



# CAPSTONE PROJECT 2

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

## TEAM MEETING

Version 2.0

Date: 1 - Mar - 2021

## EXPERT-DRIVEN SMART DASHBOARD APPLICATION

### Submitted by

Vo Van Hoa  
Pham Van Tin  
Ky Huu Dong  
Tran Thi Thanh Kieu

### Approved by

#### Capstone Project 2 - Mentor:

Name

Signature

Date

Binh, Thanh Nguyen

A handwritten signature in blue ink, appearing to read 'Binh, Thanh Nguyen', written over a horizontal line.

26 - May - 2020

PROJECT INFORMATION			
<b>Project Acronym</b>	EDSDA		
<b>Project Title</b>	Expert-Driven Smart Dashboard Application		
<b>Project Web URL</b>	<a href="https://sda-research.ml/">https://sda-research.ml/</a>		
<b>Start Date</b>	01 - Mar - 2021		
<b>End Date:</b>	02 - Jun - 2021		
<b>Lead Institution</b>	International School, Duy Tan University		
<b>Project Mentor</b>	Ph.D Binh, Thanh Nguyen		
<b>Scrum Master</b>	Hoa, Vo	hoavo.dng@gmail.com	0935.193.182
<b>Team Members</b>	Tin, Pham Van	tinphamvan123@gmail.com	0932.535.175
	Dong, Ky Huu	kyhuudong@gmail.com	0898.246.980
	Kieu, Tran Thi Thanh	thanhkieutran391@gmail.com	0358.583.251

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# Integration 1 (24 - 31/Jan/21)

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## Agenda:

- Review knowledge of each member
- Write Scientific Research Report
- Planning Architecture
- Planning Proposal

## Meeting Content:

- Define UI
- Define Adding Description content method
- Define data warehouse overview
- Define Import UI
- Discussing data source & crawling method
- Discussing metadata

## Post Meeting Action Items

### **Hoa**

#### This week:

- ☐ Design Data Warehouse
- ☐ Continue researching crawling & metadata
  - Sync up with Dong
- ☐ Continue researching data cube definition
- ☐ Research Automatic Detecting Dim & Mea
  - Sync up with Dong
- ☐ Write Scientific Research Report

### **Dong**

#### This week:

- ☐ Write Scientific Research Report
- ☐ Continue researching crawling & metadata
  - Sync up with Hoa
- ☐ Research Automatic Detecting Dim & Mea
  - Sync up with Hoa
- ☐ Design Data Warehouse

### **Tin**

#### This week:

- ☐ Write Scientific Research Report

- ☐ Design UI
- ☐ Instruct Kieu to learn ReactJs
  - Sync up with Kieu

## Kieu

This week:

- ☐ Write Scientific Research Report
- ☐ Continue learning ReactJS
  - Sync up with Tin

## Integration 2 (31/Jan - 7/Feb/21)

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Agenda:

- Review task of each member on the meeting before
- Update content of Scientific Research Report after feedback from Mr.Binh

Meeting Content:

- add research field: automation ETL, automation RDF Data cubes generation.
- review caps1 architecture.
- add data source.
- Modify DW Design.
- Modify UI Design, prototype
- Review what Kieu has learned last week.

Post Meeting Action Items

## Hoa

Last week:

- ☐ Design Data Warehouse
- ☒ Continue researching crawling & metadata
- ☒ Continue researching data cube definition
- ☐ Research Automatic Detecting Dim & Mea
- ☒ Write Scientific Research Report

This week:

- ☐ Continue researching crawling & metadata
  - Sync up with Dong
- ☐ Continue researching data cube definition
- ☐ Research automation RDF Data Cube Generation
- ☐ Update content Scientific Research Report

## Dong

Last week:

- ☒ Write Scientific Research Report
- ☒ Continue researching crawling & metadata
- ☐ Research Automatic Detecting Dim & Mea
- ☐ Design Data Warehouse

This week:

- ☐ Design Data Warehouse
- ☐ Continue researching crawling & metadata
  - Sync up with Hoa
- ☐ Research automation ETL

## Tin

Last week:

- ☒ Write Scientific Research Report
- ☒ Design UI
- ☒ Instruct Kieu to learn ReactJS

This week:

- ☐ Continue Design UI, Prototype
- ☐ Continue Instruct Kieu to learn ReactJS
  - Sync up with Kieu

## Kieu

Last week:

- ☒ Write Scientific Research Report
- ☒ Continue learning ReactJS

This week:

- ☐ Continue learning ReactJS

# Integration 3 (6/Feb - 21/Feb/21)

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Agenda:

- Review task of each member on the meeting before

Meeting Content:

