DUY TÂN UNIVERSITY
International School

CAPSTONE PROJECT 2

CMU-SE-451 / CMU-IS-451 / CMU-CS-451

DESCRIPTION OF PRODUCT REQUIREMENTS FORM

Version 2.0

Date: 1 - Mar - 2021

EXPERT-DRIVEN SMART DASHBOARD APPLICATION

Submitted by

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Capstone Project 2 - Mentor:

Name	Signature	Date
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PROJECT INFORMATION			
Project Acronym	EDSDA		
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Version	Person(s)	Date	Description	Approval
Draft	Hoa, Vo	01 - Mar - 2021	Initiate document	x
2.0	All members	26 - May - 2020	Finish content of document	x

DESCRIPTION OF PRODUCT REQUIREMENTS

Group: C2SE.06

Project: Expert-driven Smart Dashboard Application

Date: 06 - Mar - 2021

I. Short description of product ideas (less than 7 statements)

- A very easy-to-use and user-friendly data analysis system.
- A dashboard helps the environmental expert analyze, aggregate, and visualize both the data sources on the internet and their data sources.
- Automated multidimensional data processing.
- Automated generate RDF Data Cube.
- Smart data linking.

II. Requirements

High-level Functional Requirements	1. Users must be able to import their data sources
	2. Users must be able to review and choose dimensions & measures for their data sources
	3. Users must be able to view all the data cubes that existed in the system.
	4. The imported data must be listed on the data cubes list.
	5. Users must be able to drag & drop the data cubes from list to dashboard
	6. The data operators must be always available.
	7. The connectors between data cubes having the same dimensions must be connected automatically.
	8. Users should be able to export their data visualization.

Quality Attributes Requirements (example related to issues: Ease	1. Portability and compatibility: The system is operated on a web-based platform and can run on any web browser.

Use, Easy to Like, Easy to Learn, Easy to Understand, Easy to Buy / Yes, ...)	2. Security: Users can use the system without the fear of revealing personal information.
	3. Availability: The system can run continuity 24/24 a day.
	4.Usability: The system has a friendly and flexible user-interface and a great user experience.
	5.Reliability: The system has accurate and transparent data, functions that do exactly their job.

Operation Requirements (related to issues: Speed, Accuracy, Performance, Stability, Load Resistance, Scalability, Safety, ...)	1. Adaptability: System must be able to import (CSV, XLSX files) and export (PDF, PNG files)
	2. Scalability: The database(DW) must be able to expand based on the data source, or business requirements.
	3. Accuracy: The UI visualizes exactly imported data from the user.
	4. Compatibility: The system will work on any web browser. The system will work on any operating systems (Linux, Window, and Mac)
	5. Maintainability: New versions of the system will be released every 4 months.

Environment & Operation Requirements (related to issues: physical impacts on the environment, interaction with relevant or existing systems, conditions for product commercialization, ...)	1. Cost must be controlled around $3200 to have the best selling price for widely available in the market.
	2. Data copyright issues need to be transparent so that they do not violate the provisions of intellectual property rights when placed on the market.

Requirements for Maintenance & Support	1. Assets Management: Google Cloud VPS, 4 laptops, 1 PC, 1 tablet.
	2. Work Orders Management: PM has the right for leading all the tasks.
	3. Preventive Maintenance Management: All system features must be tested every week. The tester should report any issues immediately. Server maintenance should be done every 2 weeks.
	4. Report Management: Every meeting report must be stored.

	Every maintenance report must be stored. The tester must have written documentation for any issues that occurred.

Security/ Safety Requirements (related to issues: conditions of use/access to products, personal freedom, inspection, ...)	1. Constraint the import files (CSV, XLXS)
	2. Not directly interact with the database just only interact through the import method.
	3. The user is not able to attach queries directly with URLs.
	4. The user can not access GraphDB.
	5. Data cubes can not be edited by users.
	6. Prevent SQL injection in every field.

Culture Requirements	1. The system will operate in English
	2. The system focus on the environmental factors in Vietnam
	3. The system format will be UTF-8 for text, “DD-MM-YYYY” for date

Evaluate the complexity of engineering problems	1. It is difficult to detect malicious code in the data source imported by the user.
	2. It is not yet possible to detect the data cubes with the same data.
	3. High complexity when integrating multiple platforms with many different programming languages at the same time.
	4. The invention of a method to automatically generate RDF Data Cubes from Data Warehouse is highly complex.
	5. Involving multiple data disciplines.
	6. Haven't found a method to simplify the data import process.

Standard requirements	1. Code standard: Python: PEP-8 Javascript: Airbnb React/JSX Style, Airbnb CSS-in-JavaScript Style. Java: Google Java Style.
	2. Design standard: Module Pattern & Revealing Module Pattern.

	3. Documentation standard: IEEE 802.22
	4. ISO/IEC 25051:2006(TCVN 10540:2014)
	5. Data ETL & Warehousing: Kimball's Data warehousing standard.
	6. Dashboard Design Standard: University of Southern Indiana Dashboard Standard.