CAPSTONE PROJECT 2

INTERNATIONAL SCHOOL

GreenBig5 Information System
GB5

Mentor: Doctor. Habil. Binh, Nguyen Thanh
Group: C2SE.32

- Loc, Nguyen Tien
- Chung, Hoang Bao
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- Kha, Ngo Van

Da Nang, 2-June-2022

SIGNATURE PAGE

Name	Signature	Date
Binh, Nguyen Thanh		**15/05 /2022**

PROJECT INFORMATION

Project acronym	GB5			
Project Title	GreenBig5			
Start Date	01 March 2022	**End Date**		16 May 2022
Lead Institution	International School, Duy Tan University			
Project Mentor	Doctor. Habil. Binh, Thanh Nguyen			
Scrum master / Project Leader & contact details	Loc, Tien Nguyen nguyentienloc18122000@gmail.com StudentID: 24211202217			
Partner Organisation	N/A			
Project Web URL	N/A			
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DUY TÂN UNIVERSITY

International School

CAPSTONE PROJECT 2

CMU-SE-451

Proposal Document

v 1.0

Green Big5 Information System

Submitted by

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Name	Signature	Date
Nguyen Thanh Binh		18.02.2022

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REVISION HISTORY

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1.0	15- Feb - 2022	Initiate proposal	Chung, Hoang Bao	X

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1. Introduction

1.1 Propose of this document

- Define the business need and problem in detail.
- Provide solutions for business needs.
- Provide an overview of the resources, schedule, solution, and budget for the project.

The proposal merely introduces the project to the student development teams and provides the up-front information necessary for the team to develop a specification.

1.2 Background

1.2.a Environmental state

Nowadays, the environmental problem is the most concerning problem not only in Viet Nam but the World as well [11]. This problem is the main cause of human development as well as civilization. For example, air pollution from the factory's emissions is one of the main reasons for many dermatological diseases, or the biggest destruction from air pollution is the ozone layer that was punctured the first time on September 9th, 2000, and it has been punctured a lot since then [9]. There is increasing awareness of the subject of environmentalism around the world. According to research in the United States, public awareness of climate change has increased in the last decade [14]. Almost 97% of people are aware of global warming and environmental problems [15]. According to Gifford (2008) [13], climate change is affecting many people and places with global warming, pollution, and severe weather patterns; this trend will continue unless changes are made to protect the environment [10].

1.2.b Big5 model

Big5 model, known as O.C.E.A.N model [8], is a psychological model researched and developed by many scientists around the world. Five factors of the Big5 model are: Openness to knowledge/ experience (O), conscientiousness (C), extraversion (E), agreeableness, and neuroticism (N) as illustrated in figure 1-1 [6, 8,10]. This model is believed that each personality has five factors(Big5 traits) and it determines the expression level of each of these factors [8] . The big5 models of personality traits have shown to be reliable in predicting many areas of a person's life [10]. For example, positive and negative affect, life and marital satisfaction, career achievement, and life span are correlated with big five traits [8].

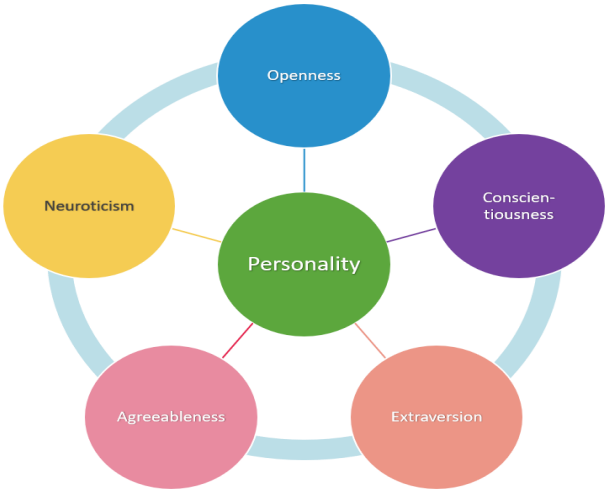

Figure 1-1.4: Big five personality model

1.2.c Big5 trait and environment impact

According to [10], Big5 personality traits and environment have an engagement. Following a study, they found

that there is a positive correlation between environmental concern and the personality traits of agreeableness and openness. They also found the traits of neuroticism and conscientiousness to be correlated, but not as strongly. In this study, they determined if concern and attitudes were also related to performing pro-environmental behaviours. The purpose of this study was to explore if there was a positive relationship between one or more personality traits of the big five and proenvironmental attitudes and behaviours [6].

From [6], we started our GreenBig5 (GB5) project to collect user personality traits, from that to find their effect on the environment and have solutions for each type of Big5 personality trait. This could help the government and the enterprise know about their customers and have a strategy for them to reduce their harmful effect on the environment [6,10].

1.3 Project goal

The aim of this project is to build a GreenBig 5 information system (GB5), i.e., GB5 App, database and GB5 Dashboard:

- GB5 Dashboard: Support for create question packages which used to direct the user follow the environment theme. With each question, users can be distributed by Indicator (2). Finally, by using a prediction method to predict the user's personality traits (3) and predicts linkings between big5 traits and environmental impacts.

Implemented through 3 steps:

1. Expert models: expert users use the dashboard to specify the linkings between big traits -facets and environmental keywords structured in tree formats.
2. Questions are defined and generated based on the expert model (1).
3. Predict and verify expert model by using answer results of (2), Based on that. we can verify if the expert model is apllied for which group(s) of users.

- GB5 App (Update): GB5 Application receives user activity data by listening to the event, the state, of the system emitted through Intent so that the system can find out the user’s location based.

As a result, government authorities, enterprises, as well as users would have an overview of the environment and have a better solution to change user behaviour and to reduce and prevent it from the bad effect.

2. Problem Definition

2.1 Non-functional requirement

Below is the non-functional requirement that are being offered for this system:

- **Security**: Users can use the system without the fear of revealing personal information.
- **Usability**: with a friendly and flexible user-interface, users can have a great experience when using the system.
- **Portability and compatibility:** The system is operated on the Fullter framework and can run on any Operating system such as Android or IOS.

2.2 Functional requirement

Below is the functional requirement that are being offered for this system, which are the main purpose of this project:

- GB5 App
  - Login/Sign in: Users can login to the BG5 Application to use it if they already have an account, or they can register if they don’t.
  - View the question: Users can see the question in the BG5 Application.
  - Answer the question: Users can answer the question in the application.

    - Collect user datalog: Based on user activity log, system can predict user's personality data in a specific view.
- GB5 data management system
    - Store user information.
    - Store Big5 indicator, so that the Model can receive to predict Big5 traits.
    - Store user's Answer.
    - Interact with the GB5 App to show the question.
    - Send the big5 questions based on the big5 scenario [**].
    - Show data into a dashboard to manage the data.
- GB5 Dashboard
    - Visualise User trait data, sent question
    - Visualise User trait point
    - Send question to user setted by Big5 Scenario [**].
    - Store question, Big5 Indicator [*].
    - Automatically generate questions through an AI model.
    - Create flow for Big5-Env keyword.
    - Predict the generated flow true of false through an AI model.
- AI Model
    - Generate questions by Big5-Env keyword.
    - Predict the generated flow true of false.

2.3 Some definition in this project

In this project, you would see some strange words or theoretical definitions, this could explain briefly about them:

Big5 indicator [*]

The Big5 indicators are the characteristics, a sign of presence or absence of one or many Big5 traits.
As we know, Big5 divides into 5 different traits (O.C.E.A.N) [6,7,8,10]. Based on that, the Big5 indicator will be retrieved and calculated from these traits. Some examples of the big5 indicator are:

- Logic game: Calculated when the users answer the question about their hobbit with the logical game.
- Do something during an argument or business: Calculated when users answer the question about their behaviour when they have a fight or an argument.
- Detail-oriented: Calculated when users answer the question about the behaviour of their daily life/work.

By using the Big5 indicator, we can calculate the Big5 trait of the user based on their answer on the GB5 Application. This support will set-up a dataset for machine learning.

Big5 Scenario [**]

The Big5 scenario provided a questions/answers route for the GB5 Application based on many types of users such as: the new user, the user who has been using the Application, ... Not only that, but this set-up rule also sends the question to a specific user's group. This would help the system have a specific for classifile user personality trait.

Pro-Environmental behaviours: Behaviours that are aimed at reducing climate change or consequences of climate change (Gifford, 2008).[6]

Pro-Environmental concern: Values, attitudes, and beliefs that a person has that leads them to be ecologically conscientious (Jimenez-Sanchez, & Lafuente, 2008). There is also a belief that all people have a relationship with the environment (Jimenez-Sanchez & Lafuente, 2008). Often these attitudes will lead to behaviours or actions to protect the environment. The terms concern and attitude may be used interchangeably.[6]

3. Current Status of Art

Some research has been made to find the connection between the Big-five personality trait and environmental

behaviour:
[6] is research created by Tara Rae Wuertz from Walden University, Minneapolis, Minnesota. USA in 2015. By surveying the student, they have found the correlation with a person's pro-environmental behaviour and the big5 personality traits. [https://www.proquest.com/openview/f425c164f6b1921a0de75c9ef707de98/1?pq-origsite=gscholar&cbl=18750]
[7] is a project operated by Doctor. Habil. Binh, Thanh Nguyen and partners to find the user's personality trait by using their mobile log data. [https://link.springer.com/chapter/10.1007/978-981-32-9186-7_25].
[8] is a website to find user's big-five traits by using a specific survey call - big5 survey. This also has a lot of research about the big-five, and the big-five's usability [https://bigfive.vn/].
It can be seen that Big-five personality traits have been used in many different ways such as finding jobs, directing users to use suitable services…. But now, we are facing the consequences of what we do to the environment. By using Big5 personality traits this would help the government and the enterprise and any organisation who has an interest in the environment problem.
Although Big5 models have been applied in many software products to help people in making decisions, there wasn't any help in making decisions to protect the environment [6,10]. This is the reason we built this system called Big Green 5 (GB5), which includes a BigGreen Application to collect user data, the BigGreen Dashboard to generate the question and calculation to predict the personality of the user based on the answer and the indicator. With the BigGreen system - the first system to help governments and organisations in protecting the environment in the market, we can find out the user's personality, after that we find the impact of the user to the environment to have a better solution to limit bad effects to the environment.

4. Engineering Approach (including solution alternatives)

4.1 System Architecture

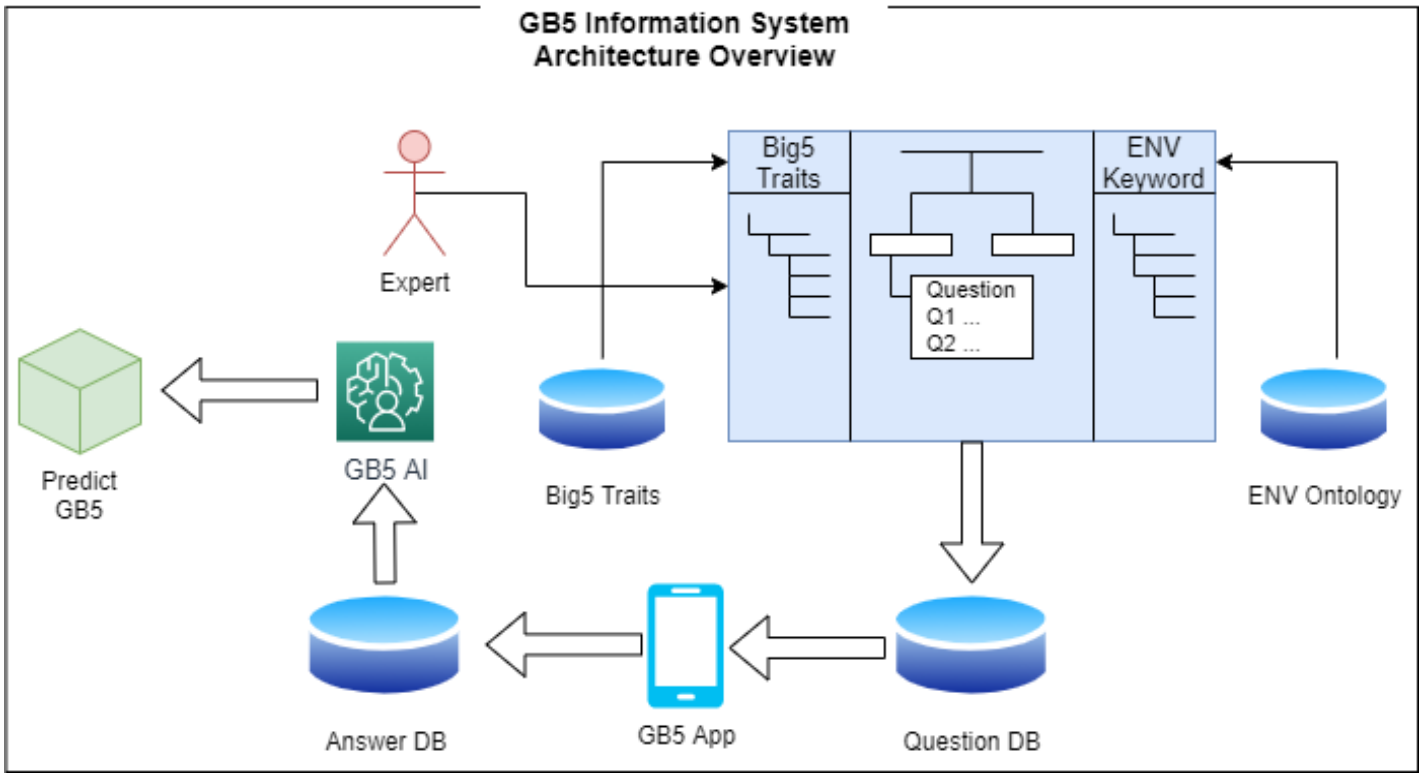

Figure 1-4.1: *System Architecture Overview of GreenBig5 System*

In this system, GB5 App is used to collect user data based on answered Big-five questions, which have been stored in the database. Meanwhile, the Application will collect user activity logs based on which the system can collect

user activities to get a specific view of the user's personality.
In addition, the GB5 database will store Big5 metrics, encrypted user activity data and questions, as well as store user data and their personality traits. also stores a packet of questions about each characteristic for users, who have been using the application. Based on the big5[**] scenario, the GB5 database can send questions to the GB5 App for users to view and answer. This will help the system send questions to the user without intruding on the user's privacy.
Finally, the GB5 Dashboard allows experts to create model trees (Facet + Env keywords), which automatically generate question packs and display answer data visually. So the system will classify the user into a tempered group (O, C, E, A, N) based on the Big5 Index[*]. The system will automatically resend questions to that group according to rules from Big5 Scenario [**] and based on user activity logs collected in GB5 App using AI model. The system will re-filter the user to have a specific view of the user's personality and find the connection between the user and the environment.

4.2 System Detail

4.2.a GB5 App

- Interact with users using the system.
- Allow user to use these function:
  - Login/Sign up.
  - View the question.
  - Answer the question.
  - Logout
- Edit user information
- Interact with GB5 Database to store data.
- Collect user information: Phone number.
- Show Big-five questions for the user to answer.
- Collecting user’s location data.

4.2.b GB5 Database

- Storage user data, user personality trait, Big-five question and indicator.
- Interact with GB5 Application to send questions based on the Big-five scenario [**].
- Receive a question in the dashboard and send it to the user.

4.2.c GB5 Dashboard

- Visualise User trait data.
- Visualise User trait points.
- Generate questions through an AI model.
- Display user information.
- Send question to all users.
- Create flow for Big5-Env keyword.
- Predict the generated flow true of false through an AI model.

4.2.d AI Model

- Generate questions by Big5-Env keyword.
- Predict the generated flow true of false.

4.3 Technical to develop

Main programming language: JavaScript, Dart, Python

4.3.a GB5 Application:

- Programming Language: Dart, Flutter.
- Tool: Android studio.

4.3.b GB5 Database:

- Programming Language: NodeJs
- Database: MongoDB
- Tool: Visual studio code.

4.3.c GB5 Dashboard:

- Programming Language: NodeJs, Python, ReactJs
- Tool: Visual studio code.

4.3.d AI Model:

- Programming Language: Python
- Tool: Visual studio code.

4.3.e Communication, Management, Design tool

- Communication: Skype, Mail, Slack.
- Management: Github, Trello.
- Design: Figma, Draw.io

5. Tasks and Deliverables

5.1 Tasks

Task Number	Task title
1	Prepapreration.
2	Maintenance of the previous version of the system.
3	Research AI.
4	Build an AI model to generate Big5 questions.
5	Build an AI model to classify users' personality and send questions to classified users.
6	Build collects user activity data function.
7	Build UI for Dashboard.
8	Update physical database.
9	Update database.
10	Develop collect user activity data function.
11	Test generates question AI model.

12	Tests classify user's personality AI model.
13	Integration new function and AI model
14	Release

Table 5.1: Tasks

5.2 Deliverables

No	Active(s)	Deliverables
1	Project proposal	Project proposal document v1.0
2	Project Plan	Project plan document v1.0
3	Product backlog	Product backlog document v1.0
4	Architecture Document	Architecture Document v1.0
5	Database Design	Database Design Document v1.0
6	Interface Design	Interface Design Document v1.0
7	Test plan	Test plan document v1.0
8	Test case	Test case document v1.0
9	Acceptance Criteria	Acceptance criteria v1.0
10	Sprint backlog & Burndown Chart	Sprint backlog & Burndown Chart v1.0
11	Team Reflection	Team reflection v1.0
12	Technology stack	Technology stack document v1.0
13	Description of requirement	Description of requirement v1.0

Table 5.2: Deliverables

6. Project Management

6.1 Human resources

Full name	Phone	Email	Position
Binh, Thanh Nguyen	0905 881 881	binh.iiasa@gmail.com	Mentor, Stakeholder

Vinh, Quang Do	0937519169	doquangvinh0708co@gmail.com	Full-stack Developer
Chung, Bao Hoang	0889 192 932	baochunga1@gmail.com	AI Developer
Loc, Tien Nguyen	0932478789	nguyentienloc18122000@gmail.com	Back-end Database,Application developer
Kha, Van Ngo	0935950384	ngokha437@gmail.com	Back-end Developer, Application developer

Table 6.1: *Human Resource*

6.2 Cost/Budget for Project

Sprint	Duration(hour)	Cost ($)
1	$376	$752
2	$356	$712
3	$387	$774
4	$498	$1996
Total	**1617**	**$4234**

Table 6.2: *Cost/Budget for Project*

6.3 Tentative Schedule

No	Task name	Duration	Start	Finish
1	**Pre-study**	**8 days**	**15-Feb-2022**	**04-March-2022**

1.1	Gathering requirement	2 days	15-Feb-2022	17-March-2022
1.2	Create proposal document	1 days	17-Feb-2022	18-Feb-2022
1.3	Project Kick-off Meeting	1 days	18-Feb-2022	19-Feb-2022
1.4	Submit proposal	3 days	19-Feb-2022	22-Feb-2022
1.5	Present proposal	1 days	22-Feb-2022	23-Feb-2022
2	**Development**	**84 days**	**23-Feb-2022**	**12-May-2022**
2.1	Sprint 1	28 days	23-March-2022	16-March-2022
2.2	Sprint 2	28 days	16-March-2022	06-Apr-2022
2.3	Sprint 3	28 days	06-Apr-2022	27-Apr-2022
2.4	Sprint 4	21 days	27-Apr-2022	11-May-2022
3	**Retrospective**	**1 days**	**12-May-2022**	**13-May-2022**
4	**Final Release**	**3 days**	**14-May-2022**	**18-May-2022**

Table 6.3: *Master plan*

6.4 About Scrum

Scrum is an agile method, so it follows the principles of Agile Manifesto (http://hanoiscrum.net/hnscrum/learning/97-manifesto). In addition, Scrum operates on three core values, also known as Scrip Scripps, including Scrutiny, Inspection and Adaptation.

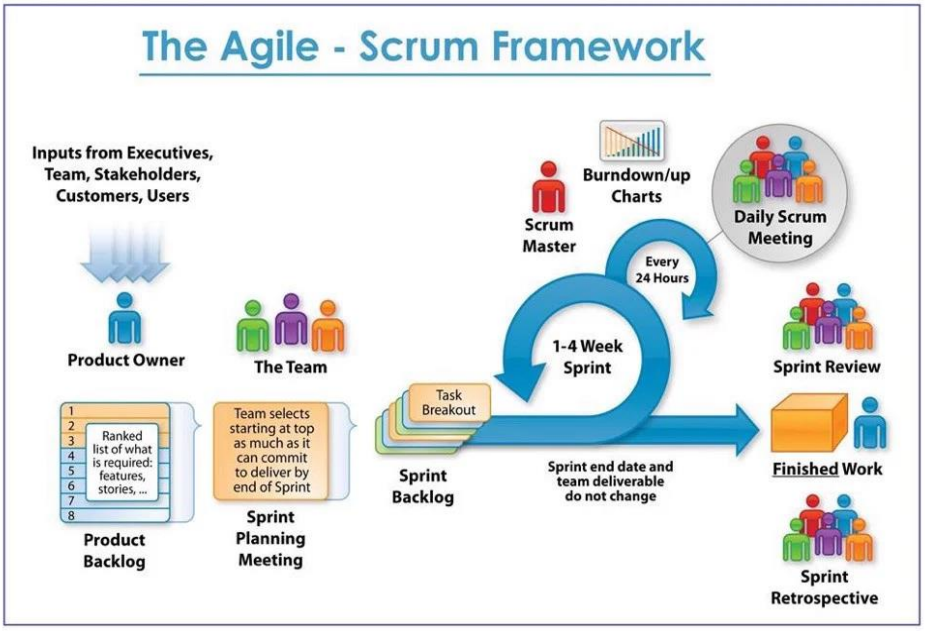

Figure1-6.3 *The Agile-scrum framework*

Based on the empirical process control theory, Scrum uses iterative and incremental algorithms to optimise efficiency and control risk. Scrum is simple, easy to learn, and has wide applicability. To be able to use Scrum, we need to understand and apply the elements that makeup Scrum include the core values (also known as the "three legs", or the three pillars of Scrum), roles, Events, and Scrum-specific artefacts.

6.5 The reason we use Scrum

- Team has 4 members
- The project will be continuously horizontally scaled up.
- There is only a short amount of time to finish the project.

So, for these reasons, we believe using Scrum as a life cycle is a good choice for this project.

7. Project Constraints

Constraint	Constraints Description	
Economic	In terms of cost, because it is a system for collecting data for classification purposes, the main problem lies in the cost of research, implementation of a fully automatic system and intelligent user interface. There is also the cost of server rental and server deployment, advertising, ...	Human resource cost: Must be around $600. Maintenance cost: Should be around $500. Operation cost: Should be under $1200 Installation costs each intersection around $1000.
Environmental	This supports organisations to reduce and have solutions to protect the environment. As well raise awareness to users about their behaviour impacting the environment.	Support for reducing bad effect of human to environment
Public health, safety, and welfare	By raising awareness about the user's personality to the environment, this could increase user health.	This is due to user activity on their device.
Social and Global	Benefit: Help organisations and governments to help people in protecting the environment. Risks: It can be affected in the user lifestyle while the government or the organisation apply solutions based on what we provide.	Addresses aspects such as benefits, risks, the man-machine interface, the acceptance of products by the intended user or by society at large, global, and socially responsible engineering.
Sustainability	It is necessary to maintain the continuous operation of the system, so that system can update user data frequently	Development and maintenance work must be ensured to take place continuously, when issues are reported, it is necessary to focus on

		maintenance immediately. Server the operation also needs to be ensured not to be interrupted.

Table 7: *Constraints*

8. Conclusion

This project will be finished in 12 weeks and divided into 4 sprints. It promises to be convenient and friendly not only for the government, but organisation also … and those environmental lovers who want to protect it. This will be a handful system for enterprises to help their customers come closer to their product without facing their impact on the environment as well as a handful tool for dealing with many types of customers. For the Government and the Environment Organisation, our system will be a good way to find a better solution to reduce and protect the environment and global warming.

9. References

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10. Attachment: DESCRIPTION OF PRODUCT REQUIREMENTS FORM

INTERNATIONAL SCHOOL

CAPSTONE PROJECT 2

GreenBig5 Information System
Project Plan

Project Code: GB5

Document Code: GB5-PPD– v2.4

Mentor: Doctor. Habil. Binh, Nguyen Thanh
Group: C2SE.32

- Loc, Nguyen Tien
- Chung, Hoang Bao
- Vinh, Do Quang
- Kha, Ngo Van

Da Nang, 20-Feb-2022

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REVIEWERS:	Loc, Nguyen Tien API developer Application developer
	Kha, Ngo Van Application Developer UI designer
	Vinh, Do Quang Full-stack Developer
MENTOR:	Binh, Thanh Nguyen Stakeholder

RECORD OF CHANGE

***A - Added M - Modified D – Deleted**

Effective Date	Changed Item	A,M, D	Reason for Change	Revision Number
1	UI for Application	M	Improve UI for register in the app	
2	Send question to all user	A		
3	Manage content	A		
4	Manage indicator	A		
5	Update physical database	A		
6	Manage GB5 scenario	A		
7	Update GB5 Scenario	M	Improve Scenario	
8	Update GB5 Question	M	Upgrade System	

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1. PROJECT OVERVIEW

1.1. Project Description

Project code	GB5	**Contract type**	Internal Project
Customer		**End-User**	
Project Type	Internal	**Project Manager/ Scrum master**	Loc, Nguyen Tien
Project Category	Development	**Business domain**	

1.2. Scope and Purpose

1.2.a Project Propose

The aim of this project is to build a GreenBig 5 information system (GB5), i.e., GB5 App, database and GB5 Dashboard:

- GB5 Dashboard: Support for create question packages which used to direct the user follow the environment theme. With each question, users can be distributed by Indicator (2). Finally, by using a prediction method to predict the user's personality traits (3) and predicts linkings between big5 traits and environmental impacts.
  Implemented through 3 steps:
  4. Expert models: expert users use the dashboard to specify the linkings between big traits -facets and environmental keywords structured in tree formats.
  5. Questions are defined and generated based on the expert model (1).
  6. Predict and verify expert model by using answer results of (2), Based on that. we can verify if the expert model is apllied for which group(s) of users.
- GB5 App (Update): GB5 Application receives user activity data by listening to the event, the state, of the system emitted through Intent so that the system can find out the user's location based.

As a result, government authorities, enterprises, as well as users would have an overview of the environment and have a better solution to change user behaviour and to reduce and prevent it from the bad effect.

1.2.b Project Scope

In this project scope, we implement these features about user data, Big5 data, Big5 indicators, Big5 question

- For the Application (GB5 Application):
  - Login/logout.
  - Sign In.
  - View question.
  - Answer question.
- For the Database (GB5 Database):
  - Storage user's information.

- Storage user's personality traits.
- Storage, Big5 Question

- For the Dashboard:
  - Visualize the user's Big5 personality traits.
  - Visualize data into a chart....
  - Create question from keywords connect big5 indicator trait
  - See the direct the user follows the environtment theme
  - Send a question to the whole user to see the flow.

