Project Milestone Update:

Business Intelligence Tool (#3)

Nicholas Ksinan, Nimo Benne, Max Zhong,

Ambarish Sharma, Diego Mackay

University of the Fraser Valley

COMP371 ON1

Oct. 24, 2023

Glossary-

Project Description- Page 2

Project Context (Inception)- Page 2,3

First Elaboration- Page 4,5

Project Timeline- Page 5,6

Pattern Description- Page 6,7,8

Group Update- Page 8,9

Domain Diagram- Page 10

Use Case- Page 10

Gnatt Chart- Page 11

Activity Diagram- Page 11

SSD- Page 12

References- Page 13

Project Description (Objective)

The primary goal of the business intelligence tool will be to aggregate disparate and unstructured data from the organization's external and internal systems and present it in a concise and understandable manner to the user in order to aid the organization's decision-making processes. The data that the tool will process can come from a variety of sources including e-mails, books, text files (e.g. word documents or excel spreadsheets), customer records, video files, social media posts, and other types of unstructured data available to the organization. This data will be organized and presented to the user graphically in dashboards where they will be able to view graphs, charts, tables that will use image recognition, NLP and video/audio analysis to present insights about the data, such as the sentiment of a text document or the types of objects present in an image or video. The objective of the project will be to create an intuitive interface for the user to use the organization's unstructured data to make informed decisions.

Project Context (Inception)

Business intelligence (BI) tools allow for a company's decisions to be dictated by a complete set of data. A successful BI strategy is definitively organized in terms of how the data is used. Unsuccessful BI strategies often fail due to mismanagement, perhaps as a result

of incomplete data. The objective of this BI tool is to give organizations and their constituents easy access to visualized data that will present the information they need to complete their roles effectively. The visualized data will convey data and insights in such a manner that even people with less context will be able to quickly and easily analyze the situation and make sound judgements.

First Elaboration

Data Sources: This is where various data sources, such as market data feeds, historical trade data, news, and current market trends, are collected and identified.

Data Integration: The data from various sources is integrated into the BI tool, ensuring a smooth flow of data from different inputs. This stage may involve communication with potential business clients to understand their data source requirements.

Data Processing: Data goes through a processing pipeline to clean, transform, and aggregate it. This prepared data is then directed toward two separate paths:

a. User Interface: Data is delivered to the user interface, where traders can customize and personalize dashboards, reports,

and visualizations according to their trading methods and market standards. This is a user-centric stage.

b. Real-time Business Data Analysis: Data also flows into real-time data analysis tools to provide clients with up-to-the-minute market information. This is a performance-focused stage. Safety: Ensuring the security of sensitive financial data and compliance with legal standards is a continuous process throughout all stages. It acts as a safeguard at every step. Future Scalability: The system is designed to be scalable, allowing it to handle increased data volumes and statistics as the user/client base grows. This scalability consideration is a part of the overall system design and architecture.

Project Timeline

Phase One (Initiating)

We will draft a project charter stating the scopes, objectives, risks and potential benefits for the project that will be presented to the project stakeholders. We will present a Gantt chart and UML outlining the timelines we have for the project goals during this stage. We may also choose different roles for the team members (project manager, back end developer, front end developer etc.) to simplify the workflow during this stage.

Phase Two (Planning)

- Scope & Goal Setting
- Budgeting
- Work Breakdown Structure
- Communication Plan

Phase Three (Executing & Monitoring)

- Direct & Manage project work
- Coding project
- Documentation
- Manage client engagement
- Prototype pilot

Phase Four (Closing)

- Design model
- Design documentation
- Technical Report in the form of a research paper
- Prototype implementation

Design Pattern - Builder Pattern

The Builder Pattern is a creational design pattern that we plan to implement in our project. In the context of creating a Business Intelligence (BI) tool, we can implement the Builder Pattern to

construct various components of our BI tool, such as reports, dashboards, data connections, or data visualizations. Here's a guide on how we plan to implement the Builder Pattern in the process of creating our BI tool:

Define the Product:

First, identify the complex objects we want to create in our BI tool. These objects can include reports, dashboards, data sources, charts, and so on. Define a common interface or base class for these objects to ensure that they share common properties and behaviors.

Create a Builder Interface:

Define a builder interface that specifies the steps and methods required to build the complex objects. Each method in the builder interface corresponds to a step in the construction process. This interface should be generic enough to work with different types of complex objects in our BI tool.