- Discuss on Module View Server
- Discuss on User Case
- Discuss on Context Diagram

## Post Meeting Action Items

### Hoa

Last week:

- ☒ Continue researching crawling & metadata
  - Sync up with Dong
- ☒ Continue researching data cube definition
- ☒ Research automation RDF Data Cube Generation
- ☒ Update content Scientific Research Report

This week:

- ☐ Write User Case
  - ☐ Sync up with Dong
- ☐ Continue researching data cube definition
- ☐ Research automation RDF Data Cube Generation
- ☐ Continue researching crawling & metadata
  - Sync up with Dong

### Dong

Last week:

- ☒ Design Data Warehouse
- ☒ Continue researching crawling & metadata
  - Sync up with Hoa
- ☒ Research automation ETL

This week:

- ☐ Write User Case
  - ☐ Sync up with Hoa
- ☐ Design Data Warehouse
- ☐ Continue researching crawling & metadata
  - Sync up with Hoa
- ☐ Research automation ETL

### Tin

Last week:

- ☐ Continue Design UI, Prototype
- ☒ Continue Instruct Kieu to learn ReactJS
  - Sync up with Kieu

This week:

- ☐ Draw Module View Server

**Kieu**

Last week:

- ☒ Continue learning ReactJS
- ☒ 8 / 23 PROJECTS REACT

This week:

- ☐ Continue learning ReactJS
  - ☐ FINISH 23 projects
  - ☐ FINISH 2 PROJECT COVID-19

## Integration 4 (22/Feb - 08/Mar/21)

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Agenda:

- Review task of each member on the meeting before

Meeting Content:

- Discuss on Module View Server
- Discuss on User Case
- Discuss on auto ETL process

Post Meeting Action Items

**Hoa**

Last week:

- ☒ Write User Case
  - ☒ Sync up with Dong
- ☒ Continue researching data cube definition
- ☐ Research automation RDF Data Cube Generation
- ☒ Continue researching crawling & metadata
  - Sync up with Dong

This week:

- ☐ Research Data Lake
  - ☐ Sync up with Dong
- ☐ Research customize **RML.io** library
- ☐ Continue researching data cube definition
- ☐ Continue researching crawling & metadata
  - ☐ Sync up with Dong

**Dong**

Last week:

- ☒ Write User Case
  - ☒ Sync up with Hoa
- ☒ Design Data Warehouse
- ☒ Continue researching crawling & metadata
  - Sync up with Hoa
- ☒ Research automation ETL

This week:

- ☐ Choose auto ETL platform
- ☐ Research Data Lake
  - ☐ Sync up with Hoa

## Tin

Last week:

- ☒ Draw Module View Server
- ☒ Continue Instruct Kieu to learn ReactJS
  - Sync up with Kieu

This week:

- ☒ Continue Instruct Kieu to learn ReactJS
  - Sync up with Kieu
- ☐ Write User Case document

## Kieu

Last week:

- ☐ Continue learning ReactJS
  - ☒ FINISH 15/23 projects
  - ☒ FINISH 1 PROJECT COVID-19

This week:

- ☐ Continue learning ReactJS

# Integration 5 (01-Mar - 07/Mar/21)

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Agenda:

- Review task of each member on the meeting before
- Planning meeting
- Sprint Retrospective
- Discuss on Proposal document



## Meeting Content:

- Review Proposal document
- Review project timeline
- Review UI Design

## Post Meeting Action Items

### Hoa

#### Last week:

- ☒ Research Data Lake
  - ☒ Sync up with Dong
- ☒ Research customize **RML.io** library
- ☒ Continue researching data cube definition
- ☒ Continue researching crawling & metadata
  - ☒ Sync up with Dong

#### This week:

- ☐ Adapt new requirement for UI
- ☐ Modify proposal document

### Dong

#### Last week:

- ☐ Choose auto ETL platform
- ☐ Research Data Lake
  - ☐ Sync up with Hoa

#### This week:

- ☐ Write Proposal
- ☐ Choose auto ETL platform
- ☐ Research Data Lake
  - ☐ Sync up with Hoa

### Tin

#### Last week:

- ☒ Continue Instruct Kieu to learn ReactJS
  - Sync up with Kieu
- ☒ Write User Case document

#### This week:

- ☐ Write Proposal
- ☐ Design UI

**Kieu**

Last week:

- ☐ Continue learning ReactJS

This week:

- ☐ Write Proposal
- ☐ Continue learning ReactJS

## Integration 6 (08-Mar - 14/Mar/21)

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Agenda:

- Review task of each member on the meeting before
- Modify proposal document
- Modify requirements product document