Language:

- English

Duration:

- 12 weeks

1.3. Assumptions and Constraints

No	Description	Note
Assumptions		
1	The personality traits to environment concern would not be done in this phase	Scope
2	User's personality will be predicted in this phase	Propose
3	Customer reviewers will get seven days to approve a milestone document. If no comments are received within this time period, it will be considered as approved.	External Interfaces
4	The project support for Android and IOS operated system	Scope
Constraints		
1	Module A must be completed and delivered to customer before 09-Sep because customer must demo to its end user by 11-Sep	Schedule
2	The project shall conform to security requirements specified by the customer in the NDA	Security
3	The product operated in high performance and have a page load of no more 10 seconds	Quality
4	The financial estimation for the project is at a budget limit of $4234	Budget
5	The project will be implemented by a team including 4 members	Resources

1.4. Project Objectives

1.4.1. Standard Objectives

Metrics	Unit	Committed	Note
Start Date	dd-mmm-yy	01-March-22	
End Date	dd-mmm-yy	16-May-22	
Duration	days	75 days	
Team Size	4 Person (s)	4 Person (s)	
Billable Effort /	Person-day	220	
Number of work hours per day for one engineer	Person-hour	2.5	

Table 1-1.4.1: *Resources*

Metric	**Unit**	**Target SLS**			**Basic for Setting goal**
		SLS	**Average**	**USL**	
Quality					
Customer Satisfaction	Point	8	9	9.5	Refer to Gx Target in the year 2020, 10% higher than previous project (A project)
Leakage	Wdef/UCP				
Process Compliance	NC/Ob				
Cost					
Effort Efficiency	%	80	75	90	
Correction Cost	%	65	60	75	
Delivery					
Timeliness	%	90	95	75	
Requirement Completeness	%	80	70	70	

Table 2-1.4.1: *Resources*

1.4.2. Specific Objectives

- Based on the human resources with allowable time and cost, we will build a system to predict user's personality
- This information system operated with high performance and safety for the user. User security data is encrypted and stored carefully, avoiding data loss.
- The deployment system minimizes defects and good control of risks by the project team.
- Strengthen brand promotion activities and bring products to users.
- Deploying applications will be operated quarterly for quick delivery to customer.

1.5. Critical Dependencies

No	Dependency	Expected delivery date	Note
1	**GB5 Application**	25- April-2022	
2	**GB5 Database**	27-March-2022	
4	**GB5 Dashboard**	10-May-2022	

1.6. Project Risk

Risk	Description	Probability	Impact	Mitigation Strategy
Incorrect requirements	Developing the product which does not accord with the requirements	3	5	Discuss and communicate frequently with Stakeholders
Estimate working time	Actual working time is not enough to finish a task compared to the estimated previous time	1	3	Review old tasks and evaluations to estimate for the new task. Replan for each sprint.
People	Team member who is ill, has health problems, or busy	3	4	-Notify the scrum master (or ask a colleague to help) -Complete the assigned tasks when possible
Lack of technical experiences	Managing harmful content in the question is a difficult technique that all members need to research and develop.	4	5	Spend a lot of time learning and training as well creating a new standard.

Team Communication	Team members can conflict with each other while discussing	4	4	Conduct a meeting to share knowledge, experience and learning methods

2. PROJECT DEVELOPMENT APPROACH

2.1. Technical Process

2.1.1. Reasons for selecting

To follow with today's technology evolution, we want a flexible and easy model to adapt with the change. Also, our project will update new features in the near future. So, our product would become more interactive and intelligent.

Because our team has a modest number of members as well as little experience development. Therefore, we can't avoid problems that arise in the software development stages and requirements can change to be more suitable. For the traditional process require a lot of experience, skills and high accuracy

2.1.1. Agile Methodology [1]

Agile software development refers to a group of software development methodologies based on iterative development, where requirements and solutions evolve through collaboration between self-organizing cross-functional teams.

Agile software development is more than frameworks such as Scrum, Extreme Programming, or Feature-Driven Development (FDD).

Agile software development is more than practices such as pair programming, test- driven development, stand-ups, planning sessions, and sprints.

Agile software development is an umbrella term for a set of frameworks and practices based on the values and principles expressed in the Manifesto for Agile Software Development and the 12 Principles behind it. When you approach software development in a particular manner, it's generally good to live by these values and principles and use them to help figure out the right things to do given your context.

2.1.1.a. Scrum Process

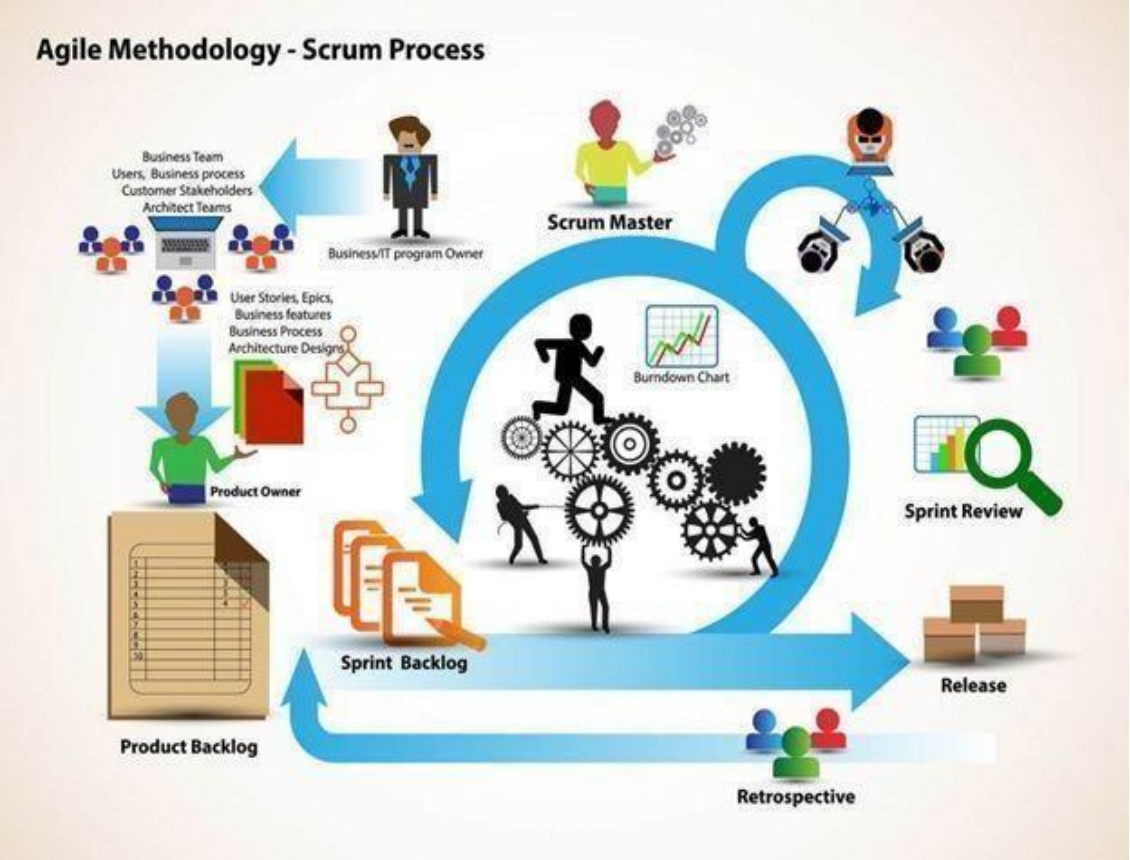


Figure 1-1.2.1.a: ***Scrum process***

About Scrum:

Scrum is a subset of Agile. It is a lightweight process framework for agile development, and the most widely-used one [1].

Scrum is most often used to manage complex software and product development, using iterative and incremental practices. Scrum significantly increases productivity and reduces time to benefits relative to classic "waterfall" processes. Scrum processes enable organizations to adjust smoothly to rapidly-changing requirements and produce a product that meets evolving business goals.

An agile Scrum process benefits the organization by helping it to

+ Increase the quality of the deliverables
+ Cope better with change (and expect the changes)
+ Provide better estimates while spending less time creating them
+ Be more in control of the project schedule and state.

2.2. Quality Management

2.2.1. Estimates of Defects to be detected

Pre-release review defects

Process	Planned found by review	Actual found by review
Requirement	90	
<Work product>		
Design	80	
<Work product>		
Coding	100	
<Work product>		
Other	45	
<Work product>		
Total	**315**	

Table 1-2.1.1: ***Pre-release review defects***

Pre-release test defects

Process	Planned found by review	Actual found by testing
Requirement	40	
<Work product>		
Design	35	
<Work product>		
Coding	150	

<Work product>		
Other	15	
<Work product>		
Total	**240**	

Table 1-2.1.1: ***Pre-release test defect***

2.2.2. Strategy for Meeting Quality Objectives

Strategy	Expected Benefits
Do defect prevention using the standarddefect prevention guidelines and process; use standards developed in Flutter/ Python for coding.	10–20% reduction in defect injection rate and about 2% improvement in productivity
Group review of program specs for first few/logically complex use cases. Group review of design docs/first time-generated code by project	Improvement in quality as overall defect removal efficiency will improve; some benefits in productivity as defects will be detected early
leader, developer, and one consultant.	
Introduction of RUP methodology and implementing the project in iterations. Milestone analysis and defect prevention exercise will be done after each Iteration.	Approximately 5% reduction in defect injection rate and 1% improvement in overall productivity

2.2.3. Quality Control

Review Item	Type of Review	Reviewer	When
Proposal	Group review	Binh, Thanh Nguyen	Initial
Project plan Project schedule CM Plan	Group review	Binh, Thanh Nguyen Loc, Tien Nguyen Chung, Bao Hoang Kha, Ngo Van Vinh,Do Quang	End of Initiation stage
Business analysis and requirements specification document, Use Case catalog	Group review	Loc, Nguyen Tien Chung, Hoang Bao Kha, Ngo Van Vinh, Do Quang	End of 70% requirement
Design document, object model	Group review	Loc, Tien Nguyen Chung, Bao Hoang Kha, Ngo Van Vinh, Do Quang	End of 90% design
Stage plans	One-person review	Binh, Thanh Nguyen	Beginning of each stage
Complex/ first specsinl. diagrams time test Generatedcases progam interactive	Group review	Binh, Thang Nguyen Kha, Ngo Van Chung, Hoang Bao Loc, Tien Nguyen Vinh, Do Quang	End of detailed design
Code	Group review	Kha, Ngo Van Chung, Hoang Bao Loc, Tien Nguyen Vinh, Do Quang	After coding for first few programs

2.2.4. Measurements Program

Data to be collected	Purpose	Responsible	When
Size: No. of KLOC// FP	Early estimate project cost	PM/SM	At the end of stages
Effort: No. person-day	Calculate project effort for scheduling	Team members	Daily
Quality: No. defects detected	Early Evaluate Product quality and the feasibility of the project	Reviewer, Tester	Right after the review/test
Schedule	Divide work and allocate resources properly, ensure the project is complete on time and on budget	PM/SM	Weekly and at the end of stages

2.3. Unit Testing Strategy

- ***Grey Box:***
    - It is a combination of a Black Box and White Box testing. It is the type of testing in which the tester is aware of the internal functionality of a method or unit but not in a deeper level like white box testing. In this, the user is partially aware of the internal functionality of a system.
    - Write test cases before fixing the defect and independent of each other.
    - Write cases to verify behavior, also write test cases to ensure the performance of the code
    - Execute test cases continuously and frequently.
    - Using tool: Install and run Jest for writing unit test in NodeJS
- Isolation of a code – Isolate function to test it more rigorously. Isolate code to do Automated Unit Testing in a better way. Isolating functions/code helps to do testing in a good way. It helps to reveal dependencies between functions of code.

2.4. Integration Testing Strategy

- *Bottom-up Strategy:*
    - The components below are first written and these are integrated first. The integration happens from bottom to top. If the calling component is yet to be developed, it is replaced by a specially written component called a Drive
    - When we finish each product backlog, we test it out before we finish.

- *Bigbang Strategy:*
    - All components are put together at the same time, there is no order, except all are integrated at the same time.
    - Towards the end of the project, we started to apply this tactic to test the entire application.

2.5. System Testing Strategy

- *Automation strategy:*
    - Automation Testing or Test Automation is a software testing technique that performs using special automated testing software tools to execute a test case suite.
    - The automation testing software can also enter test data into the System Under Test, compare expected and actual results and generate detailed test reports. Software Test Automation demands considerable investments of money and resources.
    - Testing tools: Katalon Studio, Appium.
- *Customer testing (Beta testing) strategy:*

- Beta testing is a type of user acceptance testing where the product team gives a nearly finished product to a group of target users to evaluate product performance in the real world.
- We are rolling out a beta app on the Google Store early on for testing. After that, we gathered all the feedback and improved our system.

3. ESTIMATION

3.1. Size

Total number of FP: 68

Software Scale Drivers	
Precedentedness	***Nominal***
Development Flexibility	***Nominal***
Architecture / Risk Resolution	***Nominal***
Team Cohesion	***Very High***
Process Maturity	***Nominal***

The Size estimation is documented in Page 18-19

Software Cost Drivers			
Product		**Personnel**	
Required Software Reliability	***Nominal***	**Analyst Capability**	***High***
Database Size	***Nominal***	**Programmer Capability**	***High***
Product Complexity	***Nominal***	**Personnel Continuity**	***Nominal***
Developed for Reusability	***High***	**Application Experience**	***High***
Documentation Match to Lifecycle Needs	***Nominal***	**Platform Experience**	***High***
		Language and Toolset Experience	***High***
Project		**Platform**	

Use of Software Tools	***High***	**Time Constraint**	***Nominal***
Development	***Nominal***	**Storage Constraint**	***Nominal***
Required Development Schedule	***Nominal***	**Platform Volatility**	***Nominal***

Software Development (Elaboration and Construction)

Effort = 9.6 Person-months
Schedule = 7.7 Months Cost
= $2873
Total Equivalent Size = 5440 SLOC Effort
Adjustment Factor (EAF) = 0.52

Acquisition Phase Distribution

Phase	Effort (Person-months)	Schedule (Months)	Average Staff	Cost (Dollars)
Inception	0.6	1.0	0.6	$172
Elaboration	2.3	2.9	0.8	$690
Construction	7.3	4.8	1.5	$2184
Transition	1.1	1.0	1.2	$345

3.2. Effort

The Effort estimation is documented in page 19-20

Activity/Process	Total budgeted Effort Usage (pd)	Total % budgeted Effort Usage (%)	<Stage 1/ Sprint 1>		<Stage 2/ Sprint 2>		<Stage 3 / sprint 3>		<Stage 4/ sprint 4>	
			No	%	No	%	No	%	No	%
Requirement	25	10.5	8	21	4	10	3	7	2	5.9
Design	11	5	3	7.9	2	5.3	2	5	2	5.9
Coding	100	40	10	26	1	36	1	45	1	47.1
Unit testing	11	5	0	0	2	5.3	3	7	2	5.9
Testing	22	10	3	7.9	4	10	4	10	4	11.8
Deployment	11	5	0	0	2	5.3	2	5	2	5.9
Support for Acceptance Test	10	4.1	0	0	2	5.3	1	2	1	2.9
Project Planning	9	4.1	4	10	1	2.6	1	2	1	2.9
Project monitoring	14	6.4	3	7.9	2	5.3	3	7	2	5.9
Quality Assurance	14	6.4	2	5.3	2	5.3	3	7	2	5.9
Trainning	8	3.6	5	13	3	7.9	0	0	0	0
Total	**235**	**100.1**	**38**	**99**	**23**	**98.3**	**23**	**97**	**19**	**100.1**

3.3. Schedule

3.3.1. Project Milestone & Deliverables

1. Deployment GB5 Scenario
2. Deployment Application
3. Deployment Database
4. Deployment Dashboard

3.3.2. Work Breakdown Structure

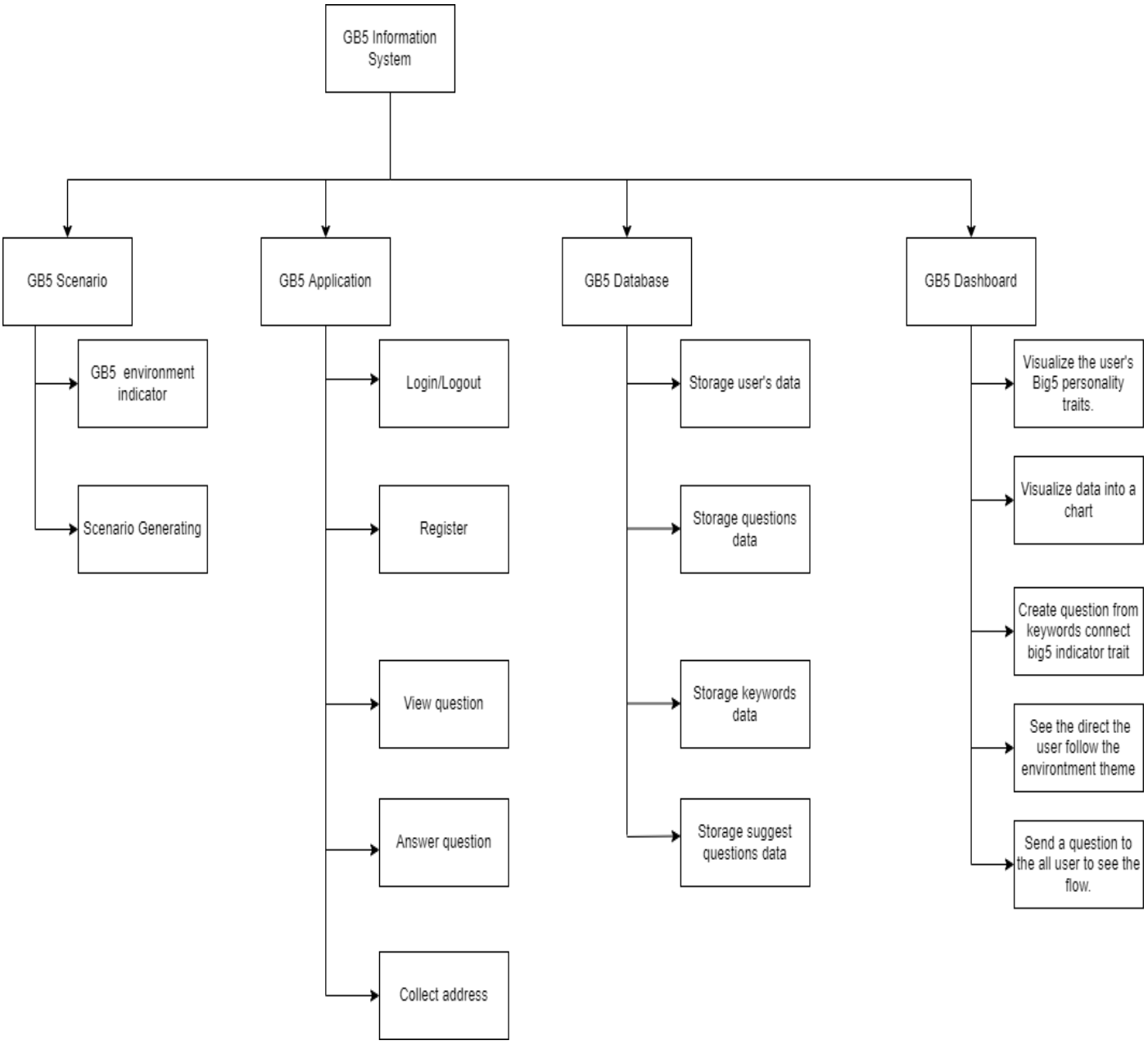


Table 3.3.2: *WBS*

3.3.3. Detailed Schedule

WBS	Task	Duration(s)	Start	End	Assign to
1	**Initial**	**7**	**15Aug 2022**	**22 Aug 2022**	**Team, Mentor**
1.1	Project's Kick-off Meeting	**1**	**18 Feb 2022**	**19 Feb 2022**	**Team, Mentor**
1.2	Collect and analyse requirements	**4**	**19 Feb 2022**	**23 Feb 2022**	**Team, Mentor**
1.3	Setup Development Environment	**1**	**24 Feb 2022**	**24 Feb 2022**	**Team, Mentor**
2	**Develop**	**75**	**1 March 2022**	**16 May 2022**	**Team**
2.1	**Sprint 1**	**33**	**1 March 2022**	**4 April 2022**	**Team**
1	Research big5 model				**Team**
2	Research technical, source code,doc of project				**Team**
3	Research create question from keywords				**Team**
4	Research model use for AI				**Team**
2.2	**Sprint 2**	**19**	**4 April 2022**	**23 April 2022**	**Team**
1	Create model AI for create question and predict big5 trait				**Team**

2	Update register page in app				**Team**
3	Collect address of user.				**Team**
2.3	**Sprint 3**	**13**	**23 April 2022**	**6 May 2022**	**Team**
1	Create API for function python				**Team**
2	Connect keywords and big5 indicator trait become a tree				**Team**
2.4	**Sprint 4**	**10**	**6 May 2022**	**16 May 2022**	**Team**
1	Create question from keywords connect big5 indicator trait				**Team**
2	Save or send question				**Team**
3	Notification flow of model AI and the staus of question				**Team**

3.3.4. Project Schedule

The detailed project schedule is available here The Project Schedule is weekly updated by the Project Manager.

No.	Activity	Start date	Responsible	Note
Defect Prevention				
	Task 1			
	Task 2			
Quality Control				
	Review: Work App	**5-March-2022**	**All Member**	

	Review: Work App	**23-April-2022**	**All Member**	
	Review: Work Dashboard	**6-May-2022**	**All Member**	
Project Tracking				
	< GB5 Scenario> milestone review meeting	**4-March-2022**	**All Member**	
	<GB5 Application> milestone review meeting	**24-April-2022**	**All Member**	
	<GB5 Dashboard> milestone review meeting	**03-May-2022**	**All Member**	

3.4. Infrastructure

Work/Product	**Purpose**	**Expected Availability by**	***Note***
Development Environment			
NT Server	Operating System	Initiation stage	
IOS	Operating System		
Android	Operating System	Initiation stage	
Database	MongoDB	Initiation stage	
Flutter	Development language for Application	Initiation stage	
Python	Development language for AI model	Initiation stage	
NodeJS	Development Environment	Initiation stage	
Hardware & Software			

1GB space on server	Installation package	Initiation stage	
Pycharm	Development	Initiation stage	
Android Studio	Development	Initiation stage	
MongoDB	Database	Initiation stage	
Rational Rose	Design	Initiation stage	
Other Tools			
CVS	Source version control	Definition stage	
Nunit	Unit Test	Construction stage	
DMS	Defect logging and tracking	Definition stage	
Timesheet	Effort logging	Initiation stage	
FI	Project management tool	Initiation stage	
MS Project	Task tracking	Initiation stage	

3.5. Training Plan

Training Area	Participants	When, Duration	Waiver Criteria
Technical			
Python Language		17 days	If already trained
Flutter Framework		8 days	If already trained
Process			
Quality system		3 hrs	Mandatory

Configuration management		2 hrs	If already trained for CC. For others, on-the- job training
Group review		4 hrs	If already trained
Defect prevention		4.5 hrs	Mandatory
SPC tool		4.5 hrs	If already trained
RUP methodology		2 hrs	Mandatory

4. PROJECT ORGANIZATION

4.1. Organization Structure

Scrum Master	• Communicate the value of Scrum • Teach the organization on Scrum to maximize business value • Preserve the integrity and spirit of the Scrum framework • Serve as a coach and mentor to members of the Team • Respectfully hold the Team, Product Owner and Stakeholders accountable for their commitments • Continually work with the Team and business to find and implement improvements • As a timekeeper • Helping the team agree on what they can achieve during each development sprint (or other period of time). • Facilitating the daily standup (sometimes called the daily scrum) and helping the team reach consensus on each of the three questions. • Helping the team continuously make progress on the project by making sure each person is working on the right tasks, helping to remove any obstacles to the team members' progress, and protecting the team from distractions.	Loc, Nguyen Tien

Product Owner	• A spokesperson for the customer and needs to represent them • Gathers, manages, and prioritizes the product backlog. • Has technical product knowledge or specific domain expertise. • Tracks progress towards the release of a product.	Loc, Nguyen Tien
Developer	• Responsible for quality • Responsible for delivering the potentially shippable product of the Application each sprint • Report progress based on the remaining time • Self-organized • Owns the Sprint backlog	All members
Mentor	• Guide on the process. • Monitoring all activities of the Team. • Help with anything. • Reviews project documents • Reviews product	Binh, Nguyen Thanh

4.2. Project Team

Full Name	Position
Binh, Nguyen Thanh	Mentor
Loc, Nguyen Tien	Scrum Master, Dev-team
Chung, Hoang Bao	Product Owner, Dev-team
Do, Quang Vinh	Dev-team
Kha, Ngo Van	Dev-team

5. COMMUNICATION & REPORTING

Communication Type	Method / Tool	When	Information	Particiants / Responsible
Project Task Tracking				
Task scheduling	MS Project Trello	At the beginning of every stage, and weekly. Refinement and rescheduling as necessary		Project Mgr(s)
Task assignment	In Excel file and via project weekly meeting	Weekly		Poject leader technical
Project Meeting				
Kick-off Meeting	Face to face Googe meet Slack	Initiation stage	Project introduction; Project plan review; Risk identification; Obtainment of commitent Of relavant stakeholders	Project Mgr(s), Project Senior Manager, Project Team Members, QA
Project Progress Review Meetings	Face to face Googe meet Slack	Weekly	Communicate project status Communicate and resolve any open issue, risks, and changes Discuss any suggested improvement	Project Mgr(s), Project Team Members

Milestone Meetings	Face to face Googe meet Slack	Before milestones	Projectobjective review,evaluate project performance (quality, schedule,effort),Causal analysis,update project plan for next stage	Project Mgr(s), Project Senior Manager, Project Team Members, QA

Communication Type	Method / Tool	When	Information	Participants/ Responsible
Project Post-mortem Meeting	Face to face Google meet Slack	Termination stage	Wrap-up Evaluate project performance; Team performance; share experiences	Project Mgr(s), Project Senior Manager, Project Team Members, QA
Transfer/Sharing of project documentation/information	Google Drive Google meet	When available	All project documentation and information	Project,Mgr(s) Project,Team Members, QA
Customer Communication and Reporting:				
Project Report	Agreed standard format between company and customer	<5pm Monday, Weekly>	Project status report, Issue requiring clarifications, escalation, if any	Project Manager Sub-Project Managers
Project Meetings with customer	Teleconference /TV Meeting	<2pm Tuesday, Weekly>	As above	Project Manager

Requiremet gathering/clarification	Face to face Meeting Google meet	During requirement analysis phase	As in Q&A list	Project Manager Business Analyst
Communication with Senior Management				
Review Project Plan & Project schedule	Slack	Significant changes to WO, PP and Project schedule (scope, objectives Organizatio n,HR, major milestone, deliverables)		Project Mgr
Project Progress Review	Slack	Weekly	Project status report, Issue requiring clarifications, escalation, if any	Project Mgr
Project Milestone Review	Google meet Slack	End of every stage	Project objective review, evaluate project performance (quality, schedule,effort),Causal analysis,update project plan for next stage	Project Mgr
Other Communication and Reporting:				
Raise issue or request service/support of BA groups (IT,Admin,QAHR, Training, Recruitment,etc)	Calllog. phone; Slack;	Upon request	Request content,expected completion date	Project Manager

6. CONFIGURATION MANAGEMENT

<Refer to the CM plan or insert here the contents of the CM plan as appropriated>

7. SECURITY ASPECTS

- The credential data is carefully secured by multi-layer encryption and data integrity is ensured. Regularly backup system data.
- Research on network attack prevention solutions to ensure data security, avoid being exploited and stolen data by hackers.
- Deploy project architecture with a high priority in security. Optimized architectural solutions enable the deployment of data security with 99% reliability.
- Social media, sharing and use of data must be approved by the end user and verified by the organization's management.

