ICT 3111/3211

Integrative Team Project

ITP Project Plan

Prepared by

Team's Name: IS_13

Team Members:

SIM YU CHENG	2102520
LAW JUN HAO	2101081
RYAN SUAN ZHAN HUI	2100706
ANG WEE YI ALEX	2102852

Date: 21 May 2023

CONTENT PAGE:

Objective

The objective of this project is to improve and add functionalities to the existing dashboard (SCFAMI). The main improvements are to enhance the graph modeling functions with the data taken from Arkime. These improvements aim to create persistent storage through the **C.R.U.D** functions, which stands for create, read, update and delete.

- **C**reate exported data from Arkime in JSON/PCAP format
- **R**eading in exported data (JSON/PCAP) into the SCFAMI dashboard
- **U**pdating existing data and information through dashboard
- **D**elete existing nodes and edges and allowing users to save

The team will also offer suggestions for possible further improvements such as potential quality of life changes to the dashboard and propose new/novel functions that can enhance anything (Theoretically).

Tasklist

Based on the above stated objective, we determined that these are the appropriate phases and tasks to be allocated across the entire development cycle. The tasks are divided into 5 different phases, with each phase having their own deadline which will be shown in the gantt chart.

<u>PHASE 1: Familiarization with the System / Admin Matters</u>

1.1 Project Breakdown & Understanding
1.1.1 Assigning of Roles & tasks
1.1.2 Admin Matters (Meetings, Github, Scope)
1.2 Reading through Senior Work
1.2.1 Looking through Senior Report
1.2.2 Looking through Github Repository
1.3 Exploring existing tools
1.3.1 Playing around with Arkime Software and API
1.3.2 Playing around with SCFAMI Dashboard

<u>PHASE 2: Proposed Design for the exported graph and dashboard</u>

2.1 Creation of wireframe for the proposed designs
2.1.1 Creation of wireframe for interactive buttons on dashboard
2.1.2 Creation of wireframe for interactive buttons on the graphing tools/functions
2.1.3 Revision of the proposed designs based on professor and client feedback
2.2 Write down and play around with Arkime potential APIs,
2.3 ITP Project Plan Report (21st May Deadline)

PHASE 3: Implement Design for the exported graph and dashboard (C.R.U.D)

3.1 Implementation Dashboard Codes

3.1.1 Adding Buttons on dashboard to launch graphing feature

3.1.2 Adding the graphing function pop up area

3.1.3 Adding buttons within graphing functions to execute CRUD

3.2 Implementation Graphing Function Codes (C.R.U.D)

3.2.1 (C)reate files to export based on current graph seen

3.2.1.1 Display current up to date Arkime graph on dashboard

3.2.1.2 Export current up to date Arkime graph on dashboard

3.2.2 (R)read exported graph files into the dashboard and display them as nodes and edges in graph mode.

3.2.3 (U)pdate existing data (adding on or changing existing) on exported files and displaying the changes made. Allows for save features as well.

3.2.4 (D)elete existing nodes or edges within the data and displaying the results after deleting them

PHASE 4: Testing and debugging (Blackbox)

4.1 Blackbox testing for Create Function

4.1.1 Initial Blackbox testing

4.1.2 Debugging (If applicable)

4.1.3 Updated Blackbox testing

4.2 Blackbox testing for Read Function

4.2.1 Initial Blackbox testing

4.2.2 Debugging (If applicable)

4.2.3 Updated Blackbox testing

4.3 Blackbox testing for Update Function

4.3.1 Initial Blackbox testing

4.3.2 Debugging (If applicable)

4.3.3 Updated Blackbox testing

4.4 Blackbox testing for Delete Function

4.4.1 Initial Blackbox testing

4.4.2 Debugging (If applicable)

4.4.3 Updated Blackbox testing

PHASE 5: Final Test / Report / Poster

5.1 Final Blackbox

5.2 Final Report

5.3 Poster Creation

Workflow Program

The gantt chart will allow us to visualize the entire workflow program since it's directly based on the task lists mentioned above.