Meeting Content:

- Modify proposal document
- Modify requirements product document
- Prepare for mentor meeting on Mon, 08 - Mar - 21

Post Meeting Action Items

**Hoa**

Last week:

- ☒ Adapt new requirement for UI
- ☒ Modify proposal document

This week:

- ☐ Initiate RML process
- ☐ Initiate MIRROR
- ☐ Initiate GraphDB Database

**Dong**

Last week:

- ☒ Write Proposal
- ☒ Choose auto ETL platform
- ☐ Research Data Lake
  - ☐ Sync up with Hoa

This week:

- ☐ Research Data Lake
  - ☐ Sync up with Hoa
- ☐ Crawl data
- ☐ Clean data

## Tin

Last week:

- ☒ Write Proposal
- ☐ Design UI

This week:

- ☐ Design UI
- ☐ Initial & config for React project

## Kieu

Last week:

- ☒ Write Proposal
- ☒ Continue learning ReactJS

This week:

- ☐ Continue learning ReactJS

# Integration 7 (15-Mar - 21/Mar/21)

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Agenda:

- Review task of each member on the meeting before
- Sprint Retrospective

Meeting Content:

- Sprint Retrospective
- Prepare for Scientific Research Report on Sat (20-Mar)
- Planning for Sprint 2

Sprint Retrospective (Sprint 1)

**MAD - What made us mad?** 😡

- aaaaa

**SAD - What made us sad?** 😞

- aaaa

**GLAD - What made us glad? 🤓**

- aaaa

**Post Meeting Action Items****Hoa**

Last week:

- ☒ Initiate RML process
- ☒ Initiate MIRROR
- ☒ Initiate GraphDB Database

This week:

- ☐ Prepare Presentation for Scientific Research Report
- ☐ Research Architecture of Data Lake
  - ☐ Sync up with Dong
- ☐ Setup server temporary

**Dong**

Last week:

- ☒ Write Proposal
- ☐ Choose auto ETL platform
- ☒ Research Data Lake
  - ☐ Sync up with Hoa

This week:

- ☐ Prepare Presentation for Scientific Research Report
- ☐ Choose auto ETL platform
- ☐ Research Architecture of Data Lake
  - ☐ Sync up with Hoa

**Tin**

Last week:

- ☒ Write Proposal
- ☐ Design UI

This week:

- ☐ Design UI
- ☐ Prepare Presentation for Scientific Research Report

**Kieu**

Last week:

- ☒ Write Proposal
- ☒ Continue learning ReactJS
- ☒ Practice with first UI

This week:

- ☒ Continue learning ReactJS
- ☐ Prepare for Scientific Research Report

## Integration 8 (22-Mar - 28/Mar/21)

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Agenda:

- Review task of each member on the meeting before

Meeting Content:

- Planing for Integration 8

Post Meeting Action Items

**Hoa**

Last week:

- ☒ Prepare Presentation for Scientific Research Report
- ☒ Research Architecture of Data Lake
  - ☐ Sync up with Dong
- ☒ Setup server temporary

This week:

- ☐ Implement API for GraphDB Admin
- ☐ Implement API for importing data, getting data from GraphDB
- ☐ Initial Backend
- ☐ Build Server API with Mock data

**Dong**

Last week:

- ☒ Prepare Presentation for Scientific Research Report
- ☒ Choose auto ETL platform
- ☒ Research Architecture of Data Lake
  - ☐ Sync up with Hoa

This week:

- Create DW

- Cleaning Process for data sources

## Tin

Last week:

- ☒ Design UI
- ☒ Prepare Presentation for Scientific Research Report

This week:

- ☐ build base UI
- ☐ design Modal when onClick in Navbar
- ☐ design UI when merge 2 dimension
- ☐ setup DEV & Test environment

## Kieu

Last week:

- ☒ Continue learning ReactJS
- ☐ Prepare for Scientific Research Report

This week:

- ☐ Learn Bug Reporting
- ☐ Learn to write Test Cases
- ☐ Write Test Cases for all features in base UI

# Integration 1 (29/Mar - 05/Apr/21)

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Agenda:

- Review task of each member on the meeting before
- Sprint Retrospective

Meeting Content:

- Sprint Retrospective
- Planing for Integration 9
- Integration base UI with server

Sprint Retrospective (Sprint 1 & 2)

**MAD - What made us mad?** 😡

- We need to write too much methods without the help of any libraries/frameworks.
- Handling all cases of raw data is something impossible.

**SAD - What made us sad?** 😞

- Timeline is delayed.
- We couldn't follow the sprint.