REFERENCES

No	Reference item	Issued Date	Source	Note
1	Agile Scrum	1-March-2022	https://www.atlassian.com/agile	
			https://www.cprime.com/resources/what-is-agile-what-is-scrum/	
			https://www.agilealliance.org/agile101/	
			The Scrum Framework by International Scrum Institute	
2	COCOMO II	1-March-2022	https://www.rose-hulman.edu/class/csse/csse372/201410/SlidePDFs/session12.pdf	
3	Software Standards	4-April-2022	https://www.nws.noaa.gov/oh/hrl/developers_docs/General_Software_Standards.pdf	
			https://standards.ieee.org/standard/12208-2017.html	
			https://sw-eng.larc.nasa.gov/	

DEFINITIONS AND ACRONYMS

Aconym	Definition
PM	**Project Manager**
PTL	**Project Technical Leader**
QA	**Quality Assurance Officer**
CC	**Infrastructure Configuration Controller**
DV	**Developer**
URD	**User Requirement Document**
SRS	**Software Requirement Specification**
ADD	**Architecture Design Document**
DDD	**Detail Design Document**
TP	**Test Plan**
TC	**Test Case**
SC	**Source Code**
CM	**Configuration Management**
CSCI	**Computer Software Configuration Items**
CI	**Configuration Item**
CCB	**Change Control Board**
GB5	**Green Big5**

International School

CAPSTONE PROJECT 2

CMU-SE-451

Product BackLog And User Story

v 1.0

Green Big5 Information System

Submitted by

Chung, Hoang Bao
Loc, Tien Nguyen
Vinh, Quang Do
Kha, Van Ngo

Approved by

Capstone Project 2 - Mentor:

Name	Signature	Date
Nguyen Thanh Binh		18.02.2022

Scrum Project	
Product	GB5
Active versions	v2.3
Team	
Scrum Master	Chung,Hoang Bao
Developers	Loc, Nguyen Tien
	Vinh, Do Quang
	Kha,Ngo Van

Product Status	
Sponsor	
Product Owner	Loc, Nguyen Tien
Project Champion	
Other Stakeholders	Doctor. Habil. Binh, Thanh Nguyen

Description	Start	End	Status	Remarks
Initial release	18/Feb/22	20/Feb/21	Complete	
Project's Kick-off Meeting	18/Feb/22	19/Feb/22	Complete	
Collect and analyse requirements	20/Feb/22	22/Feb/22	Complete	
Setup Development Environment	22/Feb/22	23/Feb/22	Complete	
Research Technical	23/Feb/22	4/Apr/22	Complete	
Develop	1/Mar/22	16/May/22		
Srpint 1	1/Mar/22	4/Apr/22	Complete	
Srpint 2	4/Apr/22	23/Apr/22	Complete	
Srpint 3	23/Apr/22	6/May/22	Complete	
Sprint 4	6/May/22	16/May/22	Complete	

Product Backlog

Id	Epics	As a..	I want to ..	so that ..
Sprint 1				
PB1.1	Research big5 personality model	Developer	Understand the project	Reseach about big5 personality model through internet or document
PB1.2	Research about the project	Developer	Understand about technical and requirement for project	Research document and technical for the project
PB1.3	Find content about keywords of environtment and big5 indicator trait	Developer	Understand about connect about big5 indicator trait and keywords of environment	Find keywords for environent and research about big5 indicator trait
PB1.4	Research model AI for create question from keyword connect big5 indicator trait,modelAI for predict big5 trait	Developer	Understand about auto create question from keywords connect big5 indicator trait,auto predict big5 trait	Reseach model AI
Sprint 2				
PB 2.1	Create model AI for create question and predict big5 trait	Developer	Create question and predict big5 trait	Create model AI
PB 2.2	Update register page in app	Developer	Update register page to concide with new major	Update code
PB 2.3	Collect address of user	Developer	Collect address of user	Create function for get address
Sprint 3				
PB 3.1	Create API for function python	As a developer	Use API python for run function(model AI) in python	Create API from python
PB 3.2	Connect keywords and big5 indicator trait become a tree	As an administrator/ Content manager	Create keywords connect big5 indicator trait become a tree	Can see relationship about keywords and big5 indicator trait
Sprint 4				
PB 4.1	Create question from keywords connect big5 indicator trait	As an administrator/ Content manager	Create the question	Can have new question
PB 4.2	Save or send question	As an administrator/ Content manager	Save or send question to all user	Can get more data for question or user
PB 4.3	Notification flow of model AI and the staus of question	As an administrator/ Content manager	See the flow of model AI for question and the status question was send	Can see the rightness

Estimate time Sprint 1

Sprint Id	Backlog Id	Task name	Total	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21	Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28	Day 29	Day 30	Day 31	Day 32	Day 33
1,1	PB1.1	[CONTENT] Research what is big5 model through document	4	2	2																															
1,2	PB1.1	[CONTENT]Research why is big5 model can relation to envieronment	2			2																														
1,3	PB1.2	[DOCUMENT]Research all doc of the project	4				2	2																												
1,4	PB1.2	[TECHNICAL]Research technical use for app	10						2	2	2	2	2																							
1,5	PB1.2	[TECHNICAL]Research technical use for website	10						2	2	2	2	2																							
1,6	PB1.2	[SOURCE]Research source code for app	8											2	2	2	2																			
1,7	PB1.2	[SOURCE]Research source code for website	6											2	2	2																				
1,8	PB1.3	[CONTENT]Research indicator of big5 trait	3															3																		
1,9	PB1.3	[CONTENT]Find keywords for environment	4																2	2																
1,10	PB1.3	[CONTENT]Research how to create question from keywords connect big5 indicator trait	4																		2	2														
1,11	PB1.3	[CONTENT] Find the paragraps from the keywords connect big5 indicator trait have mean	8																				2	2	2	2										
1,13	PB1.4	[TECHNICAL]Research model AI to predict big5 trait	10																								2	2	2	2	2					
1,14	PB1.4	[TECHNICAL]Research model AI to create question from keywords connect big5 indicator trait	10																													2	2	2	2	2
		Estimated	0	2	4	6	8	10	14	18	22	26	30	34	38	42	44	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83

Team Name:C2SE.32

Actual Time Sprint1

Sprint Id	Backlog Id	Task name	Total	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21	Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28	Day 29	Day 30	Day 31	Day 32	Day 33	Day 34	Day 35	Day 36	Day 37	Day 38	Day 39
1,1	PB1.1	[CONTENT] Research what is big5 model through document	4	2	2																																					
1,2	PB1.1	[CONTENT]Research why is big5 model can relation to envieronment	2			2																																				
1,3	PB1.2	[DOCUMENT]Research all doc of the project	4				2	2																																		
1,4	PB1.2	[TECHNICAL]Research technical use for app	14						2	2	2	2	2	2	2																											
1,5	PB1.2	[TECHNICAL]Research technical use for website	10						2	2	2	2	2																													
1,6	PB1.2	[SOURCE]Research source code for app	8													2	2	2	2																						
1,7	PB1.2	[SOURCE]Research source code for website	6											2	2	2																									
1,8	PB1.3	[CONTENT]Research indicator of big5 trait	3																	3																					
1,9	PB1.3	[CONTENT]Find keywords for environment	4																		2	2																			
1,10	PB1.3	[CONTENT]Research how to create question from keywords connect big5 indicator trait	6																				2	2	2																
1,11	PB1.3	[CONTENT] Find the paragraps from the keywords connect big5 indicator trait have mean	10																							2	2	2	2	2											
1,13	PB1.4	[TECHNICAL]Research model AI to predict big5 trait	12																												2	2	2	2	2	2					
1,14	PB1.4	[TECHNICAL]Research model AI to create question from keywords connect big5 indicator trait	12																																		2	2	2	2	2	2
		Actual	0	2	4	6	8	10	14	18	22	26	30	34	38	42	44	46	48	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95

Estimate time sprint2

Sprint Id	Backlog Id	Task name	Total	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17
2,1	PB2.1	[AI]Create model AI for create question	10	3	3	4														
2,2	PB 2.1	[AI] Create model AI for predict big5 trait	10	3	3	4														
2,3	PB 2.2	[UI] Design register page app	4				4													
2,4	PB2.2	[DEV] Update user interface register page in app	14					3	3	3	3									
2,5	PB2.2	[DEV] Update API register user	14				3	3	3	3	2									
2,6	PB2.2	[DEV] Update backend in register page app	6									3	3							
2,7	PB 2.3	[TECHNICAL] Research how to collect address of user	6											3	3					
2,8	PB 2.3	[DEV]Create API for collect address	6													3	3			
2,9	PB 2.3	[DEV] Create function for collect address user in app	9															3	3	3
		Estimated	0	6	12	20	27	33	39	45	50	53	56	59	62	65	68	71	74	77

Actual time sprint 2

Sprint Id	Backlog Id	Task name	Total	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19
2,1	PB2.1	[AI]Create model AI for create question	12	3	3	3	2															
2,2	PB 2.1	[AI] Create model AI for predict big5 trait	12	3	3	3	2															
2,3	PB 2.2	[UI] Design register page app	4					4														
2,4	PB2.2	[DEV] Update user interface register page in app	9						3	3	3											
2,5	PB2.2	[DEV] Update API register user	12					3	3	3	3											
2,6	PB2.2	[DEV] Update backend in register page app	6									3	3									
2,7	PB 2.3	[TECHNICAL] Research how to collect address of user	9											3	3	3						
2,8	PB 2.3	[DEV]Create API for collect address	9														3	3	3			
2,9	PB 2.3	[DEV] Create function for collect address user in app	9																	3	3	3
		Actual	0	6	12	18	22	29	35	41	47	50	53	56	59	62	65	68	71	74	77	80

Estimate time sprint 3

Sprint Id	Backlog Id	Task name	Total	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
3,1	PB 3.1	[TECHNICAL] Research how to create API of python	3	3													
3,2	PB 3.1	[DEV]Write API to use model	3		3												
3,3	PB 3.2	[UI]Create API for get keywords	3			3											
3,4	PB 3.2	[UI]Design UI for connect keywords and big5 indicator trait	3				3										
3,5	PB 3.2	[DEV] Code UI for connect keywords and big5 indicator trait	6					3	3								
3,6	PB 3.2	[DEV] Code function for connect keywords and big5 indicator trait	24							3	3	3	3	3	3	3	3
		Estimated	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42

Actual time sprint 3

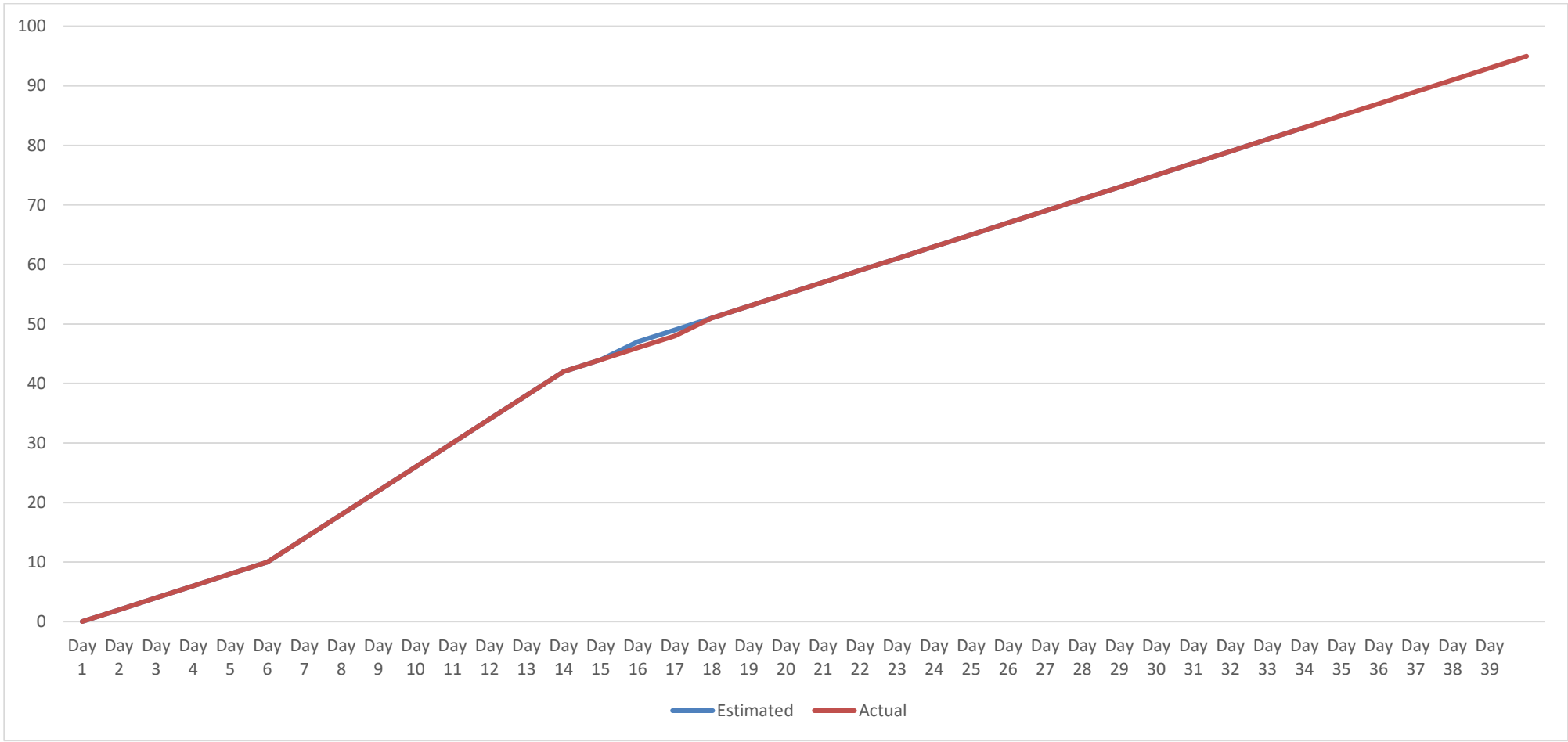
Sprint Id	Backlog Id	Task name	Total	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
3,1	PB 3.1	[TECHNICAL] Research how to create API of python	3	3													
3,2	PB 3.1	[DEV]Write API to use model	3		3												
3,3	PB 3.2	[UI]Create API for get keywords	3			3											
3,4	PB 3.2	[UI]Design UI for connect keywords and big5 indicator trait	6				2	4									
3,5	PB 3.2	[DEV] Code UI for connect keywords and big5 indicator trait	6						4	2							
3,6	PB 3.2	[DEV] Code function for connect keywords and big5 indicator trait	24								3	2	4	2	2	5	3
		Actual	0	3	6	9	11	15	19	21	24	26	30	32	34	39	42

Estimate time sprint 4

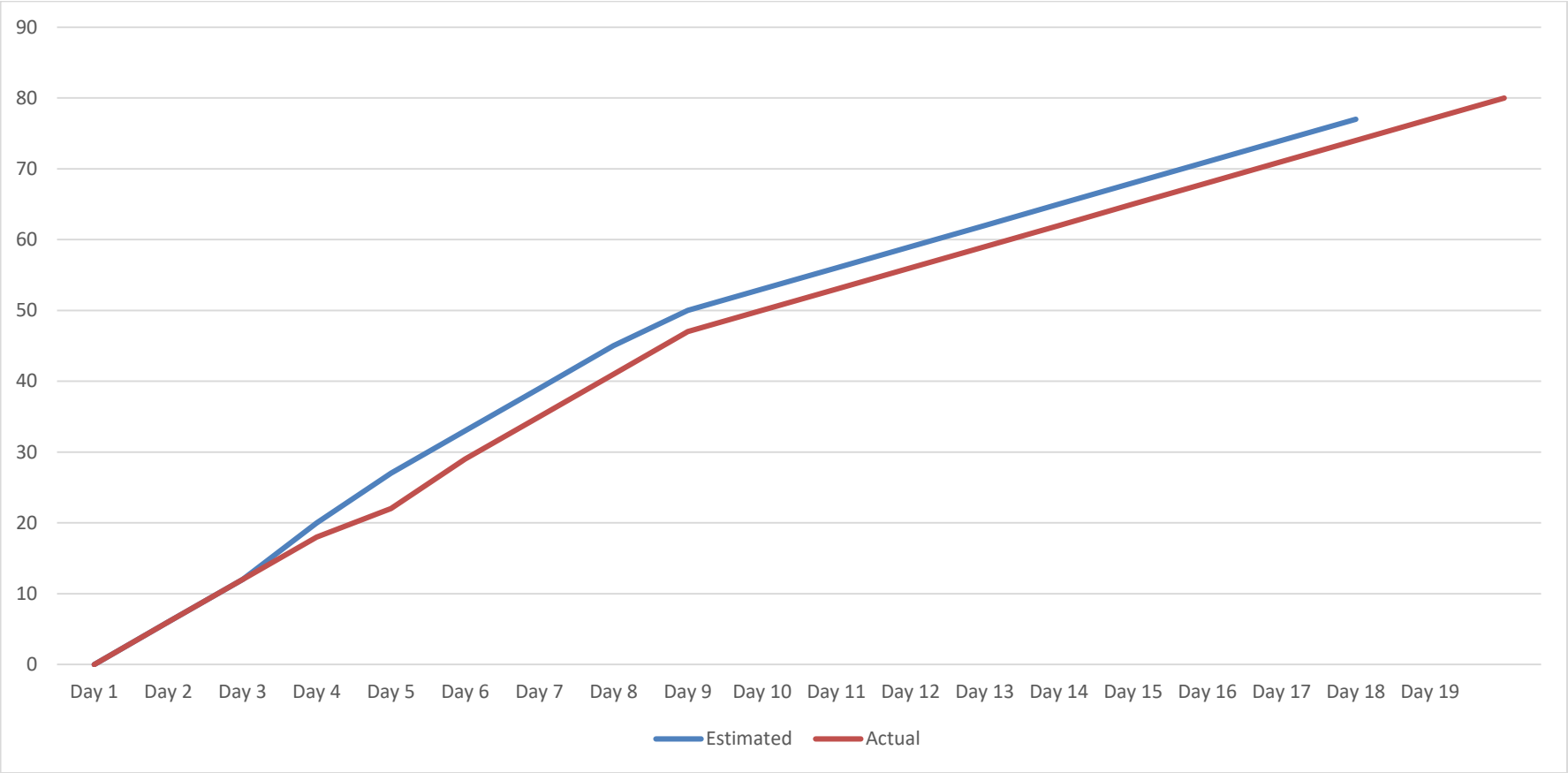
Sprint Id	Backlog Id	Task name	Total	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11
4,1	PB 4.1	[UI] Design UI for create question from keywords connect big5 indicator trait	3	3										
4,2	PB 4.1	[DEV]Code UI for create question from keywords connect big5 indicator trait	3		3									
4,3	PB 4.1	[DEV] Code function for create question from keywords connect big5 indicator trait	3			1	2							
4,4	PB 4.2	[UI] Design UI for save and send question to all user	3					3						
4,5	PB 4.2	[DEV] Code API send question to all user	6						3					
4,6	PB 4.2	[DEV] Code UI for save and send question to all user	3							3				
4,7	PB 4.2	[DEV] Code function for save and send question	3							2	1			
4,8	PB 4.3	[UI] Design UI notification	3									3		
4,9	PB 4.3	[DEV] Code UI notification	3										3	
4,10	PB 4.3	[DEV] Code function notification1	3											3
		Estimated	0	3	6	7	9	12	15	20	21	24	27	30

Actual time sprint 4

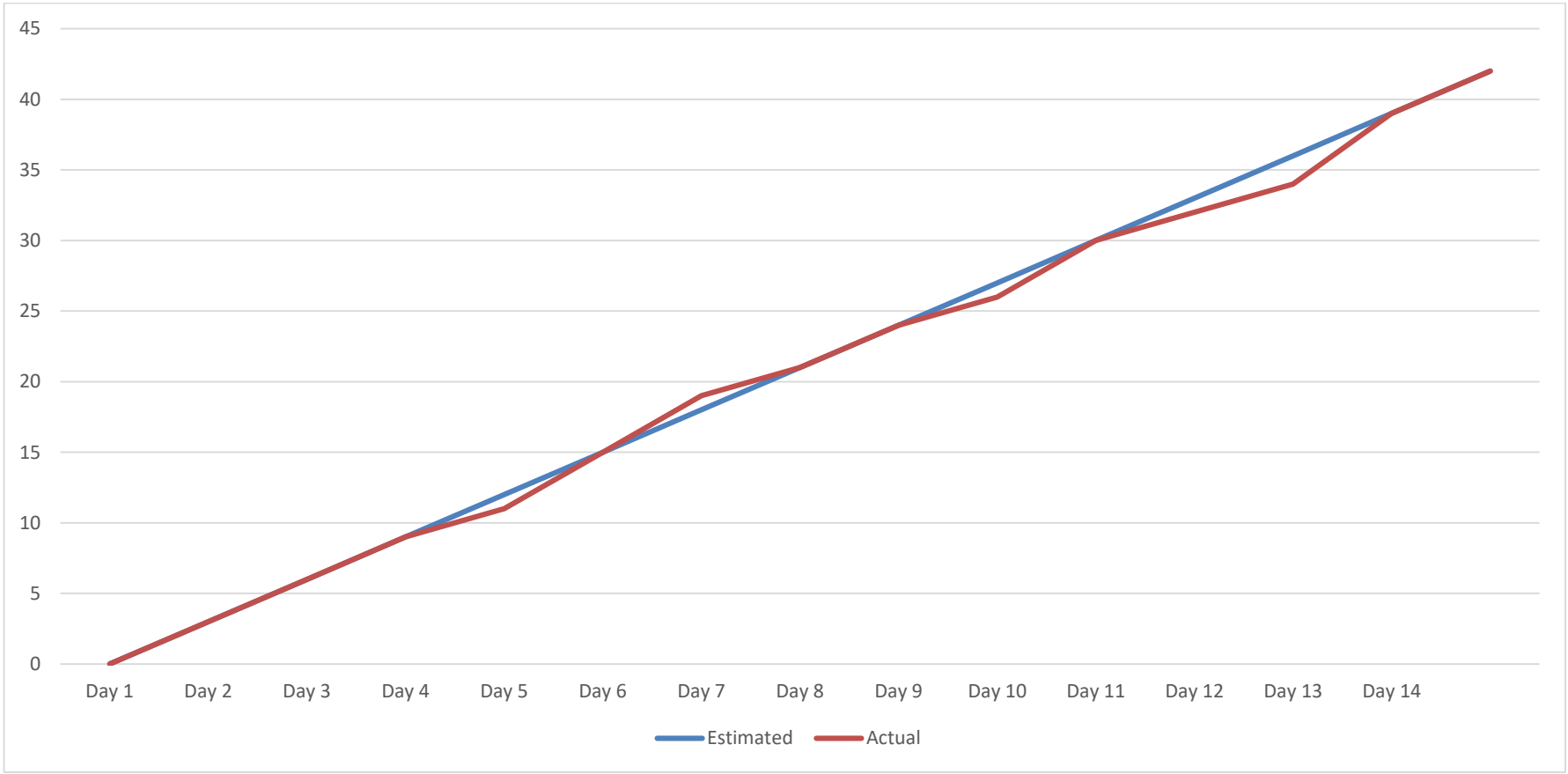
Sprint Id	Backlog Id	Task name	Total	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11
4,1	PB 4.1	[UI] Design UI for create question from keywords connect big5 indicator trait	3	3										
4,2	PB 4.1	[DEV]Code UI for create question from keywords connect big5 indicator trait	3		3									
4,3	PB 4.1	[DEV] Code function for create question from keywords connect big5 indicator trait	3			1	2							
4,4	PB 4.2	[UI] Design UI for save and send question to all user	3					3						
4,5	PB 4.2	[DEV] Code API send question to all user	3						3					
4,6	PB 4.2	[DEV] Code UI for save and send question to all user	2							2				
4,7	PB 4.2	[DEV] Code function for save and send question	3							2	1			
4,8	PB 4.3	[UI] Design UI notification	2									2		
4,9	PB 4.3	[DEV] Code UI notification	2										2	
4,10	PB 4.3	[DEV] Code function notification1	3											3
		Actual	0	3	6	7	9	12	15	19	20	22	24	27



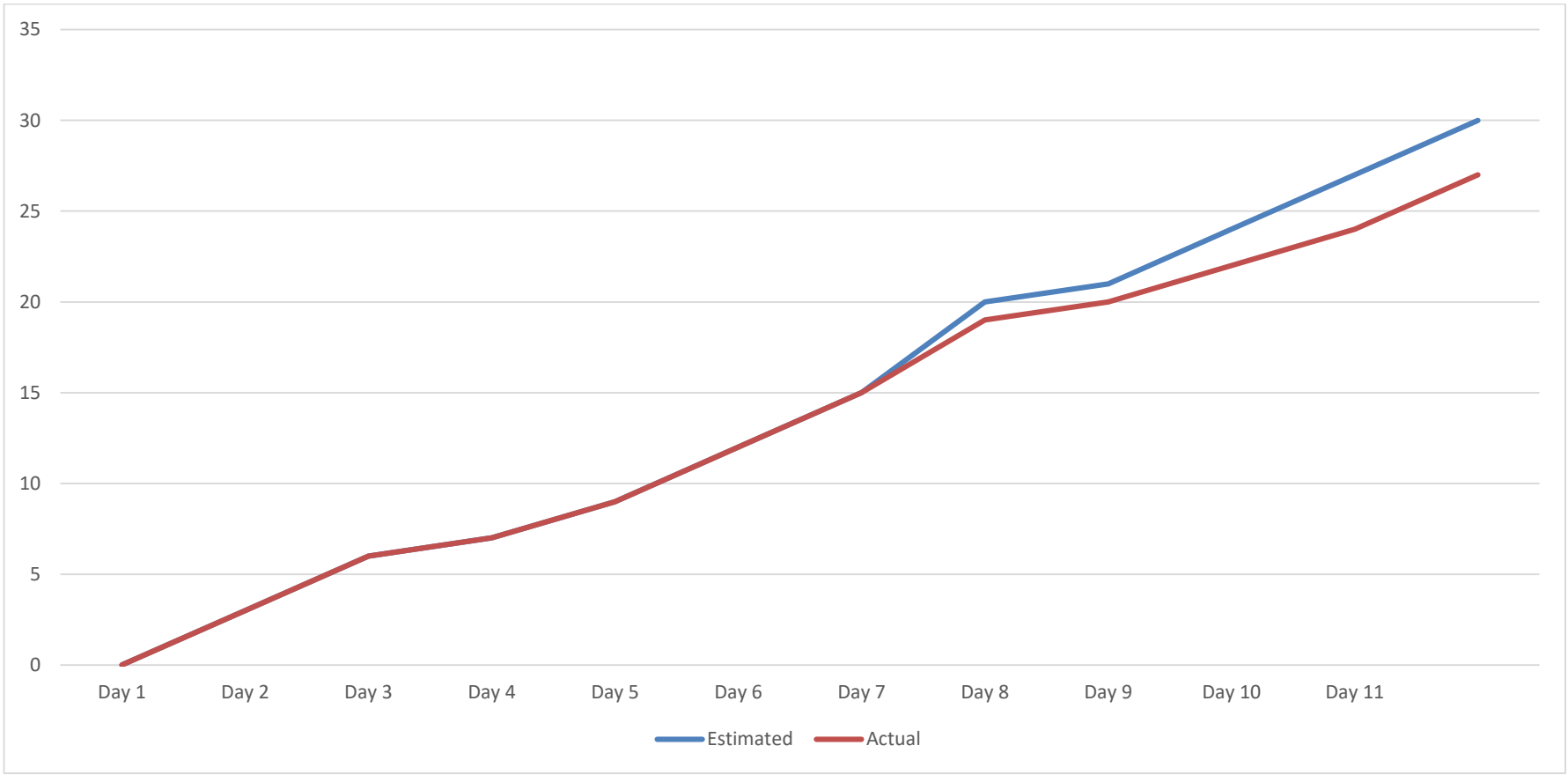
Burn-up sprint 1



Burn-up sprint 2



Burn-up sprint 3



Burn-up sprint 4

DUY TÂN UNIVERSITY

International School

CAPSTONE PROJECT 2

CMU-SE-451

Architecture Document

v 1.5

GreenBig5 Information System

Submitted by

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Chung, Hoang Bao
Vinh, Do Quang
Kha, Ngo Van

Approved by

Capstone Project 2 - Mentor:

Name	Signature	Date
Nguyen Thanh Binh		15.05.2022

Team Name:C2SE.32

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DOCUMENT INFORMATION			
Document Title	Architecture Document		
Author(s)	Team C2SE.32		
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Date	25 -Feb- 2022	File name	[GB5] Architecture_v1.5
URL	N/A		
Access	Project and CMU Program		

REVISION HISTORY

Version	Person(s)	Date	Description	Approval
Draft	Kha	25 – Feb - 2022	Initiate document	x
1.0	All members	4 - April – 2022	Finish content of document	x
1.1	All members	6 – April - 2022	Update content	x
1.1.1	Kha, Chung	7 - April - 2022	Add System Context, Container Diagram,	x
1.1.2	Kha, Chung	10 - April - 2022	Add Component, Class Diagram	x
1.1.3	Vinh, Loc	12 - April – 2022	Add Quality Attributes	x
1.2	All members	15 - April - 2022	Update Container Diagram	x
1.3	Chung	17 - April - 2022	Add Allocation Diagram	x
1.4	Kha	20 – April -2002	Update Components Diagram	x
1.5	Chung, Kha, Vinh	16 – May - 2022	Add Location-Based Generate Question, Decision Tree, Update Component Diagram of Single Page	x

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1. INTRODUCTION

1.1. PURPOSE

The purpose of the Architecture document is to:

- Define the architecture needs and technology in detail.
- Provide solutions for business needs.
- Provide overview about resources, schedule, solution and budget for the project.