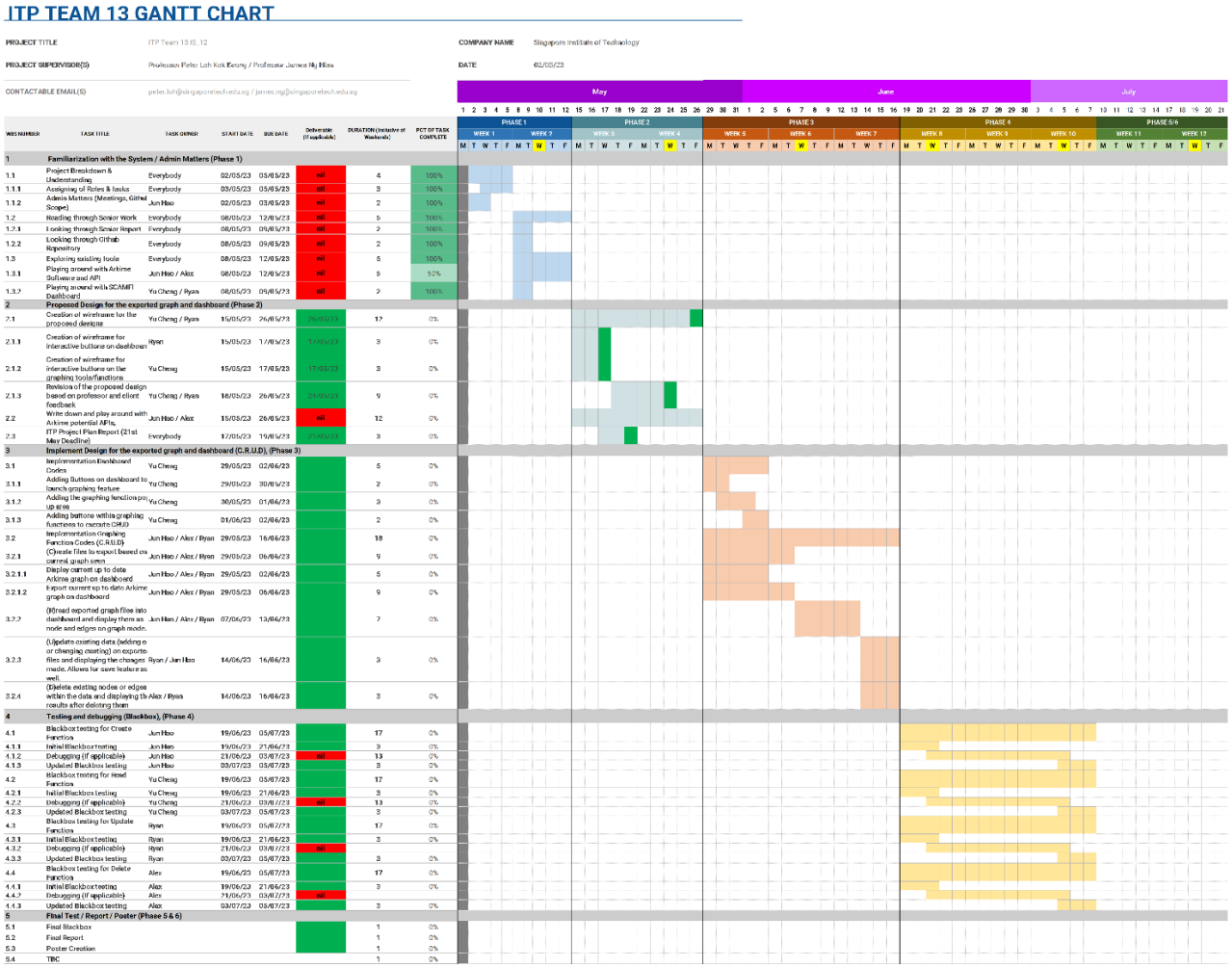

Fig 1. Gantt Chart

Currently only phase 2 deliverables have a concrete deadline / deliverable due to the fact it is very hard to set one if the development has yet to start. The other phases' specific deadlines and deliverables will be updated periodically as the project goes on.

Team Organisation Structure & Roles

Our team is going for a semi hierarchical/flat hybrid structure. The hierarchical portion comes from certain inherited role properties such as project manager, overall team lead and the developers that follows from that. Due to the small nature of the team, there will be overlapping roles (such as full stack, back-end & front-end developers) assigned to multiple people to ensure no one person has too much on their plate. This resulted in the indirect flat organization structure semi present within the team.