### **GLAD - What made us glad? 😎**

- Completely designed the architecture for fully-automatic process.
- Basically implemented the user-interface and data-cleaning process.

## **Post Meeting Action Items**

### **Hoa**

Last week:

- ☒ Implement API for GraphDB Admin
- ☒ Implement API for importing data, getting data from GraphDB
- ☒ Initial Backend
- ☒ Build Server API with Mock data

This week:

- ☐ Implement API for calling RDF Engine that built in Scala
- ☐ Continue building common APIs

### **Dong**

Last week:

- ☒ Create DW
- ☒ Cleaning Process for data sources

This week:

- ☐ Fill up DW, and ETL with Bonobo

### **Tin**

Last week:

- ☒ build base UI
- ☒ design Modal when onClick in Navbar
- ☒ design UI when merge 2 dimension
- ☒ setup DEV & Test environment

This week:

- ☐ build function dnd item from sidebar to main

### **Kieu**

Last week:

- ☒ Learn Bug Reporting
- ☒ Learn to write Test Cases
- ☒ Write Test Cases for all features in base UI

This week:

- ☐ Write Test Cases for all features in base UI

## Integration 10 (05/Apr - 12/Apr/21)

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Agenda:

- Review task of each member on the meeting before

Meeting Content:

- Sprint Retrospective
- Planing for Integration 9
- Integration base UI with server

Post Meeting Action Items

**Hoa**

Last week:

- ☐ Implement API for calling RDF Engine that built in Scala
- ☐ Continue building common APIs

This week:

- ☐ Continue building APIs and RDF Automation Generator
- ☐ Restructure UI

**Dong**

Last week:

- ☒ Fill up DW, and ETL with Bonobo

This week:

- ☐ Continue Fill up DW, and ETL with Bonobo
- ☐ Restructure UI

**Tin**

Last week:

- ☒ build function dnd item from sidebar to main



This week:

- ☐ Restructure UI

## Kieu

Last week:

- ☒ Write Test Cases for all features in base UI

This week:

- ☐ Write test cases for new UI
- ☐ Restructure UI

# Integration 11 (26/Apr - 02/May)

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Agenda:

- Review task of each member on the meeting before
- Sprint Retrospective

Meeting Content:

- New UI
- Change server implement method
- Change flow of APIs

Post Meeting Action Items

## Hoa

Last week:

- ☒ Continue building APIs and RDF Automation Generator
- ☒ Restructure UI

This week:

- ☐ Change APIs structure for dynamic server

## Dong

Last week:

- ☒ Continue Fill up DW, and ETL with Bonobo
- ☒ Restructure UI

This week:

- ☐ Finishing up fill up DW, and ETL with Bonobo

- ☐ Modify structure of DW

### Tin

Last week:

- ☒ Restructure UI

This week:

- ☐ build basic new UI
- ☐ create default screen
- ☐ create introduction screen
- ☐ create about screen

### Kieu

Last week:

- ☒ Write test cases for new UI
- ☒ Restructure UI

This week:

- ☐ Test case for new UI

## Integration 12 (03/May - 09/May)

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Agenda:

- Review task of each member on the meeting before
- Sprint Retrospective

Post Meeting Action Items

### Hoa

Last week:

- ☒ Change APIs structure for dynamic server

This week:

- ☐ Custom source code and flow of RMLStreamer
- ☐ Change mapping file structure from RML to R2RML

### Dong

Last week:

- ☒ Finishing up fill up DW, and ETL with Bonobo

- ☒ Modify structure of DW

This week:

- ☐ Define base UI and Logic
- ☐ Define backend server for importing

**Tin**

Last week:

- ☒ build basic new UI
- ☒ create default screen
- ☒ create introduction screen
- ☒ create about screen

This week:

- ☐ Create function for Show Example

**Kieu**

Last week:

- ☒ Test case for new UI

This week:

- ☐ Write test case for show Example function

## Integration 13 (10/May - 16/May)

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Agenda:

- Review task of each member on the meeting before
- Sprint Retrospective

Sprint Retrospective (Sprint 3 & 4)

**MAD - What made us mad?** 😡

- It's hard to find a way for auto-processing a messy file
- Automatic processing everything is too hard

**SAD - What made us sad?** 😞

- Timeline is delayed.
- We couldn't follow the sprint.

