



## ***COMP3850 Project Deliverable Certificate***

Name of Deliverable	<i>D4 - Updated Project Plan, Requirements/Scoping Document, Design, Testing, MVP Document and User Manual</i>
Date Submitted	<i>17/ 10/ 2024</i>
Project Group Number	<i>Team 10</i>
Rubric stream being followed for this deliverable ( <b>highlight one</b> )  <i>Note: the feasibility study has the same rubric for all streams.</i>	<b><i>SOFTWARE Rubric</i></b> <b><i>GAMES Rubric</i></b> <b><i>CYBERSECURITY Rubric</i></b> <b><i>DATA SCIENCE Rubric</i></b>

We, the undersigned members of the above Project Group, collectively and individually certify that the above Project Deliverable, as submitted, **is entirely our work**, other than where explicitly indicated in the deliverable documentation.

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*NB: please write all details clearly (if handwritten).*

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**List of tasks completed for the deliverable and activities since last deliverable certificate with totals for each individual team member and whole team** (copy individual total row for each member and copy pages if more pages needed)

Performed by <i>(Student Names)</i>	Duration (hrs)	Complexity (L, M, H)	Name of task	Checked by <i>(Initials)</i>
Ernest, Vincent, Ryan, Shahir, Shane	0.3	L	Meeting with Pace Partner about Database Integration	VJVR
Dylan	0.5	M	Added Use Case Description and User Story.	RP
Dylan	1	M	Started working on User Manual	SF
Dylan	0.25	M	Updated Use Case Diagram	SW
Shane	2	M	Updated 5.1 Test Plan	RP
Ernest	3	M	Updated our Prototype to have Feedback Rating and handle Inactivity	RP
Ernest	0.5	L	Added Use Case Description and User Story for Feedback Rating	DF
Ryan	1	L	Updated/Edited User Manual	VJVR
Ernest	0.5	L	Added the feature 'Feedback Rating' to the Prototype Section	DF
Ernest	3.5	M	Edited the User Manual	VJVR
Dylan	0.75	M	Added Frequently Asked Questions and User Instructions	EDC
Dylan	0.5	L	Edited whole document (for grammar)	RP
Shahir	2.5	M	Added three more cases for the activity diagram	SF
Ryan	1.5	L	Edited User Manual/Edited Troubleshooting Section	SW
Shahir	0.5	L	Updated handover requirement	EDC

Shahir	0.5	L	Worked on troubleshooting	EDC
Ryan	1.5	M	Comprehensive edit/update of 6.1 Prototype Section	SW
Vincent	4	M	Worked on sharepoint integration to allow image upload	EDC
Shane	1.25	L	Updated 2.3.1 and general editing	DF
Shahir	1	L	Worked on usual manual for system development/handover	EDC
Vincent	3	L	Worked on user manual and prototype documentation	SF
Dylan	3			
Ryan	4.3			
Shane	3.55			
Vincent	7.3			
Ernest	7.8			
<i>Shahir</i>	4.8			
Team Total	30.75			



## Centre for Armed Violence Reduction

Updated Project Plan, Requirements/Scoping Document,  
Design, Testing, MVP Document and User Manual

### Virtual Agent for Reporting and Preventing Deadly Violence

Version 1.0.0, 17/10/2024

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# 1. Updated Project Plan

## Rewritten History Table

Version	Last Update	Author Name	Description of Change
1.1.0	28/9/2024	Ernest Dela Cruz	Updated 'Human Resources' section based on the feedback given <ul style="list-style-type: none"><li>Explicitly listed member roles and responsibilities in bullet points</li></ul>
1.1.0	28/9/2024	Ernest Dela Cruz	Updated 'Version Control' section based on the feedback given <ul style="list-style-type: none"><li>Added version control for our code/virtual agent</li></ul>
1.1.0	28/9/2024	Shane Fornari	Updated 'Schedule' section based on the feedback given <ul style="list-style-type: none"><li>Minor changes made to scheduling and prototype development</li></ul>
1.1.0	28/9/2024	Ernest Dela Cruz	Updated 'Risk Management' section based on the feedback given <ul style="list-style-type: none"><li>Added a technical risk to the risk register</li></ul>
1.1.0	30/9/2024	Ernest Dela Cruz	Removed the 'List of Assumptions' section and placed it at the end of the 'Analysis & Design Document' Document as it was explicitly told in the marking rubric
1.1.0	30/9/2024	Vincent Jansen van Rensburg	Updated handover requirements to meet what was discussed with Sponsor

## 1.1. Statement of Purpose and Scope of Project

The purpose of this document is to outline the risks associated with the project, along with the management of the resources and the schedule of the project. The project being undertaken is to create a Virtual Agent to which users can submit information surrounding armed violence crimes, which will aid the authorities. It is being deployed in the country of Papua New Guinea to start with. In order to complete the project in time, this document has been drafted to ensure that all bases have been covered before getting too far into the project.

The Virtual Agent will be created through MS Copilot, and will then be integrated into WhatsApp. The information that users input, which could be text, images or videos, will be taken and stored in the AIM's Azure database and will be auto-emailed to relevant people and stakeholders. The Virtual Agent will need to be able to respond to the user, through text responses, the responses mainly surrounding queries about armed violence.

## 1.2. Risk Management

The idea of risk management helps initialise the safety of employees and users. If the data or project have been compromised the first step is to minimise the risk that can potentially prevent further damage. The first solution is to thoroughly identify, control, review, and assess threats and vulnerabilities that are caused either within or outside of an organisation. Performance risk could be a huge factor due to the project not achieving the required goal. This includes time management, lack of commitment, and low communication.

### Risk Matrix:

This simplified risk matrix displays the seriousness of each risk based on the likelihood of the risk occurring against the consequence of the risk. The red zone highlights high priority risks, the yellow zone is less of a priority, and the green represents the lowest priority of risk.

		Consequence		
		Minor	Moderate	Significant
Likelihood	High	Yellow	Red	Red
	Medium	Green	Yellow	Red
	Low	Green	Green	Yellow

### **Risk Register:**

The risk register below will contain a list of all the risks that will be associated with this project. It will use the risk matrix above to rank the risks in order of priority, as well as explaining the strategy to minimise each risk.

<b>Risk</b>	<b>Description and Cause</b>	<b>Likelihood</b>	<b>Consequence</b>	<b>Priority</b>	<b>Mitigation Strategy</b>
Access to Software	The team's access to Copilot studios is lost due to unforeseen events.	Low	Significant	6	Team will contact Alistair (AIM in-charge) or Microsoft depending on the situation
Scope of the Project Changed during Development	Client might suggest a different method or want to change the final product	Low	Moderate	8	The team will keep in touch with the client via weekly meetings, as well as email communication with the client to ensure all details are correct between both parties. Alternative solutions also available to help with any change if necessary
Client not Responding	Client stops responding to emails, stops attending weekly meetings	Low	Significant	4	Contact our Pace Unit Convenor about the issue and reflect on the response and to establish a plan to complete the project
Team Member not Responding	A team member stops cooperating with the team	Low	Significant	5	Make sure that regular communication is held between the team to ensure everyone is cooperating. The team leader will try and contact a team member and sort out any issues that they may be having if they are not responding
Team Member Dropping Out	A team member drops the unit, and leaves the project	Low	Significant	2	No real way to mitigate this, so the team will have to pick up the extra slack
Development Risk	The impact of scheduling and performance of the project	Low	Significant	3	Monitor and review each task to mitigate any chances of incomplete work.
System Failure	A function of Copilot Studio	Low	Significant	7	Can contact Microsoft depending on the situation or search for

	stops working due to updates or unplanned downtime				online articles that may give more details as to the reason why this event is occurring.
Running out of Time	There is not enough time before the handover date to handover the final product to the client	Medium	Significant	1	In the earlier weeks of the project, the project will be broken down and each task will be planned out so the team can stay on top of it

## 1.3. Resource Management

Listed below are the types of resources that will be managed to produce a successful project.

### 1.3.1. Human Resources

We have allocated project roles and responsibilities according to the set of skills that each of the 6 members of our team displays. With limited experience in Copilot Studio, we have shared equal responsibility amongst group members to learn its features in order to develop a successful agent that gathers accurate information on violent incidents in PNG. There will be a variety of roles that will have intersecting work in which collaboration will be needed by everyone, aside from focusing on allocated assignments.

#### **Vincent - Team Leader, Primary Communications Expert, Developer**

- Supervises all project and deliverable developments
- Communicates with Pace partner to manage any misinterpreted project requirements by group members
- Develops and test our virtual agent

#### **Ernest - Assistant Leader, Documentation Manager, Developer**

- Aids team leader by monitoring the completion of tasks that have been assigned to each group member and messaging those who are behind schedule
- Ensures consistent formatting is being met across our documents
- Develops and test our virtual agent

#### **Shane - Assistant Communications Expert, Researcher, Developer**

- Upload any documents required by our sponsor in our Sharepoint folder and record meeting insights
- Researches Copilot features and limitations
- Develops and test our virtual agent

#### **Shahir - Documentation Manager, Researcher, Developer**

- Ensures consistent formatting is being met across our documents
- Researches Copilot features and limitations
- Develops and test our virtual agent

#### **Dylan - Documentation Manager, Researcher, Developer**

- Ensures consistent formatting is being met across our documents
- Researches Copilot features and limitations
- Develops and test our virtual agent

#### **Ryan - Documentation Manager, Researcher, Developer**

- Ensures consistent formatting is being met across our documents
- Researches Copilot features and limitations
- Develops and test our virtual agent

### **1.3.2. Hardware Resources**

There are limited hardware resources required to complete our project. This includes personal computers for each member to work on documentation, attend weekly meetings, communicate with the team/sponsor via social media and develop our virtual agent.

### **1.3.3. Software Resources**

The main software used to construct our virtual agent would be Copilot Studio, which will be implemented through a virtual agent via Web, Messenger and WhatsApp. This allows easy integration with the AIM database and maintenance in the future as it is within the Microsoft ecosystem.

Communication software such as Zoom will be required to conduct team or client meetings, and Messenger will be used to communicate on a daily basis between group members. Further software like Google Docs and Microsoft Sharepoint from Microsoft 365 is used to write meeting notes, share valuable documents between the sponsor, and produce deliverables required to complete the project.

### **1.3.4. Financial Resources**

A subscription fee of \$30/month is required to use Microsoft Copilot Studio. Our client has provided an account for the team to share, in which we can use all of its features. However, following the completion of the project, the client will have to continue to pay the subscription for the software to continue to work.

### **1.3.5. Time**

Efficiently managing time is key to the success of our project as it minimises delays and confusion in spending limited work hours on certain tasks. By implementing Gantt charts, it ensures that our team has a structured schedule to follow where each member precisely knows when a task needs to be worked on, how much time is needed, and what tasks need to be completed.

## **1.4. Change Management**

Change management is one of the most vital aspects of this project, as it defines whether or not our team is capable of handling unexpected incidents. Given one of the most important resources required for this task is time, our ability to manage change will heavily impact our end result - whether it be a finished, implementable product, or a poorly constructed attempt. There are some scenarios for which change management plans have been prepared, as a result of their likelihood/severity - these include the loss of a team member, the inability to communicate with our PACE partner, and time constraints.

#### **Loss of a team member:**

In the case of this scenario, it is pivotal that the team redistributes the tasks of that member evenly, with regard to the skill set of each individual. This will allow our group to ensure the task is still completed to a high standard, without the workload being unfairly reallocated.

#### **Inability to communicate with PACE Partner:**

As seen in week 5 of our project, there may be instances where our client is incapable of attending the regularly scheduled meeting or communicating with our team for a period of time. In this circumstance, our plan is to retain active communication within our group, whilst recording questions for our client upon his return.

#### **Time Constraints:**

Time constraints are an important factor in any project, and must be considered accordingly. In our project, we aim to avoid time constraints impacting the quality of our work by remaining in active communication within our group, especially as task due dates become closer. If it becomes apparent that some components of the project will not be completed in time at the current rate of progress, we will actively reallocate tasks to ensure completion and quality.

Other than in the cases of these prominent issues, our change management plan focuses mainly on communication between team members - upon the discovery of an unexpected issue, our main response will be to discuss a solution within the group and implement it to ease the effect of the change as much as possible.

### **1.4.1. Version Control**

Version control is the process of managing and tracking files, tracking code, and allowing real-time changes that can be seen by others. Our group has created a shared folder in Google Drive containing our weekly reports, deliverable documents, and meeting questions/minutes documents. Furthermore, we have a SharePoint folder containing all of our documents, allowing our PACE Partner to access our documents and give us feedback via email. All files uploaded here will be indicated by an incremented version number, and documents that are based in Microsoft such as Word or Excel are also updated and saved in the cloud, allowing previous versions and changes to be recovered if necessary.

On the other hand, changes to our virtual agent in Copilot Studio and Power Automate cannot be restored to previous versions. Therefore it is vital that the group is notified of any changes to the virtual agent prior to being saved to minimize confusion. It does however display the date and time when the last modification and publication were performed. This allows the team to identify which group member recently used the software and made unwanted changes that need to be corrected.

## **1.5. Quality Management**

An effective quality management plan is vital in ensuring a quality product is delivered to our client. Each team member has the responsibility to conduct effective quality management for the whole duration of the project to ensure the best possible project is achieved. Quality management has a high impact on the users of this program upon its release, as it handles sensitive data related to violent incidents in Papua New Guinea. To ensure quality is to an appropriate degree, the team will set a list of quality standards that must all be met. Furthermore, the team will also be continually monitoring and improving the quality of our project during the development process. By following these quality management standards during the development process, our team will be able to deliver a high quality product to our sponsor.

### **1.5.1. Quality Standards/Control**

Our team has set out clear and precise quality standards for the virtual agent to ensure we are developing a successful product. These standards cover accuracy, performance, and safety, all of which are critical for this project due to the highly sensitive nature of the data being managed. Developing these quality standards ensures our approach is robust and effective in creating a successful virtual agent. In every stage of development, the team will carry out testing to ensure alignment with our sponsors' requirements and user experience standards, as well as develop a set of baselines that confirm the virtual agent is adequately prepared to respond in certain situations.

### **1.5.2. Quality Assurance**

The team will be constantly assessing the delivery of the project to ensure that the requirements are met. This process will prevent any issues in the project by addressing and fixing these before they turn into larger issues. We will also be able to identify areas of improvement that can help the program run more smoothly. Firstly, all the coding will be regularly monitored and reviewed by team members to ensure it meets all performance expectations set out by the team and the sponsor. This is an ongoing process that ensures the system runs smoothly and accurately. Furthermore, team members will be assigned to test the unfinished product in order to ascertain whether alterations must be made. To deliver the best possible project, continuous improvement practices will be implemented - by retraining the agent to adapt to new types of queries and issues, as well as implementing feedback into the development process, the agent's functionality and accuracy will continually improve to meet evolving requirements.

## **1.6. Schedule**

Since our team has been assigned to develop a virtual agent in Copilot Studios over a 2-3 month period, it is critical that we implement suitable procedures that survey our progress to avoid losing track of our objectives. Therefore, various charts have been produced to showcase the planned tasks for each deliverable, as well as the project timeline and the allocation of resources to effectively complete our goals. Although it is not displayed in the Gantt chart, our group has organised weekly team checkups/meetings with our PACE partner in order to ascertain if any aspects of our project require alteration.

Furthermore, our team has decided to adopt an agile approach to the software development aspect of our project. As such, we may have to adapt our schedule to align with any changes in development that arise - in this scenario, the team would try and distribute the altered workload in a way that least impacts the preexisting schedule, and then alter it in the least impactful way possible regarding the planned completion of our set tasks.

Some changes to the schedule had to be made in order to factor in two team members, Shane and Dylan, going on an overseas trip during the mid-semester break. The assigned tasks of deliverable 3 had to be changed to factor in this problem that has arisen. Otherwise, a few small changes have been made due to the fact that the creation of the prototype took longer than expected and is thus extended in the Gantt charts of deliverables 3 and 4 (**Figure 16 and 17**).

## 1.6.1. Planned Tasks

The Figures below show the planned tasks for the project which have broken down and allocated to each group member. It shows the start and end date of each task/deliverable, its duration and the initials of the assigned member working on each task.

Name	Assignee	Start date	Due date	Duration
Deliverable 1 - Feasibility Study and Team Manual	R+	Jul 29	Aug 8	11 Days
Feasibility Report	R+	Jul 29	Aug 4	7 Days
Identify Project Problem, Opportunities and Assumptions	RP	Jul 29	Jul 30	2 Days
Determine Mandates and Current Situation	DF	Jul 30	Jul 31	2 Days
Determine Tangible and Intangible Benefits	SW	Aug 1	Aug 2	2 Days
Determine Alternative and Recommended Solutions	VR	Aug 2	Aug 4	3 Days
Team Manual	R+	Aug 5	Aug 8	4 Days
Identify Team Organisation and Structure, and Create Team Values	EC	Aug 5	Aug 6	2 Days
Determine Project Management Approach and Tools, Communication Plan and Meeting Schedule	SF	Aug 7	Aug 8	2 Days

**Figure 1. Deliverable 1 Plan**

Name	Assignee	Start date	Due date	Duration
Deliverable 2 - Project Plan and Requirements/Scoping Document	R+	Aug 9	Tomorrow	21 Days
Project Plan	R+	Aug 9	Aug 17	9 Days
Create Statement of Purpose, Scope of Project and Assumptions	DF	Aug 9	Aug 11	3 Days
Develop Risk Management	SW	Aug 10	Aug 13	4 Days
Develop Resource Management	EC	Aug 13	Aug 15	3 Days
Create Change and Quality Management Approach	RP	Aug 14	Aug 16	3 Days
Create Schedule Using Clickup	EC SF	Aug 14	Aug 17	4 Days
Requirements/Scoping Document	R+	Aug 18	Yesterday	10 Days
Explain the Overview of the Requirements Document, Purpose and Scope of the System	RP	Aug 18	Aug 19	2 Days
Define any Definitions and Include References	SW	Aug 19	Aug 19	1 Day
Describe System's Relationship with Other Products and its Features	VR	Aug 20	Aug 21	2 Days
Describe User Characteristics and Operating Environment	DF	6 days ago	4 days ago	3 Days
Outline Functional, Design, Implementation and Usability Requirements	SF DF	3 days ago	Yesterday	3 Days
Update Team Manual	EC	Today	Tomorrow	2 Days

**Figure 2. Deliverable 2 Plan**

Name	Assignee	Start date	Due date	Duration
Deliverable 3 (Increment 1)	R+	Fri	Sep 30	33 Days
Update Project Plan	VR	Fri	Sun	4 Days
Update Requirements / Scoping Document	SW RP	Mon	Sep 4	3 Days
Provide List of Assumptions	DF	Sep 5	Sep 6	2 Days
Construct Prototype and MVP Document	EC DF RP +3	Sep 7	Sep 18	12 Days
Analysis, Design and Testing Documentation	SF EC DF +3	Sep 19	Sep 30	12 Days
Meet with Client and Receive Feedback on System	EC DF XP +3	Sep 25	Sep 25	1 Day

**Figure 3. Deliverable 3 Plan**

Name	Assignee	Start date	Due date	Duration
Deliverable 4 (Increment 2)	R+	Oct 1	Oct 17	17 Days
Update Project Plan	EC	Oct 1	Oct 2	2 Days
Update Requirements / Scoping Document	SF	Oct 2	Oct 3	2 Days
Update List of Assumptions	DF	Oct 3	Oct 4	2 Days
Update Prototype /MVP Document	VR RP EC +3	Oct 4	Oct 11	8 Days
Construct Script / Models Execution Documentation	VR RP SF	Oct 8	Oct 12	5 Days
Update Analysis, Design and Testing Documentation	SW DF EC	Oct 11	Oct 17	7 Days
Meet with Client and Receive Feedback on Prototype	EC DF XP +3	Oct 16	Oct 16	1 Day

**Figure 4. Deliverable 4 Plan**

Name	Assignee	Start date	Due date	Duration
Deliverable 5 - Final Group Reflective Report ↳ 7	RF	Oct 18	Oct 30	13 Days
Write Introduction	DF	Oct 18	Oct 19	2 Days
Reflect on Project Planning	SF	Oct 19	Oct 20	2 Days
Review Requirements and Analysis Procedures	RP	Oct 21	Oct 22	2 Days
Analyse Design Product	SW	Oct 23	Oct 24	2 Days
Review Implementation Methods	VR	Oct 25	Oct 26	2 Days
Reflect on Learning Outcomes	EC	Oct 27	Oct 28	2 Days
Construct Conclusion	SW	Oct 29	Oct 30	2 Days

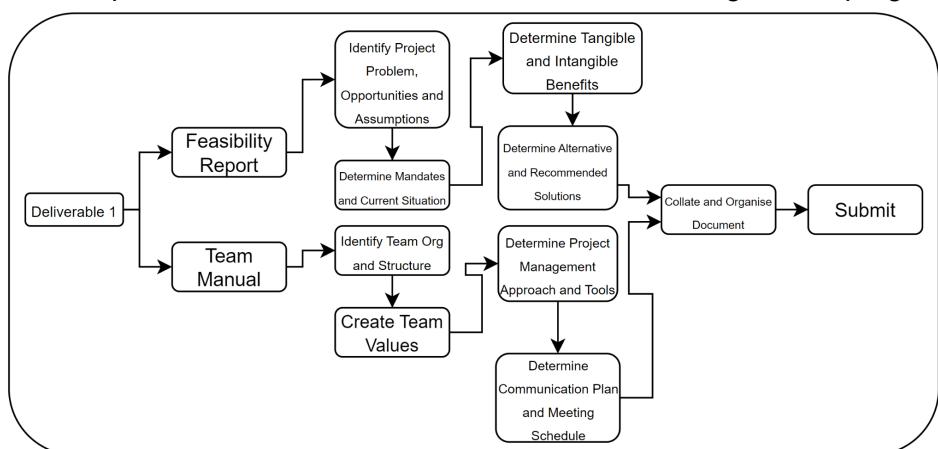
**Figure 5. Deliverable 5 Plan**

Name	Assignee	Start date	Due date	Duration
Deliverable 6 - Project Presentation ↳ 1	RF	Oct 24	Oct 31	8 Days
Create Presentation	EC DF RP +3	Oct 24	Oct 31	8 Days
Deliverable 7 - Deliver Product to Client ↳ 1	RF	Oct 30	Nov 14	16 Days
Handover Project, Ask and Deliver Required Files to Client	EC DF RP +3	Oct 30	Nov 14	16 Days

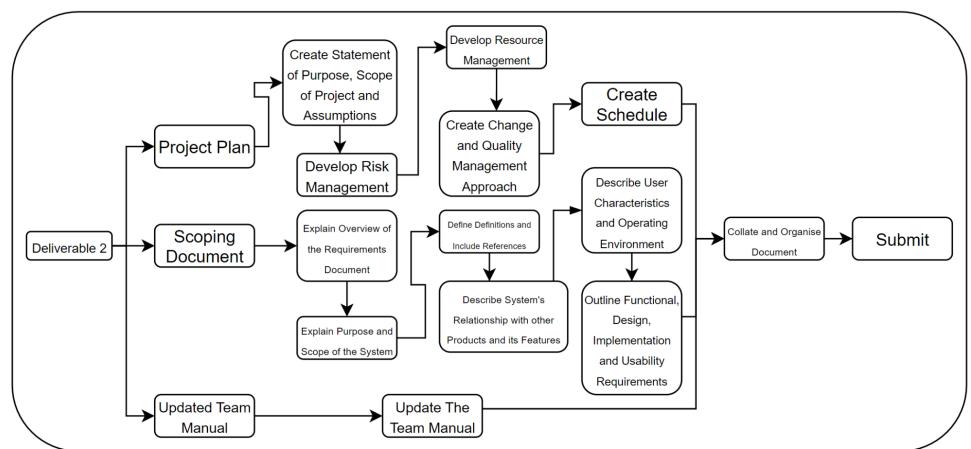
**Figure 6. Deliverable 6 & 7 Plan**

## 1.6.2. Workflow Models of Deliverables

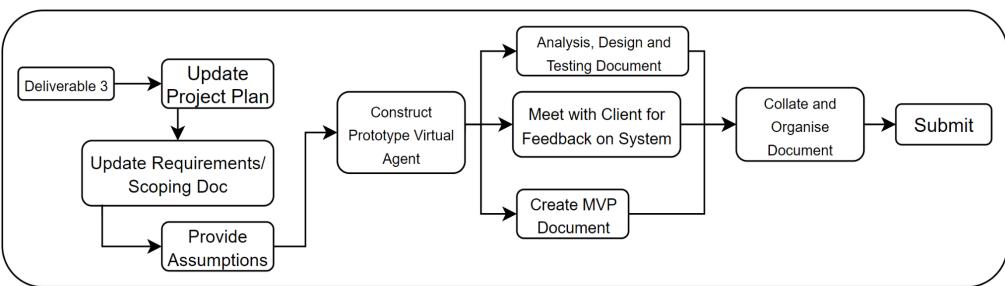
The following flowcharts demonstrate the process of completing expected tasks for each deliverable. It provides an outline of the task dependencies which assists our team in monitoring overall progress.