A detailed breakdown of roles and reasonings for team 13 members are as seen:
LAW JUN HAO : Project Manager / Back-end Developer
Reasoning: Is well versed with github and project planning flow within the team. Doesn't mind doing the planning as well as task allocations when new challenges arrive. Is willing to try out the API coding for the graphing properties required in the project down the line.
ANG WEE YI ALEX : Team Lead / Full-stack Developer / Quality Control
Reasoning: Is relatively skilled in coding and understanding technically challenging tasks. Has competent skills in communication and past experience in leading projects in the past. Therefore, team leading is nothing new and a relatively comfortable role.
RYAN SUAN ZHAN HU : Full-stack Developer / Quality Control
Reasoning: Is comfortable with doing the overall development portion of the project without the admin stuff. Has competent skills in coding & communication which makes a suitable full-stack developer as tasks from front-end and back-end will overarch each other frequently.
SIM YU CHENG : Front-end Developer / Quality Control / Research & Admin
Reasoning: Skilled with the research and development portion. Has experience in developing front-end materials based on past projects and is willing to oversee the entire front-end development duration.

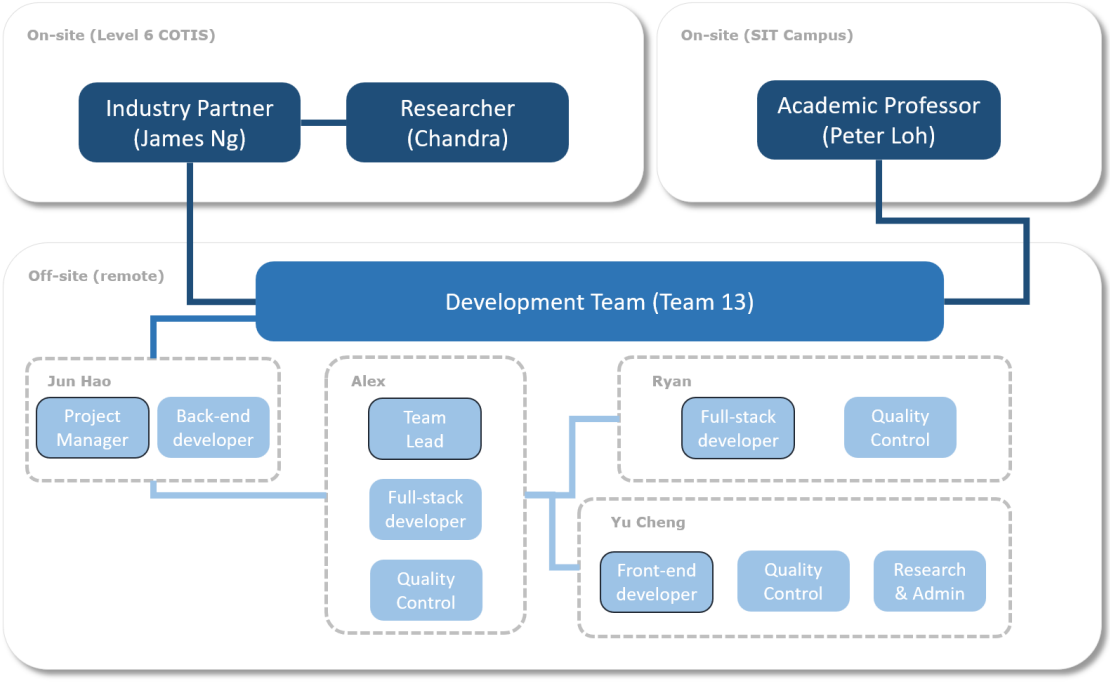

Fig 2. Org structure Illustration

IS_13 Role Descriptions:

Project Manager	Project managers are in charge of the planning, scheduling,execution, and delivery of software and web projects. They ensure the successful completion of all software projects and also oversee the people performing work on the projects. Though it might not be technical, it still requires a certain level of understanding to ensure work is done appropriately at the right pace.
Team Lead	Guide team development efforts towards successful project delivery. Provide technical leadership to teammates through coaching and mentorship. Maintain high standards of software quality within the team by establishing good practices and habits. Identify and encourage areas for growth and improvement within the team
Full-stack Developer	Responsible for working on both front-end and back-end development processes. They do both design and implementation.
Front-end Developer	Frontend developers are often responsible for implementing the application's visual elements. They create user interfaces and test the application usability, troubleshoot coding issues and change interfaces.
Back-end Developer	Backend developers spend their time analyzing existing codes, learn about new technologies, collaborate with frontend developers, report data and work with existing APIs
Quality Control	Work with developers, testers, (our own IS_13) and other stakeholders (Academic and Industry partners) to troubleshoot testing failures and bugs. Testing is to be done in a black box manner.
Research & Admin	Manage the administrative part of the project such as the communication between Academic / Industry supervisors & IS_13. Conduct and lead theoretical research on future possibilities / implementations for the project improvements in the future.