Implement Concrete Builders:

Create concrete builder classes that implement the builder interface for each type of complex object we want to create. These builder classes are responsible for constructing and configuring the specific object, setting its properties, and returning the final product.

Implement the Product:

Implement the complex objects (e.g., reports, dashboards) that our BI tool will generate. These objects should have corresponding attributes and methods to hold and manipulate the data.

Use the Builder Pattern:

In our BI tool code we will utilise the builder pattern to create objects by following a series of method calls on the builder class. For example, if we’re creating a report, we would call methods on the report builder to set the report's properties, data source, and how we would like to visualise the data.

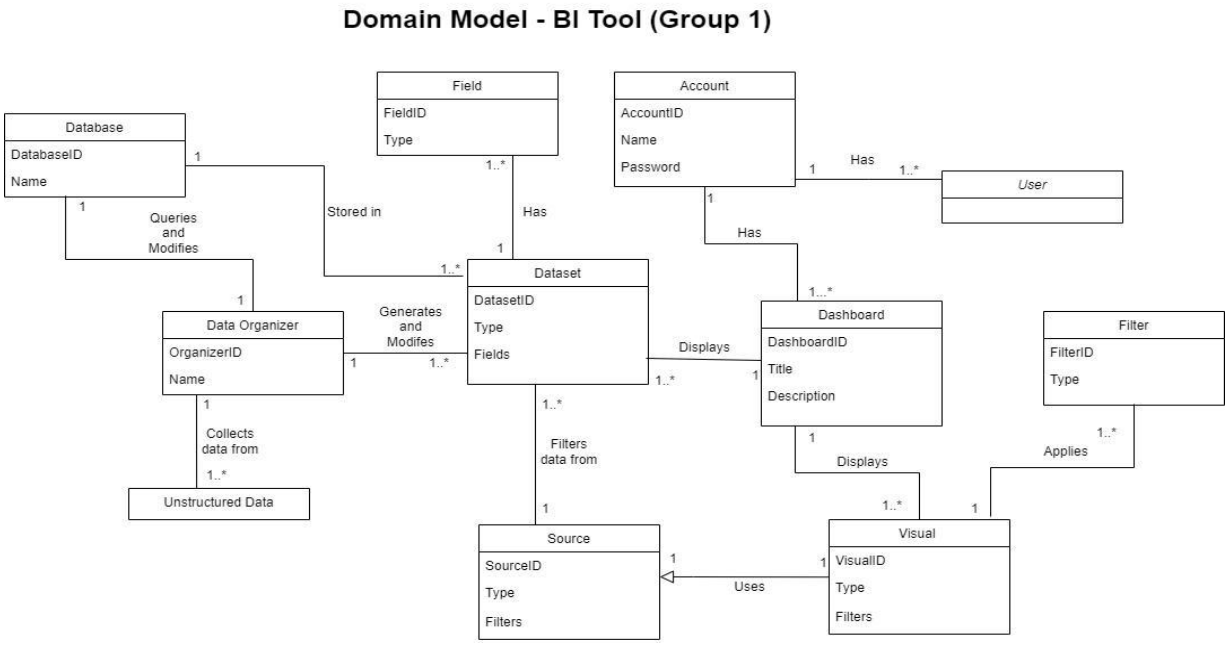
Group Update

Our group has been functioning smoothly, even though we face the challenges of balancing our student lives with our collaborative efforts. We've adopted an Agile workflow to enhance our productivity and adapt to changing circumstances. Our approach to group work is structured and productive. We aim to meet regularly, typically every few days, to maximize our collective efforts. To ensure accountability and quality, we've paired up for most tasks. This means that every task benefits from the input of at