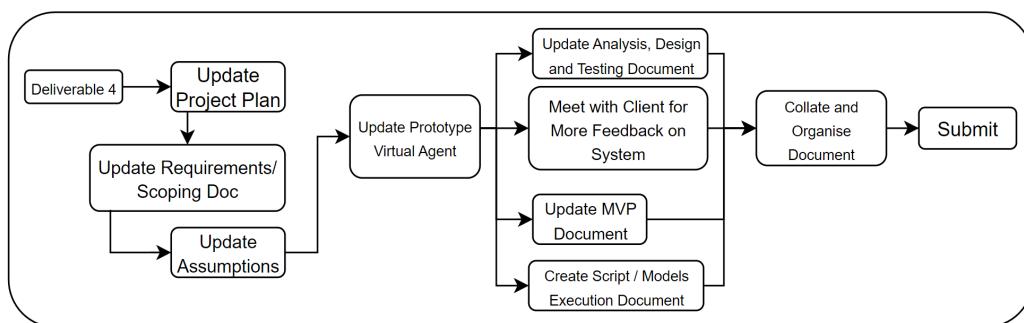
**Figure 7. Deliverable 1 Flowchart - Feasibility Report and Team Manual**



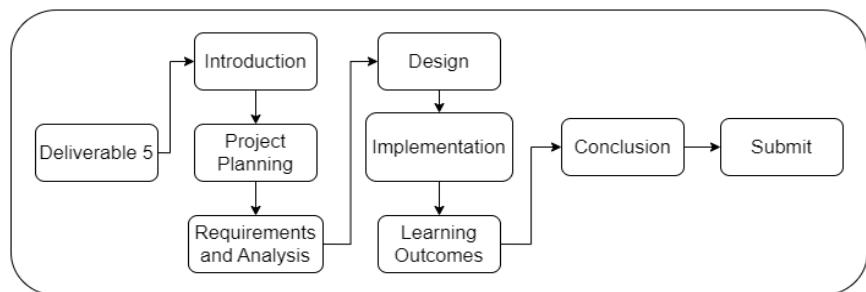
**Figure 8. Deliverable 2 Flowchart - Project Plan, Scoping Doc and Update Team Manual**



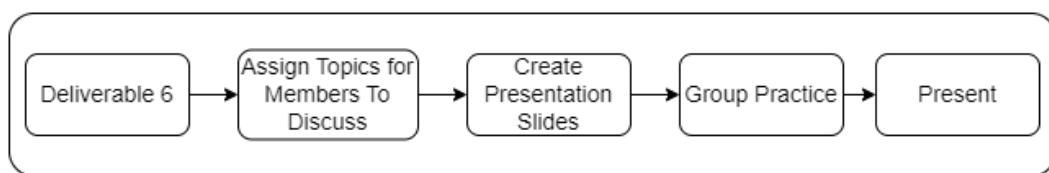
**Figure 9. Deliverable 3 Flowchart - Updated Documents and Prototype**



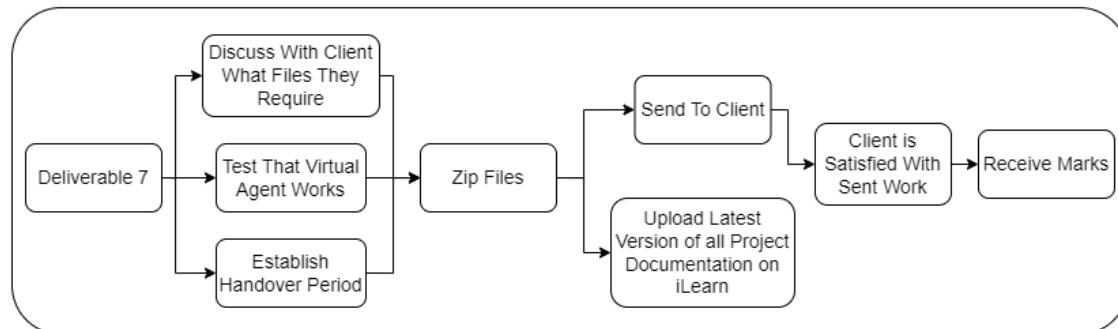
**Figure 10. Deliverable 4 Flowchart - Updated Documents and Revised Prototype**



**Figure 11. Deliverable 5 Flowchart - Group Reflective Report**



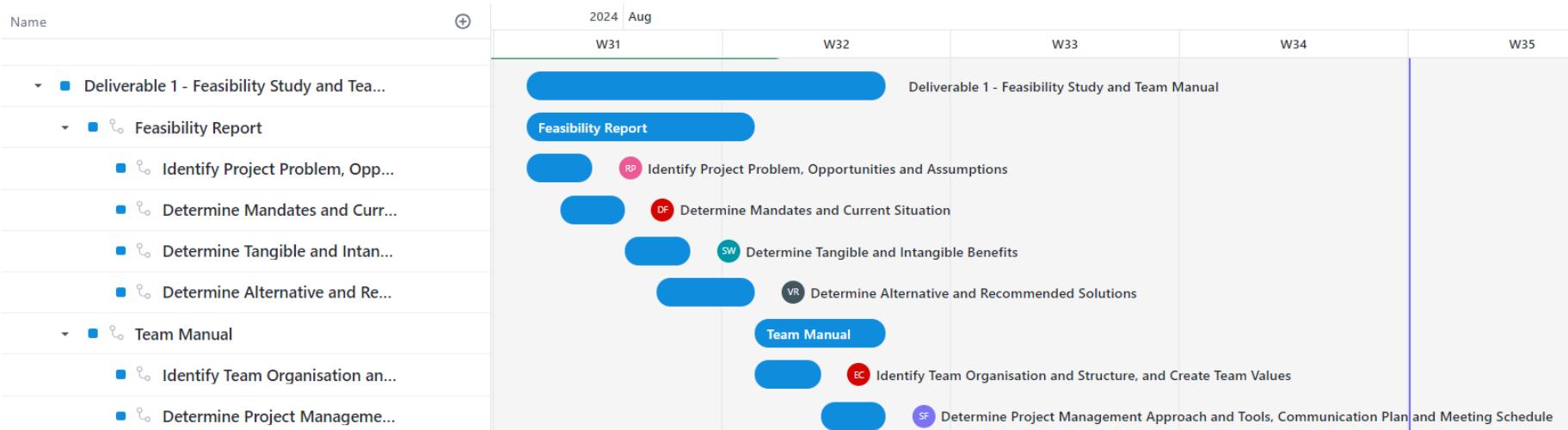
**Figure 12. Deliverable 6 Flowchart - Project Presentation**



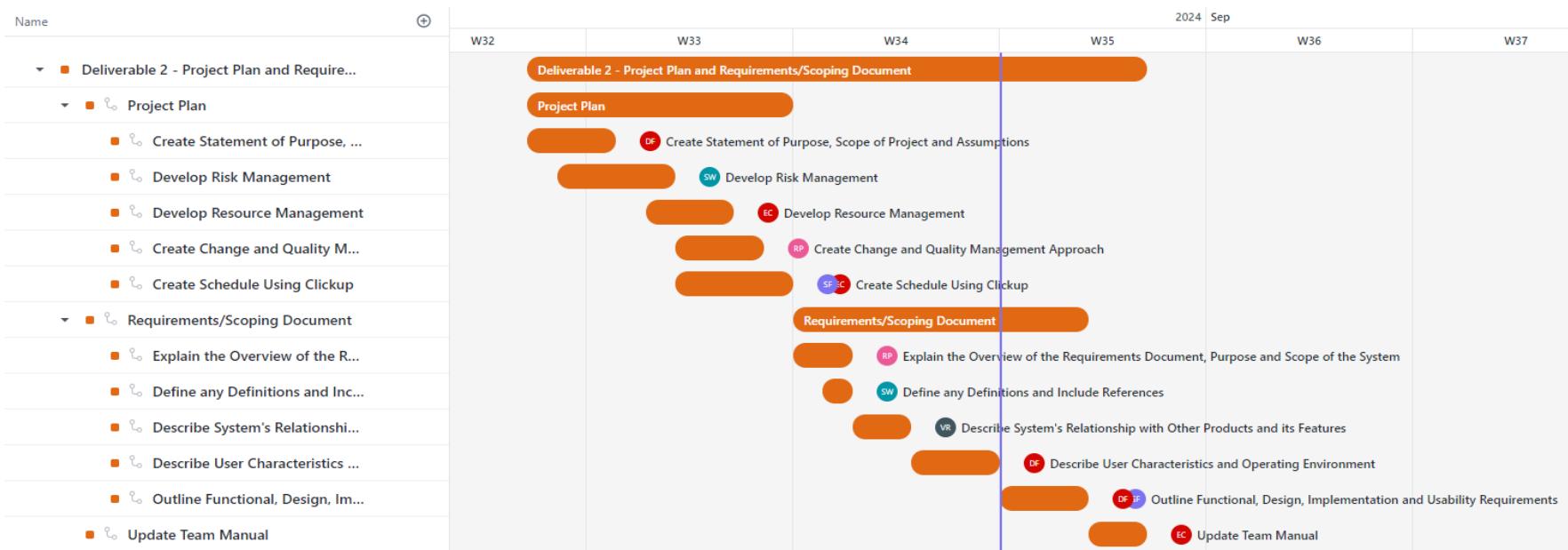
**Figure 13. Deliverable 7 Flowchart - Delivery Product to Client**

### 1.6.3. Timeline

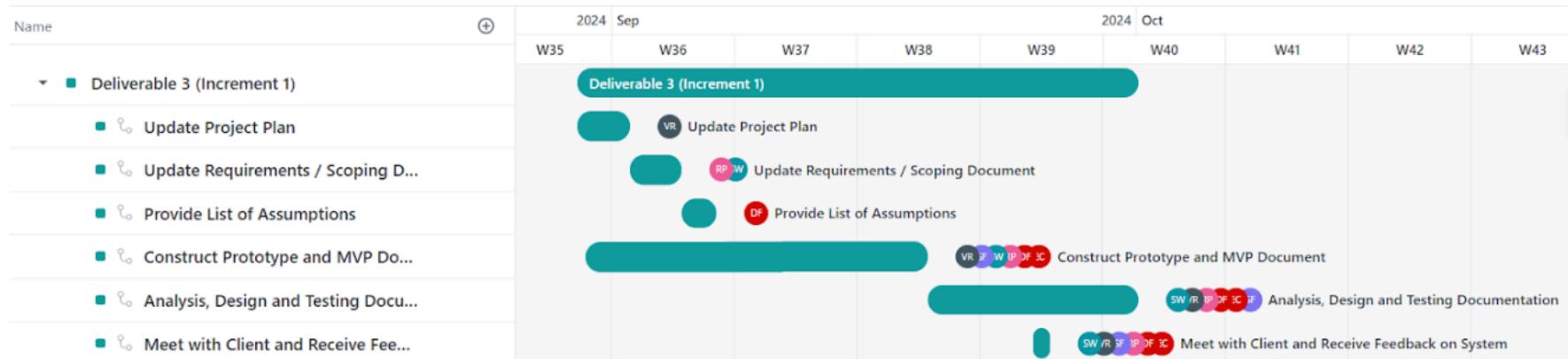
By using Gantt charts produced on Clickup, our team can effectively plan and monitor the progress of all tasks assigned to each group member where their initials are displayed next to it. As a result, it will lead to better management and organisation within the team.



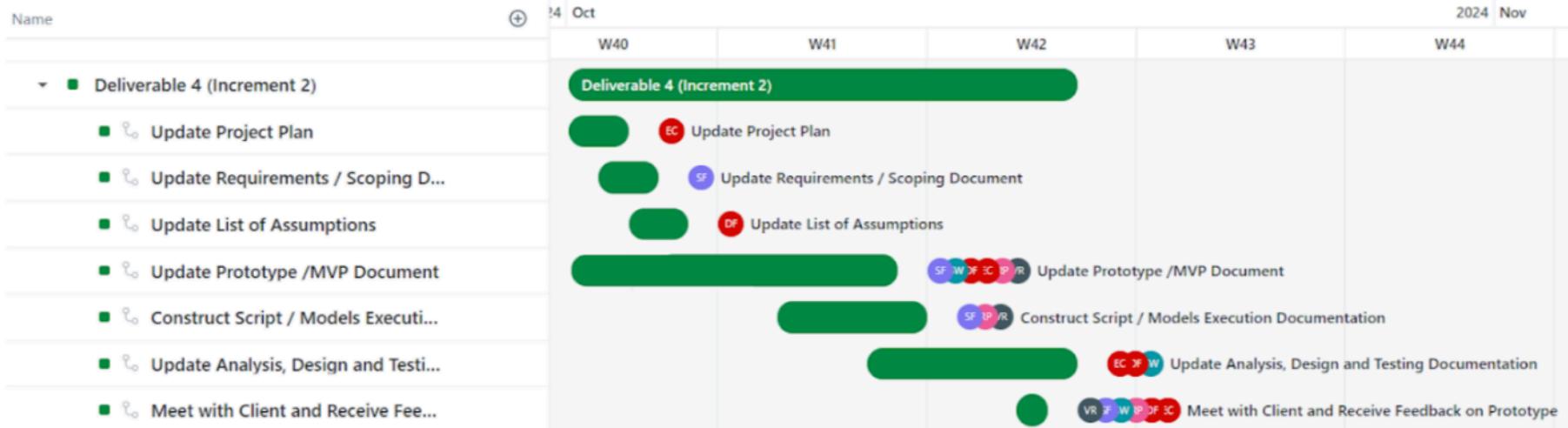
**Figure 14. Gantt Chart for Deliverable 1**



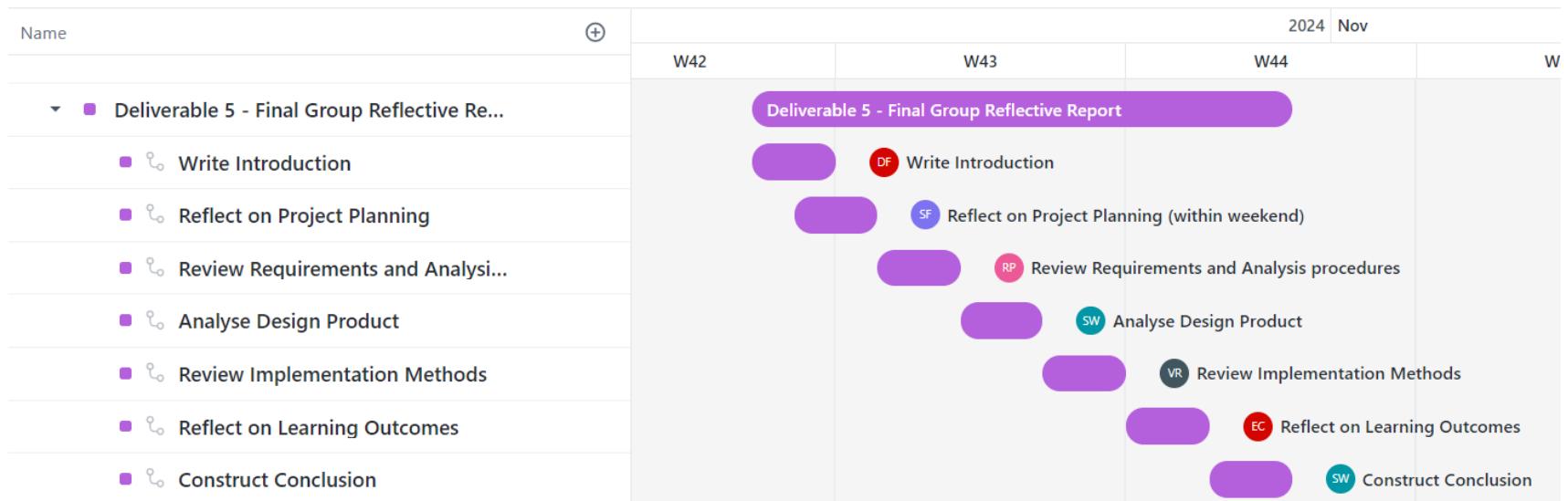
**Figure 15. Gantt Chart for Deliverable 2**



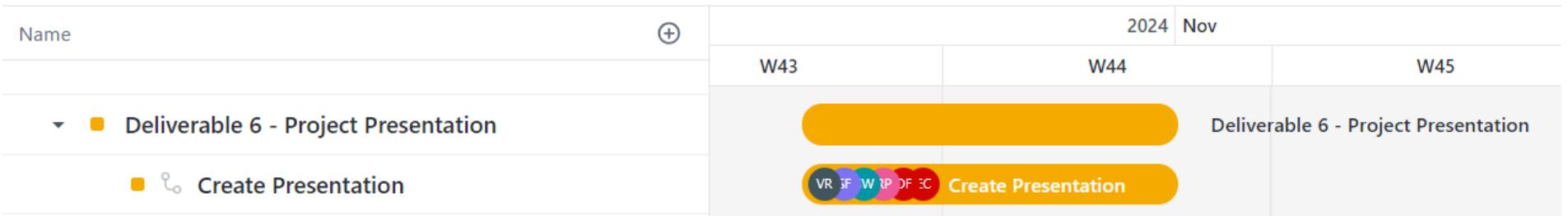
**Figure 16. Gantt Chart for Deliverable 3**



**Figure 17. Gantt Chart for Deliverable 4**



**Figure 18. Gantt Chart for Deliverable 5**



**Figure 19. Gantt Chart for Deliverable 6**



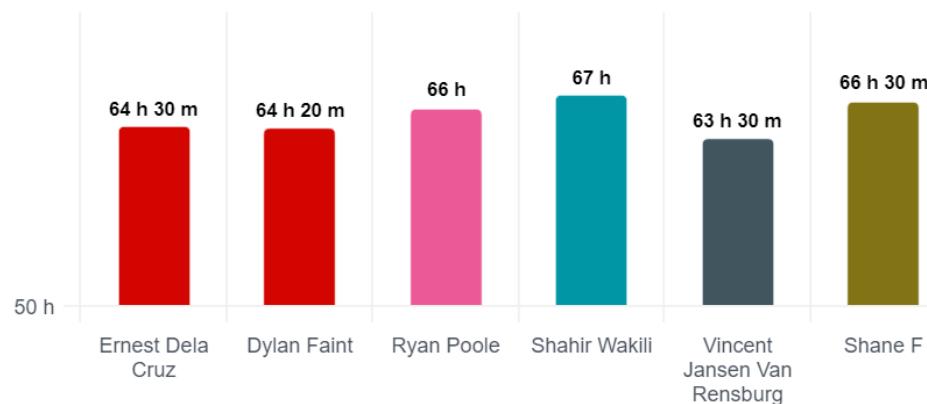
**Figure 20. Gantt Chart for Deliverable 7**

## 1.6.4. Resources Allocated

To efficiently complete our project requirements within the set timeframe, we have evenly distributed tasks and workload across members. This will ensure that we have maximised our human resources throughout the entire project. Furthermore, we have wisely designated more time for members to work on key tasks. For example in Figure 23, creating the prototype, MVP document, and the analysis, design and testing document for deliverable 3 accounts for 19 hours and 30 minutes out of the allocated 25 hours to complete deliverable 3, compared to the previous tasks above which totals to 5 hours.

