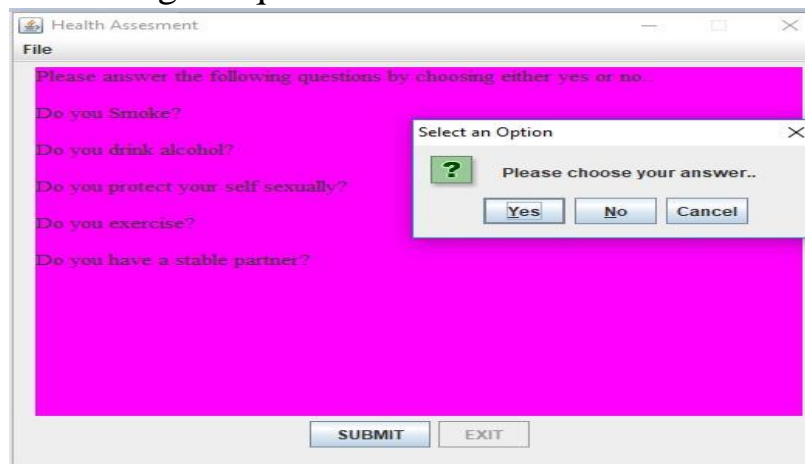
Key:

Relationship	————
Edge with two vertices and length	{ }
Vertex number and its name	⬭

7.2. GUI
7.2.1. Starting an assessment

7.2.2. Answering the questions

7.2.3. Feedback from the graph