The architecture merely introduces the project to the student development teams, and provides the up-front information necessary for the team to develop a specification.

1.2. DEFINITIONS, ACRONYMS AND ABBREVIATIONS

1.2.1. Definitions and Acronyms

Acronyms	Definitions
GB5	Green Big 5 Information System
GUI	Graphical User Interface
SDK	Software Development Kit

1.2.2. Diagram Key/Legend

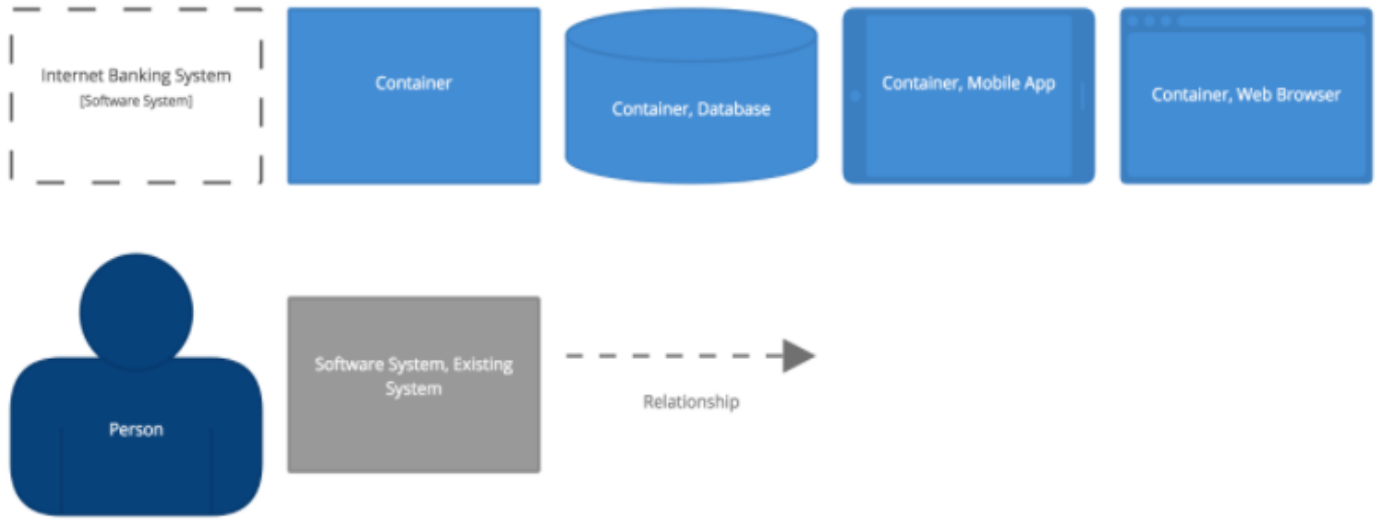


Figure 1.2.2: *Diagram Key/Legend*

1.3. DOCUMENTS REFERENCES

No.	Reference
1	Product Backlog Document for GB5
2	Project Plan Document for GB5

2. PROBLEM STATEMENT

2.1. PROJECT OVERVIEW

As well as the evolution of The Fourth Industrial Revolution (4IR) and the increasing civilization, the environment is becoming harmful by human behavior. Also, at the current rate of urbanization and industrialization, outside of the natural factors, the change of environment is mainly due to human factors. Emissions, population explosion, industrial solid waste, ... are the main causes leading to negative effects on the global environment. To reduce this at a holistic level, predicting human personality and finding the link between it and the environmental impact is the most important task that must be done.
However, predicting human personality and finding the link between it and the environmental impact from many different sources takes a lot of effort and money. To solve this problem, based on our knowledge of big data systems, we have built an intelligent data processing system that can be run on a website-platform with an intuitive and easy-to-use dashboard. This system is a prospective and useful tool for environmental experts and policy makers in Vietnam in particular, and worldwide in general. It can predict user personality and find their effect on the environment and suggest the solution to reduce it.

2.2. BUSINESS DRIVERS

Business problem:
Our environment is always changing. However, at the current rate of urbanization and industrialization, outside of the natural factors, the change of environment is mainly due to human factors. Emissions, population explosion, industrial solid waste, ... are the main causes leading to negative effects on the global environment. To address this at a holistic level, find out the collaboration between human personality and environmental impact is one of the most important missions.
Business need:
Green Big 5 Information System have specific uses:

- Collecting user data
- Predicting user personality trait
- Predict Big5 traits and environmental impacts based on linkings between Big5 traits and environmental ontologies.

All the things above are based on the functionality of the Green Big5 Information System. GB5 fully meets these requirements. Therefore, the development of GB5 is very necessary and meaningful.

2.3. PROJECT GOAL

The aim of this project is to build a GreenBig 5 information system (GB5), i.e., GB5 App, database and GB5 Dashboard:

- GB5 Dashboard: Support for create question packages which used to direct the user follow the environment theme. With each question, users can be distributed by Indicator (2). Finally, by using a prediction method to predict the user's personality traits (3) and predicts linkings between big5 traits and environmental impacts.
  Implemented through 3 steps:
    7. Expert models: expert users use the dashboard to specify the linkings between big traits -facets and environmental keywords structured in tree formats.
    8. Questions are defined and generated based on the expert model (1).
    9. Predict and verify expert model by using answer results of (2), Based on that. we can verify if the expert model is apllied for which group(s) of users.
- GB5 App (Update): GB5 Application receives user activity data by listening to the event, the state, of the system emitted through Intent so that the system can find out the user's location based.

As a result, government authorities, enterprises, as well as users would have an overview of the environment and have a better solution to change user behaviour and to reduce and prevent it from the bad effect.

3. ARCHITECTURE DRIVERS

3.1. HIGH-LEVEL REQUIREMENTS

(Refer to the Product Backlog document for GB5)

3.2. SYSTEM CONTEXT DIAGRAM

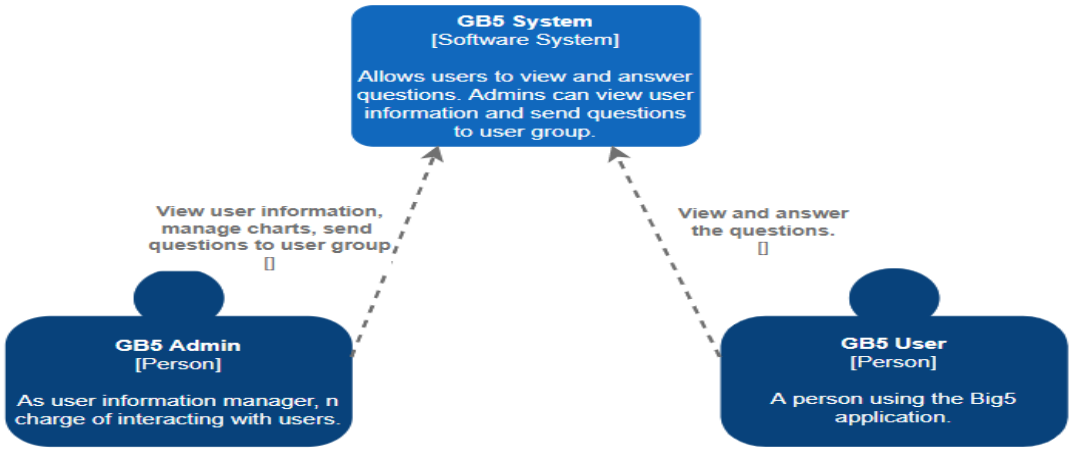


Figure 3.2: Context Diagram of System

3.3. QUALITY ATTRIBUTES

ID	QA01
Quality Attributes	Performance
Stimulus	Submit a question to the user group
Source(s) of stimulus	Admin

Artifacts	System
Environment	Normal mode
System response	The system displays a message that the question has been sent successfully
Response measure(s)	Within 5 seconds

Table 3.3.1: Quality Attributes: Performance

ID	QA02
Quality Attributes	Performance
Stimulus	Login in to the mobile application
Source(s) of stimulus	User
Artifacts	System
Environment	Normal mode
System response	The system displays the question view page
Response measure(s)	Within 3 seconds

Table 3.3.2: Quality Attributes: Performance

ID	QA03
Quality Attributes	Availability
Stimulus	Unable to import question into database
Source(s) of stimulus	Admin
Artifacts	System
Environment	Normal mode
System response	System will log the fault immediately
Response measure(s)	Within immediately

Table 3.3.3: Quality Attributes: Availability

4. CONSTRAINTS

4.1. BUSINESS CONSTRAINTS

- Project will be started on 01 – Mar – 2022
- Project will be finished on 15 - May - 2022
- Duration: 17 weeks

4.2. TECHNICAL CONSTRAINTS

Main Programming Language: Javascripts, Flutter.

- **GB5 Application:**
  - Programming Language: Dart, Flutter.
  - Tool: Android studio.
- **GB5 Database:**
  - Programming Language: NodeJs.
  - Database: MongoDB.
  - Tool: Visual studio code.
- **GB5 Dashboard:**
  - Programming Language: NodeJs, ReactJs.
  - Tool: Visual studio code.
- **AI Model:**
  - Programming Language: Python.
  - Libraries: sklearn, pandas, pydotplus, fastapi, …
  - Tool: Visual studio code, Pycharm.

5. HIGH-LEVEL ARCHITECTURE

5.1. ARCHITECTURE OVERVIEW

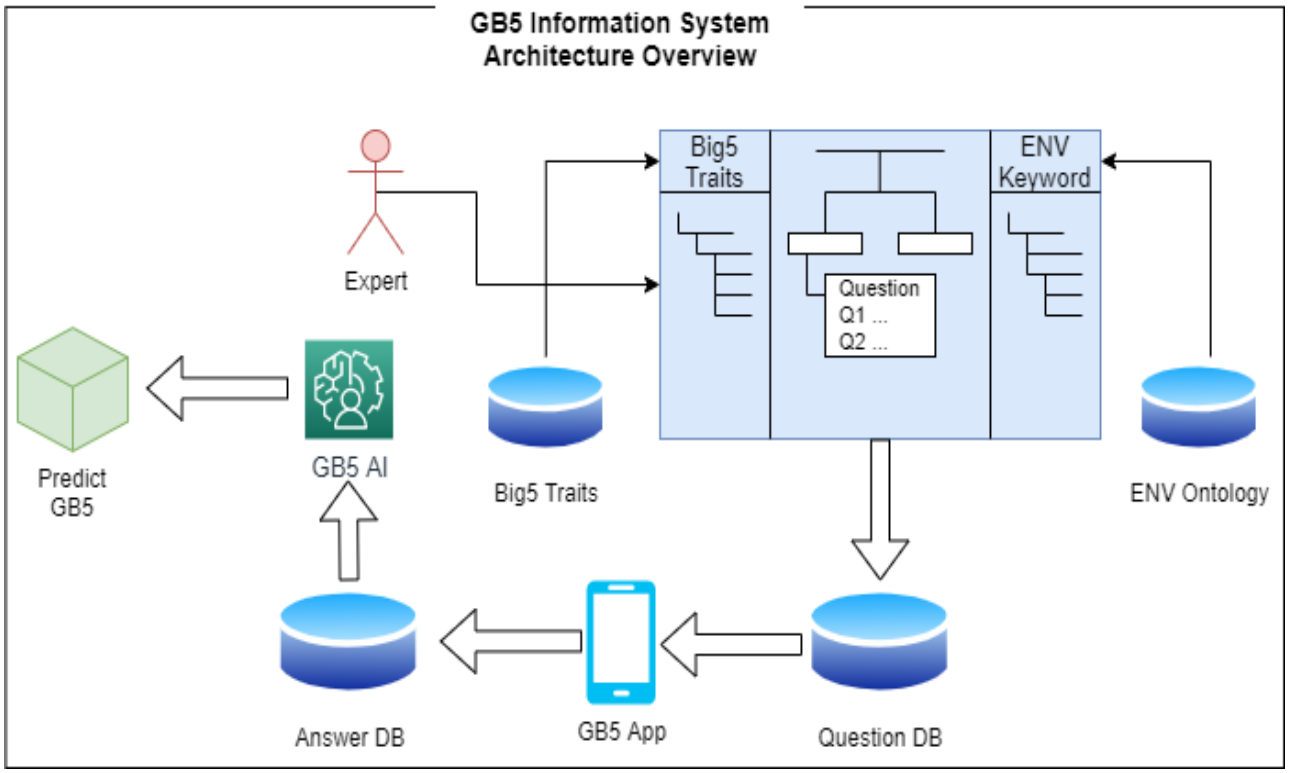


Figure 5.1: *Architecture Overview*

5.2. CONTAINER DIAGRAM

The diagram below shows the overview architecture including containers.

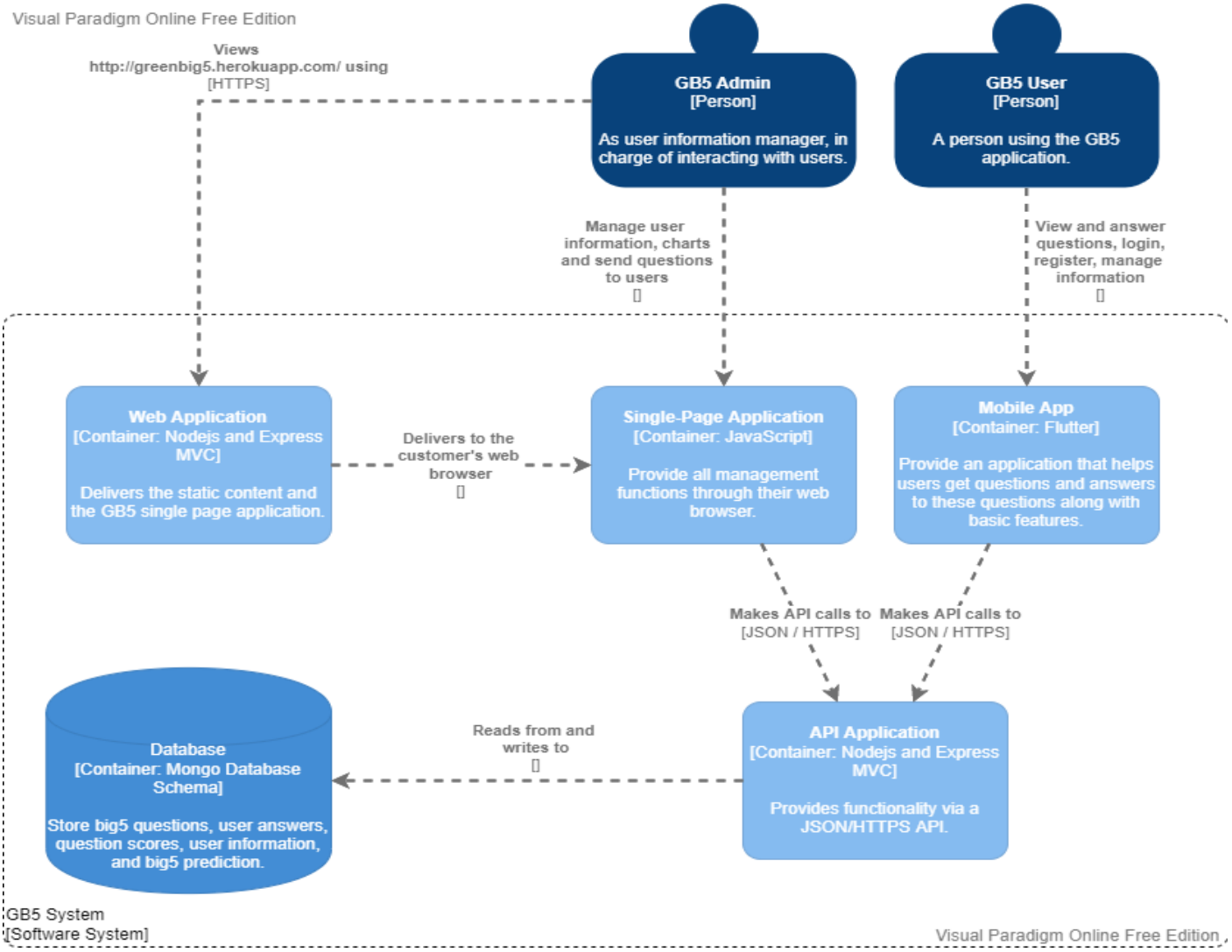


Figure 5.2: *Container Diagram*

5.2.1. Single-Page Application

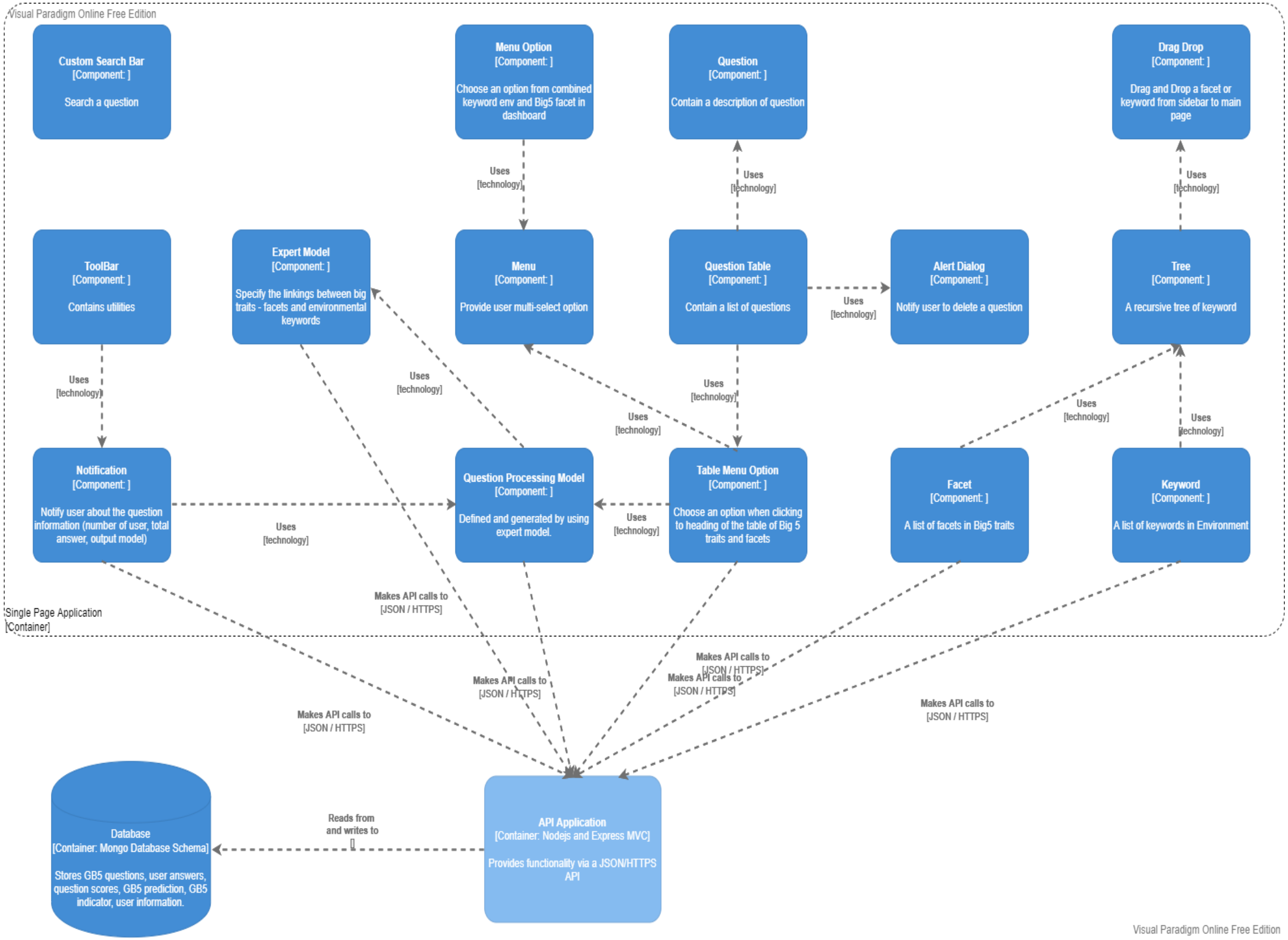


Figure 5.3: *Component diagram of Single-Page Application*

5.2.2. Mobile Application (Update)

The diagram below shows the overview architecture including components and other related components.

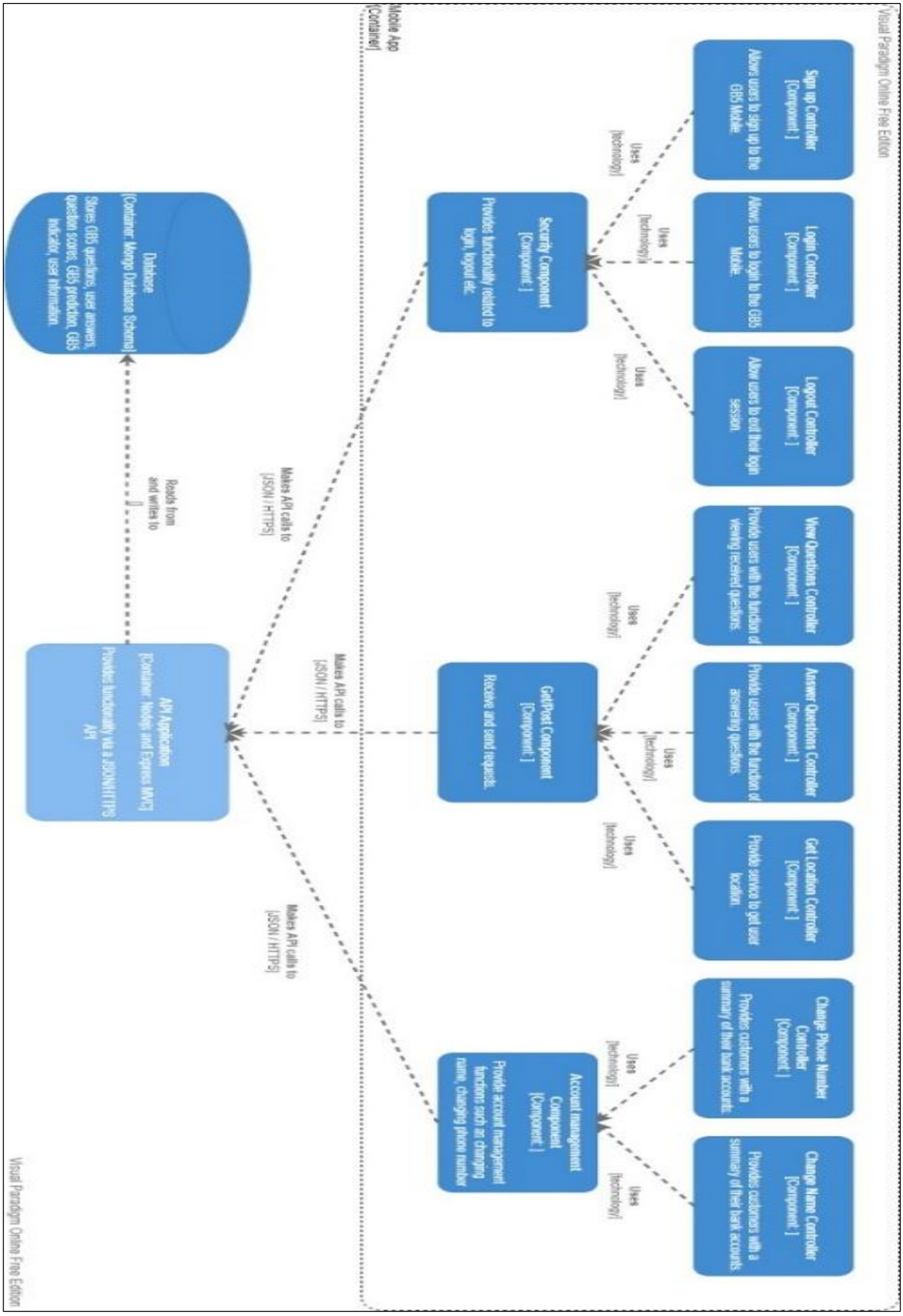


Figure 5.4: *Component diagram of Mobile Application*

5.3. CLASS DIAGRAM

The diagram below shows the overview architecture including the class diagram of the question management component.