Total Amount of Work Hours per Member

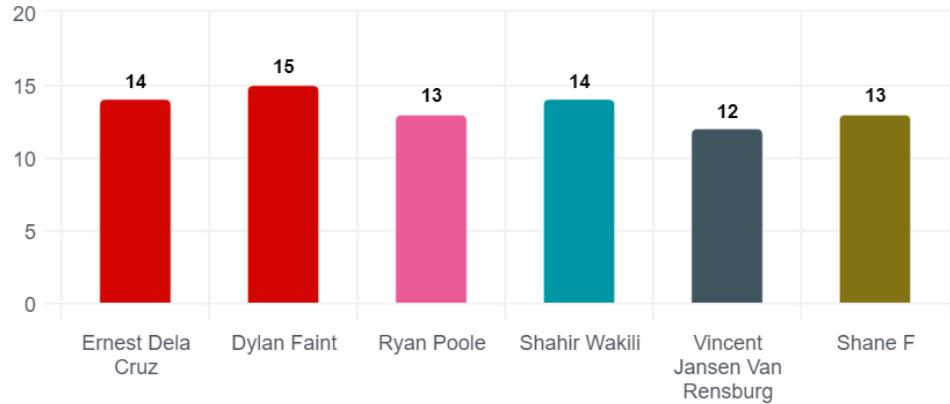
Time Estimates



**Figure 21. Bar Chart of Work Hours per Member**

Number of Allocated Tasks per Member

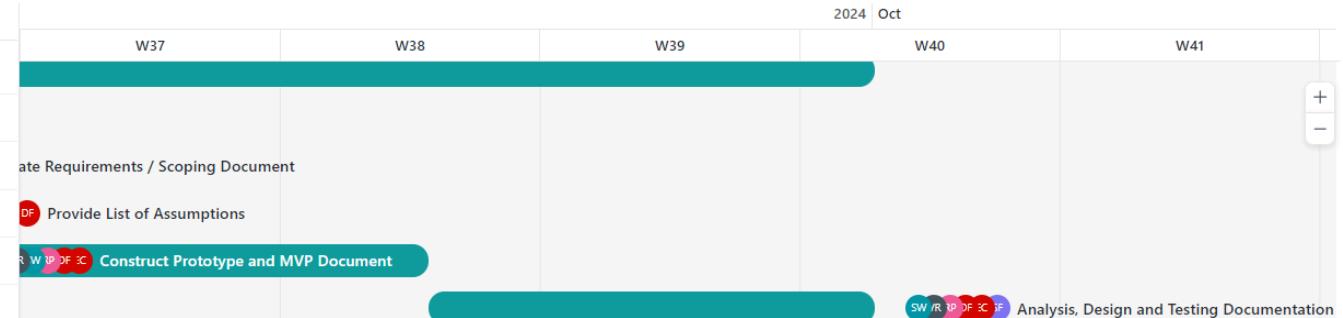
Tasks



**Figure 22. Bar Chart of Number of Tasks per Member**

Name	Time Estimate	+
Deliverable 3 (Increment 1)	25h	
Update Project Plan	2h	
Update Requirements / Scopi...	2h	
Provide List of Assumptions	1h	
Construct Prototype and MV...	12h	
Analysis, Design and Testing ...	7h 30m	

**Figure 23. Comparison of Expected Work Hours for Deliverable 3 Tasks**



## 1.7. Handover Requirements

As part of the project handover, the following deliverables will be provided to ensure that the product/system can continue to be managed effectively and efficiently by our Pace Partner.

1. User manual:
  - Overview of the Copilot system and its functionality
  - Step-by-step instructions on how a user can interact with the copilot
  - Troubleshooting and guidelines to prevent common issues
2. Short guide for accessing and managing the copilot virtual agent (developer manual):
  - Overview of system architecture for the virtual agent
  - How to access Copilot studio
  - Basics on key management (where changes can be made for different aspects of the virtual agent, updating settings and integrations, how to monitor activity and data)
  - Any technical requirements or dependencies
  - A list of permissions/licenses required for access
  - FAQs
3. Accounts and links:
  - Accounts used to create the copilot such as the Azure account and any third party accounts such as Facebook for messenger access and WhatsApp.
  - Any links for different integrations/brief overview of implemented APIs
  - Any backup or recovery details for the above accounts
4. Accounts access:
  - Making sure subscriptions to specific softwares is up to date
  - Renew subscriptions
  - Talk to Pace Partner if subscription needs to be updated

## 2. Updated Requirements/Scoping Document

### Revisions History Table

Version	Last Update	Author Name	Description of Change
1.1.0	30/9/2024	Ernest Dela Cruz	Updated the 'User Classes and Characteristics' section based on the given feedback <ul style="list-style-type: none"><li>Specified user classes and added additional descriptions for each</li></ul>
1.1.0	30/9/2024	Ernest Dela Cruz	Updated the 'Overview/Document Convention/Intended Audience' section based on the given feedback <ul style="list-style-type: none"><li>Defined the outline of the document</li></ul>
1.1.0	30/9/2024	Ernest Dela Cruz	Updated the 'Design and Implementation of Requirements/Constraints' section based on the given feedback <ul style="list-style-type: none"><li>Defined the requirements/constraints</li></ul>
1.2.0	17/10/2024	Shane Fornari	Updated section 2.3.1 Functional Requirements <ul style="list-style-type: none"><li>Added unique identifiers for each functional requirement</li></ul>

### 2.1. Introduction

This project aims to provide citizens of PNG an avenue to report armed violence and related crimes as well as get up to date information on current incidents and armed violence information. This is to be done through the use of Microsoft's AI-powered virtual agent, copilot, which can be interacted with using WhatsApp. It intends to use existing infrastructure in Azure with its new copilot studio product which can be integrated with WhatsApp.

## **2.1.1. Overview/Document Convention/Intended Audience**

This document provides a detailed description of the AIM virtual agent being developed through Copilot for use within WhatsApp. The document will outline the:

- Product's Purpose
- Project Scope
- Product Functions
- User Characteristics
- Interfaces
- User Documentation
- Product Requirements and Constraints

This has been designed for software users and future potential developers and as a basis for the development to keep in line with any requirements of the client.

## **2.1.2. Purpose (of software)**

The purpose of the virtual agent is to support the real-time reporting and management of deadly violence incidents in PNG within the AIM system for the CAVR. The software is designed to gather accurate and comprehensive data on violent incidents through user interactions on Web, Messenger and WhatsApp (When available), ensuring that critical information is quickly and securely stored in Azure. It automates the generation and distribution of reports to local authorities and other stakeholders which enhances the efficiency and effectiveness of incident response and investigations. It will use existing databases and data sources to provide up to date information to users so that they can be better equipped to deal with armed violence incidents and assist in the reporting process.

## **2.1.3. Scope – including a context diagram (Level 0 Data Flow Diagram)**

This project will focus on the system which is to be produced which is called “AIM Virtual Agent for PNG”. This virtual agent will be an integral part of the AIM system and is designed to enhance the process of incident reporting, management and communication process for violence in PNG. The primary problem addressed by the system is the need for efficient, reliable and secure incident reporting and data management in regions with high levels of violence. Local authorities currently face challenges with gathering useful evidence and processing them in a timely manner to act effectively, this system aims to assist in this process.

### **What the system will accomplish:**

The virtual agent will gather, process and securely store user reported data on any violent incidents. It will automate the processing and distribution of the reported data providing it to key stakeholders and local authorities in the desired format. The agent will also respond to any inquiries relating to violence/armed violence within the region and provide accurate and relevant information based on established data sources. The system will guide users on how to submit reports in the desired format following the correct procedures for reporting violence in PNG. If users request assistance beyond the agent's capabilities, it will provide escalation paths to relevant authorities. The system will not handle any requests or inquiries unrelated to violence/armed violence in PNG. The system will also not take any actions further than providing information and facilitating communication between users and key stakeholders. The system is not intended to replace human oversight but rather aid in any current processes that are used in PNG by stakeholders dealing with violence/armed violence.

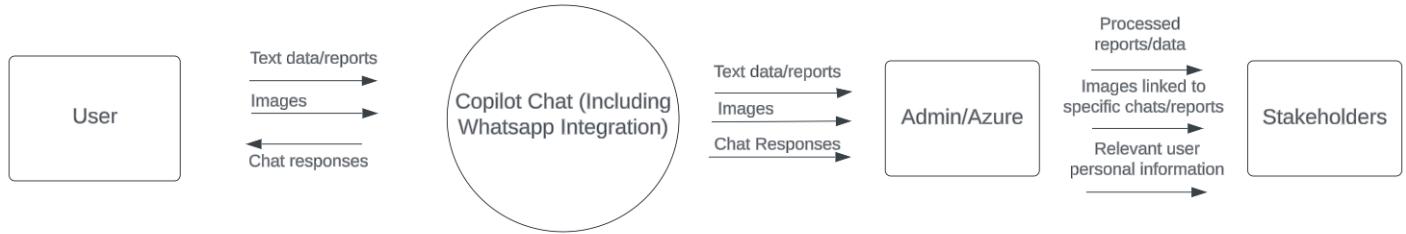
### **Top level benefits:**

The system will streamline the reporting process, reducing the time required to process and distribute critical information and reports. By automating data processing and implementing existing formats the system will ensure that reports are complete, accurate and easy to interpret (limited of course by what users provide). All data will be securely stored in Azure ensuring that the sensitive nature of the data is protected.

### **Objectives:**

- To provide a reliable virtual agent that assists in reporting and managing violence related incidents in PNG.
- To ensure that the agent accurately gathers and processes information, with reports distributed within minutes of processing completion
- To comply with the formats and requirements (legal included) in PNG relating specifically to violence/armed violence requirements.

## 2.1.4. Data Flow Diagram



## 2.1.5. Definitions, Acronyms, and Abbreviations

- CAVR: Centre for Armed Violence Reduction
- AIM: Department focusing on violence/armed violence incident management within CAVR
- PNG: Papua New Guinea
- AI: Artificial Intelligence
- MS: Microsoft
- Copilot: Microsoft's AI powered chat function
- Copilot studio: Backend management platform for Copilot
- UI: User Interface
- Prompt Injection: The process of overriding original instructions given to an AI chat software with special user input
- (Microsoft) Tenant: A Microsoft 365 tenant is a dedicated instance of the services of Microsoft 365 and your organisation data is stored within a specific default location, such as Europe or North America. This location is specified when you create the tenant for your organisation.

## 2.1.6. References

Centre For Armed Violence Reduction n.d., "Aim Peace and Justice For Deadly Violence", viewed 22/08/2024 , <<https://armedviolencedreduction.org/aim/>>.

Microsoft n.d., Microsoft Copilot Studio, Washington, viewed 23/08/2024, <<https://www.microsoft.com/en-us/microsoft-copilot/microsoft-copilot-studio>>.

Microsoft 2024, Microsoft, Washington, viewed 25/08/2024, <<https://learn.microsoft.com/en-us/power-platform/faqs-copilot-data-security-privacy>>.

Microsoft 2024, Microsoft, Washington, viewed 25/08/2024,  
[https://learn.microsoft.com/en-us/microsoft-365/solutions/tenant-management-overview  
?view=o365-worldwide](https://learn.microsoft.com/en-us/microsoft-365/solutions/tenant-management-overview?view=o365-worldwide).

## 2.2. Overall Description

### 2.2.1. Product Perspective

The virtual agent is a critical component of the AIM system which is designed to address and manage deadly violence in PNG. The virtual agent will be integrated into the existing technological and administrative infrastructure of local authorities in PNG. It will enhance and support current systems by providing a more efficient approach to incident reporting and data management, which is critical in a region with significant levels of violence. The software is built to be both scalable and adaptable, allowing for ongoing updates and adjustments as user needs evolve and additional data becomes available. Ultimately, this product is a key part of a larger framework focused on reducing violence and enhancing public safety in PNG. At the end of development, the client will receive a fully functional virtual agent deployed across multiple channels, mainly via Web, Messenger and WhatsApp. The agent will accurately gather the required information for reports and statements on violent incidents through user reported incidents. The agent will be integrated with Azure for secure data storage and configured to automatically email/distribute relevant reports to local authorities and other designated stakeholders. A detailed user manual will be provided at a later date, this will include detailed instructions on how to operate the agent, interpret its reports, and troubleshoot common issues. Further information will also be provided covering the agent's features and guidelines for maintaining maximum security and data privacy.

### 2.2.2. Product Functions

- Needs to be able to respond to users in a professional and informative manner
- Needs to adhere to privacy and legal requirements in PNG, specifically in relation to any armed violence laws
- Provide information to users about methods of reducing armed violence and current armed violence occurrences in PNG
- Process and send the data obtained from users to relevant authorities and stakeholders
- Integration with translators for Tok Pisin where possible
- Process and store text data and images from user interactions/reports

## 2.2.3. User Classes and Characteristics

The development team will provide initial deployment of the product including initial testing and quality control, once the project is complete however they will not be maintaining the system. Documentation should be produced to assist with future maintenance.

User Classes:

- **Citizens/Residents in PNG:** searches for information on armed violence or looking to report armed violence incidents. They will not have any knowledge of the inner workings of the system and will interact with it using Microsoft's UI for Copilot and or the WhatsApp chat with Copilot integration.
- **Other Stakeholders:** stakeholders such as the local authorities will receive reports about the incident in their email and will likewise have little to no technical understanding of the system.
- **Admin:** retrieves, reviews and analyzes any data produced by users including both summaries and statistics or specific user data. This will mostly be in the backend in the form of PowerBI reports and Excel or other document types generated from user interactions. They will have comprehensive knowledge of the system's functions on Microsoft's Copilot Studios and Power Automate.

## 2.2.4. Operating Environment

Copilot Studio runs in most browsers, often translations for smaller browsers are available using the search engine Bing. For our case, it will be aimed to run through messaging apps such as Messenger and WhatsApp (also teams as a less used option) which can be installed on most major phone operating systems including Android version 5.0 and onwards and iOS 12 and onwards. The virtual agent will be run in the cloud so devices do not require any specific operating system for this aspect either. This will be run using Microsoft's prebuilt copilot studio which is used to configure and implement the copilot chat function. If WhatsApp integration is limited, other chat options such as Facebook Messenger or Telegram are suggested as they are also widely available in the same fashion as WhatsApp (clarification from client needed in regards to use of other platforms than WhatsApp).

## 2.2.5. User Documentation

Comprehensive user documentation will be provided to ensure that all users can effectively utilise the virtual agent software. The documentation will include:

#### **Developer Manual:**

The developer manual provides technical documentation for future developers covering the software's architecture. It includes instructions for setting up the development environment and implementing new features, enabling future developers to effectively maintain and improve the virtual agent.

#### **User Manual:**

The user manual offers guidance on using the virtual agent software, covering how users can report violent incidents through Web, Messenger and WhatsApp (Teams if required). This will help users easily understand the software.

#### **Troubleshooting Guide:**

A section focused on common issues that users may encounter, offering clear instructions on how to resolve them.

#### **Frequently Asked Questions (FAQs):**

A collection of frequently asked questions addressing common concerns and queries that users may have. This section will provide quick answers to common questions about the virtual agent.

## **2.3. Requirements**

### **2.3.1. Functional Requirement:**

#### **Data Storage and Accessibility:**

The goal is for all data generated and submitted by users to be stored in Azure and made accessible to multiple stakeholders, such as developers, staff at AIM, and external users of the system - i.e local authorities.

- FR001: When users provide text data, it will be stored and accessible in Azure (current integrations allow text data to be stored in an excel sheet within Copilot Studio). This data will be uploaded as soon as a chat session ends, therefore it is dependent on when the user ends the chat session or closes the chat.
- FR002: When users provide image data, it will be stored and accessible in Azure (this may need to be implemented using a separate image upload service or linked to Sharepoint within MS that can be accessed in Azure). This data will be uploaded as soon as a chat session ends, so is dependent on when the user ends the chat session or closes the chat.

## **Report Processing and Distribution:**

The goal is for important information and incidents to reach the relevant stakeholders with all key information presented in an easy to process manner.

- FR003: Relevant report data will be automatically processed from users' text responses to extract key information, processing will be done through PowerBI automatically and some manual processing will be completed by code that extracts the excel files storing the text responses produced in Copilot Studio. Processing will aim to be done in under 30 minutes. Data can also be accessed and processed manually if this operation fails as the raw data will still be available in Copilot studio.
- FR004: Processed data will be automatically distributed to key stakeholders, including local authorities, ensuring timely and effective communication. Once the processed data is available, delivery times aim to be in the range of 1-5 minutes. This will be done with an automated workflow in Azure/Copilot Studio. The data can also be manually sent if automation fails as the reports produced will be available in Azure and or Copilot Studio.

## **User Interaction and Information Retrieval:**

- FR005: The chat software will respond to users when they ask relevant questions regarding armed violence in PNG drawing from its available information sources (provided in Copilot studio) to provide accurate and relevant answers. Response should be almost instant as Copilot generates responses within seconds (on average).
- FR006: The chat software will provide users with the correct format for submitting reports regarding different types of violence and armed violence in PNG (this should be based on documents and formats provided by AIM). This will be implemented using key trigger words which the created Copilot will have a set response to. Response to users' input should be almost instant, within a few seconds.
- FR007: If users ask irrelevant questions, Copilot should provide a statement advising it is only available to assist with matters regarding violence/armed violence in PNG and handling evidence reports from users. If a user continues after the statement, Copilot should provide links to helpful sites and contact details for local authorities and any other relevant bodies and end the chat. Copilot will be set up to ensure other report or information avenues are provided in the case of a false positive on an irrelevant topic.

## **Guidance for Escalation:**

- FR008: If users request assistance that cannot be provided, the chat software will provide users with the correct avenue for escalation to authorities if required. This will be implemented using key trigger words which the created Copilot will have a

set response to. Response to users' input should be almost instant, within a few seconds.

### **2.3.2. Design and Implementation of Requirements/Constraints**

- **Direct Image Upload:** is not available yet (projected to be deployed in November 2024) so another platform or separate upload link may need to be provided in which the user can upload the image
- **Channel Integration:** data to be sent to stakeholders and authorities is limited by the channels that are available, ie the data cannot be sent via telephone to local authorities, email or web access will need to be setup
- **Azure Data Storage:** may need to be externally processed using other programs or code for individual copilot interaction data is currently not very complex
- **Knowledge Base:** information from custom data sources may be more difficult to provide to copilot, it currently has capabilities to scrape public websites for information but API may need to be setup for any custom databases that need to be implemented

### **2.3.3. Usability Requirements**

The usability requirements are fairly simple, most of the complex requirements come with how the data is processed and how the copilot chat software responds to users and the information it uses to do so.

- Users must be able to interact with the copilot easily through WhatsApp
- Users must be able to provide text and or image data
- The copilot chat must provide users with up to date information and a format to provide report information

### **2.3.4. Other Non-functional Requirements**

Data security is the most important non functional requirement for this particular project as the data provided can be very sensitive. Data is securely stored in Azure and can only be accessed by users who have access to the copilot studio environment currently setup for CAVR. Currently, chat data is exported as individual Excel files which can be grabbed and processed individually, however, this could be changed later through the use of Azure data flows and API connectors which allow for processing of this Excel data/copilot data. This will all be primarily processed in Azure which has many built in security functions, including protection against specific attacks for AI chat software such as prompt injection. The data stored in Azure is also not used for further training and processing and can only be accessed by users with specific access in the CAVR Tenant

such as the development team or key stakeholders within CAVR and the PNG authorities (this must be provided by CAVR themselves).

## 2.4. Client Feedback

**Meeting date and time:**

28/08/2024, 8:00-8:30 am (Online)

**Feedback received:**

Alistair Gee (Executive Director at CAVR) commented that our work was great and didn't have any substantive changes to suggest for our document. The only request was to use the old name 'AIM' to be used instead of 'Aim'.

**Team response/action points:**

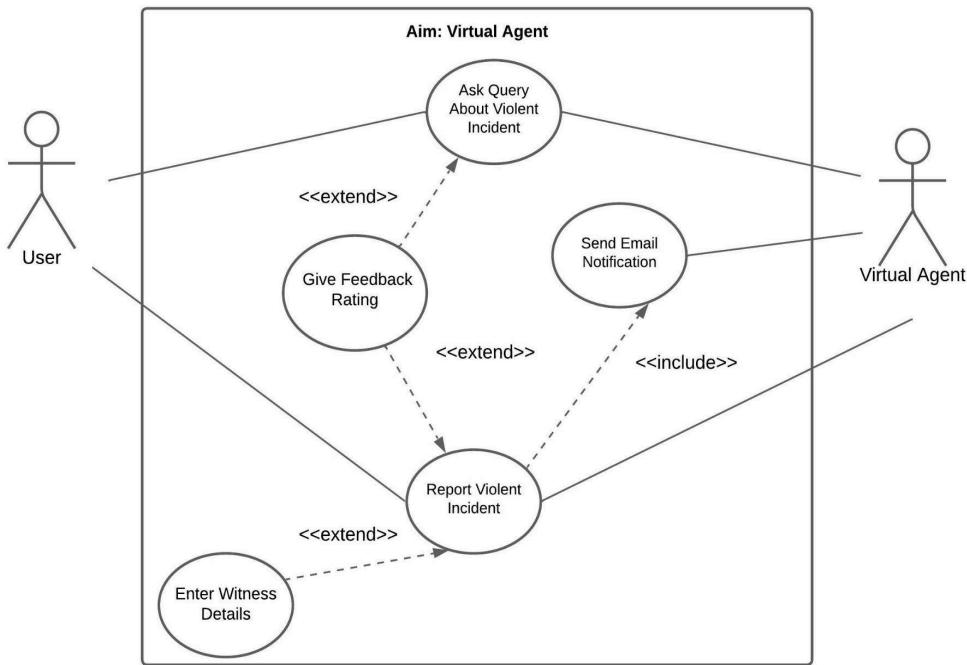
All references to Aim were replaced with the former preferred name AIM.

### **3. Analysis Documentation**

#### **Revisions History Table**

<b>Version</b>	<b>Last Update</b>	<b>Author Name</b>	<b>Description of Change</b>
1.1.0	13/10/2024	Ernest Dela Cruz	<p>Updated the Use Case Description sections based on the given feedback</p> <ul style="list-style-type: none"><li>• Changed primary, secondary actors and trigger for use cases 1 and 2</li><li>• Changed goal for use case 2</li></ul>
1.1.0	13/10/24	Dylan Faint	Added UC4 - Send Email Notification to the Use Case Description and User Stories.
1.1.0	15/10/2024	Ernest Dela Cuz	Added Use Case Description and User Story for 'Giving Feedback Rating'
1.1.0	15/10/24	Dylan Faint	Updated the Use Case Diagram to reflect new changes (addition of new Use Cases)

### 3.1. Use Case Diagram



### 3.2. Use Case Descriptions

<b>Use Case - Number &amp; Name</b>	UC1 - Ask Query About Violent Incident
<b>Goal</b>	The virtual agent will provide accurate and relevant answers to user queries about armed violence in PNG by utilising stored information (provided in Copilot Studio). This may include appropriate websites for further information.
<b>Preconditions</b>	The user is logged into the application and the virtual agent is displaying a welcome message that has a list of options to which the user can choose from.

<b>Success End Condition</b>	The user gets an accurate and relevant answer to their query and if users request assistance that cannot be provided, the chat software will provide users with the correct avenue for escalation to authorities if required.	
<b>Failed End Condition</b>	The user would not receive any answers to their query or they are provided inaccurate information.	
<b>Primary Actor;</b>	User	
<b>Secondary Actor;</b>	Virtual Agent	
<b>Trigger</b>	The user clicks on the button 'Ask a query' to ask a query regarding deadly violence in PNG.	
<b>Description / Main Success Scenario</b>	<b>Step</b>	<b>Action</b>
	1	The user provides a query to the software.
	2	The software determines if questions are relevant.
	3	Software provides relevant information to the user about their query.
<b>Alternative Flows</b>	<b>Step</b>	<b>Branching Action</b>
	2.a	Software determines that the question is not relevant.
	2.a.1	Copilot will notify the user that it only assists with armed violence in PNG. If the user persists, the software will provide helpful links and local authority contacts before ending the chat.