**GLAD - What made us glad?** 😎

- The team spirit is awesome

- Server runs smoothly

## Post Meeting Action Items

### Hoa

Last week:

- ☒ Custom source code and flow of RMLStreamer
- ☒ Change mapping file structure from RML to R2RML

This week:

- ☐ Find methods to intergrate auto ETL with RDF generator
- ☐ Research automating detect dmision & measure method

### Dong

Last week:

- ☒ Define base UI and Logic
- ☒ Define backend server for importing

This week:

- ☐ Define base UI and Logic
- ☐ Define backend server for importing

### Tin

Last week:

- ☒ Create function for Show Example

This week:

- ☐ create Toolbox
- ☐ create import widget
- ☐ create import function

### Kieu

Last week:

- ☐ Write test case for show Example function

This week:

- ☐ Test Navigation bar component
- ☐ Test widget in Editor Pane component
- ☐ Test data in Information component

# Integration 14 (17/May - 23/May)

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## Agenda:

- Review task of each member on the meeting before
- Sprint Retrospective

## Post Meeting Action Items

### Hoa

#### Last week:

- ☒ Find methods to intergrate auto ETL with RDF generator
- ☒ Research automating detect dmision & measure method

#### This week:

- ☐ Implement bash flow for running ETL and RDF generator script
- ☐ Implement automating detection method

### Dong

#### Last week:

- ☒ Define base UI and Logic
- ☒ Define backend server for importing

#### This week:

- ☐ Find solution for automation ETL
- ☐ Create workflows, and data pipeline with Apache airflow

### Tin

#### Last week:

- ☒ create Toolbox
- ☒ create import widget
- ☒ create import function

#### This week:

- ☐ create function to view the EDSDA's data source on widget
- ☐ create function to merge multi widget
- ☐ visualization data on Charts

### Kieu

#### Last week:

- ☒ Test Navigation bar component
- ☒ Test widget in Editor Pane component
- ☒ Test data in Information component

This week:

- ☐ test Toolbox UI
- ☐ test Toolbox function
- ☐ test the UI of import widget
- ☐ write test for visualization on Charts

## Integration 15 (17/May - 23/May)

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Agenda:

- Review task of each member on the meeting before
- Sprint Retrospective

Sprint Retrospective (Sprint 1 & 2)

**MAD - What made us mad?** 😡

- Covid-19 pandemic comes again

**SAD - What made us sad?** 😞

- Timeline is delayed.
- We couldn't follow the sprint
- It's hard to integrate server and data processing and UI

**GLAD - What made us glad?** 😎

- Keep the sprint on time

Post Meeting Action Items

**Hoa**

Last week:

- ☒ Implement bash flow for running ETL and RDF generator script
- ☒ Implement automating detection method

This week:

- ☐ Buy Google Cloud for deploying
- ☐ Setup Google Cloud and server dependencies

**Dong**

Last week:

- ☒ Find solution for automation ETL
- ☒ Create workflows, and data pipeline with Apache airflow

This week:

- ☐ Find solution for automation ETL
- ☐ Create workflows, and data pipeline with Apache airflow
- ☐ Define base workflow for Data warehouse

## Tin

Last week:

- ☒ create function to view the EDSDA's data source on widget
- ☒ create function to merge multi widget
- ☒ visualization data on Charts

This week:

- ☐ visualization data on Maps & Table
- ☐ implement import function with server API

## Kieu

Last week:

- ☒ test Toolbox UI
- ☒ test Toolbox function
- ☒ test the UI of import widget
- ☒ write test for visualization on Charts

This week:

- ☐ Test data of visualization on Charts
- ☐ Test UI of Charts
- ☐ Test the Tree View of data source on widget
- ☐ Test Connector and port of widgets
- ☐ Write Test for visualization on Maps & Table
- ☐ Write test for Import function

# Integration 16 (24/May - 30/May)

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Agenda:

- Review task of each member on the meeting before
- Sprint Retrospective

Post Meeting Action Items

## Hoa

Last week:

- ☒ Buy Google Cloud for deploying
- ☒ Setup Google Cloud and server dependencies

This week:

- ☐ Migrate source code and dependencies to Google Cloud
- ☐ Setup GraphDB in Google Cloud
- ☐ Public IP

## Dong

Last week:

- ☒ Find solution for automation ETL
- ☒ Create workflows, and data pipeline with Apache airflow
- ☒ Define base workflow for Data warehouse

This week:

- ☐ Workflows for crawl data, ETL automation

## Tin

Last week:

- ☒ visualization data on Maps & Table
- ☒ implement import function with server API

This week:

- ☐ implement import function with server API
- ☐ Deployment

## Kieu

Last week:

- ☒ Test data of visualization on Charts
- ☒ Test UI of Charts
- ☒ Test the Tree View of data source on widget
- ☒ Test Connector and port of widgets
- ☒ Write Test for visualization on Maps & Table
- ☒ Write test for Import function

This week:

- ☐ Test function of import
- ☐ Test the UI on domain: sda-research.surge.sh