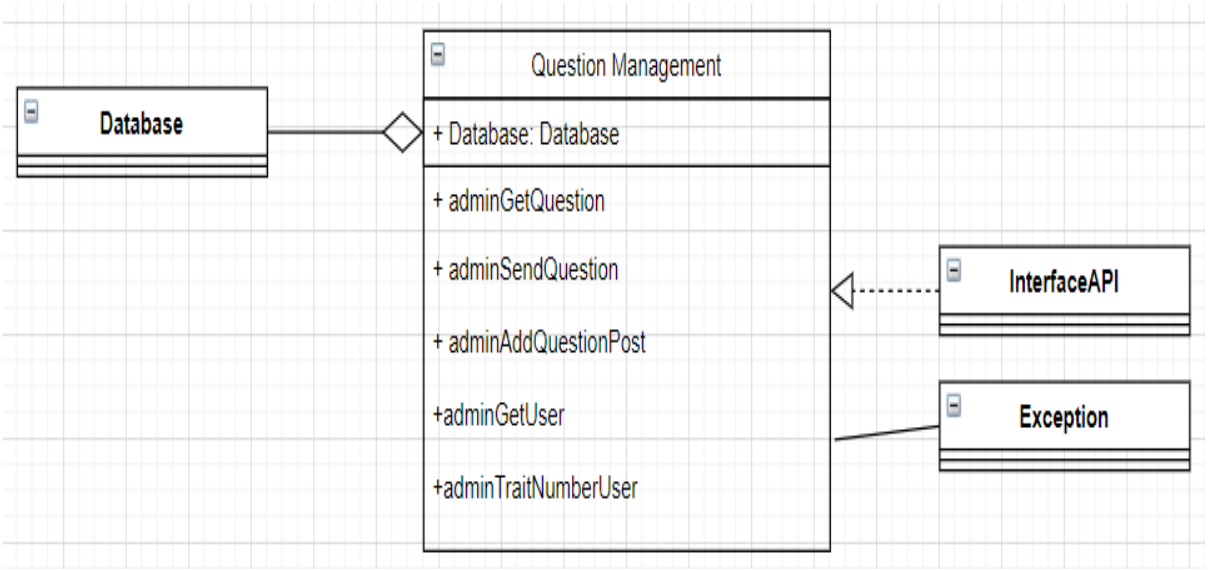


Figure 5.5: *Class Diagram*

Role & Responsibility	Description
adminGetQuestion	Display questions from the database on the board
adminSendQuestion	Submit a question to the user group
adminAddQuestionPost	Enter the question into the database
adminGetUser	Select the User group to submit the question
adminTraitNumberUser	Save indicator information for group classification

5.4 Allocation Diagram

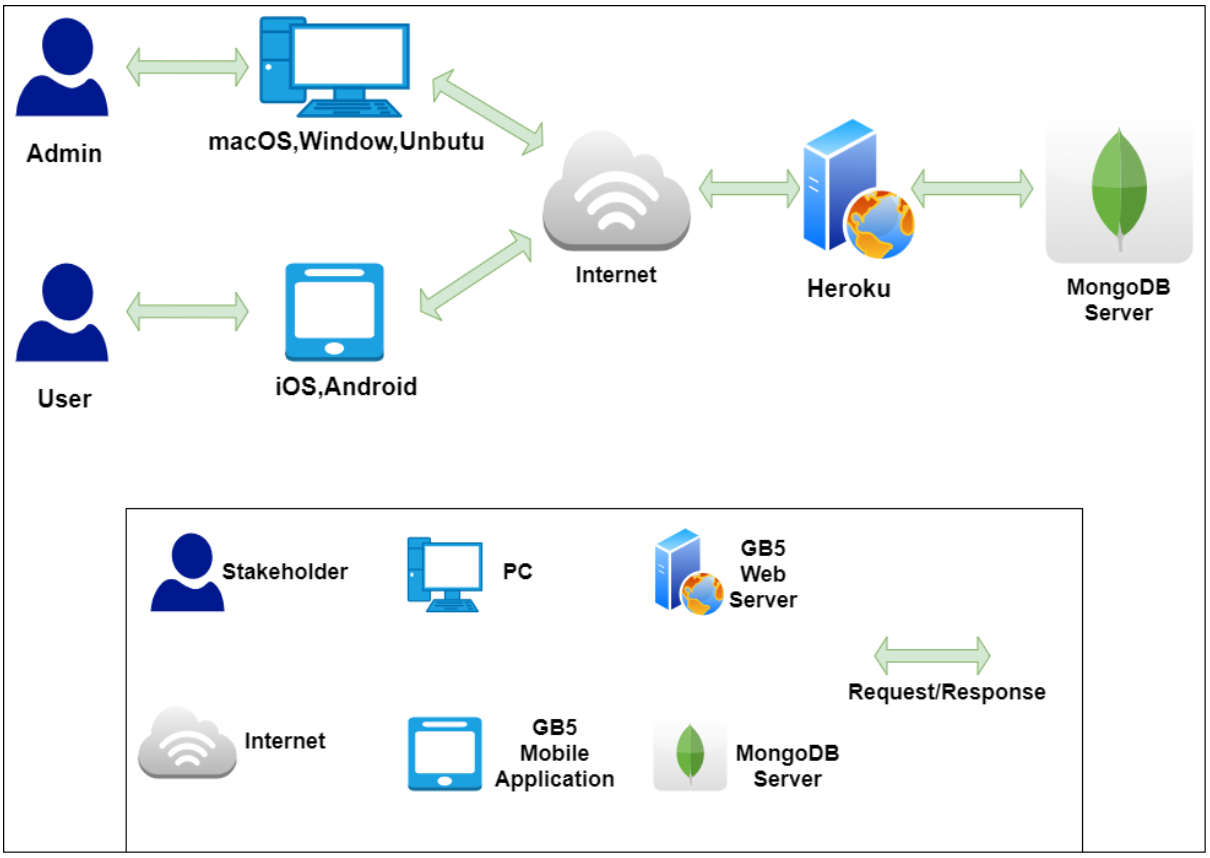


Figure 5.4: *Allocation Diagram*

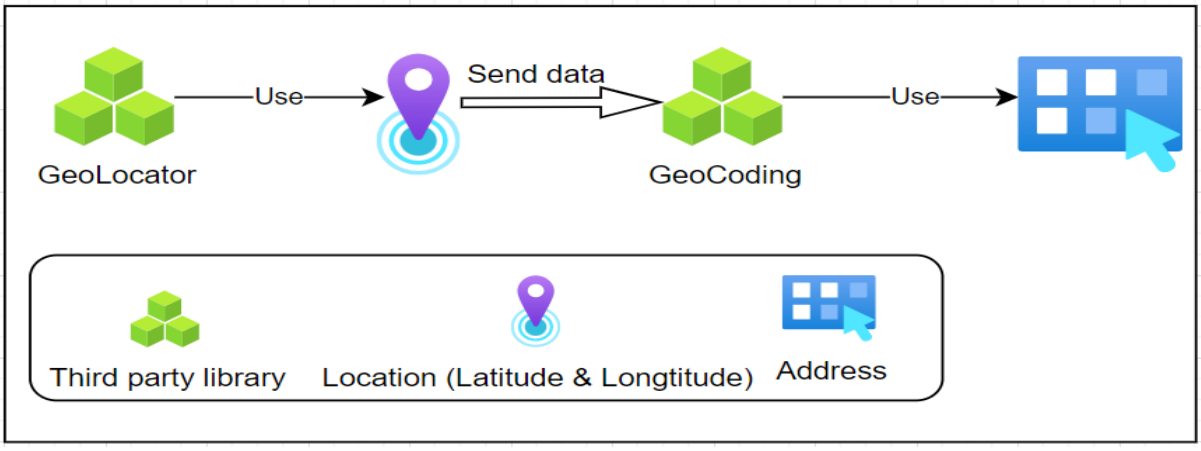
Role & Responsibility	Description
Admin	Admin who interact with GB5 Dashboard Application.
User	User who interact with GB5 Mobile Application.
PC	Devices providing web browsers.

GB5 Mobile Application	The device that provides the operating environment for the GB5 application.
Internet	A global computer network providing a variety of information and communication facilities, consisting of interconnected networks using standardized communication protocols.
GB5 Web Server	This is where the API is hosted and provides hosting...
MongoDB	Database server to store data.
Request/Response	Get request data from client and response the data to client.

6. LOW-LEVEL ARCHITECTURE

6.1 Location Based

When the user allows the app to access the location. It is provided by GeoLocator service. The app uses the GeoLocator service to get the current location Latitude and Longitude. Then use GeoCoding service to convert Latitude and Longitude locations received from GeoLocator to addresses which you will have information in details such as street, locality, country ...



These location attributes can be used as features that provide validation of human interactions with the environment.

6.2 Generate Question

First, user need to choose a facet of trait, and a keyword environment. It will automatically combine to the tree and just click the keyword in the tree they want and select it. The table will

display and user select Generate Question option. It will take a little bit time. The flow is:

- The Keyword Big5 Environment will send to NodeJS server and sanitize the request payload, and call an API to Python server for handling more complex algorithm
- The sanitized input should be an array like this [Keyword Env, Facet]
- I will extract each word from array and find the synonyms, because I also have a question generation by text or keyword, so we can train and generate more question from text too and push to database. So that the reason why we find synonyms for each keyword and save it in a 'Tags' of each question generated for searching and analyzing the meaning of the question which has been trained from text or keyword before. I did it because I think we'll used it in future.
- After have a list of tag, for each key in input array I generate some related text sentence from it. And combine all text sentence together and from that I generate each question related and push to database and return response to client web

Example:
Keyword: Food
Facet: Ideas

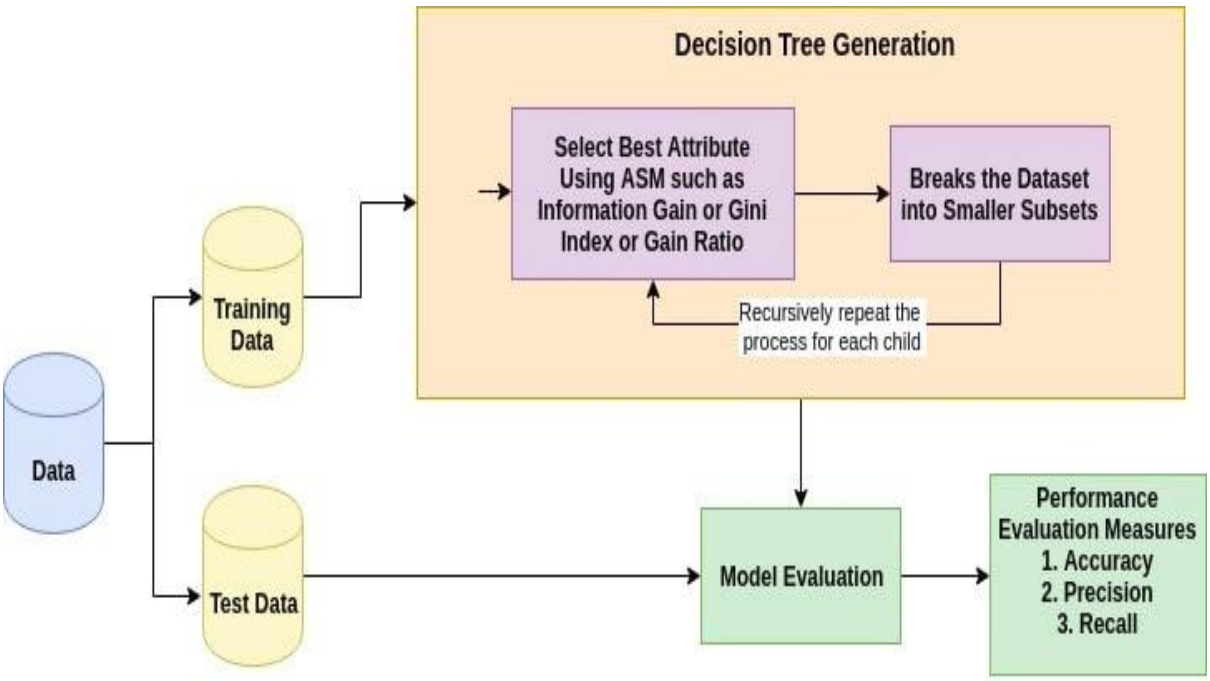
- ⇨ Question: Do you usually plan a party or a trip?
- ⇨ Keyword Big Five Environment: Food Ideas
- ⇨ Tags: [Food, Ideas, Fruit, Apple, Plan]
- ⇨ Point: Point High = 20, Point Medium = 15, Point Low = 10
- ⇨ Personality: Openness = Medium, Conscientious = Low, Extraversion = High, Agreeable = Low, Neuroticism = Low.

6.3 Decision Tree

To predict the correctness of the flow generated from the keyword, we use the decision tree algorithm.

- How does the Decision Tree algorithm work?

  The basic idea behind any decision tree algorithm is as follows:
  - Select the best attribute using Attribute Selection Measures (ASM) to split the records.
  - Make that attribute a decision node and breaks the dataset into smaller subsets.
  - Starts tree building by repeating this process recursively for each child until one of the conditions will match:
    - All the tuples belong to the same attribute value.
    - There are no more remaining attributes.
    - There are no more instances.



- Some formulas need to be calculated in the decision tree:
  - Information Gain

$$Info(D) = -\sum_{i=1}^{m} pi \log_2 pi$$

  - Gain Ratio

$$SplitInfo_A(D) = -\sum_{j=1}^{v} \frac{|\mathrm{Dj}|}{|\mathrm{D}|} * \log_2\left(\frac{|\mathrm{Dj}|}{|\mathrm{D}|}\right)$$

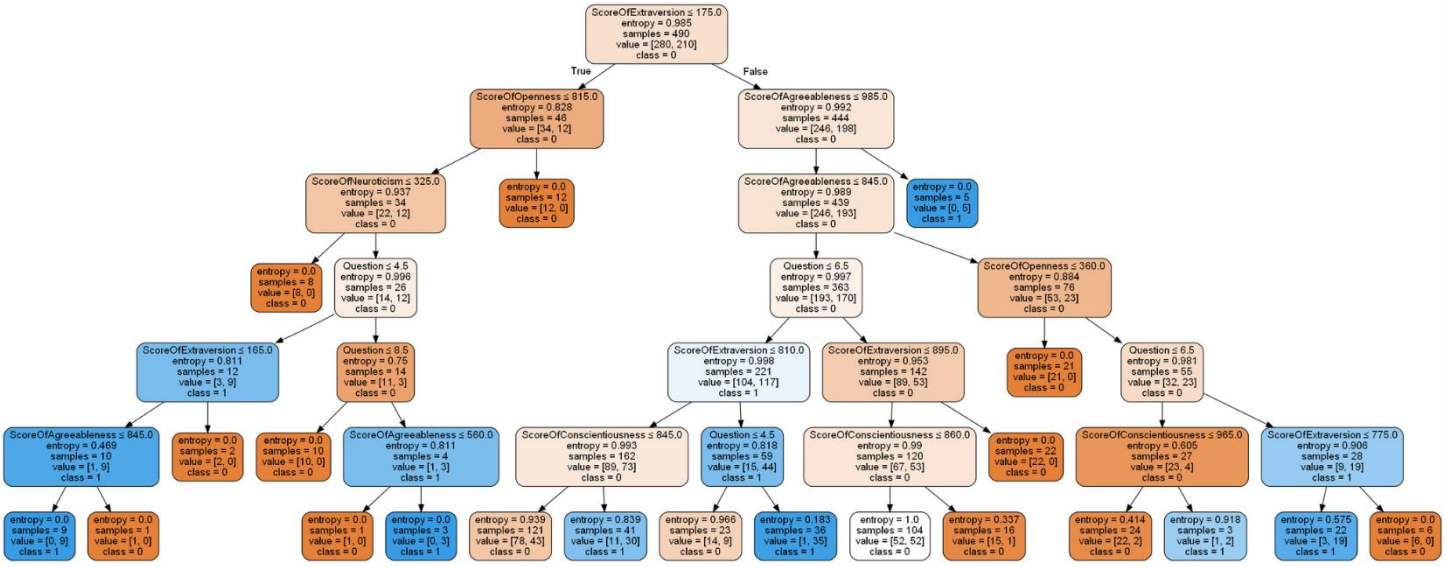
  - Gini index

$$Gini(D) = 1 - \sum_{i=1}^{m} Pi^2$$

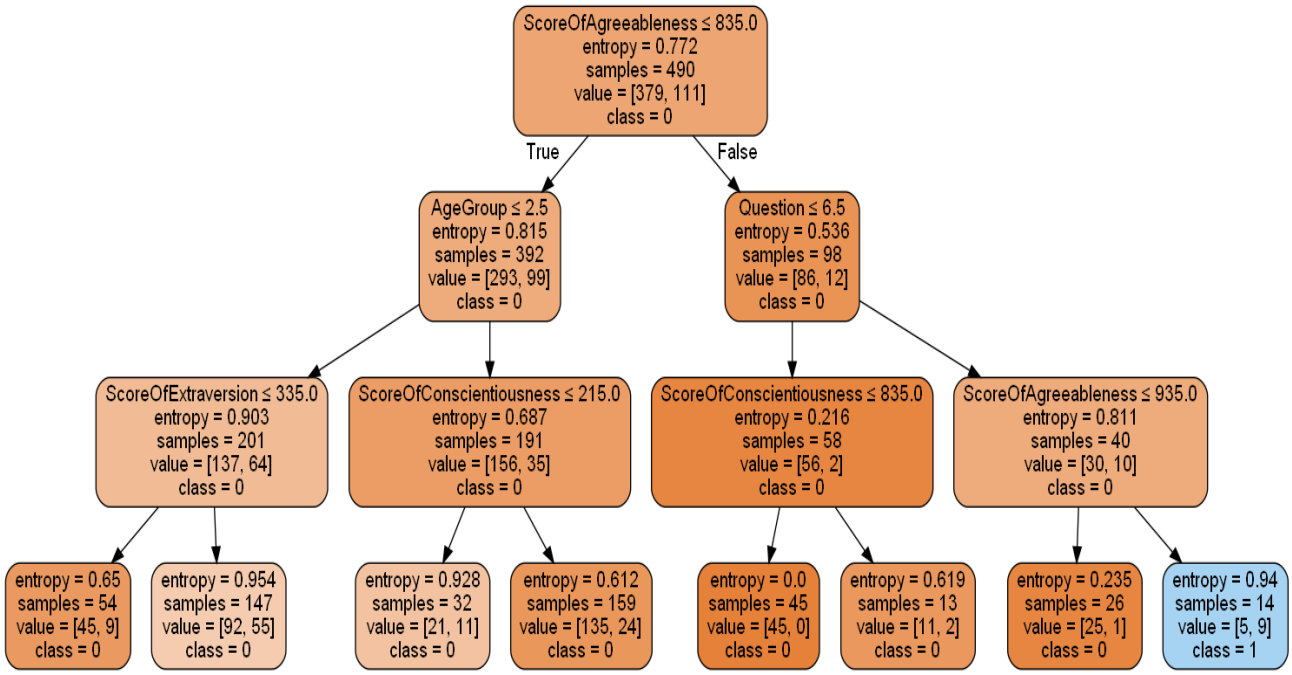
- How do we use this algorithm?
  - The data set after the study is obtained as follows:

AgeGroup	Gender	Location	Question	sO	sC	sE	sA	sN	Outcome
>40	Male	City	Is the rice field the same as a school?	920	470	260	650	110	1
30-40	Female	Country	Is the rice field the same as a school?	440	840	210	820	430	0
<20	Male	Country	Is the rice field the same as a school?	240	480	590	590	400	0
<20	Female	Country	Is there a rice field in texas?	390	850	710	590	420	0
20-30	Female	City	Is there a bad party in the world?	910	370	500	150	550	0
>40	Male	City	Is there a bad party in the world?	930	280	490	190	740	0
30-40	Male	City	Is there a bad party in the world?	720	980	550	370	710	1
30-40	Female	City	Is there a bad party in the world?	970	660	660	560	590	0
>40	Female	City	Is there a bad party in the world?	300	800	680	110	350	1
30-40	Female	Country	Is there a bad party in the world?	730	940	670	380	730	1
<20	Male	Country	Do you like activities about saving electricity?	240	450	820	150	870	1
>40	Female	Country	Do you like activities about saving electricity?	150	210	480	280	910	1
<20	Female	City	Do you like activities about saving electricity?	330	420	660	240	860	1
30-40	Male	Country	Do you like activities about saving electricity?	900	380	560	780	210	0
<20	Female	Country	Do you believe in the fire department to save you when there is a fire?	650	210	830	220	870	0
<20	Male	City	Do you believe in the fire department to save you when there is a fire?	600	810	860	960	180	1
30-40	Male	Country	Do you believe in the fire department to save you when there is a fire?	120	300	370	440	180	1
>40	Male	City	Do you believe in the fire department to save you when there is a fire?	960	490	260	250	270	0
>40	Male	Country	Do you believe in the fire department to save you when there is a fire?	160	110	350	270	180	0
30-40	Male	City	Do you want to use fire	330	860	860	930	830	0
30-40	Male	Country	Do you want to use fire	640	200	610	150	880	0
>40	Male	Country	Do you want to use fire	250	810	360	390	520	0
20-30	Male	Country	Do trees bring value to you?	930	320	660	580	470	1
20-30	Male	Country	Do trees bring value to you?	330	420	710	950	420	0
>40	Male	Country	Do trees bring value to you?	450	210	330	250	410	1
>40	Male	City	Do trees bring value to you?	380	190	150	760	140	0
20-30	Male	City	Do you care about forest fires?	970	140	480	180	330	0
>40	Female	Country	Do you care about forest fires?	940	840	710	1000	680	0

  - Using the decision tree algorithm, we get the following:



- After performance optimization:



➔ From here we can predict whether the newly created flow is true or false with up to 78% accuracy.

7. REFERENCES

- The C4 model for visualising software architecture
- https://online.visual-paradigm.com/
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- https://protocoderspoint.com/flutter-get-current-location-address-from-latitude-longitude/
- https://codelabs.developers.google.com/codelabs/google-maps-in-flutter#3
- https://www.datacamp.com/tutorial/decision-tree-classification-python

International School

CAPSTONE PROJECT 2

CMU-SE-451

INTERFACE DESIGN DOCUMENT

Version 1.2

Date: 7 – May - 2022

GreenBig5 Information System

Submitted by

Loc, Nguyen Tien

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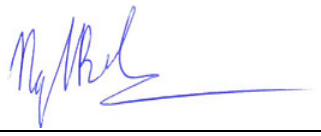
Capstone Project 2 - Mentor:

Name	Signature	Date
Nguyen Thanh Binh		15.05.2022

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Project Acronym	GB5		
Project Title	GreenBig5		
Project Web URL	http://greenbig5.herokuapp.com/		
Start Date	1 - March - 2022		
End Date:			
Lead Institution	International School, Duy Tan University		
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DOCUMENT INFORMATION			
Document Title	Interface Design Document		
Author(s)	Team C2SE.32		
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Date	1 - March - 2022	File name	[GB5] Interface_Design_v2.0
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Access	Project and CMU Program		

REVISION HISTORY

Version	Person(s)	Date	Description	Approval
1.0	Kha	1-March-2022	Update Design UX/UI Web & app	x
1.1	Kha	8-April -2022	Update interface app	x
1.2	Kha	7-May-2022	Update interface web	x

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1. INTRODUCTION

1.1. PURPOSE OF DOCUMENT

This IDD of the GB5 system has the following purpose:

- Document the design of the user interface of functions of GB5.
- Be the primary document driving the implementation of the user interfaces.
- Introduce interface design for the reader. Including the background, content information display, command buttons.

1.2. INTENDED AUDIENCES

This IDD is intended for the following audiences:

- Technical reviewers including:
- Scrum Master
- Product owner
- Implementers, including:
    - Developers.
    - Testers.

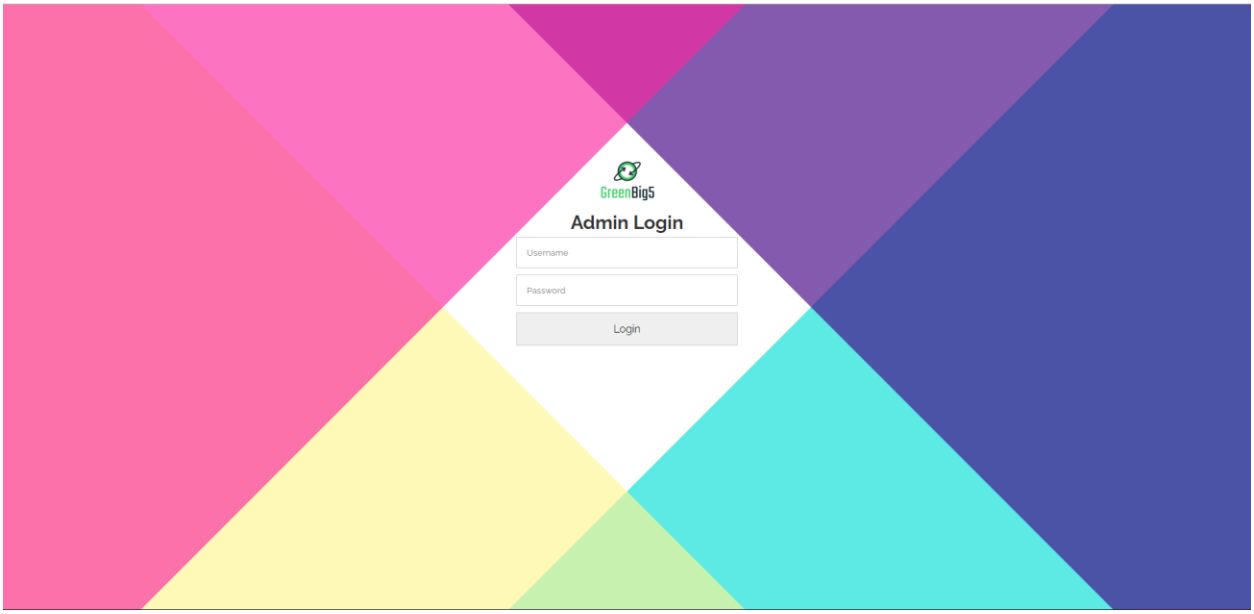
1.3. DOCUMENT OVERVIEW

This IDD is organized into the following sections:

- This document helps to better understand the interface of the Green Big 5 information System, detailed specification components and function of the Application, Dashboard
- With this document, the development team can understand the structure and composition to create a consistent and complete system.
- Overview of the stages and modules of the software and create a complete interface.