	2.b	Software cannot provide information to a user's relevant query.
	2.b.1	The chat software will provide users with the correct avenue for escalation to authorities if required.
	2.b	Software determines the response provided is a query related to filing a report about an incident
	2.b.1	The virtual agent will prompt the user if they would like to file an incident instead
	3a	User does not provide a query/response
	3.a.1	The virtual agent will remind the user if they would still like to ask a query

<b>Use Case - Number &amp; Name</b>	UC2 - Report Violent Incident
<b>Goal</b>	The user being a PNG resident, will be able to report an incident by providing key information, which the virtual agent will collect and send to the local authorities and stakeholders.
<b>Preconditions</b>	The user is logged into the application and the virtual agent is displaying a welcome message that has a list of options to which the user can choose from.
<b>Success End Condition</b>	The virtual agent was able to successfully retrieve, record and send key information about the incident to the authorities and stakeholders.
<b>Failed End Condition</b>	Information provided by the user was unable to be collected and an email was not sent to the authorities and stakeholders.

<b>Primary Actors;</b>	User	
<b>Secondary Actors</b>	Virtual Agent	
<b>Trigger</b>	The user clicks on the button 'I would like to report an incident' to report an incident in PNG.	
<b>Description / Main Success Scenario</b>	<b>Step</b>	<b>Action</b>
	1	The virtual agent will ask for the province where the incident occurred.
	2	The user will enter the province.
	3	The system will verify if the province provided by the user matches with a province recorded in the system.
	4	The provinces match.
	5	The virtual agent will ask if the user knows the specific address of where the incident occurred.
	5.a	The user chooses 'Yes'
	5.a.1	The virtual agent will ask for the address to be entered.
	5.a.2	The user enters the address.
	5.b	The user chooses 'No'.
	6	The virtual agent will ask the date and time the incident occurred in the format of dd/mm/yyyy hh:mm.
	7	The user will enter the date and time.
	8	The system checks that the date and time is in the correct format.

	9	The date and time is in the correct format
	10	The virtual agent will ask for the type of incident.
	11	The user will choose the type from a list of options.
	12	The virtual agent will ask for more information about the incident regarding who was involved, what and how it happened.
	13	The user will enter more detailed information about the incident.
	14	The virtual agent will ask the user if they know the number of deaths resulting from the incident.
	14.a	The user chooses 'Yes'.
	14.a.1	The user will enter the number of people that died.
	14.b	The user chooses 'No'.
	15	The virtual agent will ask the user if they know the number of injured people resulting from the incident.
	15.a	The user chooses 'Yes'.
	15.a.1	The user will enter the number of people that were injured.
	15.b	The user chooses 'No'.
	16	The virtual agent will request the user if they would like their name, mobile number and email address to be recorded.
	16.a	The user chooses 'Yes' and would like their personal details to be transcribed.

	16.a.1	The virtual agent will ask for the user's first and last name.
	16.a.2	The user enters their first and last name.
	16.a.3	The virtual agent will ask for the user's mobile number.
	16.a.4	The user enters their mobile number.
	16.a.5	The system checks if the mobile number is in the correct format (either 7 or 8 digits long).
	16.a.6	The mobile number is in the correct format.
	16.a.7	The virtual agent will ask for the user's email address.
	16.a.8	The user enters their email address.
	16.b	The user chooses 'No' and would like to be anonymous.
	17	The virtual agent displays a summary of all the key information collected.
	18	The virtual agent sends an email to authorities and stakeholders with the key information about the incident listed.
	19	The authorities and stakeholders receive the email.
<b>Alternative Flows</b>	<b>Step</b>	<b>Branching Action</b>
	4.a	The provinces do not match.
	4.a.1	The system will ask the location of the incident again.
	9.a	The date or time is not in the correct format.

	9.a.1	The system will ask the date and time of incident again.
	16.a.6.a	The mobile number is too short.
	16.a.6.a.1	The system will ask for another mobile number to be entered.
	16.a.6.b	The mobile number is too long.
	16.a.6.b.1	The system will retrieve the first 8 numbers in the number entered.
	17.a	All or some of the incident information collected from the user is incorrect.
	17.a.1	The user would ask if they can restart the conversation.

<b>Use Case - Number &amp; Name</b>	UC3 - Enter Witness Details
<b>Goal</b>	Users will be able to optionally provide witness details during incident reporting, ensuring accountability and privacy.
<b>Preconditions</b>	The user is in the process of reporting a violent incident.
<b>Success End Condition</b>	The witness details are successfully submitted and stored in the system.
<b>Failed End Condition</b>	The system does not input the correct witness details.
<b>Primary Actor;</b>	User
<b>Secondary Actor;</b>	Virtual Agent

<b>Trigger</b>	The user chooses to provide details, when prompted by the system, during the violent incident report.	
<b>Description / Main Success Scenario</b>	<b>Step</b>	<b>Action</b>
	1	The Virtual Agent asks the user to enter witness details.
	2	The user inputs their details.
	3	The Virtual Agent verifies the details and confirms the submission.
	4	The system securely stores the witness information within the incident report.
<b>Alternative Flows</b>	<b>Step</b>	<b>Branching Action</b>
	1.a	The user wishes to remain anonymous during the incident reporting.
	1.a.1	The system will proceed to submit the incident without witness information.

<b>Use Case - Number &amp; Name</b>	UC4 - Send Email Notification
<b>Goal</b>	The system automatically sends an email containing the details of newly submitted incidents to local authorities and other stakeholders ensuring they are informed promptly and can take appropriate action.
<b>Preconditions</b>	The user has successfully submitted an incident report and the recipient addresses are stored within the database.

<b>Success End Condition</b>	An email with incident report details is successfully sent to the intended stakeholders.	
<b>Failed End Condition</b>	The system fails to deliver the incident report details to the recipients, leaving them uninformed.	
<b>Primary Actor;</b>	Virtual Agent	
<b>Secondary Actor;</b>	None	
<b>Trigger</b>	The system detects the submission of a new incident report and automatically initiates the process of sending an email.	
<b>Description / Main Success Scenario</b>	<b>Step</b>	<b>Action</b>
	1	The user completes an incident report by submitting the details through the virtual agent.
	2	The system compiles the incident report, ensuring that all key information is included in a structured format.
	3	The system retrieves the email addresses of all the intended recipients from the database.
	4	The system sends the email containing the incident details to the retrieved email addresses.
<b>Alternative Flows</b>	<b>Step</b>	<b>Branching Action</b>
	4.a	A recipient email address is invalid.
	4.a.1	The system logs the invalid email address and sends the email to all other valid recipients.

<b>Use Case - Number &amp; Name</b>	UC5 - Give Feedback Rating	
<b>Goal</b>	The user will be able to provide a rating out of 5 on their overall experience with the chatbot after reporting an incident or asking queries about violence in PNG. This will be used to further improve the chatbot.	
<b>Preconditions</b>	The user wishes to end the conversation as they have finished submitting an incident report or asked a query about violence in PNG.	
<b>Success End Condition</b>	The user has successfully submitted a rating out of 5 and is stored in the database.	
<b>Failed End Condition</b>	The system is unable to correctly process and store the user's rating into the database.	
<b>Primary Actor;</b>	User	
<b>Secondary Actor;</b>	Virtual Agent	
<b>Trigger</b>	The user selects the button 'No' in response to the question 'Would you like to report another incident/query'.	
<b>Description / Main Success Scenario</b>	<b>Step</b>	<b>Action</b>
	1	The system asks if the user would like to give a rating out of 5 on their overall experience with the chatbot.
	2	The user selects 'Yes' and would like to give a rating.
	3	The system displays the rating survey.
	4	The user selects a rating out of 5.

	5	The system processes and stores the rating into the database.
Alternative Flows	Step	<b>Branching Action</b>
	2.a	The user selects 'No' and does not want to give a rating.
	2.a.1	The system displays a closing remark.

### 3.3. User Stories

Below are the user stories based on the use case descriptions from above:

**UC1 - Ask Query About Violent Incident:**

As a User, I want to ask questions about deadly violence so that I can properly handle criminal situations; this includes knowing how to safely report incidents to the local authorities, and how often specific crimes occur in a particular location.

**UC2 - Report Violent Incident:**

As a User, I want to submit reports about violent crimes in order to notify the authorities and bring perpetrators to justice.

**UC3 - Enter Witness Details:**

As a User reporting a violent incident, I want the option to provide my witness details, so that I can contribute more information if necessary, while still having the choice to remain anonymous.

**UC4 - Send Email Notification:**

As a User reporting a violent incident, I want the system to automatically send an email with the details of the report to the relevant stakeholders so that they are informed promptly and can take appropriate actions.

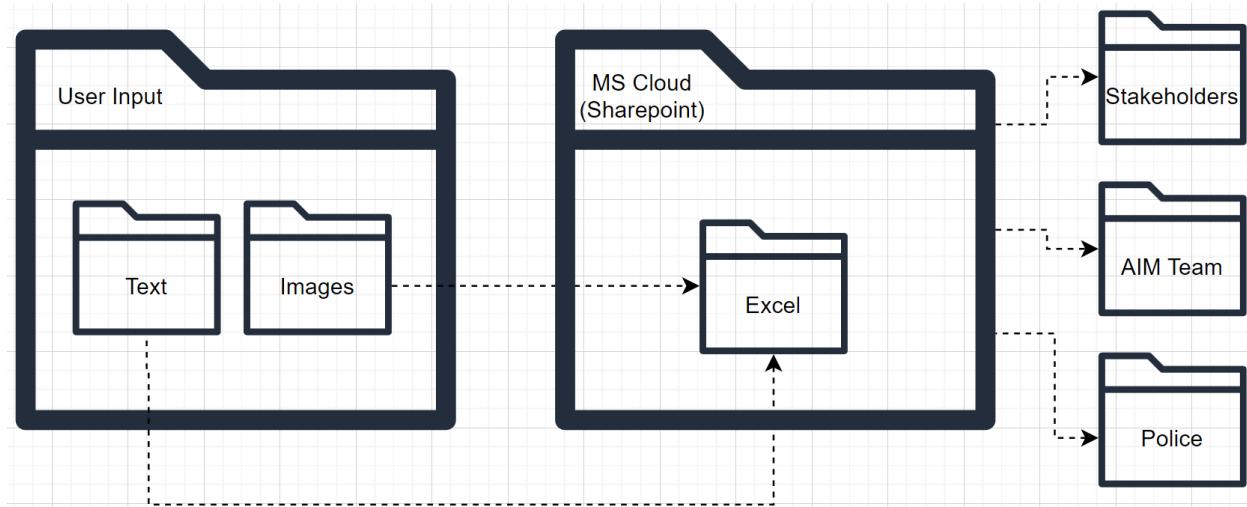
**UC5 - Give Feedback Rating:**

As a User, I want to be able to provide a feedback rating so that AIM can further improve their chatbot.

# 4. Design Documentation

## 4.1. Systems Design Document

### 4.1.1. System Architecture



### 4.1.2. Storage/Persistent Data Strategy

The current planned architecture for our system includes a central database, in which all reports are saved. This is currently being outsourced to a contractor and we currently do not have details on this storage method, however, we will be receiving details in the coming weeks. The current storage solution is to use MS Cloud (Sharepoint) to store the data temporarily in an Excel sheet which can be accessed by members of the AIM tenant. The data is also temporarily stored in Copilot Studio/Power Automate as it gets processed and sent to key stakeholders via these platforms. Initially, the data gets stored in Copilot Studio as variables stored in each chat temporarily, these variables (provided by the user) then get sent to key stakeholders via Power Automate which handles the processing (conversion to MS plain text format) and sends it via email to the stakeholders. This data is then stored with the rest of the organisations data in Microsoft 365 (MS Cloud).

### 4.1.3. Concurrent Processes

Concurrent processes in their original definition are somewhat inapplicable to our program - as our program is not providing users with a limited product, there is no risk of the same product being provided to different users, resulting in internal problems. However, in the case of multiple users uploading the same information, this is an expectation of the system, and there are limited strategies for reducing this issue in the future. Furthermore, in the case of AI, user inputs do have the capacity to change the

way a virtual agent responds to queries - this issue has been resolved through the virtual agent guiding users through preset queries when gathering information relating to incidents.

#### **4.1.4. User Interface Strategy**

The user interface is currently deployed through a website which can be accessed via all (currently tested) major browsers, the virtual agent then communicates with users through text-based interaction in a chat window on the site. The virtual agent UI will also change in future as it gets deployed to apps such as Facebook Messenger and WhatsApp, currently, these are unavailable due to limited access to AIM business accounts. Copilot can also be deployed to many other channels using existing API integrations with many major communication/social media platforms that Microsoft has, however, our project aims to focus on messaging applications that are widely used for simple and seamless access for as many people as possible.

The web user interface is straightforward and user-friendly, presenting a messaging system where users are guided by a virtual agent to submit incident reports and ask questions about violence in PNG. This highly accessible system ensures that all users can interact with the virtual agent seamlessly by typing their response/query in the provided text field. The UI for most other applications such as Messenger and WhatsApp will be implemented in the respective applications' existing UI. This mostly consists of a P2P chat that the copilot will send and receive messages in. For example, the same way that someone would message another user on WhatsApp will be the same way they send a message to the Copilot virtual agent, the agent will also reply via the same existing chat window. These applications can also be accessed via multiple platforms such as a browser on PC or mobile devices or an app on mobile devices most of which follow the provide the same simple UI. The goal for the Copilot virtual agent is to be as accessible as possible, so keeping a similar experience across all platforms is key for this requirement to be met, which is why we chose existing chat style social media platforms to deploy the virtual agent to.

#### **4.1.5. Design Decision Choices and Tradeoffs**

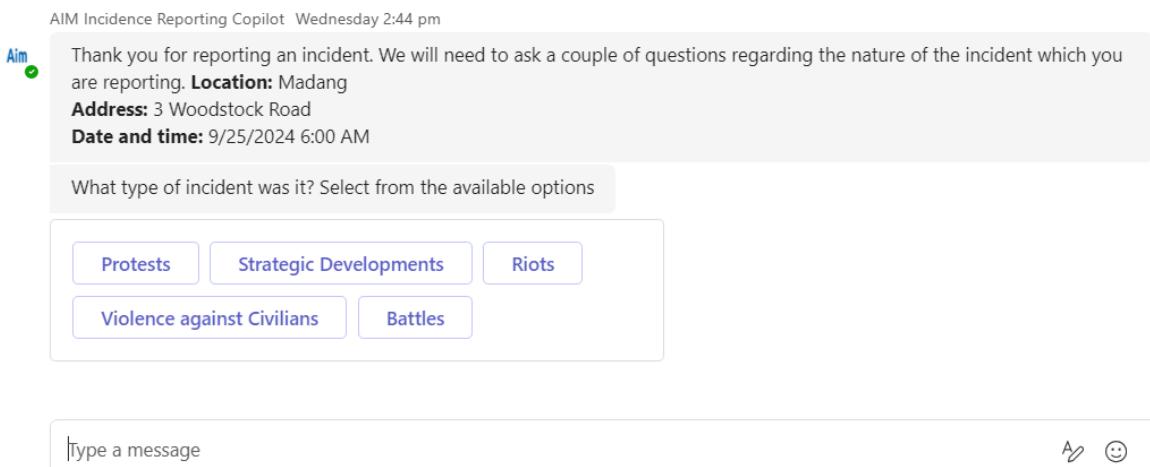
- The team decided to use Azure cloud storage due to its flexibility and reliability. However, this option requires constant internet access which may be a limitation in some regions of PNG. This will eventually also develop into a custom database which is being contracted, this will also be stored using Microsoft 365 however. This option for storage was chosen due to Copilot Studio's existing integration with Microsoft 365 and the AIM tenancy already having active subscriptions/licensing with Microsoft 365, this minimises cost and increases efficiency for data storage.
- The team has decided to try and integrate with existing apps such as Messenger and WhatsApp as they are the most widely used messaging apps across the world, having both 3 Billion and 2 Billion users world wide respectively. Setup in other chat apps have not been pursued due to expected difficulty with custom integration being required

compared to the simple, existing integration between Microsoft, Meta and WhatsApp software.

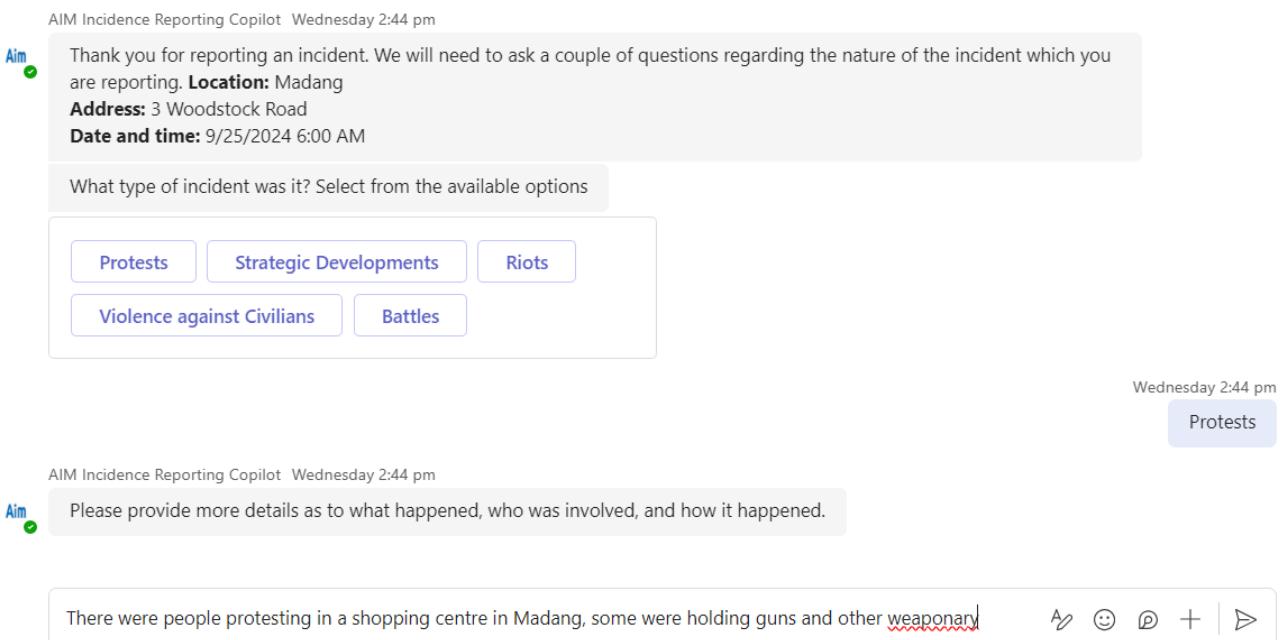
- The team decided to keep the virtual agent as simple as possible, providing users with 2 main options of interaction, 1 to submit a report and 2 to ask a query. This choice keeps interaction simple and straightforward providing users with a consistent and robust experience that does not confuse. Information accuracy is crucial for the virtual agent so keeping the interaction experience as simple as possible is key to minimise incorrect information/input from users. This will limit the chat's number of features overall, but we hope it will allow us to provide a more robust experience to users for the important core functions of the virtual agent.
- Power Automate was also chosen to process and distribute the data that is produced from Copilot Studio, this was chosen as the data is already available in Microsoft 365 and is easily transferred/integrated with Power Automate which allows us to use existing Microsoft Suite integrations with services such as email to distribute to stakeholders. This does come at a license cost however the AIM tenancy already had existing subscriptions which provide these services.

## 4.2. User Interface Layouts/ Report Layouts

It is appropriate that our user interface layout is chat based as our team has been instructed to create a virtual agent that allows a user to report an incident and ask any queries about violence in Papua New Guinea. Through Microsoft Copilot Studio and Power Automate, we were able to formulate questions for the user to respond to when filing a report about an incident they have encountered and send an email of the report to the authorities and stakeholders. The main interaction allows users to select from multiple choice options (Figure 24) to advise Copilot what information it is able to provide in the report and then allow users to manually input the report information in the chat window (Figure 25) to then be stored in the backend of Copilot. As report production is not a feature of our chatbot but instead a separate task for AIM to perform such as analyzing the number of incident reports per location, it is not applicable for us to provide any report layouts.



**Figure 24. Multiple Choice Selection**



**Figure 25. User Responding in the Text Field**

### 4.3. Window Navigation Diagram

Window navigation refers to the navigation paths around a system. The window navigation diagram displays how a user navigates through a system, between the different interfaces. The Virtual Agent chatbot does not fit this sort of diagram. This is because there is only one interface for the user to be looking at. The user is not required to navigate through different interfaces.

