Table of Content

Chapter 3 Methodology

3.1 Methodology

Various methodologies are used in education system which are existed in the market. The methodology that we are using to apply into this system is the Evolutionary Prototype Model. More will be discussed in the following introduction and fact gathering methods.

3.1.1 Software Development Model

The evolutionary prototype model is the most suitable for this project as the system will be developed and refined by the company in the future. Prototype model allow us to build, debugging and refining the prototype till a state that it can be defined as an acceptable and commercialized prototype. It also would assist to build a firm base for the future development of the finalised system.

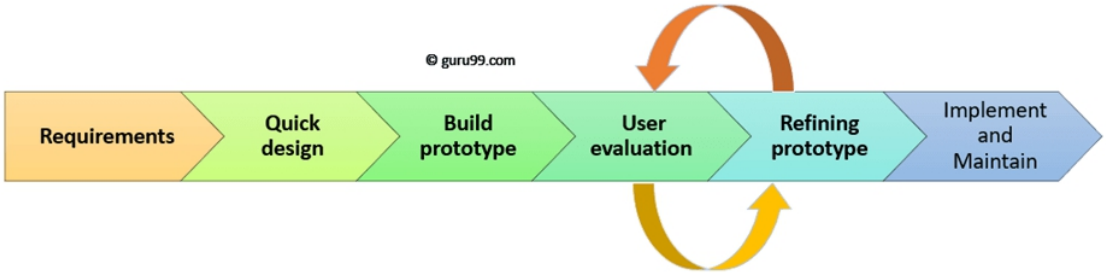

Diagram 3.1.1 The Phase of Prototyping Model

The reason of choosing prototype model methodology is evolutionary prototyping, a type of prototype, is suitable to apply into our projects for software development. With evolutionary prototyping, the project will be improved and developed better and better day by day with feedbacks. Moreover, projects which involved with AI are challenging in framing different specifications, evolutionary prototype will be much useful and easier to be built in this kind of exploratory programming.

3.1.2 Fact Gathering

3.1.3 Fact Recording Techniques: UML Diagrams

3.2 Requirement Analysis

3.2.1 Analysis Result

3.2.2 External Interface

Graphical User Interface

Hardware Interface

Software Interface

3.2.3 Functional Requirements

Web Scraping Module

1. This module needs to be able to scrap efficiently with the specific keywords based on requirements and store into the data after scraping.

Data Pattern Analysis Module

1. This module needs to filter the information which are useless to the user.
2. This module needs to sort the information in different format to allow easily observe from different views by the users.
3. This module needs to be able forming various insights for the users.

Data Mining Module

1. This module needs to be able to data mine a group of information into excel csv format.

Data Segmentation Module

1. This module needs to be able to segment raw data into a group of data clusters for further purposes.
2. This module needs to be able to store the real time segmented data into a database.

Dashboard Module

1. This module needs to be able to export data from database and convert into an editable format for the users.
2. This module needs to allow users to have the rights of manipulating the data features.

3.2.4 Non Functional Requirements

- Correctness
  - The information achieve from web scraping module must be the same with the information showed in the websites.
  - The web scraping module must always detect the latest update of the websites and scrap down the newest information from the websites.
  - The information that used for data mining must be same as the information in the excel.
  - The data mining module must not leave out any information that is from the excel file.
- Readability
  - The information scrap from the website in web scraping module must be filter into a readable format for the users.
  - The analysed result from the dashboard module must be show with a readable format to the users.
- Reliability
  - The system must not be losing connection more then 0.5% of the day.
  - With the huge information in the system, the display of the user-interface must show various information in the way of easy understandable for the users.
- Usability
  - The system must provide a guidance or tutorial to lead the users understanding the mechanism of the system. Thus, users able to have fast progress for their final results with the guidance.
  - The system needs to be created with various simple module and avoid complex module to confuse users.
- Maintainability
  - The structure of programming needs to be understandable by inserting various simple explanation in comments. Hence, future developer easily to maintain and upgrade the system.
- User-Friendly
  - The user-interface of the system needs to assist the users to easily understand and simplify various important information from a huge information on the display.

3.2.5 Development Environment

Python programming language will be used as the development language for this project. The python language will used to help us with scraping out specific information from websites based on keywords. Data extracted from excel files also will be assisted with Python language. This project will be developed in the form of web application and used by devices such as Desktop PC and laptops.

Programming Language

1. Python 3.8
2. PHP

Other Software

1. WordPress
2. Microsoft Excel

Operating System

3. Microsoft Windows 10

3.2.6 Operation Environment

Desktop / Laptop

Minimum Hardware and Software Requirement	
Processor (CPU)	Intel Core i3 and above
Operating System	Windows 7 and above
Memory	4GB RAM or Higher
Storage	4GB or higher space available
Other non-operating-system programs	Web Browser such as Internet Explorer version 6.0 or Google Chrome
Required Equipment	Mouse and Keyboard
Database	
Development Tools	

3.3 Chapter Summary and Evaluation