2. DETAILED INTERFACE WEB DESIGN

2.1. Login page



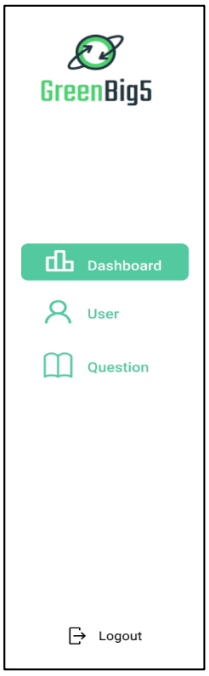
Login page				
No.	**Field name**	**Type**	**Require**	**Target**

1	Background		.top:before {
			transform: rotate(45deg);
			background: #05dfd7;
			}
			.top:after {
			transform: rotate(135deg);
			background: #fff591;
			}
			
			.bottom:before {
			transform: rotate(-45deg);
			background: #400082;
			}
			.bottom:after {
			transform: rotate(-135deg);
			background: #fa26a0;	

2	Header	H2 tag	Font-size: 1.2rem Color: #00000	

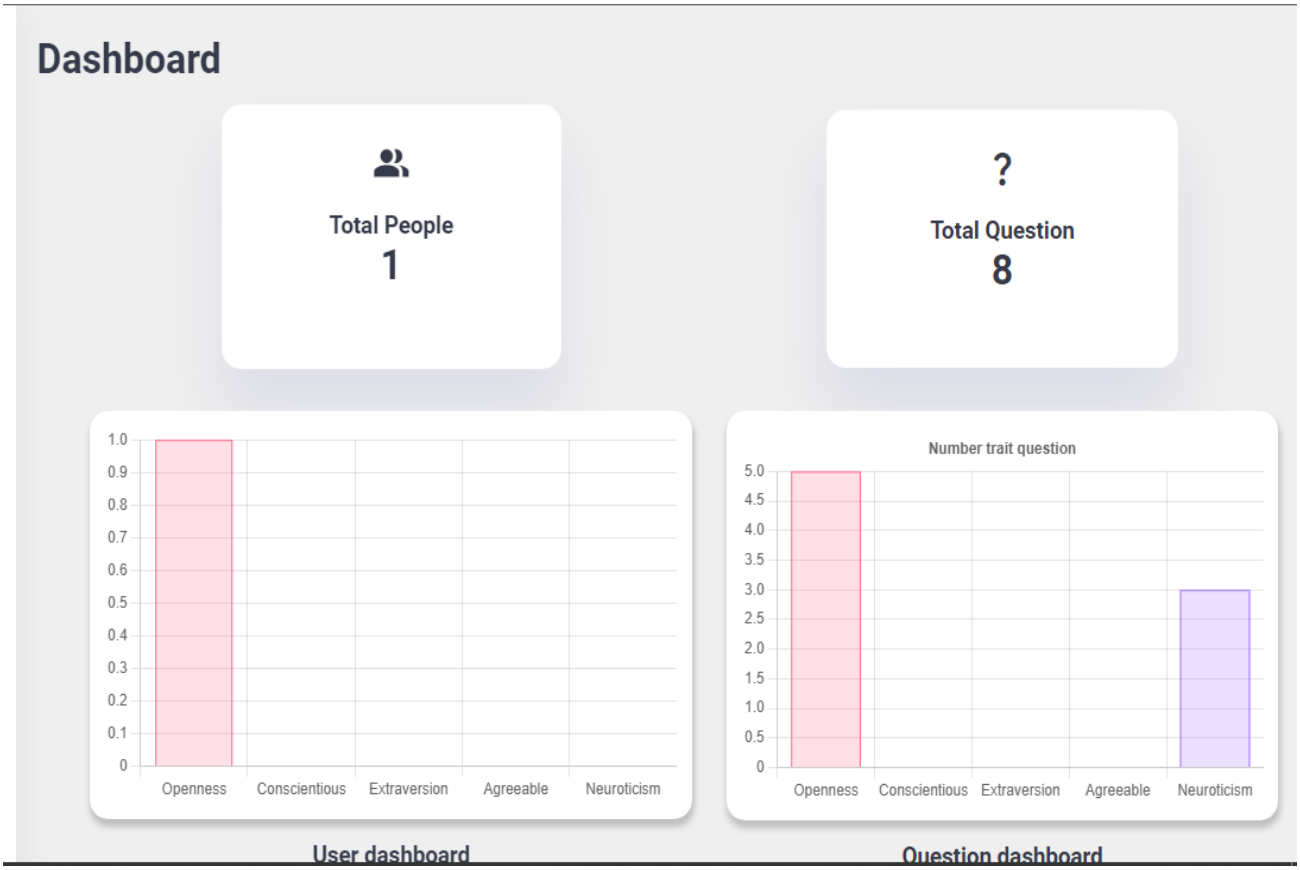
3	Email	Input tag	width: 100%; padding: 15px; margin: 5px; border-radius: 1px; border: 1px solid #ccc; font-family: inherit;	
4	Password	Input “password” tag	width: 100%; padding: 15px; margin: 5px; border-radius: 1px; border: 1px solid #ccc; font-family: inherit;	
5	Button	button	cursor: pointer; font-size: 1rem; hover: background-color: #28df99; color: #ffffff;	Redirect to /dashboard page
6	logo	image		logo_green.png

2.2. Sidebar



Sidebar				
No.	**Field name**	**Type**	**Require**	**Target**
1	Logo	image		logo_green.png
2	Menu	List & icon button	margin-top: 0.3rem; padding: 13px 25px; display: flex; align-items: center; font-weight: 600; transition: color 0.2s ease 0s; color: #4eb994; position: relative hover: color: #fff;	Dashboard, User, Question, Logout

2.3. Dashboard page



User dashboard

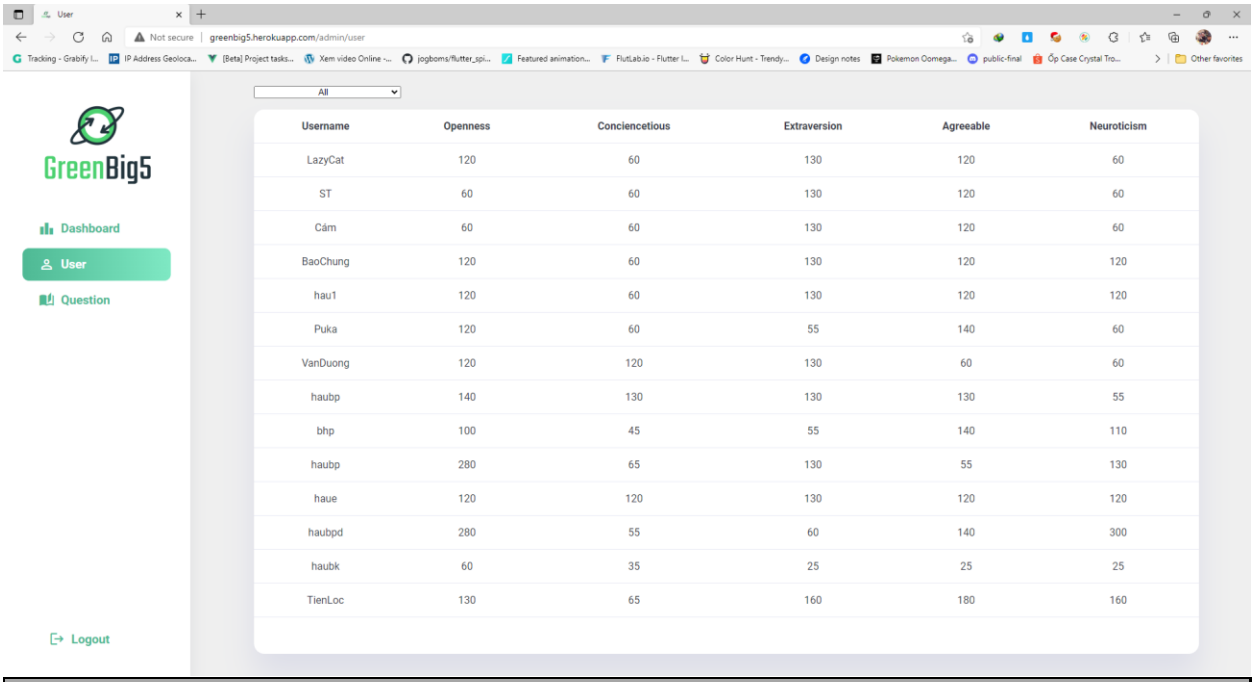
Question dashboard

Dashboard page				
No.	**Field name**	**Type**	**Require**	**Target**
1	Header	H1	Color: #00000	

2	Card	div	background: var(--color-background);
			padding: 1.8rem;
			border-radius: 1rem;
			width: 48%;
			margin-top: 1rem;
			box-shadow: var(--box-shadow);
				Total people, total questions

3	Column chart	div	margin-top: 2rem; height: 50%; width: 100%; background-color: white; padding: 12px; border-radius: 15px; box-shadow: 1px 5px 5px 1px rgb(0 0 0 / 20%);	
4	Pie Chart	div	Display: flex display: block; box-sizing: border-box; height: 464px; width: 464px;	

2.4. User page



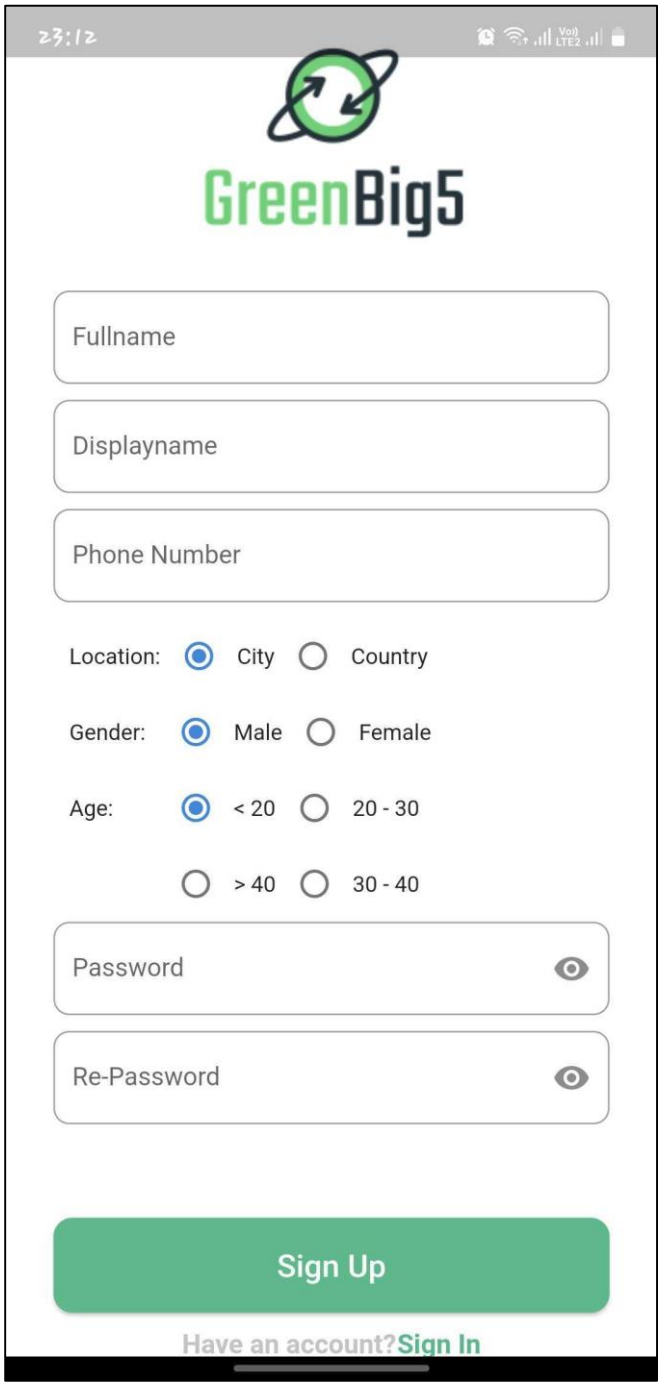
User page				
No.	**Field name**	**Type**	**Require**	**Target**
1	Filter	Dropdown(Select tag)	All: Openness, Conciencetious, Extraversion, Agreeable, Neuroticism.	
2	Table	Table tag	margin: 0 auto; width: 90%; overflow-y: auto; height: 70vh; background:var(--color-background); border-radius: 1rem;	

3. DETAILED INTERFACE APPLICATION DESIGN

3.1. Sign In page

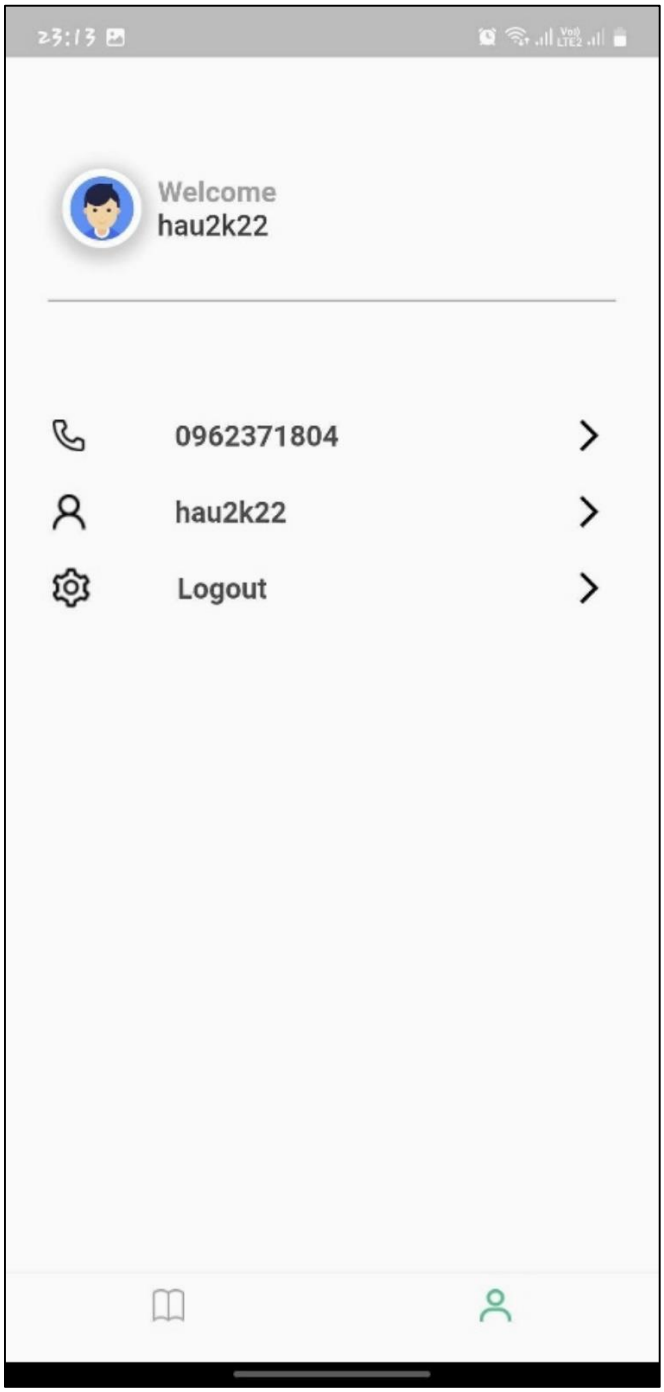
Input Question Form				
No.	**Field name**	**Type**	**Require**	**Target**
1	Background		backgroundColor: Colors.white,	
2	Header	Text	fontWeight: FontWeight.bold, fontSize: 28.0	
3	Subtitle	Text	color: Colors.grey, fontSize: 25.0,	
4	Logo	Image		logo_green.png
5	Input information	TextFormField	borderRadius:BorderRadius.all(Radius.circular(10.0)),	Phone number, password
6	Button	Button	fontSize: 20.0, HexColor(“#2FBB89”) borderRadius: BorderRadius.circular(12.0),	when onclick it go through the login process
7	Signup	Link	HexColor(“#2FBB89”)	When onclick make, you will be redirected to the signup page

3.2. Signup page



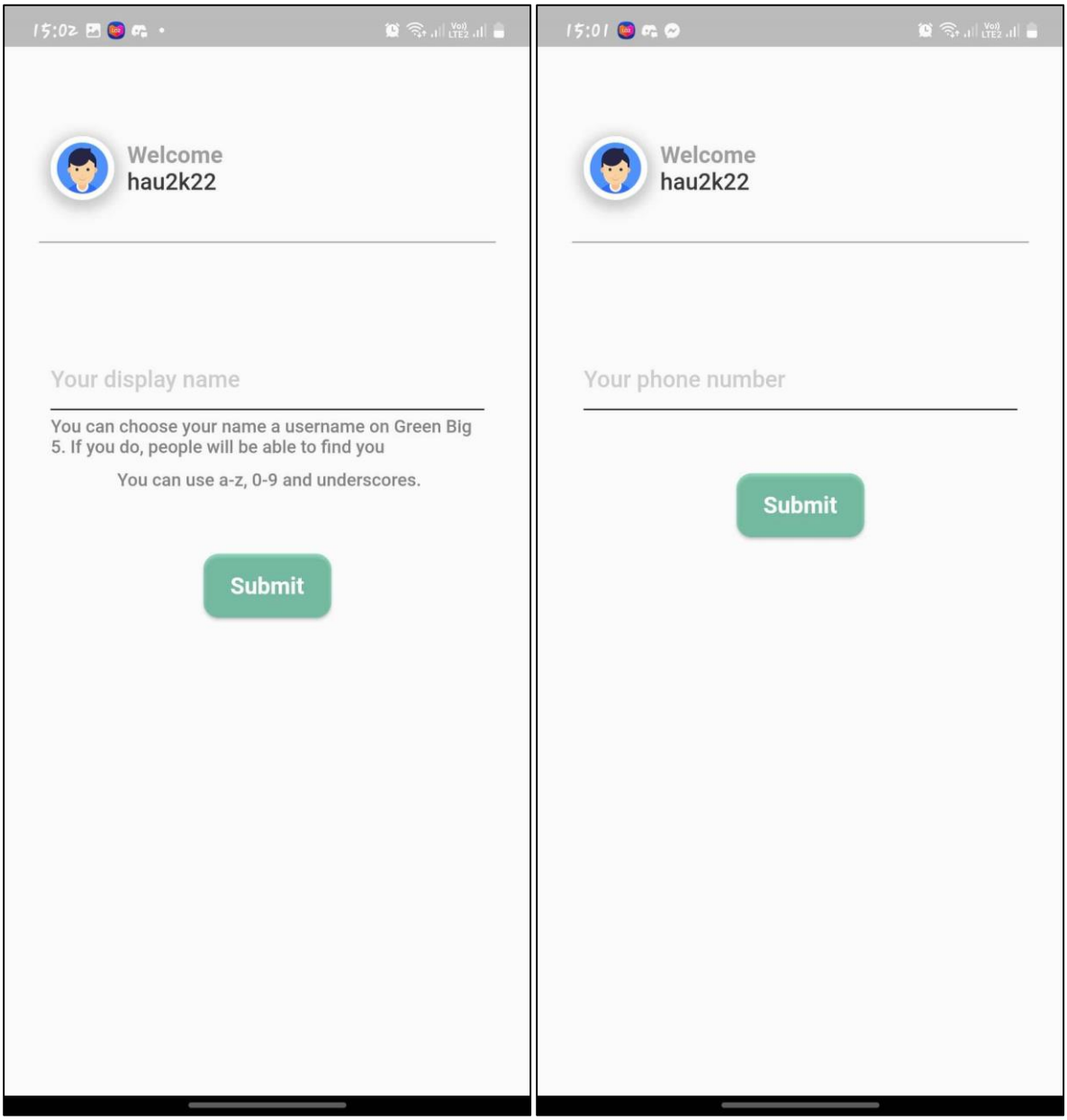
Input Question Form				
No.	**Field name**	**Type**	**Require**	**Target**
1	Background		backgroundColor: Colors.white,	
2	Header	Text	fontWeight: FontWeight.bold, fontSize: 28.0	
3	Subtitle	Text	color: Colors.grey, fontSize: 25.0,	
4	Logo	Image		logo_green.png
5	Input information	TextFormField	borderRadius:BorderRadius.all(Radius.circular(10.0)),	Full Name, Display Name,Phone number, password, Repassword
6	Radio	Radio Class	Radio<SingingCharacter>	(Location,Gender, Age). When you click you can change the properties you want
7	Button	Button	fontSize: 20.0, HexColor(“#2FBB89”) borderRadius: BorderRadius.circular(12.0),	when onclick it go through the login process

3.3. User information page



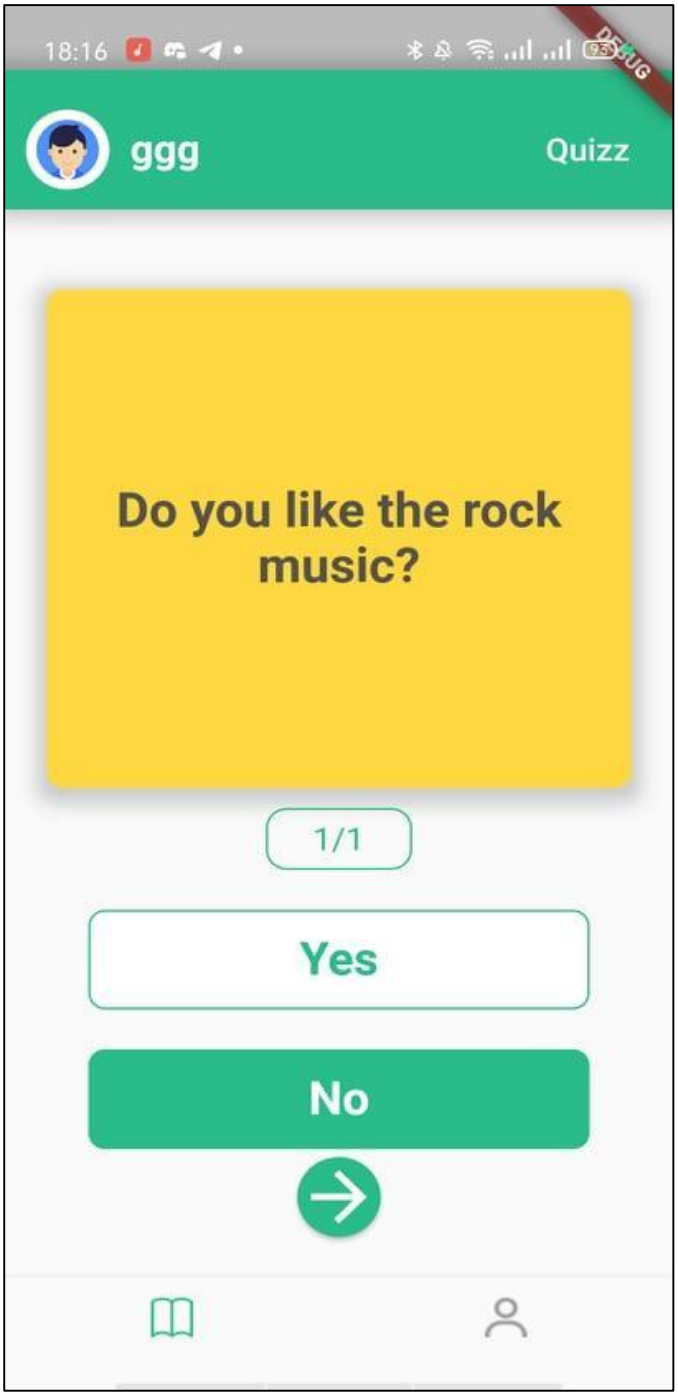
Input Question Form				
No.	**Field name**	**Type**	**Require**	**Target**
1	Background		backgroundColor: Colors.grey,	
2	Subtitle	Text	color: Colors.Gray, fontSize: 24.0,fontWeight: Bold.	
3	Name	Text	color: Colors.black, fontSize: 22.0,fontWeight: Bold.	
4	Logo User	Image	color: Colors.white, width: 5.0	user.png
5	Change_title	Text	fontSize: 18	
6	Icon	Icons class	fontSize: 18	
7	Icon_active	Icons class	fontSize: 18	When clicked will trigger the preset action

3.4. Change DisplayName, PhoneNumber page



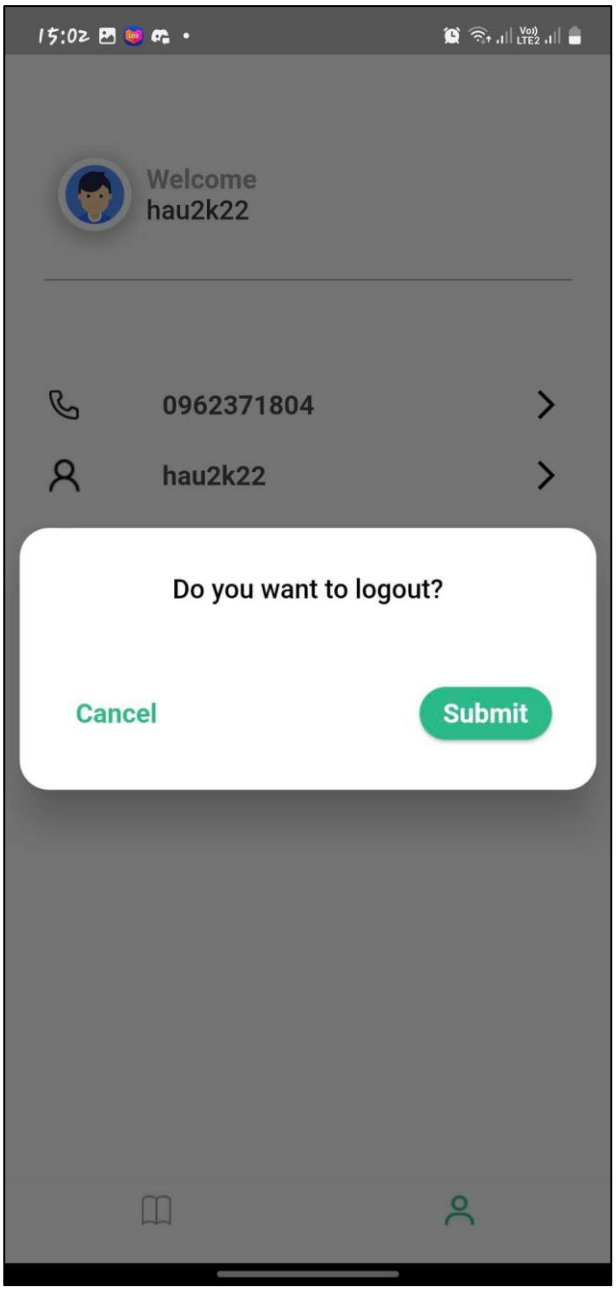
Input Question Form				
No.	**Field name**	**Type**	**Require**	**Target**
1	Background		backgroundColor: Colors.grey,	
3	Subtitle	Text	color: Colors.black, fontSize: 24.0,	
4	Logo	Image	color: Colors.white, width: 5.0	user.png
5	Change form	TextFormField	fontSize: 18	Enter to change your change information
6	Button	Button	fontSize: 20.0, HexColor(“#2FBB89”) borderRadius: BorderRadius.circular(12.0),	When onclick it change display name, phone number

3.5. Question page



Input Question Form				
No.	**Field name**	**Type**	**Require**	**Target**
1	Background		backgroundColor: Colors.grey,	
2	Header		color: Colors.grey.withOpacity(0.5), spreadRadius: 5, blurRadius: 7, offset: Offset(0,0.2) HexColor(“#2FBB89”)	
3	Name	Text	fontWeight: FontWeight.w700, fontSize: 17.0, color: Colors.white	
4	Subtitle	Text	fontSize: 14.0,fontWeight: FontWeight.w500, color: Colors.white,	
5	Logo	Image	color: Colors.white, width: 5.0, borderRadius: BorderRadius.circular(150.0),	user.png
6	Phone Number	TextFormField	fontSize: 18	Enter to change your display name
7	Answer	Button (Option)	option(id, questionDefind, phoneNumber,"Yes",100.0), SizedBox(width: 20.0,), option(id, questionDefind, phoneNumber,"No",100.0)	when onclick select the user's answer
8	Skip	Button (Option)	option(id,questionDefind, phoneNumber,"Skip",250.0)	when onclick skip question

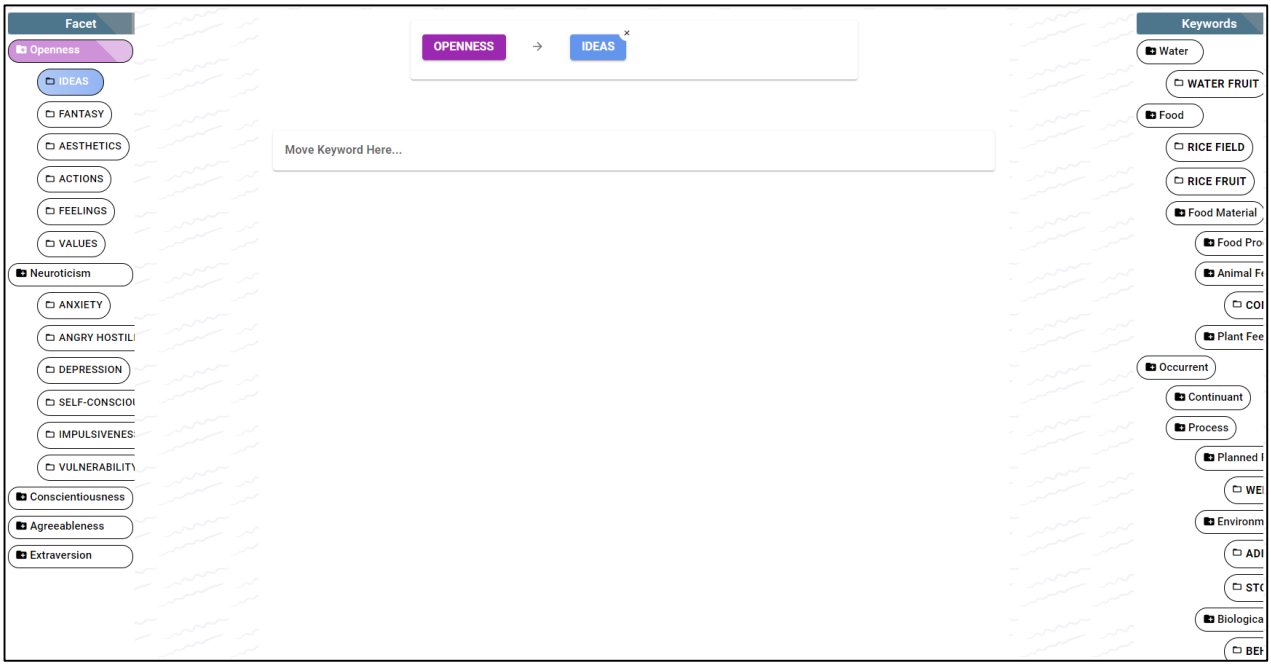
3.5. Logout


15:02
Welcome
hau2k22
0962371804
hau2k22
Do you want to logout?
Cancel
Submit

Input Question Form				
No.	**Field name**	**Type**	**Require**	**Target**
1	Background		backgroundColor: Colors.white,	
2	Title	Text	fontSize: 14.0, fontWeight: FontWeight.w500, color: Colors.white,	
3	Cancel	Button	fontSize: 18, FontWeight.w500, color: (“#2FBB89”)	When onclick will exit the logout
4	Submit	Button	fontSize: 18, color: Colors.white, HexColor(“#2FBB89”) borderRadius: BorderRadius.circular(12.0),	When onclick will submit the logout