## 4.4. Data Definition

**Incident Table**

Field Name	Field Type	Example
Province	Varchar(25)	'Southern Highlands'
Address	Varchar(40)	'3 Woodstock Road'
DateTime	DateTime	28/9/2024 16:00
IncidentType	Varchar(30)	'Strategic Developments'
IncidentInfo	Text	'There were people protesting in a shopping center in Madang, some were holding guns and other weaponry'
NumOfFatalities	Integer	3
NumOfInjuries	Integer	10

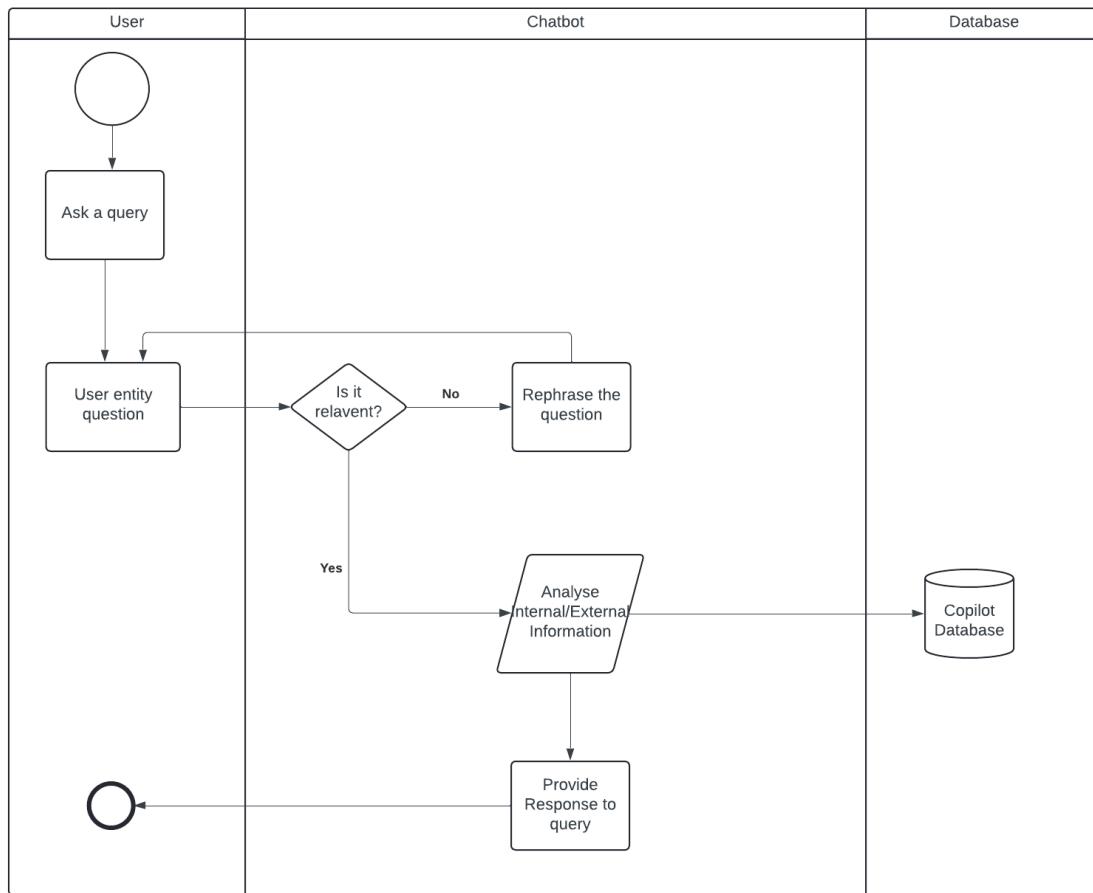
**Witness Table**

Field Name	Field Type	Example
FirstName	Varchar(15)	'Kyle'
LastName	Varchar(30)	'Barrington'
MobileNum	Varchar(10)	'0435 993 744'
Email	Varchar(50)	'kylebarrington@gmail.com'

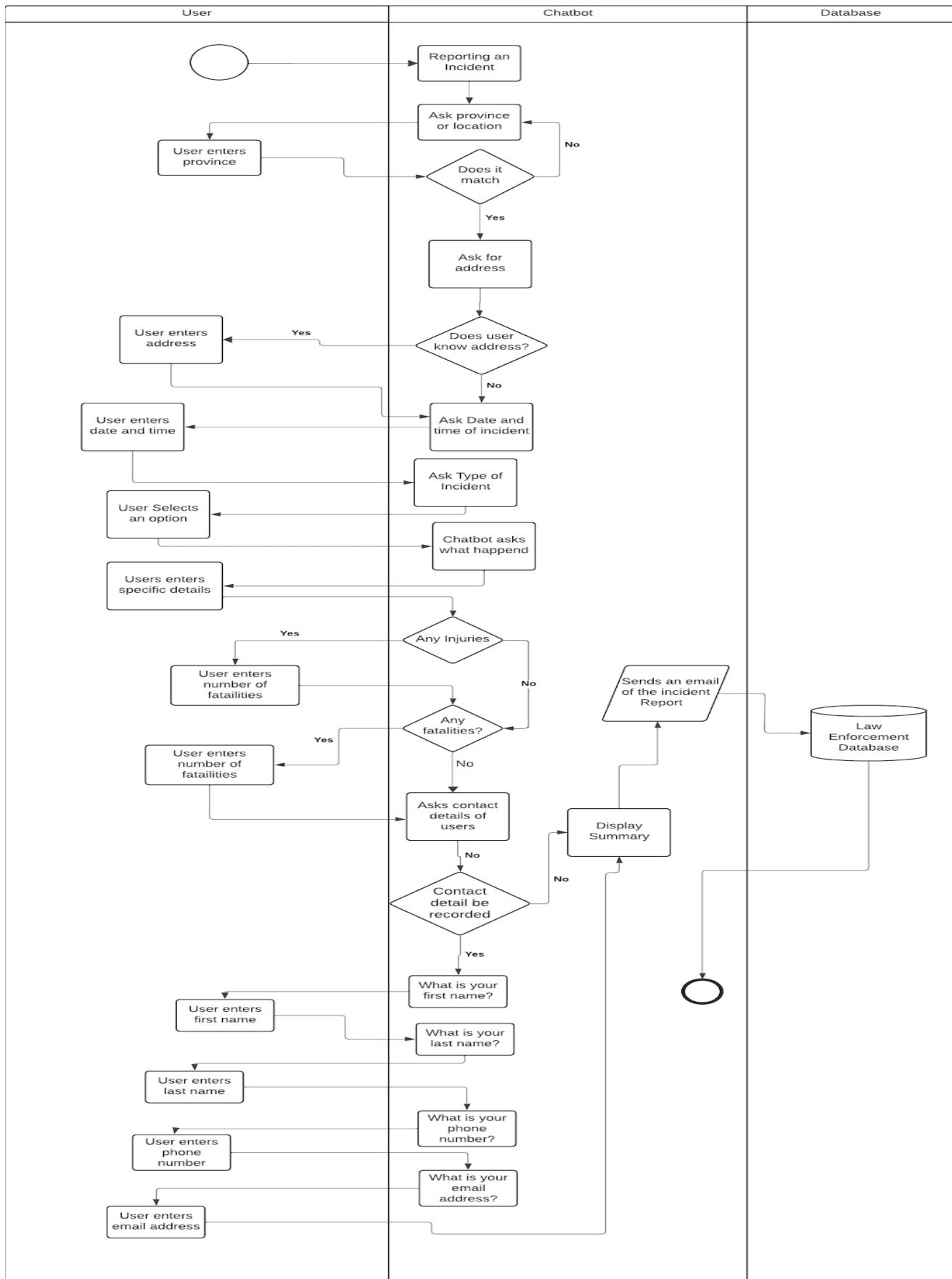
**Stakeholder Table**

Field Name	Field Type	Example
FirstName	Varchar(25)	'Jim'
LastName	Varchar(40)	'Brown'
Email	Varchar(50)	'jimbrown@gmail.com'

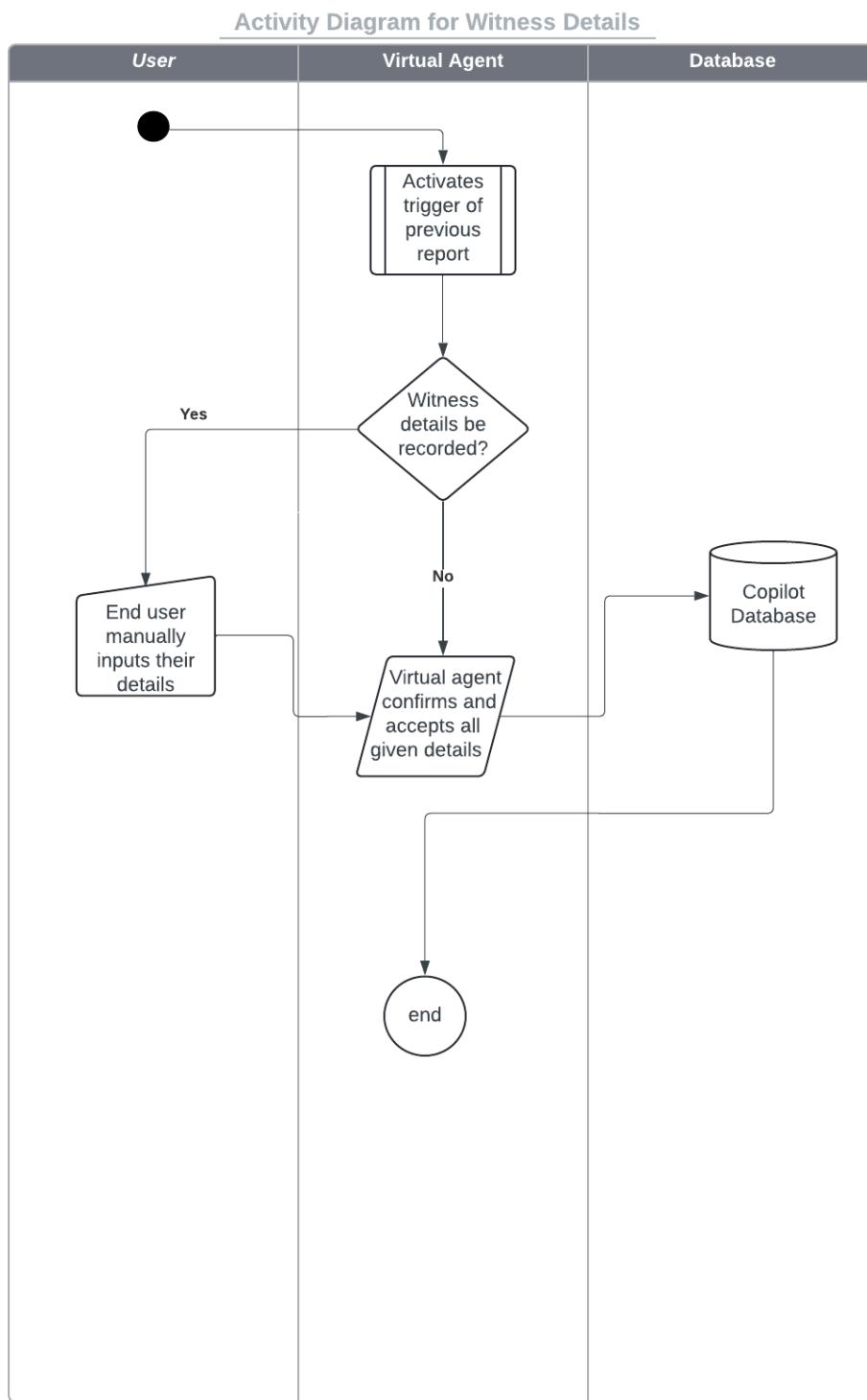
## 4.5. Activity Diagrams



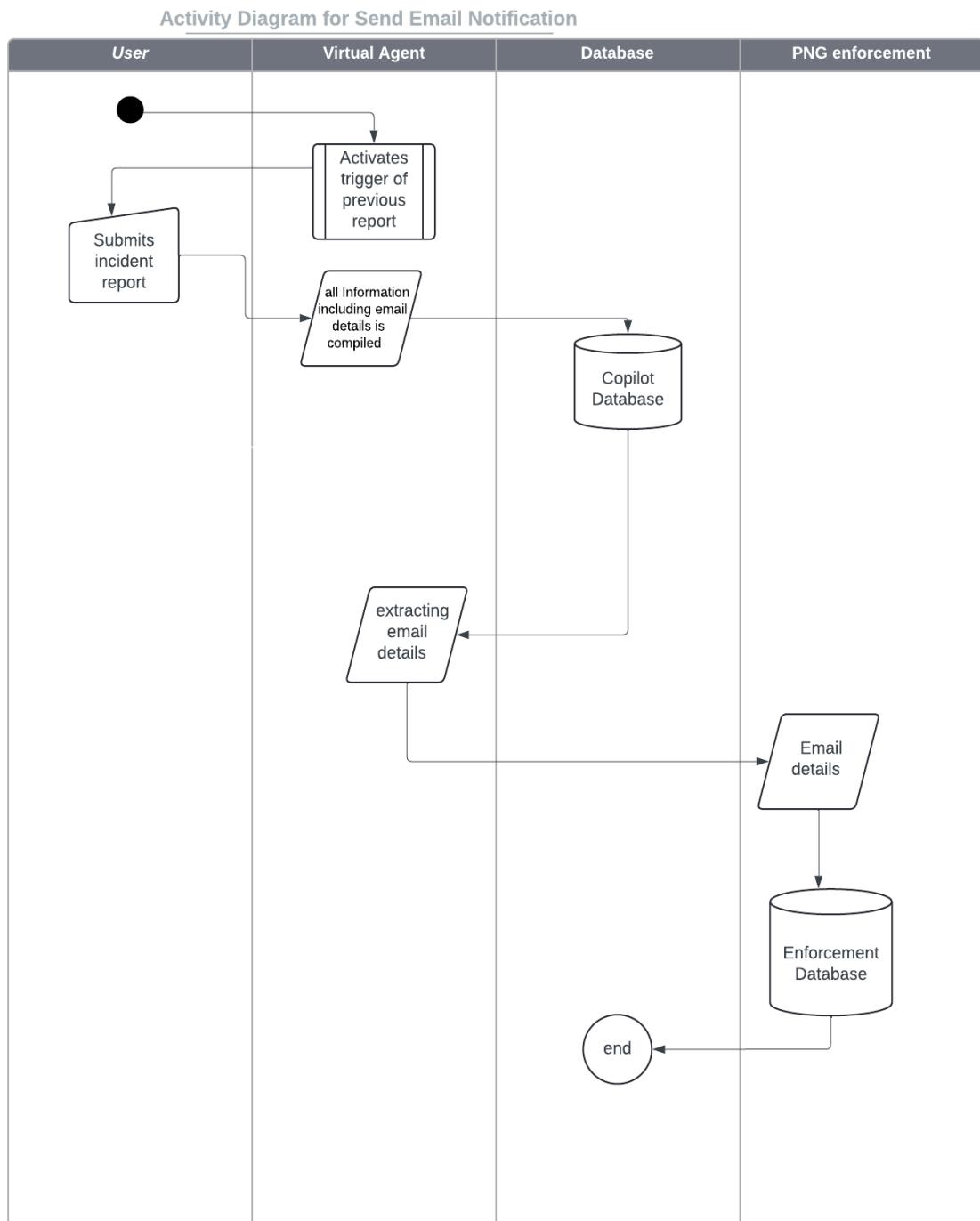
**Figure 26. Respond to a Query  
Activity Diagram**



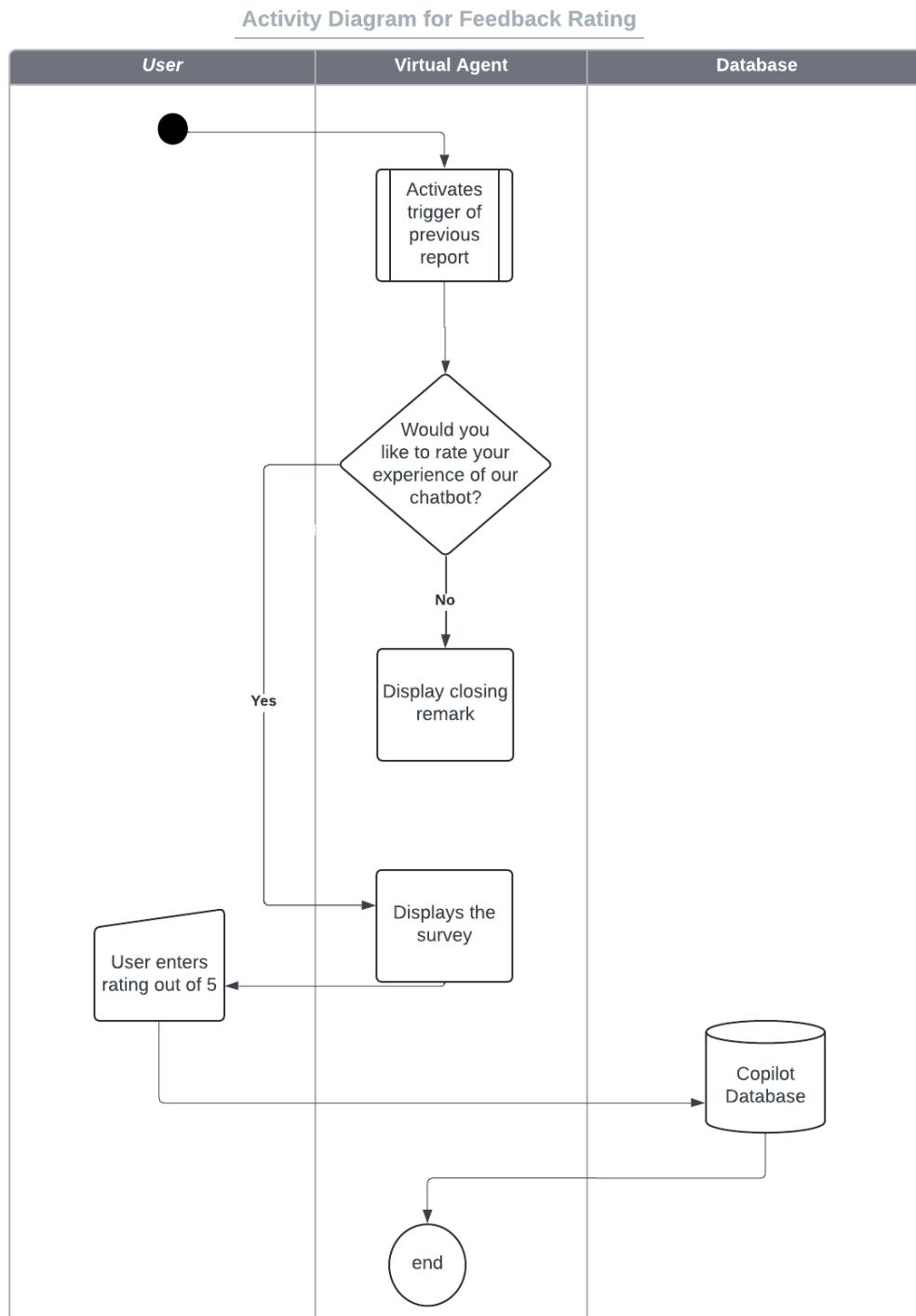
**Figure 27. Report an Incident to the Police Activity Diagram**



**Figure 28. Entering Witness Details  
Activity Diagram**



**Figure 29. Email Notification Activity Diagram**



**Figure 30. Giving Feedback Rating Activity Diagram**

## 4.6. Class Diagrams

We believe we cannot create proper class diagrams for our project as it does not contain any code but rather uses Microsoft's Copilot Studio to create and configure a virtual agent. We also use Microsoft's PowerAutomate to complete data processing as all data created within the virtual agent chat user interactions is stored in Microsoft 365 within the existing tenant. Power Automate allows us to process and distribute data to many different sources without having to manually process it using python (for example).

## 4.7. State Diagrams

We believe we cannot create proper state diagrams for our project as it does not contain any code but rather uses Microsoft's Copilot Studio to create and configure a virtual agent. We also use Microsoft's PowerAutomate to complete data processing as all data created within the virtual agent chat user interactions is stored in Microsoft 365 within the existing tenant. Power Automate allows us to process and distribute data to many different sources without having to manually process it using code (ie python, javascript).

## 4.8. List of Assumptions

- **Resources:** Software resources, such as Microsoft Copilot and Azure, will be assumed to be provided by the client. We assume these services (database and integration) will stay available and working as provided by Microsoft. The information that users of the Virtual Agent input will be saved on Azure. Facebook and WhatsApp business accounts will also be required, AIM has existing accounts which can be used, access is assumed for Messenger and WhatsApp integration to work. We assume these integrations will be maintained and updated by Microsoft and the relevant third parties as required to ensure functionality stays consistent across all platforms.
- **Availabilities:** We can always check if our Unit Convenor is available and email her if there are issues with our project. This can include our deliverables as there may be some parts that are difficult to understand. The industry partner can also be contacted via email when needed. Team members availabilities are communicated via our existing messenger group.
- **Techniques:** When establishing techniques we can include time and group management. This helps to refrain us from having incomplete tasks that were assigned at the start of our project and to also ensure the group is on the right track, task work is not being overlapped by each group member, and to help plan and prioritise each task.
- **Standards:** Following standard protocols in the case of each team member completing their assigned tasks on time. Of course, if someone is having a problem with a task they

could always follow it up with the group. This includes following the documentation created by the team regarding key aspects of the project such as change management, quality management, risk management and resource management. Following all these standards are required if we are to complete the project in a timely and effective manner.

- **Communications:** Communication between the team will be carried out in a Facebook Messenger group chat. Communication between the client and the team will be had with a weekly meeting on Zoom, as well as via email if necessary. Communication between users of the Virtual Agent and CAVR will be through the Contact Us page on the CAVR website, and any urgent matters regarding violence can be communicated straight to the relevant authorities and stakeholders.
- **Expectations:** It will be expected that the users of the Virtual Agent have access to the technology required to use it, as well as being tech literate enough to engage with the Virtual Agent.

## 5. Testing Documentation

### Revisions History Table

Version	Last Update	Author Name	Description of Change
1.1.0	16/10/2024	Shane Fornari	Updated the Test Plan (section 5.1) to include multiple subheadings, including Test Strategy, Test Type, Test Schedule, Testing Tools and Resources and Testing Milestones

### 5.1. Test Plan

#### Test Strategy

The purpose of testing the Copilot virtual agent is to ensure that it performs as expected under potential real world scenarios, and that it meets the standards that the stakeholders require. The functions tested will include:

- Workflow Testing: ensuring that the Copilot virtual agent delivers the correct output based upon user input
- Storage Testing: The information submitted, in the form of crime reports, is stored correctly and accurately

- Information Testing: to ensure that the Copilot virtual agent will respond with up to date correct information when asked about things surrounding violence
- User Testing: testing to see whether the user has an easy experience when engaging with the system
- Regression Testing: after a new function or feature is added, make sure that the Copilot virtual agent stills runs as effectively as pre update

These tests will be carried out using black box testing strategies, which is where the external behaviour of the system is the only part of the system being looked at, and the information collected from these tests is then used to adjust the system later on.

### **Test Type**

In order to test the workflow of the Copilot virtual agent, different prompt injections techniques will be used. These techniques will simulate real world scenarios in order to determine whether the system can identify the user's input, and carry on the correct path of responses. Some of these prompt injections can be seen in the below section 5.2 Test Case Specifications. Test case ID va\_002 tests the system to see whether it can determine if the user's input is relevant to the topic of violence, and makes the decision to answer it or ask the user to enter another input. Test case ID va\_003 tests the part of the system where a user is reporting a crime. These and the other tests are there to make sure the workflow of the system is correct.

The storage of the information that is received by the Copilot virtual agent needs to be stored in the correct format in the Excel sheet on the MS Cloud Sharepoint, for now, as a database is currently being created, and will need to be integrated later. User's of the system will be providing a wide range of details surrounding crimes, and these details need to be converted, if needed, into the same format and stored in the Excel sheet. The system is designed to ask for data in certain formats (for example, the date and time), and if it is presented in the wrong format, to ask for it again in the correct way. This can be seen in test case ID va\_005, for example, with step 1.6, the user inputs an incorrect phone number, so the system is expected to ask for a correct phone number. This will be carried out through integration testing, to see if it is saved correctly in the Excel sheet, along with the use of more dummy data prompts.

The Copilot virtual agent will need to be able to respond to questions regarding about violence and laws for the country of PNG. Relevant sources have been linked with the Copilot in the backend so the virtual agent will have relevant sources to pull information from. To test this, questions will be asked to the virtual agent surrounding gun violence and other topics, and will be checked to confirm that it is accurate.

User testing will be carried out by us, with a variety of dummy data to ensure that when users are interacting with the system, they are getting relevant and easy to understand responses from the Copilot virtual agent. This links in with the above workflow testing, as the testers will take note of the user experience whilst testing the workflow of the system.

There are still some updates to be made to the system, one of the main ones being the integration of the AIM's Azure database. This is still being developed by contractors at the moment. It is expected to be done over the next few days. Once this is done, the system will be tested to ensure it runs smoothly with the new integrated database. Other small updates and changes to the system will be tested as well to ensure that the system still meets the requirements.