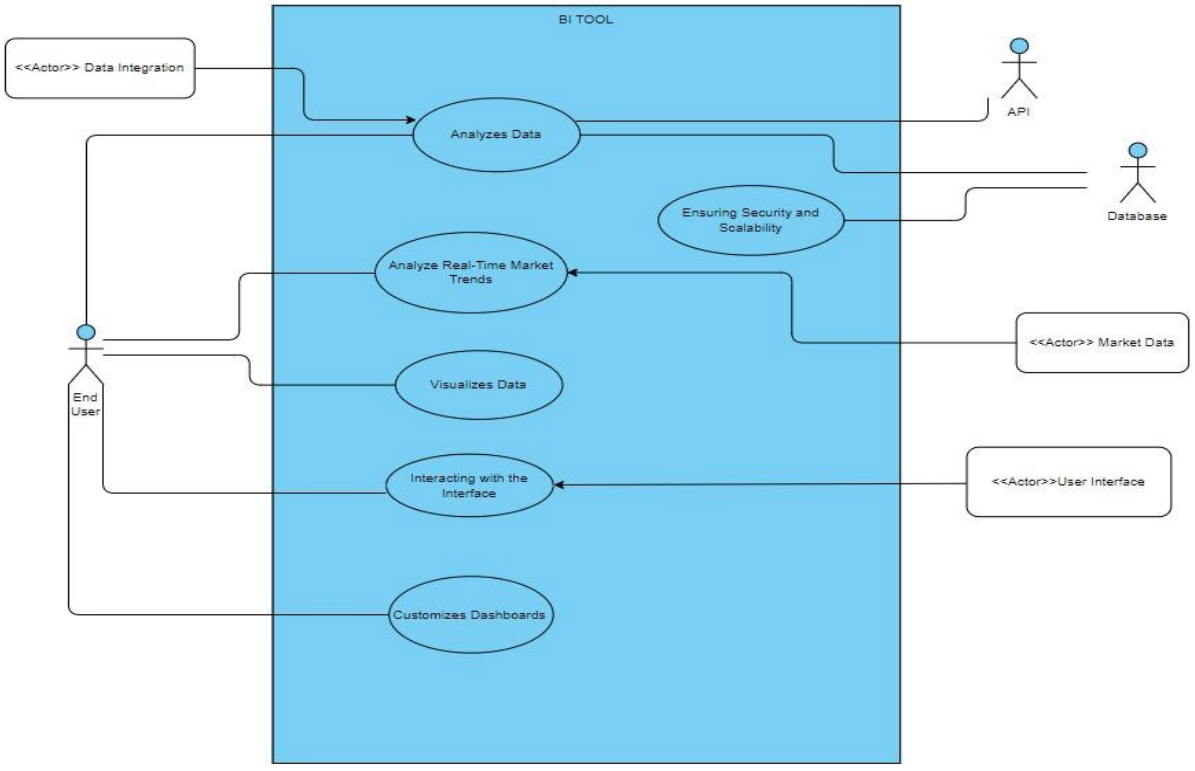
least two members, allowing for thorough reviews and improvements. After the task is done we all review it collectively to ensure it’s up to our standards.

In our meetings, we establish clear objectives and set deadlines, which helps us stay on track and offers room for revisions and problem-solving before submission. Quality is a top priority, and we allocate ample time to each task to ensure we produce high-quality content. This aligns with Agile's emphasis on delivering valuable work at the end of each iteration. In summary, our group effectively manages the demands of student life while adopting Agile principles such as communication, problem-solving, structured collaboration, and a dedication to delivering top-notch work.

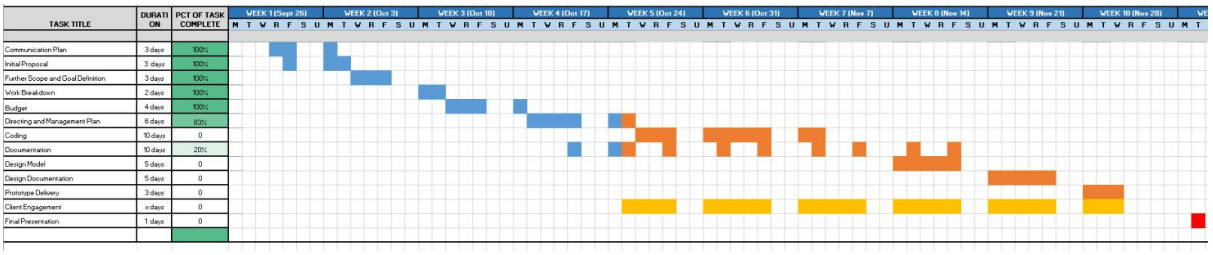
Domain Model



Use Case Diagram



Gnatt Chart



Colour scaling proportional to task completion broken b/c chart got split

Phase One & Two

TASK TITLE	DURATION	PCT OF TASK COMPLETE
Communication Plan	3 days	100%
Initial Proposal	3 days	100%
Further Scope and Goal Definition	3 days	100%
Work Breakdown	2 days	100%
Budget	4 days	100%
Directing and Management Plan	6 days	83%