4. DETAILED INTERFACE QUESTION WEB DESIGN

4.1 Home page

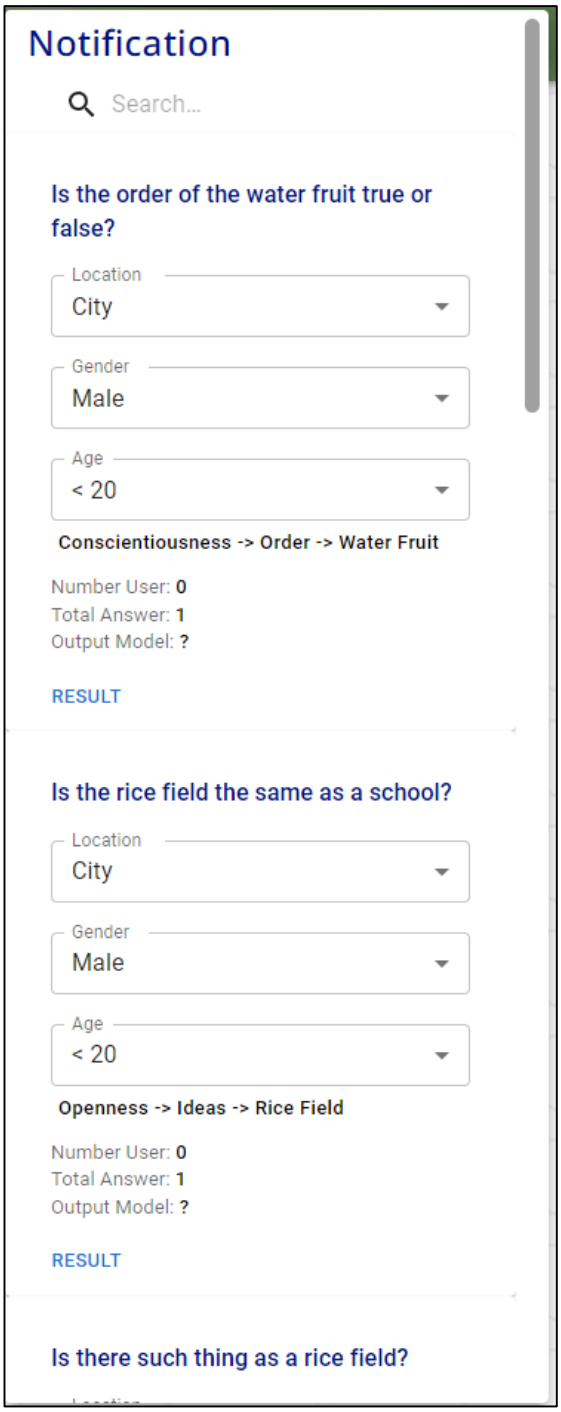


Input Question Form				
No.	**Field name**	**Type**	**Require**	**Target**
1	Background		backgroundColor: rgb(255, 255, 255)	
2	Tree data	Ul tag	display: block !important; transition: all 2s; border-radius: 50%; fontsize: 14, font-weight: 500;	Facet, Keywords
3	Button	Button	border-radius: 50%; fontsize: 14, font-weight: 500;	When onclick the data will drop down & move the button to the middle position to create a data tree

4.2 Navbar

Input Question Form				
No.	**Field name**	**Type**	**Require**	**Target**
1	Background		-webkit-box-flex: 1; flex-grow: 1; background-image: url(https://ak.picdn.net/shutterstock/videos/10205426/thumb/1.jpg); background-repeat:no-repeat; background-size: cover; background-position: right center; padding: 0px;	
2	Tittle	Text	Color: #ffffff fontsize: 20, font-weight: 500;	
3	Notification	Button	fontsize: 14,	When onclick the notification will drop down

4.3 Notification



Input Question Form				
No.	**Field name**	**Type**	**Require**	**Target**
1	Background		background-color: rgb(255, 255, 255); color: rgba(0, 0, 0, 0.87); transition: box-shadow 300ms cubic-bezier(0.4, 0, 0.2, 1) 0ms; border-radius: 4px; box-shadow: rgb(0 0 0 / 20%) 0px 5px 5px -3px, rgb(0 0 0 / 14%) 0px 8px 10px 1px, rgb(0 0 0 / 12%) 0px 3px 14px 2px; position: absolute; overflow: hidden auto; min-width: 16px; min-height: 16px; max-width: calc(100% - 32px); max-height: calc(100% - 32px); outline: 0px;	
2	Tittle	Text	color: #001188 !important; padding: 5px; font-size: 24px !important; font-family: 'Noto Sans', sans-serif !important; margin-left: 10px !important;	
3	Search	Text field, Button	padding: 8px 8px 8px calc(1em + 32px); transition: width 300ms cubic-bezier(0.4, 0, 0.2, 1) 0ms	When type will automatically search by keyword
4	Question information	Select tag	appearance: none; user-select: none; border-radius: 4px; cursor: pointer; font: inherit; letter-spacing: inherit; color: currentcolor;	Location, Gender, Age When onclick the (Location, Gender, Age) select the

			border: 0px; box-sizing: content-box; background: none; height: 1.4375em; margin: 0px; -webkit-tap-highlight-color: transparent; display: block; min-width: 0px; width: 100%; animation-name: mui-auto-fill-cancel; animation-duration: 10ms; padding: 16.5px 14px;	state you need to change

DUY TÂN UNIVERSITY
International School

CAPSTONE PROJECT 2

CMU-SE-451

Database Design Document

v 1.1

Green Big5 Information System

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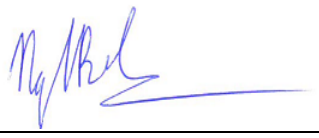
Capstone Project 2 - Mentor:

Name	Signature	Date
Nguyen Thanh Binh		15.05.2022

Project Information

Project acronym	GB5		
Project Title	GreenBig5		
Start Date	01 March 2022	**End Date** 16 May 2022	
Lead Institution	International School, Duy Tan University		
Project Mentor	Doctor. Habil. Binh, Thanh Nguyen		
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Database Design Document

Document Title	Database Design Document		
Reporting Period			
Author(s)	Loc, Nguyen Tien		
Team Information	**Name**	**Role**	
	Loc, Nguyen Tien	Member	
	Chung, Bao Hoang	Member	
	Vinh, Do Quang	Member	
	Kha, Ngo Van	Member	
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V1.0	02/03/2022	Create Database Design
V1.1	04/04/2022	Update Question Table

Document Approvals

The following signatures are required for approval of this document.

Doctor. Habil. Binh, Thanh Nguyen Mentor		Date 15/05/2022
Loc, Nguyen Tien Scrum master, DevTeam		Date 02/03/2022
Chung, Hoang Bao Product Owner, DevTeam		Date 03/03/2022
Vinh, Do Quang DevTeam		Date 03/03/2022
Kha, Ngo Van DevTeam		Date 03/03/2022

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1. Introduction

1.1. Purpose

Place information system's database design document describes the structure of the database and file structure of the system. Database Design document will introduce all attributes of the System that will help developer and tester base on this design to implement and test.

1.2. Goal

To create database tables most accurate.

1.3. Scope

This Database Design Document provides the basis for "GB5 Database design.

It describes both logical and physical definition, non-functional issues, and the database interfaces; storage aspects are defined in the physical database design sections.

The tables performance considerations requirements. The following topics are covered in this document:

- Assumptions and decisions on database design.
- Table column definitions.
- Interfaces and dependencies with other components.

The database design is composed of definitions for database objects derived by mapping entities to tables attributes to columns, unique identifiers to unique keys and relationships to foreign keys.

During design, these initial definitions are enhanced to support the functionality described in the functional specification/ user stories and defined in the primary and supporting modules of the application high level design.

1.4. Data storage platforms

- Data of application is stored in MongoDB

- In MongoDB, data structure is stored as a file system that takes advantage of the above functions and acts as a way of delivering over sharding[1].

1.5. Definition, Acronyms and Abbreviations

Abbreviations	Description	Comment

2. Database Design

2.1. Table Overview

No.	Table name	Short Description
1	Admin	This table shows all information of Administrator
2	Users	This table shows all information of user
3	Questions	This table shows all information of question
4	Suggest question	This table shows all information of suggest question

2.2. Detail

2.3.1. Admin


```
_id: ObjectId("61b5e01509e1aa0aed2b9083")
username: "NguyenTienLoc"
password: "TienLoc20"
id: "ancoijas2412kj"
```


Attributes	Datatype	Null	Description	Extra
_id	objectId	Not		
username	String		Login name	
password	String		Login passwords	
id	String			

2.3.2. Users


```
_id: ObjectId('627cef4032ca0300235e3a9d')
phoneNumber: "0889192933"
fullName: "Hoàng Bảo Chung"
displayName: "Bao Chung"
gender: 1
age: 2
location: 1
› addressMap: Array
keySeceret: "ANeto2Qhz"
⌄ Questions: Array
  ⌄ 0: Object
      id: "jByNLU9df"
      dateTime: 2022-05-12T11:28:01.205+00:00
    ⌄ questionsDate: Array
        › 0: Object
        › 1: Object
        › 2: Object
        › 3: Object
        › 4: Object
      pointConscientious: 50
      pointExtraversion: 50
      pointOpenness: 90
      pointAgreeable: 50
      pointNeuroticism: 50
      pointMultyplyOpenness: 6
  › 1: Object
  › 2: Object
  › 3: Object
  › 4: Object
password: "$2b$10$9amG/CnmSfVowubyNgIJQORcJipW41sgA3zuTJZ738kqG/WmIBcVC"
seen: false
```


Attributes	Datatype	Null	Description	Extra
_id	objectID	Not	Obecjt id in mongoDB	
phoneNumber	String	Not	Phone number of user	
fullName	String	Not	Full name of user	

displayName	String	Not	Display name of user	
addressMap	Array		List address of user	
Questions	Array		List question was send to user	
id	String		Id of list question was send follow list	
dateTime	datetime		Date and time list question was send	
questionDate	Array		Question are sent by the dashboard and by day	
answer	String		User's answer	
pointOpenness	Int		User's Openness point	
pointConscientious	Int		User's Conscientious point	
pointExtraversion	Int		User's Extraversion point	
pointNeuroticism	Int		User's Neuroticism point	
pointArgeeable	Int		User's Agreeable point	
pointMultyplyOpenness	Int		User's Openness Multyply point	
pointMultyplyConscientious	Int		User's Conscientious Multyply point	
pointMultyplyExtraversion	Int		User's Extraversion Multyply point	
pointMultyplyNeuroticism	Int		User's Neuroticism Multyply point	
pointMultyplyArgeeable	Int		User's Agreeable Multyply point	
password	String		Password of users that was encode	
seen	boolean		Check if the user answered or not?	

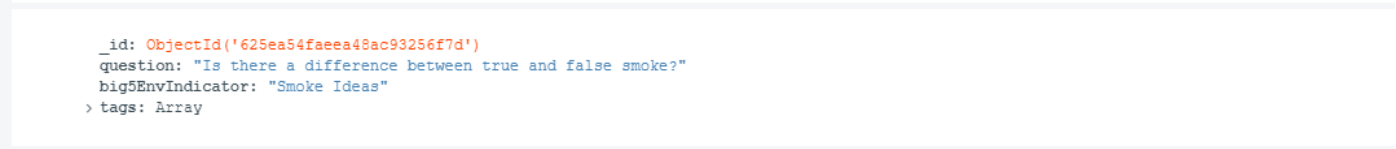
2.3.3. Question


```
_id: ObjectId('627b7841ee124db410bde580')
__v: 0
big5EnvIndicator: "Water Fruit Order"
facet: "Order"
keyword: "Water Fruit"
› personality: Array
› point: Object
question: "Is the order of things true or false?"
› tags: Array
trait: "Conscientiousness"
numberUser: 1
totalAnswer: 1
```


Attributes	Datatype	Null	Description	Extra
_id	ObjectId	not	Object Id mongodb	
big5Envindicator	String	Not	Big5 env indicator of question	
question	String	Not	Content of question	

personality	Array	Not	List of personality of question	
point	Object	Not	List point of question	
pointHigh	Int	Not	Point high of question	
ponitMedium	Int	Not	Point medium of question	
pointLow	Int	Not	Point low of question	
facet	String	Not	Facet of questiom	
keyword	String	Not	Keyword of question	
tags	Array	Not	List tag of question	
numberUser	Int		Create when send question to user	
totalAnswer	Int		Create when user answer question	

2.3.4)Suggest question



Attributes	Datatype	Null	Description	Extra
_id	ObjectId	Nnot	Object Id mongodb	
big5Envindicator	String	Not	Big5 env indicator of question	
question	String	Not	Content of question	
tags	Array	Not	List tag of question	

3. References

[1] MongoDB: the application data platform | MongoDB
[2] diagrams.net

DUY TÂN UNIVERSITY

International School

CAPSTONE PROJECT 2

CMU-SE-451

TEST PLAN DOCUMENT

Version 1.1

Date: 07 – May – 2022

GREEN BIG 5 INFORMATION SYSTEM

Submitted by

Loc,Nguyen Tien
Chung,Hoang Bao
Kha,Ngo Van
Vinh,Do Quang

Approved by

Capstone Project 2 - Mentor:

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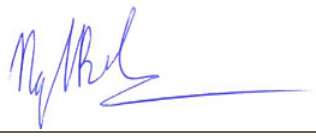
Nguyen Thanh Binh		15.05.2022

PROJECT INFORMATION			
Project Acronym	GB5		
Project Title	Green Big 5 information system		
Start Date	01 – Mar – 2022		
End Date:	16 – May – 2022		
Lead Institution	International School, Duy Tan University		
Project Mentor	PhD Binh, Nguyen Thanh		
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1. QUALITY OBJECTIVES

Planning for the project Smart Dashboard Application testing, to ensure that the testing is done according to plan, implement fully the necessary requirements, high work efficiency and give the best product.

2. SCOPE OF TEST

2.1. FUNCTIONS

Below are the functional requirement that are being offered for this system, which are the main purpose of this project:

- GB5 App
  - Login/Sign in: Users can login to the BG5 Application to use it if they already have an account, or they can register if they don't.
  - View the question: Users can see the question in the BG5 Application.
  - Answer the question: Users can answer the question in the application.
  - View the ranking: Users can see their ranking after finishing answering the question, also they can see the other user score.
  - Get location: GB5 app will request location service to get user location
- GB5 data management system
  - Store user information.
  - Store Big5 indicator, so that the Model can receive to predict Big5 traits.
  - Store user's Answer for the Model.
  - Interact with the GB5 App to show the question.
  - Interact with the GB5 AI model.
  - Send the big5 questions based on the *big5 scenario*.
  - Show data into a dashboard to manage the data.
  - Smart Dashboard to generate questions based on Big5 indicator and Environment keyword
  - Predict the user's personality affects the environment

2.2. USER INTERFACE

- **Dashboard scene**
  - Navigation bar scene.
    - Logo
    - Group Button
      - Save
      - User
      - Trait
      - Question

                - Menu
            - Group List
            -
    - Toolbar Scene.
    - Mashup Content scene.
    - Output log scene.
        - Properties
        - Widget Infos
        - Output log
    - Visualization data by Column chart, Line chart.
- **Application scene**
    - Question scene
        - Logo
        - User name
        - Question component
        - Answer component
    - Login scene
        - Logo
        - Phone number /Password Input
        - Forget password
        - Login button
    - Signin scene
        - Welcome text
        - Full name Input
        - Phone number Input
        - Location radio button
        - Gender radio button
        - Age radio button
        - Password Input
        - Re-password Input
    - Signout scene
        - Confirm text
        - Cancel button
        - Yes button

2.3. Databases

- Receive data from Dashboard
- Send question data to Application
- Filtering user’s trait team
- Calculate user trait
- Send data to the Dashboard

3. TEST STRATEGY

We are using Black box testing due to fast lifecycle of project:

- Manual Test (Exploratory Testing).
- Acceptance Test.
- Functional Test (Function, UI).

4. TEST CRITERIA

- The Testing process finishes when 90% of test cases pass status.
- Testing all test cases.
- The document will be delivered to the customer when sprint time is finished.

5. TEST MANAGEMENT

5.1. TEAM

Full Name	Email	Phone number	Role
Loc, Tien Nguyen	nguyentienloc18122000@gmail.com	0932 478 789	Scrum master
Chung, Bao Hoang	baochunga1@gmail.com	0889 192 932	Team member
Kha, Van Ngo	ngokha437@gmail.com	0935 950 384	Team member
Vinh, Quang Do	doquangvinh0708co.gmail.com	0236 3519 169	Team member

5.2. COMMUNICATION TOOLS

- **Slack**: Report bugs, notify updates,...
- **Messenger**: Chat, discuss.
- **Meet**: discuss online.
- **Skype**: Contact, discuss with mentor Binh.

5.3. TEST MANAGEMENT TOOLS

Purpose	Tool	Vendor/In-house	Version
Excel Sheet to track Test Plan and Test Case	Google Sheet	Google	Latest

6. RISKS & ASSUMPTIONS

6.1. RISKS

Risk	Definition	Probability	Severity	Mitigation Strategy
Scope Risk	A high numbers of modules	H	H	All team members join to test system Testing in each plan
Scheduling Risk	Testing projects are not efficiently or completely	M	M	Move the not finish part of module to the next sprint
Time management	Most of the time is for development, not for testing.	M	H	Overtime
Operation Risk	Ineffective processing, system failures, or unanticipated circumstance define operational risk	M	M	Estimate more time to testing and other issues

Probability		Severity	
L	Rarely happens.	L	Low damaged
M	Sometime happened	M	Medium damaged
H	Usually happened	H	Serious damaged

6.2. ASSUMPTIONS

Assumption to be proven	Impact of Assumption being incorrect	Owners
Network Available	Dropout network, unstable network	Network Providers

7. TEST SCHEDULE

No	Task Name	Duration (Hours)	Start	Finish	Resources
1	**Test Sprint 1**	**30**	**Mar 1, 2022**	**Apr 4, 2022**	
1.1	Document test	8			Chung
1.2	Logo test	2			Vinh
1.3	Login UI test	2			Kha
1.4	Signout UI test	4			Loc

1.5	Sign In UI test	4			Vinh
1.6	Sign In form UI test	4			Kha
1.7	Question UI test	6			Chung
2	**Test Sprint 2**	**48**	**Apr 4, 2022**	**Apr 23, 2022**	
2.1	Validating send question process	10			Loc
2.2	Validating question load process	6			Chung
2.3	Sign in and Sign form test	2			Kha
2.4	Validating team filter test	4			Loc, Vinh
2.5	Signout test	2			Kha
2.6	Answer question test	10			All Member
2.7	Logout test	2			Loc
2.8	API Register test	4			Loc
2.9	API Collect Address test	4			Loc
2.10	Collect Address Function test	4			Kha
3	**Test Sprint 3**	**50**	**Apr 23, 2022**	**May 6, 2022**	
3.1	Check filter by Openness trait	4			Loc
3.2	Check filter by Conscientiousness trait	4			Loc
3.3	Check filter by Extraversion trait	4			Vinh
3.4	Check filter by Agreeable trait	4			Chung
3.5	Check filter by Neuroticism trait	4			Chung
3.6	Check question data bank	6			Vinh
3.7	API Get Keywords test	8			Loc
3.8	Connect Keyword-Big5 Indicator UI test	8			Loc

3.9	Connect Keyword-Big5 Indicator function test	8			Loc
4	**Test Sprint 4**	**30**	**May 6, 2022**	**May 16, 2022**	
4.1	Question Page UI test	2			Chung
4.2	User Page UI test	2			Chung
4.3	Login Page UI test	2			Kha
4.4	Trait Page UI test	2			Loc
4.5	Summary UI test	4			Kha
4.6	Send Question test	4			Chung, Loc
4.7	Save and Send Question UI test	1			Kha
4.8	API Send Question test	3			Vinh
4.9	Save and Send function test	4			Chung
4.10	Notification UI test	2			Loc
4.11	Notification function test	4			Kha

International School

CAPSTONE PROJECT 2

CMU-SE-451

TEST CASE DOCUMENT

Version 1.1

Date: 09 - May - 2022

Green Big5 Information System

Submitted by

Loc ,Nguyen Tien
Chung, Hoang Bao
Vinh ,Do Quang
Kha ,Ngo Van

Approved by

Capstone Project 2 - Mentor:

Name	Signature	Date
Nguyen Thanh Binh		15.05.2022

PROJECT INFORMATION			
Project Acronym	GB5		
Project Title	Green Big 5 information system		
Start Date	01 – Mar – 2022		
End Date:	16 – May – 2022		
Lead Institution	International School, Duy Tan University		
Project Mentor	PhD Binh, Nguyen Thanh		
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Access	Project and CMU Program		

REVISION HISTORY

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Draft	Loc, Tien Nguyen	01 – Mar – 2022	Initiate document	x
1.0	All members	21 – Apr – 2022	Finish content of proposal	x
1.1	All members	09 – May – 2022	Update new test cases	x

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1. PURPOSE

The purpose of this checklist family is to exercise the functional areas of Green Big5 Information System. It is the intention of this checklist family that by exercising these areas of the application we will evidence (verification and validation):

- That everything that should be happening and present, is in fact, happening, happening correctly, present and correct present.
- That nothing that should not be present or inaccurate, is present or inaccurate.

2. SCOPE

This checklist does test Application User Interface, Dashboard User Interface, Functional, and Green Big5 Information System.

3. ASSUMPTIONS

The following assumptions were identified and utilized in the construction of this checklist:

- User Interface (UI)
- User experience (UX)
- Functional
- Database

4. VARIANT USES

This checklist can be executed as is for all of the features in Sprints.

5. CHECKLIST

5.1. SPRINT 1

Application Testing Checklist - Sprint 1			
Tested By	All member	**Date**	01/03/2022
Application Name	**Green Big5 Information system**		
No	**Procedure**	**Pass/Fail (P/F)**	**Comments**
LoginScreen			
C01	Logo: GreenBig5	P	
C02	Screen have 2 input field: phone number, password	P	
C03	Login button: background-color:#29BB89	P	
C04	Input fields required to be filled	P	
C05	If user input wrong phone number or password, show the text to announce to the user	F	
Navbar in Application			

C01	Logo:  , Has Link to "/"	F	
C01	Height: 90px;	P	
C02	Has 2 item:UserInfo, Question	P	
C03	Mobile: height: 100vh	P	
C04	Display in Android devices	P	
C05	Display in IOS Devices	F	
C06	Primary color: #29BB89	P	
Sign In Screen			
C01	Screen have 4 input field: Full name, Phone number, password, re-password	P	
C02	Sign In button: color:#29BB89, background-color:#000000	P	
C03	Come to Login Screen	F	

5.2. SPRINT 2

Application Testing Checklist - Sprint 2			
Tested By	All member	**Date**	04/04/2022
Application Name	**Green Big5 Information System**		
No	**Procedure**	**Pass/Fail (P/F)**	**Comments**
Question screen			
C01	Question box: background-color: #FFE893, color:#545151	F	
C02	Answer button: has 2 buttons Background-color:#29BB89(clicked) Background-color: #000000	P	
C03	Skip button: move to the next question	P	
C04	After click "Yes" or "No" button, the application come to the next question	F	
C05	After answer final question, move to the thank you screen	P	
C06	Screen should have a notification to request location	P	

	service		
C07	After user enable location service, GB5 app get current user location	P	
User Info			
C12	Phone number: user phone number › to change phone number	P	
C13	User name: user's display name › to change user name	P	
C14	Logout › move to validate screen that the user want to logout	P	
Notification			
C01	Notify to the user when the new question arrive	P	
C02	Notify to the user if they want to logout	P	
Register			
C01	Screen have 5 input field: Full name, Display name, Phone number, password, re-password	P	
C02	Screen have 3 radio button field: Location, Gender, Age	P	
C03	Sign Up button: color:#29BB89, background-color:#000000	P	

5.3. SPRINT 3

Application Testing Checklist - Sprint 3			
Tested By	All member	**Date**	23/04/2022
Application Name	**Green Big5 Information System**		
No	**Procedure**	**Pass/Fail (P/F)**	**Comments**
Dashboard page			
C01	Each trait have a specific color on chart	P	
C02	Show total user in Y-line on the chart	F	
C03	Show total user	P	
C04	Show % of user in a circle chart	F	
C05	Each trait have a specific color on circle	P	
C06	Login with an anonymous account	F	

C07	Tree format for Keyword-Big5 indicators	P	
User Page			
C01	Each user column show all trait point	P	
C02	Show User detail when click at the user name	F	
C03	User trait point update automatic	P	

5.4. SPRINT 4

Application Testing Checklist - Sprint 4			
Tested By	Smart Dashboard Application	**Date**	06/05/2022
Application Name	**Green Big5 Information System**		
No	**Procedure**	**Pass/Fail (P/F)**	**Comments**
Question Page			
C01	Select only one question in one times	P	
C02	Show question in table	P	
C03	Input trait point	P	
C04	Edit question	F	
C05	Input question	P	
C06	Delete question	P	
C07	Do not enter the question in the textbox but press save	F	Question must be entered
C08	Send a question to a group of people	P	
C09	Send questions to multiple groups of people	P	
C10	Enter multiple questions at once	F	
C11	Submit multiple questions at once	F	
C12	Have not selected a question but pressed Send	F	
C13	Enter a question with multiple Highs	F	Only one
C14	Duplicate question input	F	Only one
C15	Do not select the group but press the send button	F	
User Page			
C01	Show User detail when click at the user name	P	
Dashboard page			

C01	Show % of user in a circle chart	P	
C02	Notification show correct flow in the system	P	
C03	The user should receive a question when admin send it from dashboard	P	

DUY TÂN UNIVERSITY

International School

CAPSTONE PROJECT 2

CMU-SE-451

TEAM MEETING DOCUMENT

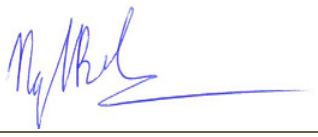
Green Big5 Information System

Submitted by

Loc, Nguyen Tien
Chung ,Hoang Bao
Vinh ,Do Quang
Kha ,Ngo Van

Approved by

Capstone Project 2 - Mentor:

Name	Signature	Date
Nguyen Thanh Binh		15.05.2022

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Project Mentor	Binh, Nguyen Thanh		
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Team Members	Chung, Bao Hoang	baochunga1@gmail.com	0975059021
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Access	Project and CMU Program		

15 – March - 2022

GREEN BIG5 INFORMATION SYSTEM

TEAM MEETING

Team Name:C2SE.32

Meeting Date: 15-March-2022 Approval: 15-March-2022
Meeting Location: Online meeting Recorded By: Chung

1. ATTENDANCE

Name	Title	Acronym	Present
Loc, Nguyen Tien	Leader	THC	Yes
Vinh, Do Quang	Member	TL	Yes
Kha, Ngo Van	Member	PH	Yes
Chung, Hoang Bao	Secretary	BC	Yes

2. MEETING LOCATION

- Online meeting: Google meet

3. MEETING START

- Meeting Schedule start: 15:00
- Meeting Actual start: 15:30
- Meeting note taker: Chung

4. AGENDA

- Discuss about proposal format.