### Test Schedule

Testing Type	Date	Description	Results
Workflow Test	21/09/2024	Dummy data was used when interacting with the system to simulate real world scenarios	The system runs as expected, with providing information surrounding violence, as well as collecting information surrounding crimes that have been committed
Storage Test	21/09/2024	Dummy data was inputted, and the system was checked to see if the data it receives is in the correct form and stores it in sharepoint	The system does only accept data that is in the correct format, and data is saved in copilot studio and MS Sharepoint.
Information Test	21/09/2024	The Copilot virtual agent was asked about the laws surrounding gun violence in PNG	The response from the virtual agent was the most up to date information surrounding gun laws in PNG
User Test	30/09/2024	The Copilot virtual agent was used by all team members undertaking various different workflows to ensure that it runs smoothly	The team believe the Copilot virtual agent runs smoothly and responds quick and efficiently to queries it receives
Regression Test	Ongoing	Small tweaks are made to the Copilot virtual agent in regards to feedback from the stakeholders, and with each feature added, the system is tested to see whether it still runs at an optimal level	So far each new feature that has been added, the system has not been broken

### Testing Tools and Resources

The people carrying out the tests included all of the team members undertaking the project. The system was tested in Copilot studio, which is accessed through the internet. Dummy data was used in all of the tests, which was come up with by the individual tester.

### Testing Milestones

These milestones highlight the date of completion for each task, along with a brief statement

- Test Plan Creation: 16/10/2024 - The test plan was created and agreed upon by the team. The dates contained within the test plan are backdated, due to the test plan being drafted up after most of the tests had been completed
- MVP Completion: 18/09/2024 - The date in which the first working prototype was officially finished
- Workflow Test: 21/09/2024 - all workflows following the stakeholders requirements
- Storage Test: 21/09/2024 - data is collected in correct format and saved in the Excel file
- Information Test: 21/09/2024 - responses given by the virtual agent contain correct and up to date information
- User Test: 30/09/2024 - all team members are happy with how the virtual agent runs and looks
- Regression Test: Ongoing - mainly waiting for the database to be provided from the sponsor
- System Handover: 30/10/2024 - 14/11/2024 - the project, and all related material is handed over to the sponsor

## 5.2. Test Case Specifications

<b>Project Name:</b> Virtual Agent for Reporting and Preventing Deadly Violence	
<b>Test Case</b>	
<b>Test Case ID:</b> va_001	<b>Test Designed By:</b> Vincent
<b>Test Priority (Low/Medium/High):</b> High	<b>Test Designed Date:</b> 20/09/2024
<b>Module Name:</b>	<b>Test Executed By:</b> Ernest/Vincent
<b>Test Title:</b> Testing access to virtual agent	<b>Test Execution Date:</b> 20/09/2024
<b>Test Description:</b> Testing accessibility of the virtual agent	
<b>Pre-conditions:</b> User has access to internet and an internet capable device	

<b>Dependencies:</b>					
<b>Step</b>	<b>Test Steps</b>	<b>Test Data</b>	<b>Expected Result</b>	<b>Actual Result</b>	<b>Status (Pass/Fail)</b>
1.1	Input virtual agent site URL into a browser on Chromium based browser(Chrome, Edge, Firefox)		Site Loads Copilot chat window showing	Site Loads	Pass
1.2	Input virtual agent site URL into a browser on safari macOS and iOS		Site Loads with Copilot chat window showing	Site Loads	Pass
1.3	Input link to Teams channel of Copilot		Teams chat with Copilot loads	Chat loaded	Pass

<b>Project Name:</b> Virtual Agent for Reporting and Preventing Deadly Violence	
<b>Test Case</b>	
<b>Test Case ID:</b> va_002	<b>Test Designed By:</b> Shane
<b>Test Priority (Low/Medium/High):</b> Medium	<b>Test Designed Date:</b> 21/09/2024
<b>Module Name:</b>	<b>Test Executed By:</b> Shane
<b>Test Title:</b> Test the ask query function of the virtual agent	<b>Test Execution Date:</b> 21/09/2024
<b>Test Description:</b> Testing to see whether the virtual agent answers relevant questions asked about deadly violence	
<b>Pre-conditions:</b> User has access to the virtual agent	

<b>Dependencies:</b>					
<b>Step</b>	<b>Test Steps</b>	<b>Test Data</b>	<b>Expected Result</b>	<b>Actual Result</b>	<b>Status (Pass/Fail)</b>
1.1	Select “Ask a query” prompt			Virtual agent asks the user about what they want to ask	Pass
1.2	Provide a query	Query: What are the laws surrounding guns in PNG?	A brief summary of the PNG laws surrounding guns	As expected	Pass
2.1	Select “Ask a query” prompt			Virtual agent asks the user about what they want to ask	Pass
2.2	Provide a query	Query: How healthy are Apples?	Virtual agent responds by asking the user to rephrase or ask another question	As expected	Pass

<b>Project Name:</b> Virtual Agent for Reporting and Preventing Deadly Violence	
<b>Test Case</b>	
<b>Test Case ID:</b> va_003	<b>Test Designed By:</b> Vincent
<b>Test Priority (Low/Medium/High):</b> High	<b>Test Designed Date:</b> 21/09/2024
<b>Module Name:</b>	<b>Test Executed By:</b> Ernest
<b>Test Title:</b> Test report function	<b>Test Execution Date:</b> 21/09/2024
<b>Test Description:</b> Test the “Report Incident” option presented by copilot, testing if agent follows specified incident workflow	

<p><b>Pre-conditions:</b> User has access to the virtual agent</p> <p><b>Dependencies:</b></p>					
Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1.1	Select “I would like to report an incident”		Virtual agent prompts for location input	As expected	Pass
1.2	Provide province location	Input: Incident location as text	Copilot saves input as string variable, proceeds to next question	As expected	Pass
1.3	Provide address information	Input: Option for address, incident address	Copilot saves input as string variable, proceeds to next question	As expected	Pass
1.4	Provide time information	Input: Incident time	Copilot saves input as datetime variable, proceeds to next question	As expected	Pass
1.5	Provide incident type	Input: Selection from 5 incident types	Copilot saves input as string variable, proceeds to next question	As expected	Pass
1.6	Provide incident description	Input: Summary of incident details	Copilot saves input as string variable, proceeds to next question	As expected	Pass
1.7	Provide details of injuries	Input: Option for any injuries, and # of	Copilot saves input as numeric variable,	As expected	Pass

		injuries	proceeds to next question		
1.8	Provide details of deaths	Input: Option for any deaths, and # of deaths	Copilot saves input as numeric variable, proceeds to next question	As expected	Pass
1.9	Provide witness details	Input: Option to provide info, First Name, Last Name, Mobile Number, Email Address	Copilot saves each separate input as a string, proceeds to next prompt.	As expected	Pass
2.0	Select yes for "...report another incident, or ask any questions ..."	Input: Option to report another incident or end chat	Copilot restarts into report an incident workflow	As expected	Pass
2.1	Select no for "...report another incident, or ask any questions ..."	Input: Option to report another incident or end chat	Copilot ends chat with pre configured message	As expected	Pass

<b>Project Name:</b> Virtual Agent for Reporting and Preventing Deadly Violence	
<b>Test Case</b>	
<b>Test Case ID:</b> va_004	<b>Test Designed By:</b> Vincent
<b>Test Priority (Low/Medium/High):</b> High	<b>Test Designed Date:</b> 21/09/2024
<b>Module Name:</b>	<b>Test Executed By:</b> Vincent

<b>Test Title:</b> Copilot processes and sends data		<b>Test Execution Date:</b> 21/09/2024							
<b>Test Description:</b>									
<b>Pre-conditions:</b> User has access to the virtual agent									
<b>Dependencies:</b>									
Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)				
1.1	Complete incident report filling all variables	All incident report variables + witness details	Copilot to send all variables in formatted email to stakeholders	As expected	Pass				
1.2	Complete incident report filling all incident variables only (no witness details)	All incident report variables	Copilot to send all report variables in formatted email to stakeholders with witness details left blank	As expected	Pass				
1.3	Complete incident report with some variables not filled out	Mixed input of incident variables	Copilot to send all available variables in formatted email to stakeholders	As expected	Pass				
1.4	Compete incident report with some witness variables not filled out	Mixed witness variables provided	Copilot to send all available variables in formatted email to stakeholders	Copilot was unable to leave witness details empty	Fail				

<b>Project Name:</b> Virtual Agent for Reporting and Preventing Deadly Violence								
<b>Test Case</b>								
<b>Test Case ID:</b> va_005			<b>Test Designed By:</b> Shahir					
<b>Test Priority (Low/Medium/High):</b> Medium			<b>Test Designed Date:</b> 21/09/2024					
<b>Module Name:</b> User unexpected answer			<b>Test Executed By:</b> Shahir					
<b>Test Title:</b> Copilot handles incorrect inputs			<b>Test Execution Date:</b> 21/09/2024					
<b>Test Description:</b> When users input incorrectly formatted data or responses								
<b>Pre-conditions:</b> User has access to the virtual agent								
<b>Dependencies:</b>								
Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)			
1.1	Establishing Location	User puts unfamiliar address	Virtual agent repeats the question	As expected	Pass			
1.2	Providing specific address	Providing a prompt instead of one of the two textbox	Virtual agent repeats the question	As expected	Pass			
1.3	Ask to write a specific address if known	User writes unfamiliar address	Virtual agent asks to repeat the input or response with "Please try again".	As expected	Pass			
1.4	Write out the date and time during the incident	User writes incorrect date format	Virtual agent asks the same question	As expected	Pass			

1.5	Virtual agent asks the type of incident occurs	User writes a query instead of selecting one of the 5 options	Virtual agent repeats the same question	As expected	Pass
1.6	Virtual agent requests phone number	User writes incorrectly formatted phone number	Virtual agent repeats the question	As expected	Pass
1.7	Virtual agent asks for any fatality	User does select one of the two options textbox and writes out the answer instead	Virtual agent repeats the same question	As expected	Pass
1.8	Virtual agent asks if people were injured	User does select one of the two options textbox and writes out the answer instead	Virtual agent repeats the same question	As expected	Pass
1.9	Virtual agent asked if user would like to put their name and contact detail	User writes out a response instead of selecting one of the two text box answers	Virtual agent will repeat the question again	As expected	Pass
2.0	Virtual agent asks user if they would like to report another incident	User writes out a response and does not click one of the two options from the text box	Virtual agent repeats the question	As expected	Pass

## 6. MVP/Prototype Documentation

### Revisions History Table

Version	Last Update	Author Name	Description of Change
1.1.0	17/10/2024	Ernest Dela Cruz	Added a new prototype feature that was recently created after deliverable 3 which is implementing user feedback rating
1.1.0	17/10/2024	Vincent Jansen van Rensburg	Updated sponsor meeting section to include latest meetings since D3

### 6.1. Prototype

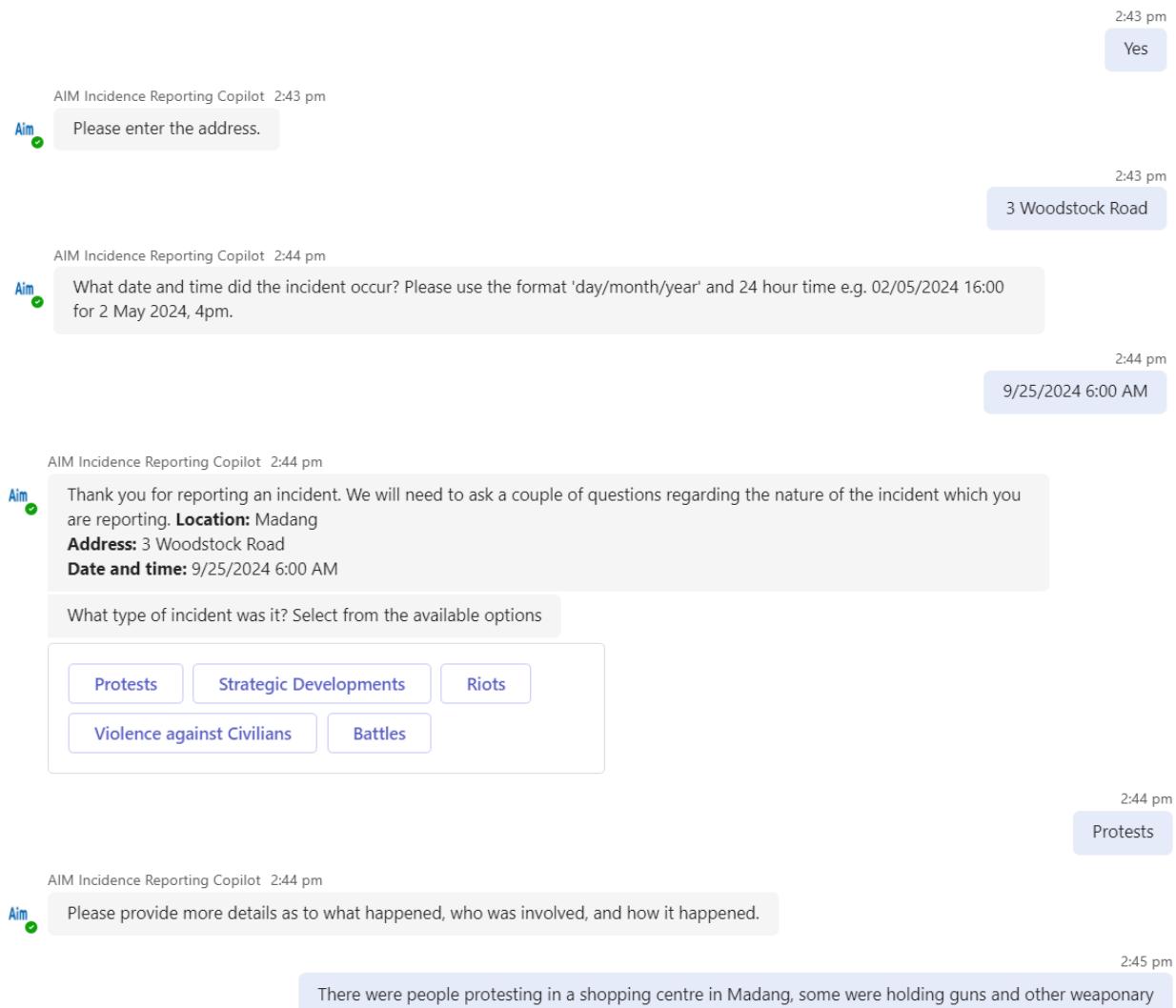
This section will detail the first and second increment of the virtual agent aimed at reporting and preventing deadly violence in Papua New Guinea. The prototype showcases how the system functions and the user interactions. The Virtual Agent has been created through MS Copilot, and since WhatsApp integration is not yet supported, it has been tested on Microsoft Teams. Below are the key components of the prototype, along with screenshots and descriptions of its main features.

#### 6.1.1. User Reporting an Incident

In the case of a user reporting an incident, the virtual agent will ask a sequence of close-ended questions to gather precise details about the incident such as the date, time, and location of the incident. It will further ask if the user would like to include their personal details or be anonymous. In the example of Figure 31, the user has entered information relating to the incident, as well as their name, mobile number, and email address. The virtual agent then presents a summary of the key information collected and sends it as an email to the local authorities and stakeholders.

This function was designed to ensure that the virtual agent is straightforward and simple for the user to fill out, providing a few sample answers within the question to minimise ambiguity and data entry errors. If the user does not know the specific address of the incident, the number of fatal deaths/injuries, or desires to be anonymous, then the variable assigned to each question will have their values set to empty and are displayed as blank in the summary. In Copilot Studio, our questions have allocated entities which help extract specific information from the user's response and store it into a variable with the corresponding data type. This was done in accordance with our PACE partner,

ensuring the most important data is provided. For example, if a user inputs a phone number consisting of 7-8 digits, this information will be stored by the chatbot as this is a valid PNG mobile number. However, if the user enters an invalid answer the virtual agent will ask the question again until a valid answer is inputted (Figure 32).



AIM Incidence Reporting Copilot 2:45 pm

Aim Do you know if there were any people that died from the incident? Select from the available options

Yes

No

2:45 pm

Yes

AIM Incidence Reporting Copilot 2:45 pm

Aim How many people died?

2:45 pm

3

AIM Incidence Reporting Copilot 2:45 pm

Aim Do you know if any people were injured from the incident? Select from the available options

Yes

No

2:45 pm

Yes

AIM Incidence Reporting Copilot 2:45 pm

Aim How many people were injured?

2:46 pm

10

AIM Incidence Reporting Copilot 2:46 pm

Aim If you want your name and contact info to be recorded as a witness click 'Yes'. Choose 'No' if you prefer to stay anonymous.

Yes

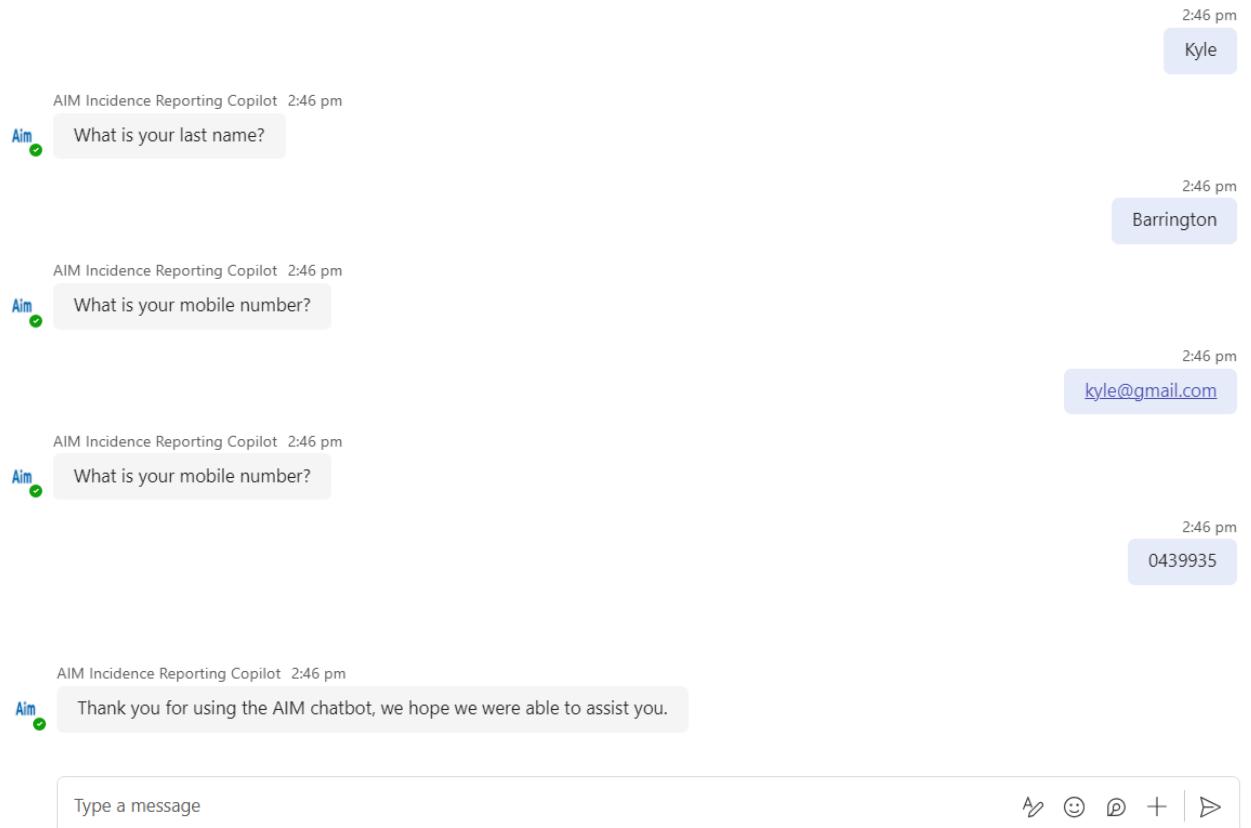
No

2:46 pm

Yes

AIM Incidence Reporting Copilot 2:46 pm

Aim What is your first name?



**Figure 31. User Reporting an Incident**

The screenshot shows the 'Reporting an Incident' interface. A question is defined: 'What is your mobile number?'. The 'Identify' section is configured to extract a 'PNG Mobile Number' from the response. The 'Save user response as' section is set to store the response as 'UserContactNum' of type 'string'.

Reporting an Incident

Copilot Comments Vi

What is your mobile number?

Identify

PNG Mobile Number

Save user response as

UserContactNum string

Choose information to identify

To help the copilot pick out specific information from your user's response, choose an option or entity.

Search

Create an Entity

The date of the incident, extracted as in the format dd/mm/yyyy.

PNG Mobile Number

The mobile number of a PNG resident that has 7 or 8 digits

**Figure 32. User Mobile Number Question**

## 6.1.2. Authorities and stakeholders Receiving Incident Report

When an incident is reported to the authorities and stakeholders, the chatbot sends an email stating that an incident has been reported by a witness, and displays the incident and witness details. If the user has chosen to remain anonymous, then the email would only include the incident details. The email has been structured in such a way that the various incident/witness details are on separate lines with their headings in bold, in order to make it clear and concise for the authorities and stakeholders to understand (As shown in Figure 33). Figure 34 shows the Power Automate template we have designed, where the input variables are the values that the virtual agent collects from user reports.



Hello,

You have received the following information about an incident that has recently been reported by a witness. Some information may be missing as the witness provided incomplete information about the incident.