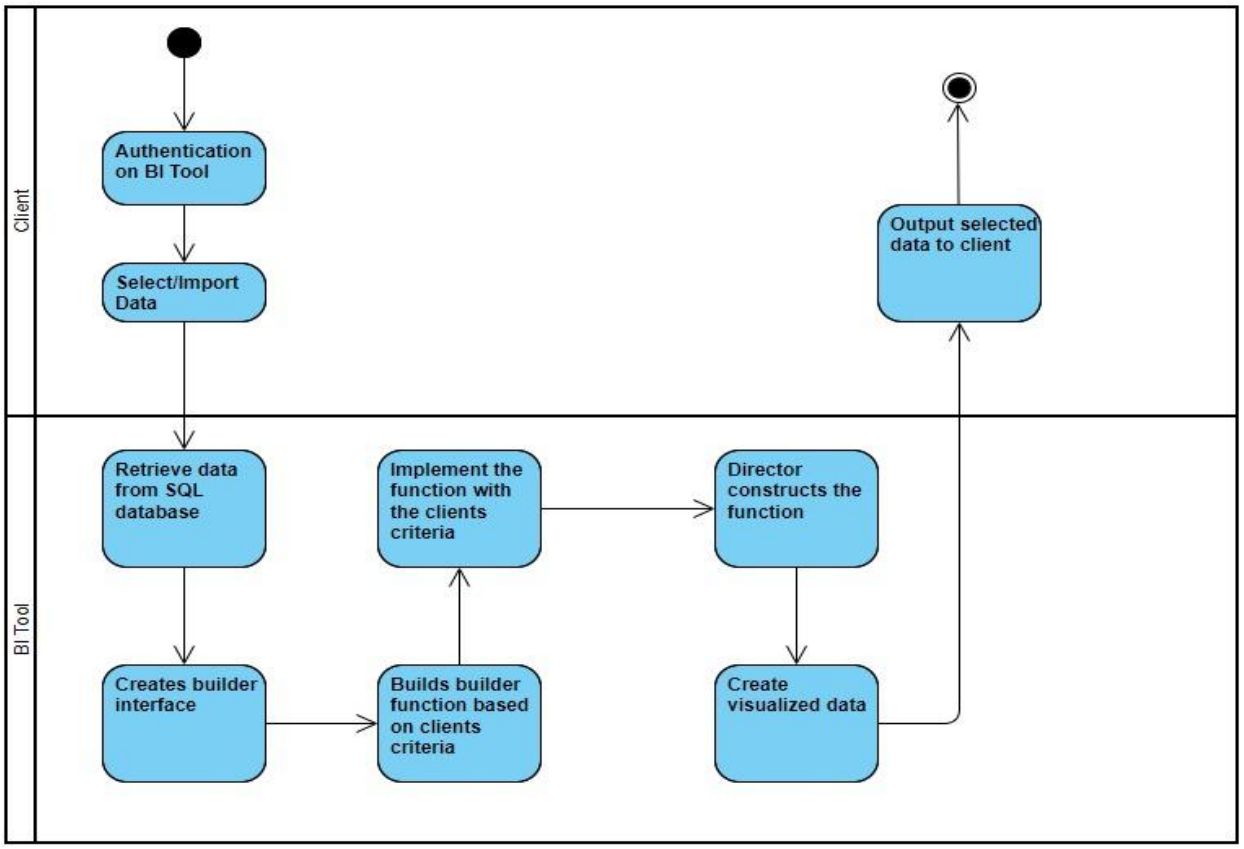
Phase Three

TASK TITLE	DURATION	PCT OF TASK COMPLETE
Coding	10 days	0%
Documentation	10 days	20%