5. POST MEETING ACTION ITEMS

Action	Assigned To	Deadline
Require proposal	All member	18 - February -2022

6. MEETING END

- Meeting Schedule end: 17:00
- Meeting Actual end: 17:00

Secretary

Chung

Chung, Hoang Bao

02 – March - 2022

GREEN BIG5 INFORMATION SYSTEM

TEAM MEETING

Team Name:C2SE.32

Meeting Date: 02 – March - 2022
Meeting Location: Online meeting

Approval: 02 – March - 2022
Recorded By: Chung

1. ATTENDANCE

Name	Title	Acronym	Present
Loc, Nguyen Tien	Leader	THC	Yes
Vinh, Do Quang	Member	TL	Yes
Kha, Ngo Van	Member	PH	Yes
Chung, Hoang Bao	Secretary	BC	Yes

2. MEETING LOCATION

- Online meeting: Google meet

3. MEETING START

- Meeting Schedule start: 20:00
- Meeting Actual start: 20:15
- Meeting note taker: Chung

4. AGENDA

- Work assignment
- Discuss about functional
- Discuss which technologies will be used.

5. POST MEETING ACTION ITEMS

Action	Assigned To	Deadline
Talk about work assignment	All member	11 – March - 2022
Talk about technologies will be uses	All member	11 – March - 2022

6. MEETING END

- Meeting Schedule end: 22:00
- Meeting Actual end: 22:10

Secretary

Chung

Chung, Hoang Bao

14 – March - 2022

Green Big5 Information System

TEAM MEETING

Team Name:C2SE.32

Meeting Date: 14 – March - 2022
Meeting Location: Online meeting

Approval: 14 – March - 2022
Recorded By: Chung

1. ATTENDANCE

Name	Title	Acronym	Present
Loc, Nguyen Tien	Leader	THC	Yes
Vinh, Do Quang	Member	TL	Yes
Kha, Ngo Van	Member	PH	Yes
Chung, Hoang Bao	Secretary	BC	Yes

2. MEETING LOCATION

- Online meeting: Google Meet

3. MEETING START

- Meeting Schedule start: 20:00
- Meeting Actual start: 20:00
- Meeting note taker: Chung

4. AGENDA

- Alert research situation

5. MEETING END

- Meeting Schedule end: 20:00
- Meeting Actual end: 20:30

Secretary

Chung

Chung, Hoang Bao

21 – March - 2022

GREEN BIG5 INFORMATION SYSTEM

TEAM MEETING

Meeting Date:21 – March - 2022
Meeting Location: Online meeting.

Approval: 21 – March - 2022
Recorded By: Chung

Team Name:C2SE.32

1. ATTENDANCE

Name	Title	Acronym	Present
Loc, Nguyen Tien	Leader	THC	Yes
Vinh, Do Quang	Member	TL	Yes
Kha, Ngo Van	Member	PH	Yes
Chung, Hoang Bao	Secretary	BC	Yes

2. MEETING LOCATION

- Online meeting: Google meet

3. MEETING START

- Meeting Schedule start: 19:00
- Meeting Actual start: 19:00
- Meeting note taker: Chung

4. AGENDA

- Alert research document

5. MEETING END

- Meeting Schedule end: 21:00
- Meeting Actual end: 21:00

Secretary

Chung

Chung, Hoang Bao

24 - April - 2022

GREEN BIG5 INFORMATION SYSTEM

TEAM MEETING

Meeting Date: 24- April - 2022
Meeting Location: Online Meeting.
Approval: 24- April - 2022
Recorded By: Chung

1. ATTENDANCE

Name	Title	Acronym	Present

Loc, Nguyen Tien	Leader	THC	Yes
Vinh, Do Quang	Member	TL	Yes
Kha, Ngo Van	Member	PH	Yes
Chung, Hoang Bao	Secretary	BC	Yes

2. MEETING LOCATION

- Online meeting: Google meet

3. MEETING START

- Meeting Schedule start: 21:00
- Meeting Actual start: 21:15
- Meeting note taker: Chung

4. AGENDA

- Demo Mobile Application

5. POST MEETING ACTION ITEMS

Action	Assigned To	Deadline
Fix Mobile Application	Kha	26-April-2022

6. MEETING END

- Meeting Schedule end: 22:30
- Meeting Actual end: 22:47

Secretary

Chung

Chung, Hoang bao

02- May - 2022

GREEN BIG5 INFORMATION SYSTEM

TEAM MEETING

Meeting Date: 24- April - 2022
Approval: 24- April - 2022
Meeting Location: Online Meeting.
Recorded By: Chung

1.ATTENDANCE

Name	Title	Acronym	Present
Loc, Nguyen Tien	Leader	THC	Yes
Vinh, Do Quang	Member	TL	Yes

Kha, Ngo Van	Member	PH	Yes
Chung, Hoang Bao	Secretary	BC	Yes

2.MEETING LOCATION

- Online meeting: Google meet

3.MEETING START

- Meeting Schedule start: 21:00
- Meeting Actual start: 21:15
- Meeting note taker: Chung

4.AGENDA

- Classify some requirements in dashboard GB5

5.POST MEETING ACTION ITEMS

Action	Assigned To	Deadline
Code dashboard GB5	Vinh	

6.MEETING END

- Meeting Schedule end: 22:30
- Meeting Actual end: 22:47

Secretary

Chung

Chung, Hoang bao

12 - May - 2022

GREEN BIG5 INFORMATION SYSTEM

TEAM MEETING

Meeting Date: 12- May - 2022
Meeting Location: Online Meeting.
Approval: 12- May - 2022
Recorded By: Chung

1.ATTENDANCE

Name	Title	Acronym	Present
Loc, Nguyen Tien	Leader	THC	Yes
Vinh, Do Quang	Member	TL	Yes
Kha, Ngo Van	Member	PH	Yes

Chung, Hoang Bao	Secretary	BC	Yes

2.MEETING LOCATION

- Online meeting: Google meet

3.MEETING START

- Meeting Schedule start: 21:00
- Meeting Actual start: 21:15
- Meeting note taker: Chung

4.AGENDA

- Demo GB5 Dashboard

5.POST MEETING ACTION ITEMS

Action	Assigned To	Deadline
Demo GB5 Dashboard	All member	

6.MEETING END

- Meeting Schedule end: 22:30
- Meeting Actual end: 22:47

Secretary

Chung

Chung, Hoang bao

DUY TÂN UNIVERSITY

International School

CAPSTONE PROJECT 2

CMU-SE-451

MENTOR MEETING DOCUMENT

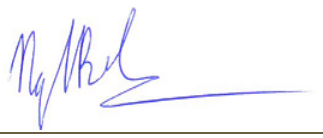
Green Big5 information System

Submitted by

Loc, Nguyen Tien
Chung, Hoang Bao
Vinh, Do Quang
Kha, Ngo Van

Approved by

Capstone Project 2 - Mentor:

Name	Signature	Date
Nguyen Thanh Binh		15.05.2022

PROJECT INFORMATION			
Project Acronym	GB5		
Project Title	Green Big 5 information system		
Start Date	01- March - 2022		
End Date:	15 - May - 2022		
Lead Institution	International School, Duy Tan University		
Project Mentor	Binh, Nguyen Thanh		
Scrum Master	Loc, Nguyen Tien	nguyentienloc18122000@gmail.com	0932478789
Team Members	Chung, Bao Hoang	baochunga1@gmail.com	0975059021
	Vinh, Do Quang	doquangvinh0708co@gmail.com	02363519169
	Kha, Ngo Van	ngokha437@gmail.com	0935950384

DOCUMENT INFORMATION			
Document Title	Mentor Meeting Document		
Author(s)	Team C2SE.32		
Role	Mentor Meeting Document		
Date	01 – March - 2022	File name	Mentor Meeting Document
Access	Project and CMU Program		

11 – March - 2022

GREEN BIG5 INFORMATION SYSTEM

MENTOR MEETING

Meeting Date: 11 – March - 2022
Approval: 11 – March - 2022
Meeting Location: Online meeting
Recorded By: Chung

1. ATTENDANCE

Name	Title	Acronym	Present
Loc, Nguyen Tien	Leader	THC	Yes
Vinh, Do Quang	Member	TL	Yes
Kha, Ngo Van	Member	PH	Yes
Chung, Hoang Bao	Secretary	BC	Yes

2. MEETING LOCATION

- Online meeting: Skype
- Meeting with mentor: Binh, Nguyen Thanh

3. MEETING START

- Meeting Schedule start: 15:00
- Meeting Actual start: 15:30
- Meeting note taker: Chung

4. AGENDA

- Requirement discussion
- Technology discussion
- Role discussion
- Big5 discussion

5. POST MEETING ACTION ITEMS

Action	Assigned To	Deadline
Requirement analize	All member	

6. MEETING END

- Meeting Schedule end: 16:30
- Meeting Actual end: 16:45

Secretary

Chung

Chung, Hoang Bao

20 – March - 2022

GREEN BIG5 INFORMATION SYSTEM

MENTOR MEETING

Meeting Date: 20 – March - 2022
Approval:20 – March - 2022
Meeting Location: Online meeting
Recorded By: Chung

1. ATTENDANCE

Name	Title	Acronym	Present
Loc, Nguyen Tien	Leader	THC	Yes
Vinh, Do Quang	Member	TL	Yes
Kha, Ngo Van	Member	PH	Yes
Chung, Hoang Bao	Secretary	BC	Yes

2. MEETING LOCATION

- Online meeting: Skype
- Meeting with mentor: Binh, Nguyen Thanh

3. MEETING START

- Meeting Schedule start: 16:30
- Meeting Actual start: 16:30
- Meeting note taker: Chung

4. AGENDA

- Discuss about Big5 env Indicator
- Discuss about content

5. POST MEETING ACTION ITEMS

Action	Assigned To	Deadline
Discuss about Big5 env indicator	All members	
Discuss about content	All members	

6. MEETING END

- Meeting Schedule end: 17:30
- Meeting Actual end: 17:30

Secretary

Chung

Chung, Hoang Bao

24 – April - 2022

GREEN BIG5 INFORMATION SYSTEM

MENTOR MEETING

Meeting Date: 24 - April - 2022
Approval: 24 - April - 2022
Meeting Location: Online meeting
Recorded By: Chung

1. ATTENDANCE

Name	Title	Acronym	Present
Loc, Nguyen Tien	Leader	THC	Yes
Vinh, Do Quang	Member	TL	Yes
Kha, Ngo Van	Member	PH	Yes
Chung, Hoang Bao	Secretary	BC	Yes

2. MEETING LOCATION

- Online meeting: Skype
- Meeting with mentor: Binh, Nguyen Thanh

3. MEETING START

- Meeting Schedule start: 16:30
- Meeting Actual start: 16:30
- Meeting note taker: Chung

4. AGENDA

- Demo GB5 Application
- Demo model AI

5. POST MEETING ACTION ITEMS

Action	Assigned To	Deadline
Fix GB5 Application	Kha, Loc	24 – April - 2022
Fix model AI	Chung	1 – May - 2022

6. MEETING END

- Meeting Schedule end: 17:30
- Meeting Actual end: 17:30

Secretary

Chung

Chung, Hoang Bao

8 - May - 2022

GREEN BIG5 INFORMATION SYSTEM

MENTOR MEETING

Meeting Date: 8 - May - 2022
Approval: 8 - May - 2022
Meeting Location: Online meeting
Recorded By: Chung

1. ATTENDANCE

Name	Title	Acronym	Present
Loc, Nguyen Tien	Leader	THC	Yes
Vinh, Do Quang	Member	TL	Yes
Kha, Ngo Van	Member	PH	Yes
Chung, Hoang Bao	Secretary	BC	Yes

2. MEETING LOCATION

- Online meeting: Google Meet
- Meeting with mentor: Binh, Nguyen Thanh

3. MEETING START

- Meeting Schedule start: 17:00
- Meeting Actual start: 17:40
- Meeting note taker: Chung

4. AGENDA

- Dashboard demo
- Product demo

5. POST MEETING ACTION ITEMS

Action	Assigned To	Deadline
Fix dashboard	Vinh	15-May-2022
Product demo	All Member	

6. MEETING END

- Meeting Schedule end: 19:00
- Meeting Actual end: 19:00

Secretary

Chung

Chung, Hoang Bao

15- May - 2022

GREEN BIG5 INFORMATION SYSTEM

MENTOR MEETING

Meeting Date: 15 - May - 2022
Approval: 15- May - 2022
Meeting Location: Online meeting
Recorded By: Chung

1. ATTENDANCE

Name	Title	Acronym	Present
Loc, Nguyen Tien	Leader	THC	Yes
Vinh, Do Quang	Member	TL	Yes
Kha, Ngo Van	Member	PH	Yes
Chung, Hoang Bao	Secretary	BC	Yes

2. MEETING LOCATION

- Online meeting: Skype
- Meeting with mentor: Binh, Nguyen Thanh

3. MEETING START

- Meeting Schedule start: 22:00
- Meeting Actual start: 23:10
- Meeting note taker: Chung

4. AGENDA

- Review Again Product

5. POST MEETING ACTION ITEMS

Action	Assigned To	Deadline
Review Again Product	All members	

6. MEETING END

- Meeting Schedule end: 00:00
- Meeting Actual end: 23:30

Secretary

Chung

Chung,Hoang Bao

DUY TÂN UNIVERSITY

International School

CAPSTONE PROJECT 2

CMU-SE-451

CODE STANDARD DOCUMENT

Version 1.1

Date: 15 - May - 2022

Green Big5 Information System

Submitted by

Loc ,Nguyen Tien

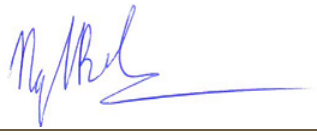
Chung ,Hoang Bao

Vinh,Do Quang

Kha,Ngo Van

Approved by

Capstone Project 2 - Mentor:

Name	Signature	Date
Nguyen Thanh Binh		15.05.2022

Project acronym	GB5		
Project Title	GreenBig5		
Start Date	1 March 2022	**End Date**	
Lead Institution	International School, Duy Tan University		
Project Mentor	Doctor. Habil. Binh, Thanh Nguyen		
Scrum master / Project Leader & contact details	Loc, Tien Nguyen Email: nguyentienloc18122000@gmail.com Tel: 0932.478.789		
Partner Organization			
Project Web URL			
Team members	Name	Email	Phone
	Chung, Bao Hoang	baochunga1@gmail.com	0889.192.932
	Vinh, Do Quang	doquangvinh0708co@gmail.com	0236.351.9169
	Kha, Ngo Van	ngokha437@gmail.com	0935.950.384

DOCUMENT INFORMATION			
Document Title	Code Standard Document		
Author(s)	Team C1SE.02		
Role	[GB5] Code Standard Document v1.0		
Date	15 -May - 2022	File name	[GB5] Code Standard Document v1.0
URL			
Access	Project and CMU Program		

REVISION HISTORY

Version	Person(s)	Date	Description	Approval
Draft	Loc,Nguyen Tien	24 -Feb - 2022	Initiate document	x
1.0	All members	15- May - 2022	Finish content of document	x

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1.

1. INTRODUCTION

1.1. PURPOSE

Providing a prioritized features list, containing short descriptions of all functionality desired in the product.

Containing a complete list of all requirements under consideration, rank ordered, and matrixed with other key characteristics that facilitate planning and prioritization.

1.2. SCOPE

Showing the user's role.

Storing all the user's requirements.

Giving a short description of all the functionality desired in the product.

Giving the priority of each feature of the product.

1.3. DEFINITIONS, ACRONYMS AND ABBREVIATIONS

Term	Definition
GB5	Green Big5
PB	Product Backlog
H	Priority Level - High
M	Priority Level - Medium
L	Priority Level - Low

1.4. REFERENCES

No.	Document Name	Note
1	Proposal Document	

2. PRODUCT BACKLOG

2.1. USER STORIES

ID	As a/an	I want to ...	so that ...	Priority	Status
PB1.1	Developer	Understand the project	Reseach about big5 personality model through internet or documen	**M**	**Done**
PB1.2	Developer	Understand about technical and requirement for project	Research document and technical for the project	**M**	**Done**
PB1.3	Developer	Understand about connect about big5 indicator trait and keywords of environment	Find keywords for environent and research about big5 indicator trait	**L**	**Done**
PB1.4	Developer	Understand about auto create question from keywords connect big5 indicator trait,auto predict big5 trait	Reseach model AI	**L**	**Done**
PB2.1	Developer	Create question and predict big5 trait	Create model AI	**M**	**Done**
PB2.2	Developer	Update register page to concide with new major	Update code	**H**	**Done**
PB2.3	Developer	Collect address of user	Create function for get address	**L**	**Done**
PB 3.1	Developer	Use API python for run function(model AI) in python	Create API from python	**L**	**Done**

PB 3.2	Administrator/ Content manager	Connect keywords and big5 indicator trait become a tree	Can see relationship about keywords and big5 indicator trait	**H**	**Done**
PB 3.3	As an administrator/ Content manager	I can edit the question data in a table…	can edit the user trait data	**M**	**Done**
PB 4.1	Administrator/ Content manager	Create the question	Can have new question	**H**	**Done**
PB 4.2	Administrator/ Content manager	Save or send question to all user	Can get more data for question or user	**M**	
PB 4.3	Administrator/ Content manager	See the flow of model AI for question and the status question was send	Can see the rightness	**L**	

2.2. FEATURE DESCRIPTION

ID	Feature Name	Description	Priority	Status
PB01	View question data	View question data in the database in a table	M	**Done**
PB02	Send question to user	Send question to group of user	H	**Done**
PB03	Visualize the trait data	-Visualise the trait data in a chart	M	**Done**
PB04	Answer question	Answer the question sent by the administrator/ Content manager in the GB5 App	H	**Done**

DUY TÂN UNIVERSITY

International School

Capstone Project 2

CMU-SE 451

Reflection

Version 1.0

Date: 12/03/2022

Green Big5 Information System

Submitted by

Loc, Nguyen Tien

Chung, Hoang Bao

Vinh, Do Quang

Kha, Ngo Van

Approved by Nguyen Thanh Binh

Proposal Review:

Name	Signature	Date
Binh, Thanh Nguyen		15 - 5- 2022

Team Number/ Team Name	C1SE02
Project title	Green Big5 - Green Big5 Information System
How many students are on your team? List the team member's name	4 Loc, Nguyen Tien Chung, Hoang Bao Vinh, Do Quang Kha, Ngo Van

Reflection (Required)

Why this system?

- This system uses Ai and multiple-choice questions to screen and create a set of questions to evaluate and draw results about the environmental influence of the Big Five personality models. Finally create suggestions to help improve the environment of the above personalities.

What challenges did you face while completing this project?

- New technology. This is the group's first project on the Flutter programming language. Although it does not affect much, this is also a common difficulty of the group in completing the project
- Lack of communication is also a barrier for my team
- Lacking experience in developing a system.
- Because of COVID-19, All members had to do the work online.
- Lacking resources to buy tools for development.
- Lack of practical experience. Estimating workload depends heavily on the feelings and experiences of each individual
- Understanding the tourism business, and creating and organizing a tour is a huge challenge for information technology students.

What were the highlights for you/your team during this project?

- New technology: Flutter - New programming language of Google, with a brand new technology and function. Support for developing applications.
- The main point is that we apply this technology to tourism development. Currently, the Covid epidemic has greatly affected the development of industries and professions, especially tourism. Therefore, we hope that technology can promote the development of tourism again
- Success in creating a team culture, people after 4 months of work together have positive changes of opinion, thinking, action, thinking to other people, responsible for the work more
- We have successfully used machine learning to provide recommendations for travelers, improving the tourist experience
- Know about the effect of mankind on the environment.

What is the most important thing you learned in this project?

- Teamwork and communication, this always is an important things when working with others.

Although we already have time to work together, when starting doing something new, this job requires different skills and the ability to manage team members.

- Process and framework estimating are also important. After going through this project, we have a better understanding and more accurate estimation of the time to complete the task, and function scores,
- Problem-solving and accountability, to keep up with project progress, each team member always has the responsibility for the assigned work, and instead of dealing with a big problem, we know how to divide small problems to handle them effectively.
- Online work, and decision making.

What part of the project did you do your best work on?

Each team member will have strengths and they will do well in the following parts:

- Loc: Writing document, testing, research about Big5 model, indicator…. Upgrade my leading Skill and develop the Front-end.
- Chung: Research AI, Testing, Writing document.
- Kha: Research system security issues, plan operations, create a system-wide test strategy, and test case, and put the application running in the Store.
- Loc, Vinh, Kha: Full-stack developer, application developer

What was the most enjoyable part of this project?

- Planning Poker activities. This is an activity that happens every Sprint starts. After the Product owner read each backlog, the team members were asked to analyze and clarify this backlog. This is when the members give their opinions, evaluate the complexity of the backlog, give the score of the backlogs (corresponding to the execution time) and agree on their views.
- Online working with members: This is the time when everyone in the team exchange knowledge, talk best and consolidate the solidarity in the team without going outside

What is the least interesting part of this project?

- Add new software requirements or change architecture and interface
- Making a professional and detailed document takes time and researches many aspects.
- Detailed planning for each task requires experience in project work and accurate time measurement for that task
- Planning document.

What needs to be improved to make the project teamwork best?

- The schedule should be more accurate and relevant
- Participate more actively in working together, especially in face-to-face meetings and daily meetings
- There is a clear purpose
- Set and follow the rules in the group
- Accept differences
- Should enhance more team building activities

- Team members consider which is the most priority.

How could you/your mentor(s) change this project to make it better next time?

- Another way to make our project better is that we should keep in touch with our mentors and report the difficulties that we are facing.
- Continue learning about the way real education businesses work.
- More focus and discussion on the project.
- Try to understand the problems faced by market applications and from that improve, apply and our application.

What is your team's biggest obstacle?

- Disagreement of opinion.
- The prolonged epidemic made most things difficult and had to be done online. That causes a lot of problems when team members using private networks have problems

What is your team's goal??

- Build a system to help reduce environmental pollution effectively and automatically.

How do you typically approach a new project?

- y list out steps you took in your last projects when you did the initial project analysis. However, don't just list out general steps but talk about your adjustments based on the specific project.

How do you handle changes in requirements?

- We are prioritizing the changes to requirements, the scope of changes, and the impact analysis of the project. Next, we perform an impact analysis of the project cost, timeline, and resources. Finally, we evaluate whether the scope change is introducing new gaps to the technical or functional designs or development and testing.

DUY TÂN UNIVERSITY

International School

CAPSTONE PROJECT 2

CMU-SE-451

360 Peer Review

Green Big5 Information System

Submitted by

Chung, Hoang Bao

Approved by

Capstone Project 2 - Mentor:

Name	Signature	Date
Binh, Thanh Nguyen		15-May- 2022

Project acronym	GB5		
Project Title	GreenBig5		
Start Date	01 March 2022	**End Date**	15 May 2022
Lead Institution	International School, Duy Tan University		
Project Mentor	Doctor. Habil. Binh, Thanh Nguyen		
Scrum master / Project Leader & contact details	Loc, Nguyen Tien Email: nguyentienloc18122000@gmail.com Tel: 0932478783 Student ID: 24211202217		
Team members	Student ID	Name	Email
1	24211207051	Chung, Hoang Bao	baochunga1@gmail.com
2	24211208568	Vinh, Do Quang	doquangvinh0708co@gmail.com
3	24211210573	Kha, Ngo Van	ngokha437@gmail.com

DOCUMENT INFORMATION			
Document Title	Mentor Meeting Document		
Author(s)	Team C2SE.32		
Role	360 peer review		
Date	15 - May - 2022	File name	360 peer review Document
Access	Project and CMU Program		

GREEN BIG5 INFORMATION SYSTEM

Team member rating

Id	Name	Comment	Rating(1-10)
1	Loc, Nguyen Tien	● Deadline handle: Good ● Research responsible: Good ● Team-work: Good ● Development quality: Good ● Team meeting: Good ● Mentor meeting: Good	10
2	Vinh, Do Quang	● Deadline handle: Good ● Research responsible: Good ● Team-work: Good ● Development quality: Good ● Team meeting: Good ● Mentor meeting: Good	10
3	Kha, Ngo Van	● Deadline handle: Good ● Research responsible: Good ● Team-work: Good ● Development quality: Good ● Team meeting: Good ● Mentor meeting: Good	10

DUY TÂN UNIVERSITY

International School

CAPSTONE PROJECT 2

CMU-SE-451

360 Peer Review

GreenBig5 information System

Submitted by

Vinh, Do Quang

Approved by

Capstone Project 2 - Mentor:

Name	Signature	Date
Binh, Thanh Nguyen		15-May- 2022

Project acronym	GB5		
Project Title	GreenBig5		
Start Date	14 May 2022	**End Date**	15 May 2022
Lead Institution	International School, Duy Tan University		
Project Mentor	Doctor. Habil. Binh, Thanh Nguyen		
Scrum master / Project Leader & contact details	Loc, Nguyen Tien Email: nguyentienloc18122000@gmail.com Tel: 0932478789 Student ID: 24211202217		
Team members	Student ID	Name	Email
1	24211207051	Chung, Bao Hoang	baochunga1@gmail.com
2	24211208568	Vinh, Quang Do	doquangvinh0708co@gmail.com
3	24211210573	Kha, Van Ngo	ngokha437@gmail.com

DOCUMENT INFORMATION			
Document Title	Mentor Meeting Document		
Author(s)	Team C2SE.32		
Role	360 peer review		
Date	15 - May - 2022	File name	360 peer review Document
Access	Project and CMU Program		

GREEN BIG5 INFORMATION SYSTEM

Team member rating

Id	Name	Comment	Rating(1-10)
1	Loc, Nguyen Tien	● Deadline handle: Good ● Research responsible: Good ● Team-work: Good ● Development quality: Good ● Team meeting: Good ● Mentor meeting: Good	10
2	Vinh, Do Quang	● Deadline handle: Good ● Research responsible: Good ● Team-work: Good ● Development quality: Good ● Team meeting: Good ● Mentor meeting: Good	10
3	Chung, Hoang Bao	● Deadline handle: Good ● Research responsible: Good ● Team-work: Good ● Development quality: Good ● Team meeting: Good ● Mentor meeting: Good	10

DUY TÂN UNIVERSITY

International School

CAPSTONE PROJECT 2

CMU-SE-451

360 Peer Review

Green Big5 Information System

Submitted by

Kha, Ngo Van

Approved by

Capstone Project 2 - Mentor:

Name	Signature	Date
Binh, Thanh Nguyen		15-May- 2022

Project acronym	GB5		
Project Title	GreenBig5		
Start Date	01 May 2022	**End Date**	15 May 2022
Lead Institution	International School, Duy Tan University		
Project Mentor	Doctor. Habil. Binh, Thanh Nguyen		
Scrum master / Project Leader & contact details	Loc, Nguyen Tien Email: nguyentienloc18122000@gmail.com Tel: 0932478789 Student ID: 24211202217		
Team members	Student ID	Name	Email
1	24211207051	Chung, Bao Hoang	baochunga1@gmail.com
2	24211208568	Vinh, Quang Do	doquangvinh0708co@gmail.com
3	24211210573	Kha, Van Ngo	ngokha437@gmail.com

DOCUMENT INFORMATION			
Document Title	Mentor Meeting Document		
Author(s)	Team C2SE.32		
Role	360 peer review		
Date	15 - May - 2022	File name	360 peer review Document
Access	Project and CMU Program		

GREEN BIG5 INFORMATION SYSTEM

Team member rating

Id	Name	Comment	Rating(1-10)
1	Loc, Nguyen Tien	● Deadline handle: Good ● Research responsible: Good ● Team-work: Good ● Development quality: Good ● Team meeting: Good ● Mentor meeting: Good	10
2	Vinh, Do Quang	● Deadline handle: Good ● Research responsible: Good ● Team-work: Good ● Development quality: Good ● Team meeting: Good ● Mentor meeting: Good	10
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