Incident Details:

**Date and Time:** 9/25/2024 6:00 AM

**Location:** Madang

**Address:** 3 Woodstock Road

**Type:** Protests

**Info:** There were people protesting in a shopping centre in Madang, some were holding guns and other weaponry

**Fatalities:** 3

**Injured:** 10

Witness Details:

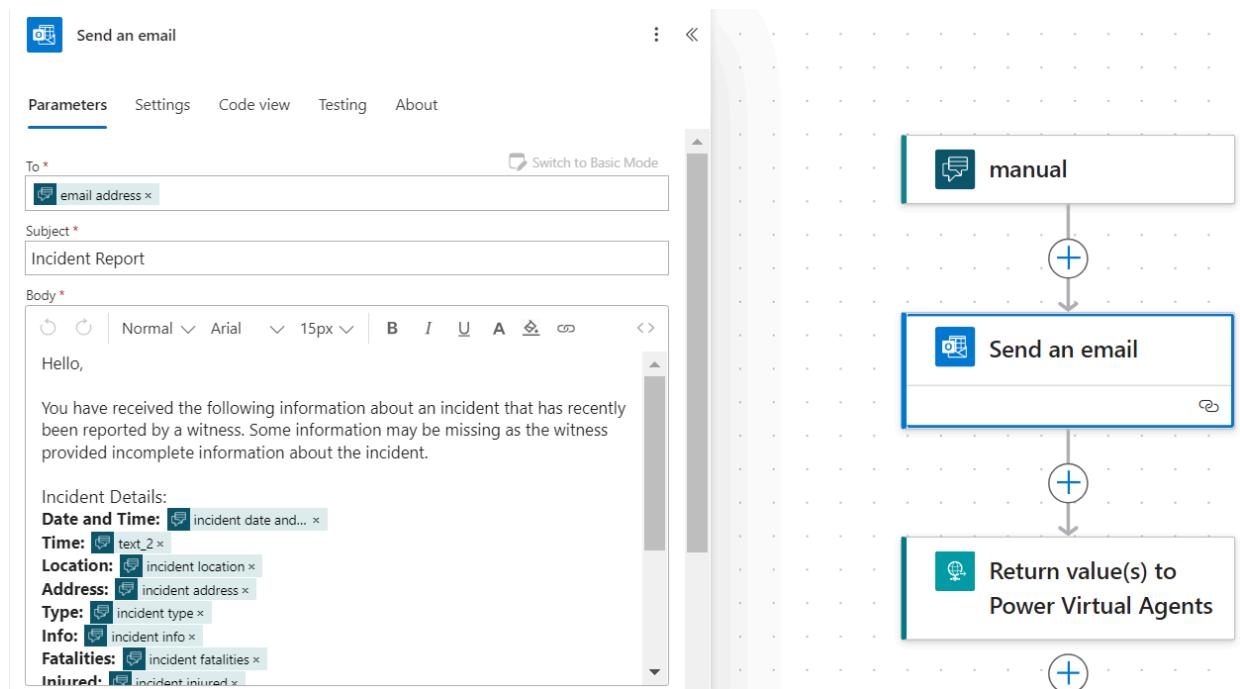
**First Name:** Kyle

**Last Name:** Barrington

**Mobile Number:** 0439935

**Email Address:** kyle@gmail.com

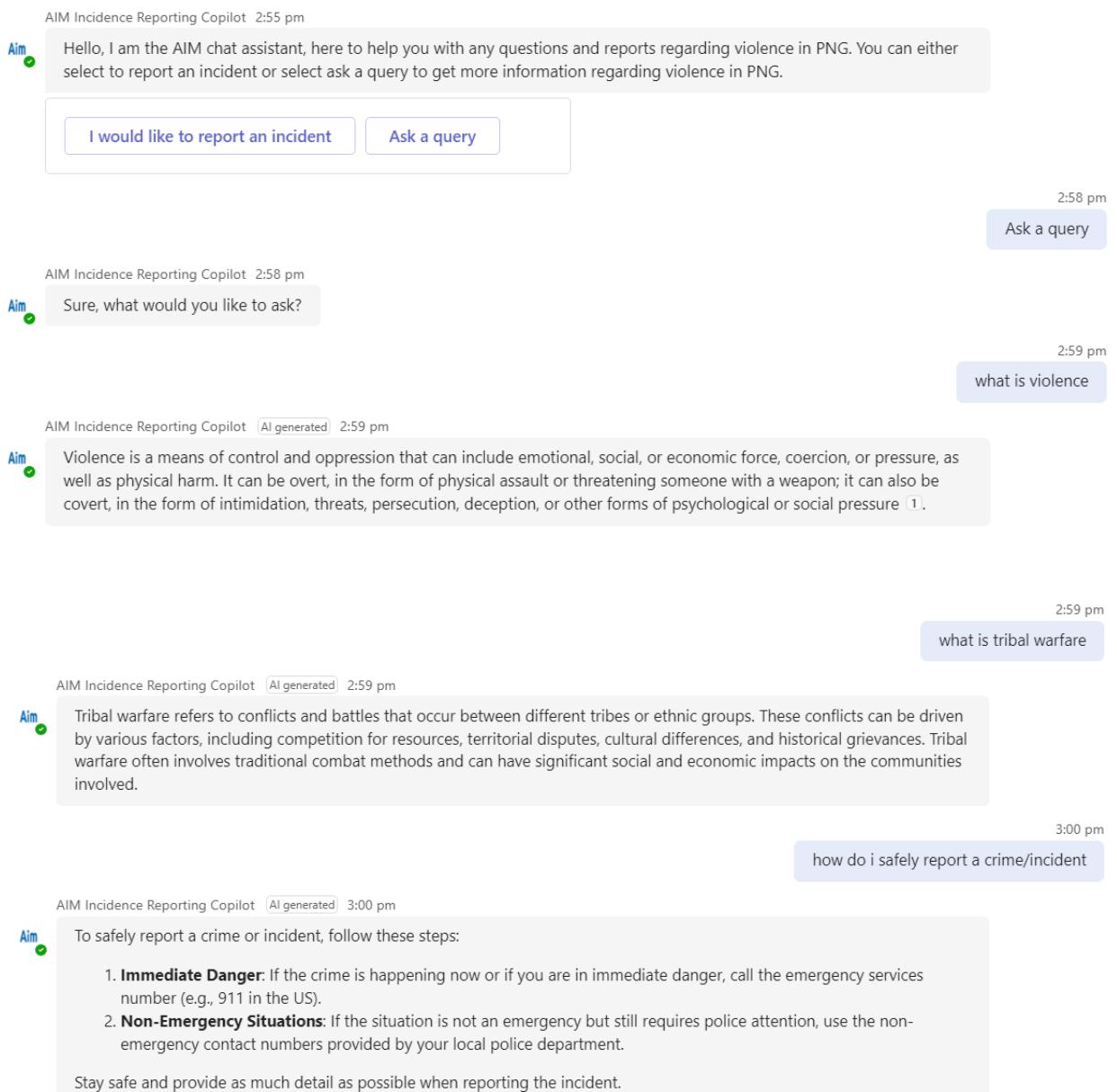
**Figure 33. Authorities and stakeholders Receiving Incident Report**



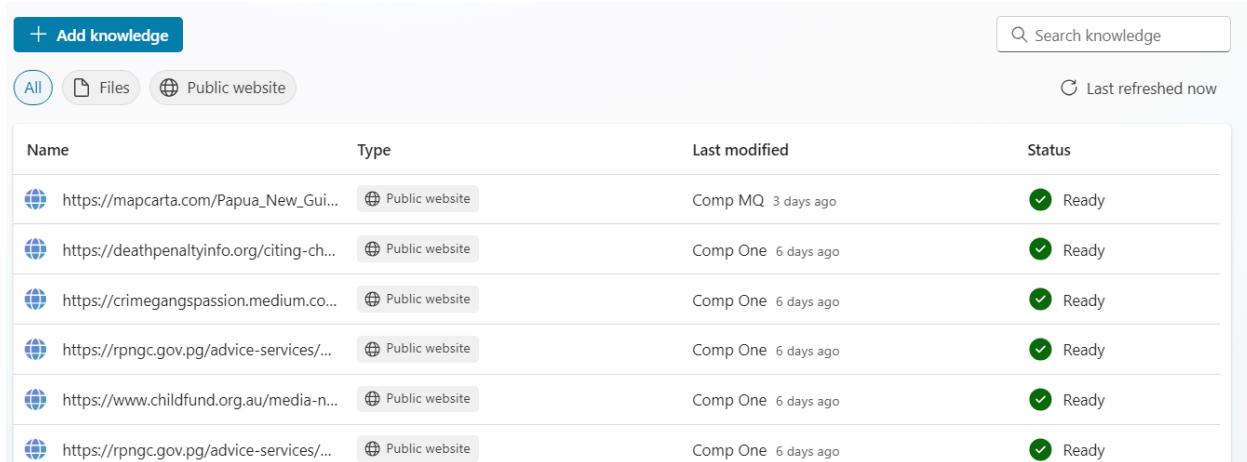
**Figure 34. Email Format in Power Automate**

### 6.1.3. User Asking Queries about Violence in PNG:

In the case of user queries, the virtual agent will use generative AI and stored information sources to best respond to the question, and remain active to allow the user to continue to ask another query (Figure 35). The sources that the chatbot utilises are displayed in Figure 36, and Figure 37 shows the ‘Generative Answers’ function that is utilised for generating chatbot responses.



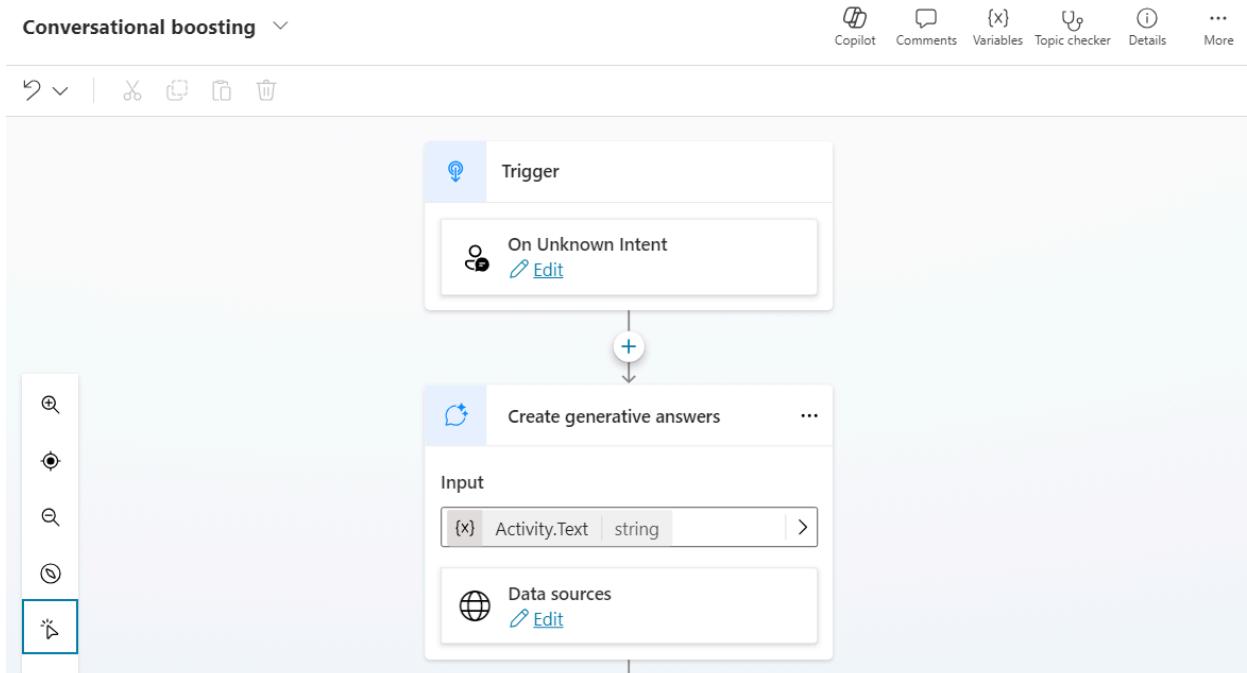
**Figure 35. User Asking Queries**



A screenshot of a web-based knowledge management application. At the top, there's a header with a search bar ('Search knowledge'), a 'Last refreshed now' button, and navigation tabs ('All', 'Files', 'Public website'). Below the header is a table with columns: 'Name', 'Type', 'Last modified', and 'Status'. The table lists six public website sources, all marked as 'Ready'.

Name	Type	Last modified	Status
<a href="https://mapcarta.com/Papua_New_Gui...">https://mapcarta.com/Papua_New_Gui...</a>	Public website	Comp MQ 3 days ago	Ready
<a href="https://deathpenaltyinfo.org/citing-ch...">https://deathpenaltyinfo.org/citing-ch...</a>	Public website	Comp One 6 days ago	Ready
<a href="https://crimegangspassion.medium.co...">https://crimegangspassion.medium.co...</a>	Public website	Comp One 6 days ago	Ready
<a href="https://rpngc.gov.pg/advice-services/...">https://rpngc.gov.pg/advice-services/...</a>	Public website	Comp One 6 days ago	Ready
<a href="https://www.childfund.org.au/media-n...">https://www.childfund.org.au/media-n...</a>	Public website	Comp One 6 days ago	Ready
<a href="https://rpngc.gov.pg/advice-services/...">https://rpngc.gov.pg/advice-services/...</a>	Public website	Comp One 6 days ago	Ready

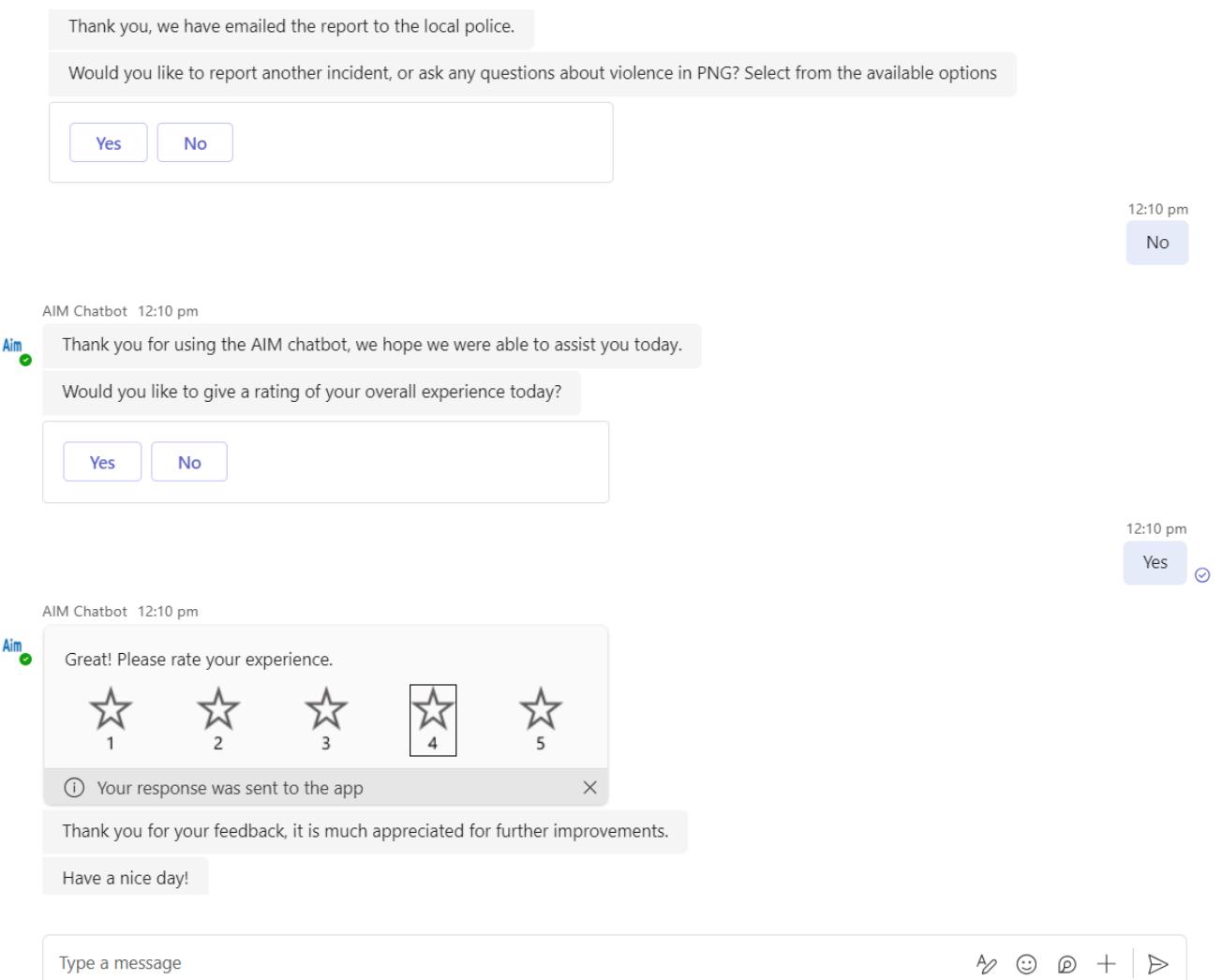
**Figure 36. Knowledge Sources For Our Virtual Agent**



**Figure 37. Triggering Generative Answers**

#### 6.1.4. User Giving Feedback:

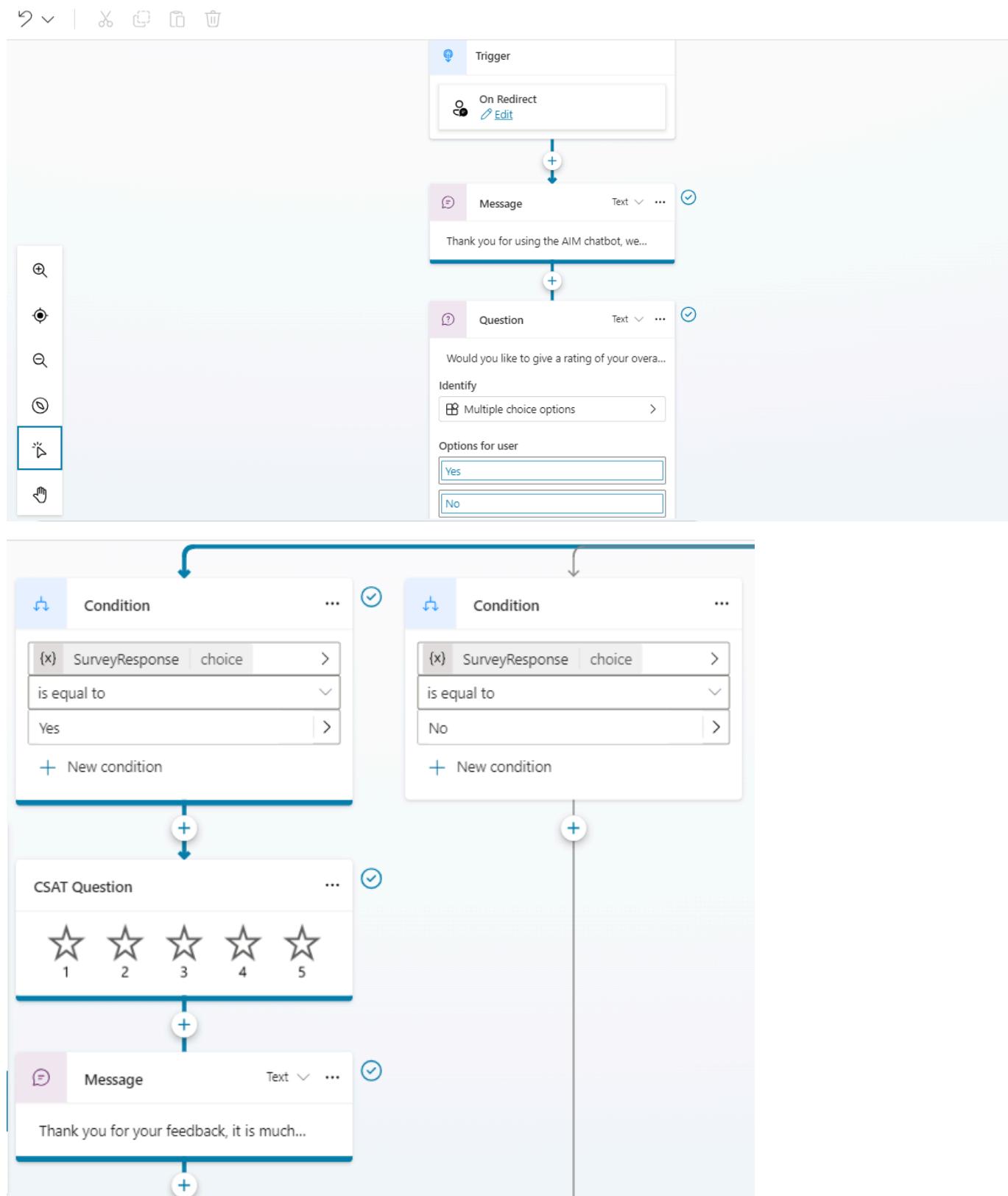
When a user has finished using our chatbot, the ‘End of Conversation’ topic will be triggered (Figure 39). The chatbot will ask if the user would like to give a rating out of 5, and after the user has inputted a response, the chatbot will state that their response was properly collected and conclude the conversation with a closing remark. Figure 38 displays the rating system, in which the black box around the star indicates a rating of four stars has been selected. However, if a user does not want to provide a rating then the chatbot will simply end with the closing remark.

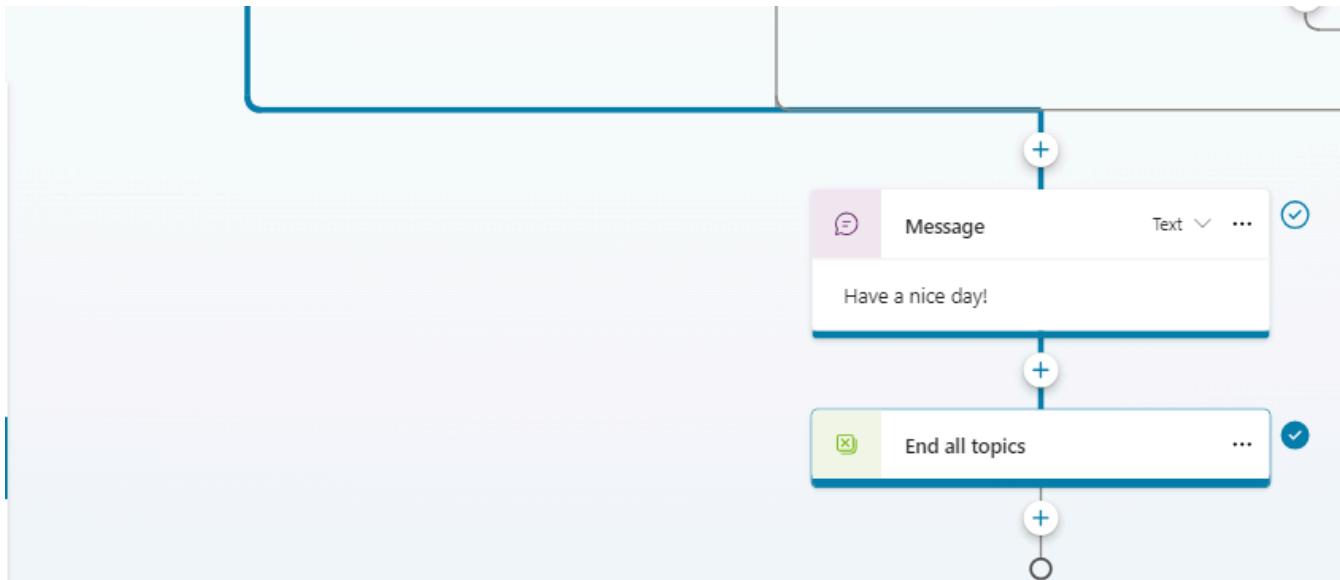


**Figure 38. User Giving Feedback Rating**

## End of Conversation

Copilot Comments Variables Topic checker Details More





**Figure 39. Triggering End of Conversation Topic**

### 6.1.5. Sponsor Meeting, Feedback and Response to Feedback for Deliverable 3

**Meeting date and time:**

25/09/2024, 8:00-8:30 am (Online)

**Feedback received:**

Alistair Gee (Executive Director at CAVR) was greatly impressed with the chat functionality that we developed for our virtual agent in how a user can either efficiently report an incident and an email is sent to the authorities and stakeholders regarding the details or ask a query about violence in PNG. He further requested if the image upload functionality would still be viable to implement and commented that he has a contractor working on a storage system through Power Automate for images which can hopefully be linked to copilot. He will provide information on this system and its setup so we can try and integrate it with the existing copilot report function to upload both the text and images of reports. We have also asked if we are able to have access to one of their CAVR AIM Facebook accounts in order to test the virtual agent's integration with Messenger and he will do so.

**Team response/action points:**

We will wait and ask for an update over the following week if the storage system for images is ready to implement with our copilot, as well as the login details of their CAVR

AIM Messenger account. But we will also try to find other solutions to integrate image processing in our virtual agent.