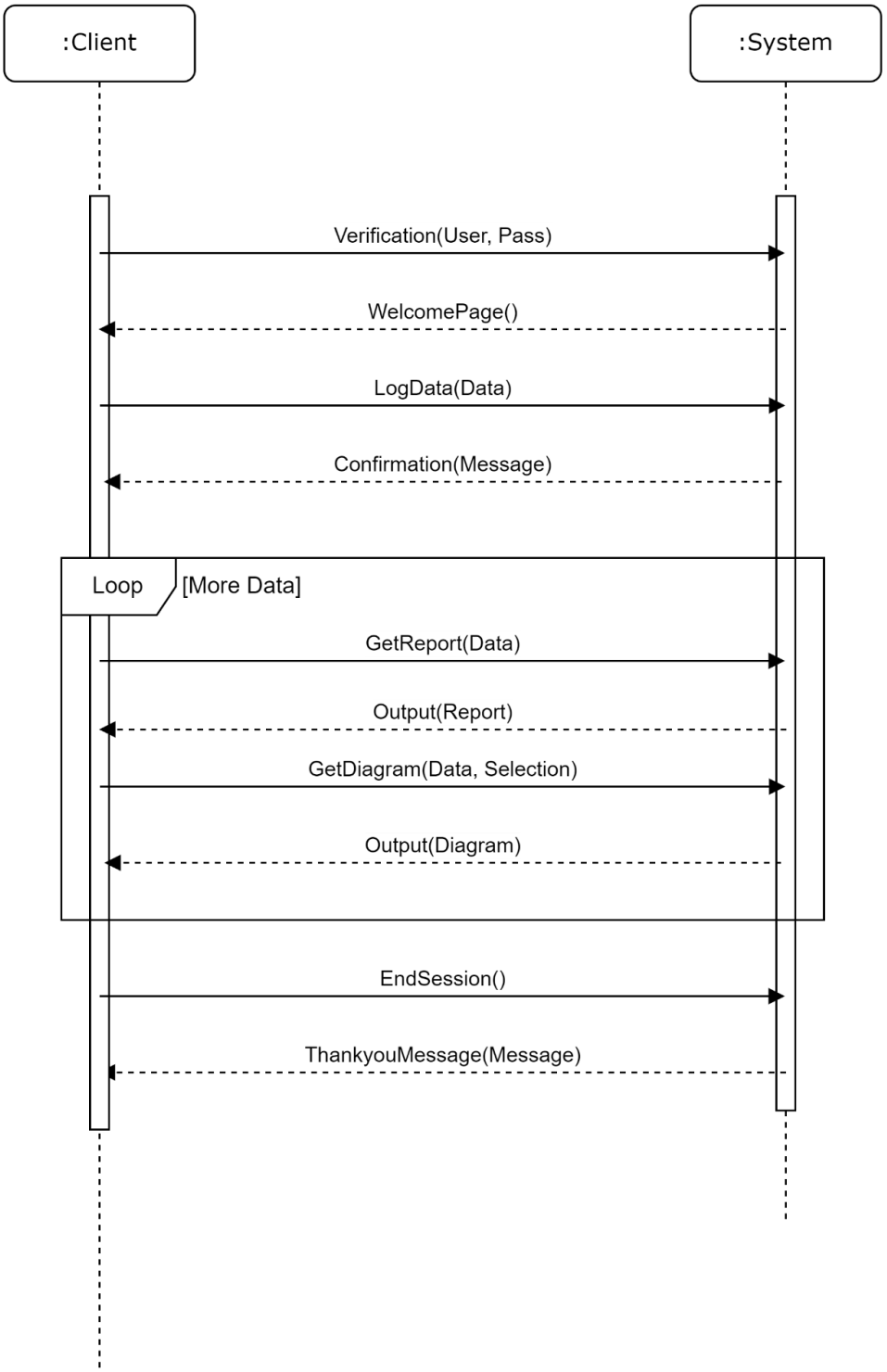
Phase Four

TASK TITLE	DURATION	PCT OF TASK COMPLETE
Design Model	5 days	0%
Design Documentation	5 days	0%
Prototype Delivery	3 days	0%
Final Presentation	1 days	0%

Activity Diagram



SSD


:Client
:System
Verification(User, Pass)
WelcomePage()
LogData(Data)
Confirmation(Message)
Loop
[More Data]
GetReport(Data)
Output(Report)
GetDiagram(Data, Selection)
Output(Diagram)
EndSession()
ThankyouMessage(Message)

References:

Builder Pattern description:

https://www.tutorialspoint.com/design_pattern/builder_pattern.htm

https://refactoring.guru/design-patterns/builder

https://towardsdatascience.com/3-great-design-patterns-for-data-science-workflows-d3bf162d74e6

Diagrams: Craig Larman and Slides