### **6.1.6. Sponsor Meeting, Feedback and Response to Feedback for Deliverable 4**

#### **Meeting date and time:**

14/10/2024, 3-3:30PM (Online)

#### **Feedback received:**

Alistair Gee (Executive Director at CAVR) advised he will send through a description and access guide for the contractors database setup once available, he provided a snapshot of what the integration looks like. The integration uses powerBI with a table of information on incidents which have similar variables to what is stored within Copilot studio, this can be easily exported from Copilot studio into powerBI using Power Automate tools meaning integration should be possible once access is provided to us. Alistair also updated us on messenger integration advising he would provide us with a login to setup facebook messenger integration with Copilot using API connectors.

#### **Team response/action points:**

Await access to powerBI database that has been setup by the contractor, begin to work on integration once provided. Once facebook login is received, begin working on integration with Facebook messenger to broaden accessibility of the virtual agent. Continue working on image/document upload functionality to allow users to provide physical evidence along with other report information through the virtual agent chat.

# 7. User Manual

## 7.1. Introduction

### 7.1.1. Overview

This document has been prepared to guide both administrator and end-users through the system's functionalities to ensure effective incident reporting, access to vital information and contributions toward improving safety in Papua New Guinea. This manual provides comprehensive instructions to enable users, regardless of their technical expertise, to navigate and utilise the system efficiently.

### 7.1.2. Purpose

The project aims to support reporting of deadly violence in PNG through a chatbot implemented on Messenger and WhatsApp when made available. The data is stored in Azure and managed within the AIM system for CAVR. The report is also automatically emailed to the local authorities through Power Automate in which it can be distributed to other relevant stakeholders for efficient incident investigations. The software uses stored information to produce generative responses to any queries regarding deadly violence in PNG made by users. This will help prepare them in dealing with criminal situations.

### 7.1.3. Intended Audience

This manual is intended for various users, including:

- **End Users:** Individuals reporting incidents of armed violence, who may have minimal technical expertise but require clear guidance on how to submit reports and interact with the virtual agent.
- **Administrators:** CAVR staff responsible for managing the system, monitoring reports and ensuring that data is processed efficiently and accurately.

## 7.2. System Deployment/Handover

This section is intended for new developers, engineers and administrators who will be accessing and deploying the AIM Virtual Agent. It provides an overview of the Copilot system from both an admin and user perspective with the aim of assisting administrators in deploying the agent and assisting users with any queries and issues.

## 7.3. User Instructions

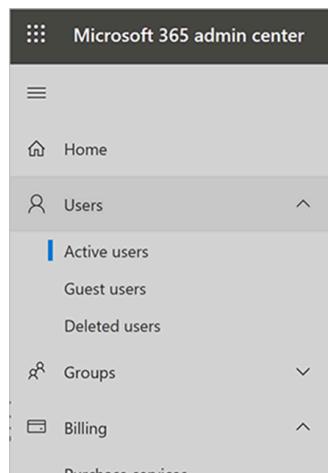
This section provides detailed instructions to assist both end users and administrators in effectively using the system. An overview is provided to administrators on how changes can be made to all parts of the system. Users are provided with an easy to understand guide on how to interact with the Copilot Virtual Agent and what to expect while interacting with it.

### 7.3.1. Administrators

#### 7.3.1.1. Providing access to Copilot Studio

Pre requisites:

- Account is created within the Microsoft Tenant that the Copilot is to be created in, this will need to be created by the Microsoft Tenant Administrator, this is not completed by us but by the MS Admin within AIM/CAVR.
  - Administrator can access the existing account and login to Microsoft services(Office.com for example)
  - A specific licence is also then required to access Copilot Studio itself, instructions provided by Microsoft are outlined below.
1. Go to the [Microsoft 365 admin center](#) and sign in with your administrator account (Available from AIM/CAVR Side, again we do not have administrator access over the AIM/CAVR Tenant to administer accounts and licensing).
  2. On the side pane, expand the Users menu, and then select Active users.



3. Select a name, and then select Manage product licences.

Active users		
Add a user	Refresh	Reset password
Display name ↑	Username	Licenses
gds		Unlicensed
<input checked="" type="checkbox"/> Alex Wu	<input type="button" value=""/>	Unlicensed

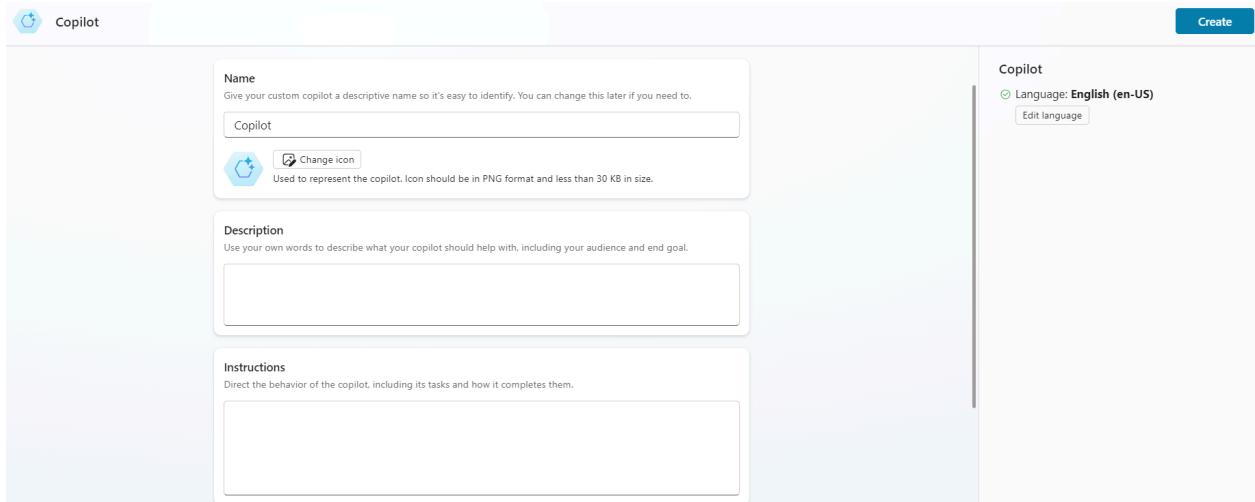
- On the flyout pane, select the check box next to Copilot Studio user licence, and then select Save changes.

Repeat these steps to add more users, or exit the Microsoft 365 admin centre if you're finished.

Once all these prerequisites are met and steps are completed, admins should be able to login to Copilot studio with their existing account using the following link:  
<https://www.microsoft.com/en-us/microsoft-copilot/microsoft-copilot-studio>.

### 7.3.1.2. Creating a Chatbot on Copilot Studios

- **Step 1:** Go to the Microsoft Copilot Studio website by clicking on the following link: [<https://www.microsoft.com/en-us/microsoft-copilot/microsoft-copilot-studio>] and click 'Sign in' to login using your registered email address and password (account will need to be created by the Microsoft Tenant Administrator, this is not completed by us but by the MS Admin within AIM/CAVR).
- **Step 2:** Select the 'Create' section of the left hand menu and click on 'New copilot'.
- **Step 3:** Press 'Skip to configure' on the top right corner, fill in the following information as shown below and click 'Create' on the top right corner:
  - **Name:** name of your Chatbot
  - **Description:** what you want your chatbot to do
  - **Instructions:** the behaviour of your chatbot (e.g. Assists users in a friendly tone)



- **Step 4:** After creating your chatbot, you will be directed to the overview page of your copilot where you can edit the details of your chatbot, add knowledge sources and topics which can also be done by clicking on the headers above.

**Aim AIM Chatbot**

**Overview**

**Knowledge**

**Topics**

**Actions**

**Analytics**

**Channels**

**Published 10/17/2024**

**Test your copilot**

**Details**

**Name**: Aim

**Description**: Collects reports and information about crime incidents in Papua New Guinea and emails them to the local police. Also answers queries regarding violence in PNG.

**Instructions**: Assist users in a friendly tone.

**Test Content Preview**

Hello, I am the AIM chat assistant, here to help you with any questions and reports regarding violence in PNG. You can either select to report an incident or select a query to get more information regarding violence in PNG.

Just now

I would like to report an incident Ask a query

Ask a question or describe what you need 0/2000

Make sure AI-generated content is accurate and appropriate before using. [Learn more](#)

### 7.3.1.3. Adding a Knowledge Base to the Copilot

- **Step 1:** We can improve the generative responses of our chatbot by clicking on the 'Knowledge' tab, which shows all the files that have been added to the knowledge base, and on the 'Add Knowledge' on the top left corner.
- **Step 2:** There you can add a variety of files or even websites by clicking one of the options below.

#### Add knowledge

X

Add knowledge so your copilot can provide more relevant information and insights. Once set up, other people with edit permissions for this copilot can reuse these knowledge sources for additional topics. [Learn more about knowledge sources](#)

Featured Advanced

Search

Public websites Add public websites for real-time answers

SharePoint Securely integrate and manage internal data

Dataverse (preview) Customize and deploy structured data tables

Upload files Only text-based files are supported; images, audio, video, or executables are not. Files will be securely stored in Dataverse.

Drag and drop a file here or [click to browse](#)  
Up to 512MB per file

- **Step 3:** Next, click on ‘Settings’ on the top right corner and click ‘Generative AI’ on the left hand menu.
- **Step 4:** Then select ‘Generative (preview)’ and ‘High - More precise’ to allow the use of generative AI in your chatbot and increase its precision/quality when answering the user’s queries.

Copilot details

Using generative AI in conversations

Generative AI

Security

Authoring Canvas

Entities

Skills

Voice

Languages

Language understandi...

Component collections

Advanced

Save

How should your copilot interact with people?

Classic – Use the topics you build to respond to trigger phrases—actions can only be called from inside a topic.

Generative (preview) - Use generative AI to respond with the best combination of actions, topics, and knowledge.

How strict should the content moderation be?

Low - More creative  Medium - More balanced  High - More precise

### 7.3.1.4. Creating a Topic to Report an Incident

- **Step 1:** Once you have added all the files you would like the chatbot to analyse when it generates a response using our inputted data sources, navigate to the ‘Topic’ tab where you will see a list of pre-made topics that determines how the conversation of your chatbot will take place and how it will handle certain events. For example, the start and end of your conversation, as well as how it handles errors. Some topics are called system topics that cannot be deleted and another called custom which can be erased. Both types of topics can be turned on/off to enable the copilot to trigger that specific topic or not.

The screenshot shows the 'Topics' section of the AIM Chatbot interface. At the top, there are tabs for 'Overview', 'Knowledge', 'Topics' (which is selected), 'Actions', 'Analytics', and 'Channels'. Below the tabs, there's a search bar with the placeholder 'Search all topics' and a button '+ Add a topic'. A status message 'Last refreshed 2 minutes ago' is also present. The main area displays a table with columns: 'Name', 'Trigger', 'Last modified', and 'Enabled'. The table lists several triggers:

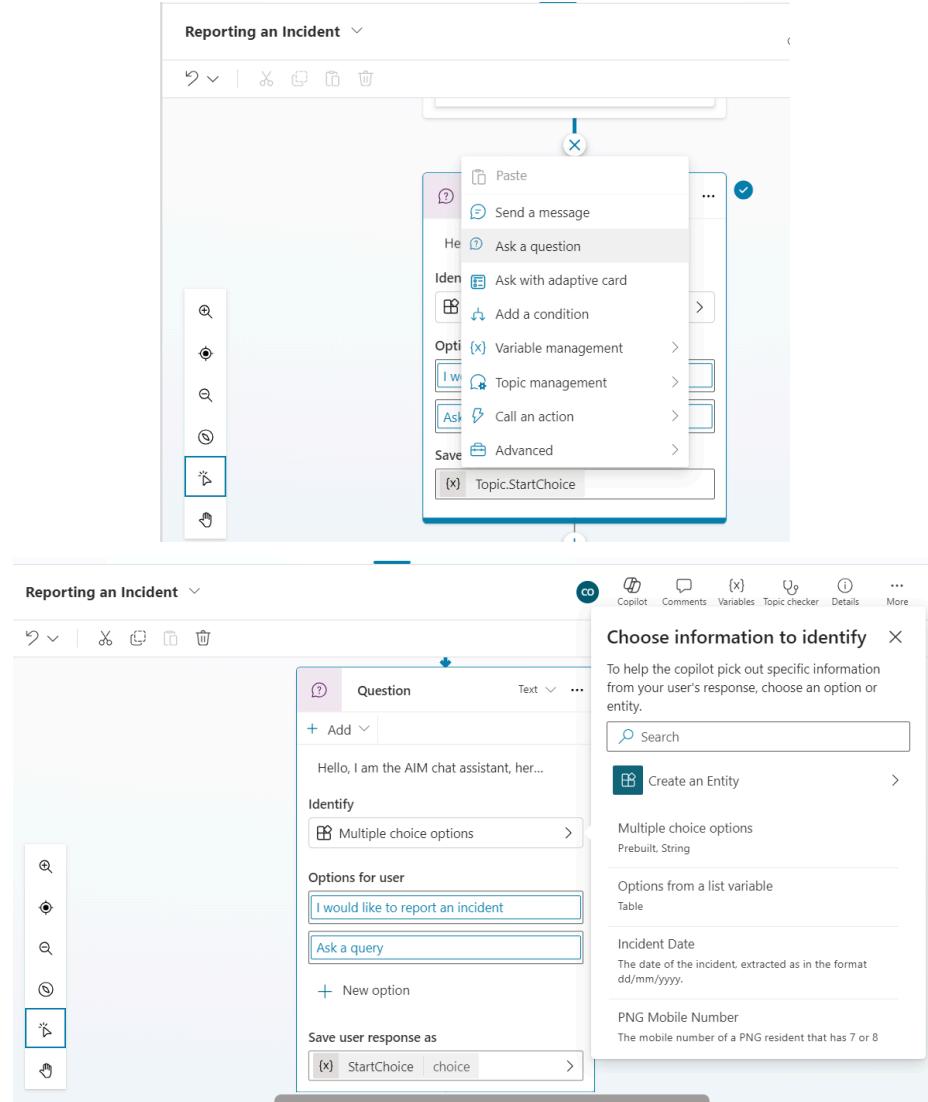
Name	Trigger	Last modified	Enabled
Multiple Topics Matched	On select	Comp One 1 month ago	On
On Error	On error	Comp One 24 days ago	On
Queries about Deadly Violence	On redirect	Comp One 3 days ago	On
Reporting an Incident	On redirect	Comp One 2 days ago	On
Reset Conversation	On redirect	Comp One 23 days ago	Off
Sign in	On Sign In	Comp One 1 month ago	On
Start Over	Triggered by copilot (preview)	Comp One 23 days ago	On

- **Step 2:** Create a new topic by clicking 'Add a topic' and you change the default trigger of that topic by clicking on the button that arrows going in opposite directions. It will display a pop up list of various triggers you can choose from.

The screenshot shows the AIM Chatbot builder interface. On the left, there's a sidebar with icons for 'Add', 'Edit', 'Search', and 'Delete'. The main workspace shows a 'Trigger' node connected to a 'Question' node. The 'Trigger' node has an 'On redirect' trigger. A blue '+' button is positioned between the Trigger and Question nodes. A 'Change trigger' modal is open on the right, listing various trigger options:

- Triggered by copilot (preview) - Write a short description of what the topic can do so your copilot can understand what it does and when to use it.
- Message received - Start the topic every time a message is received from the user.
- Event received - Respond to custom client events.
- Activity received - Start the topic every time the copilot receives an activity, including a message or an event.
- Conversation update received - Start the topic based on a conversation change from a client, like adding or removing users or channels.
- Invoke received - Respond to advanced inputs, such as button clicks from Teams.

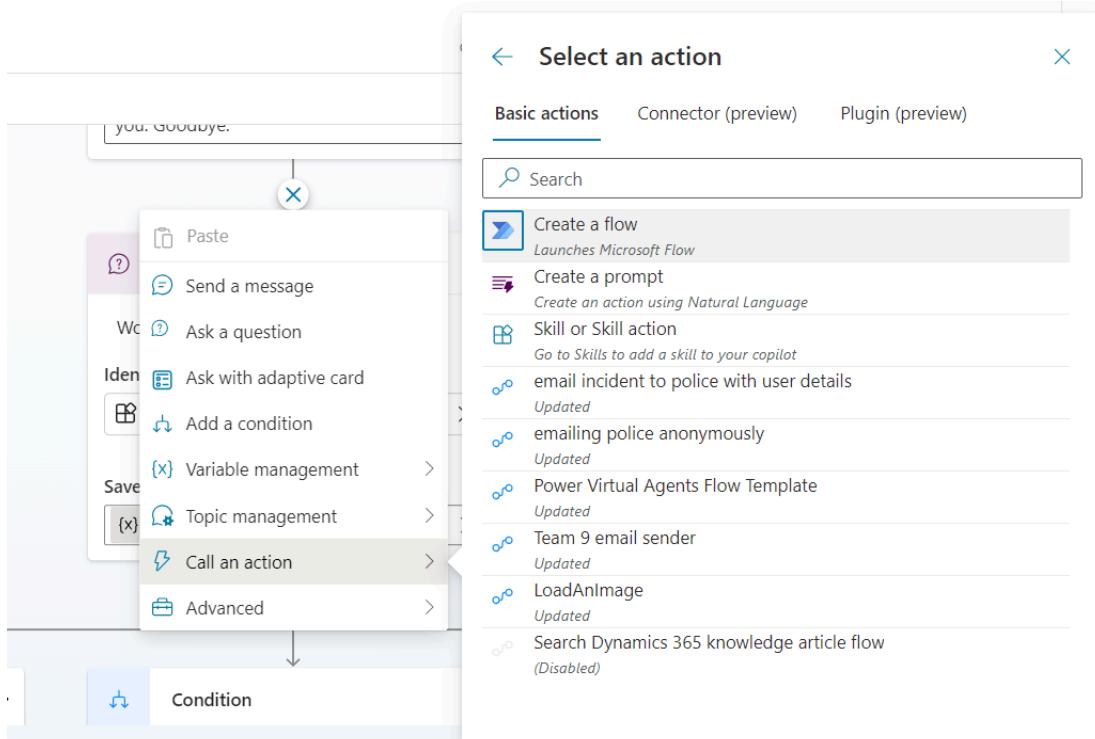
- **Step 3:** Then, click on the '+' button to add a question node where you can edit the text of your question as well as the type of entity which helps extract specific information from the user's response and store it into a variable with the corresponding data type. In the example below we have made a multiple choice question.



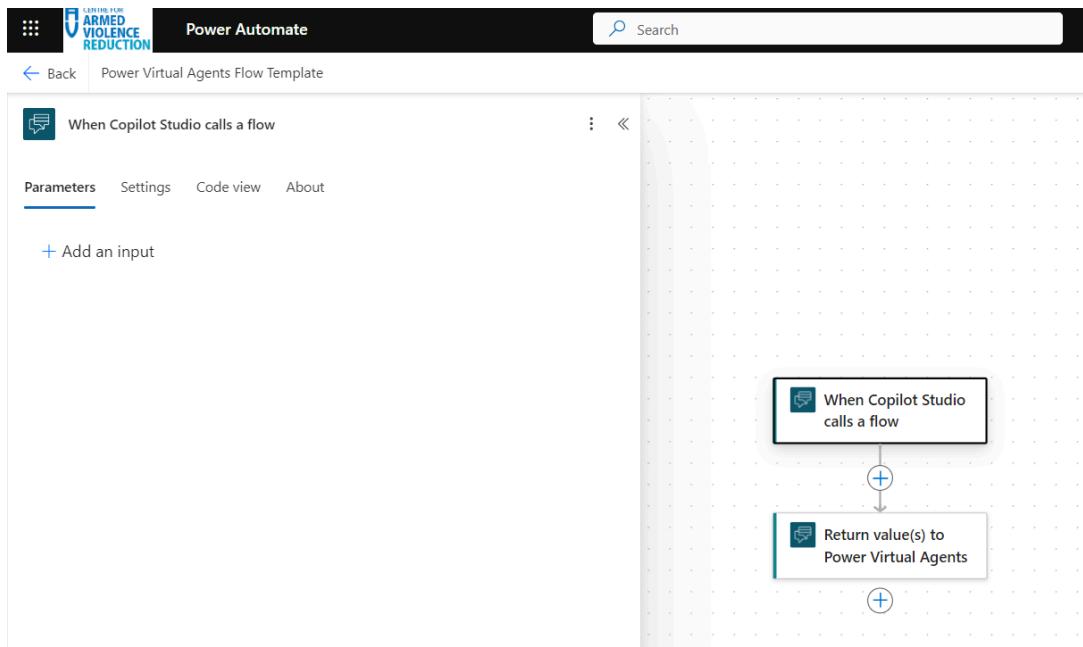
- **Step 4:** Construct a series of messages and questions that collects the key information about the incident:
  - Province of the incident taking place
  - Specific address of incident
  - Date and time of the incident in the format day/month/year, 24hr format
  - Type of Incident (e.g. Protests, strategic developments, riots, violence against civilians, battles)
  - Incident details of who was involved and how it happened
  - Number of deaths resulting from the incident
  - Number of injuries resulting from the incident
  - Witness details (e.g. first and last name, mobile number and email address)
  - Summary of incident report
- **Step 5:** Once you have finished editing your topic, click ‘Save’ on the top right corner to save your changes.

### 7.3.1.5. Creating an Email Flow on Power Automate

- **Step 1:** After presenting a summary of the incident report, make a new node that calls an action and click 'Create a flow' which will direct you to a page in Power Automate.



- **Step 2:** Select the first node 'When Copilot Studio calls a flow', click 'Add an Input' in the Parameters section and choose 'text' as the type of user input.

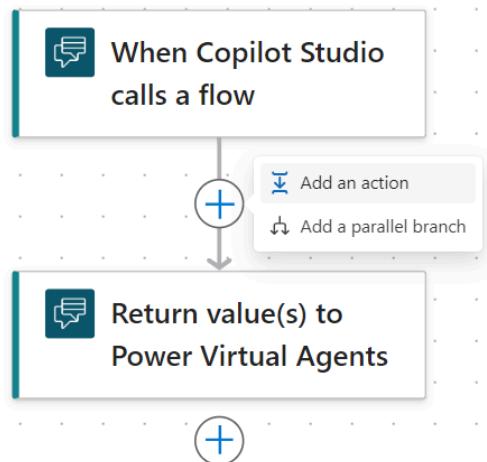


- **Step 3:** Next, call the input parameter as the first variable you created to store the key information about the incident, and continue to do so until you have created the same number of input parameters as variables. Also include another input parameter for the email of the recipient and delete the generated text for each input parameter.

The screenshot shows the Power Automate interface with a flow titled "When Copilot Studio calls a flow". The flow starts with a trigger step "When Copilot Studio calls a flow", followed by an action step "Send an email (V2)", and finally an action step "Return value(s) to Power Virtual Agents". On the left side, there is a list of input parameters with their corresponding value fields. The "Parameters" tab is currently selected.

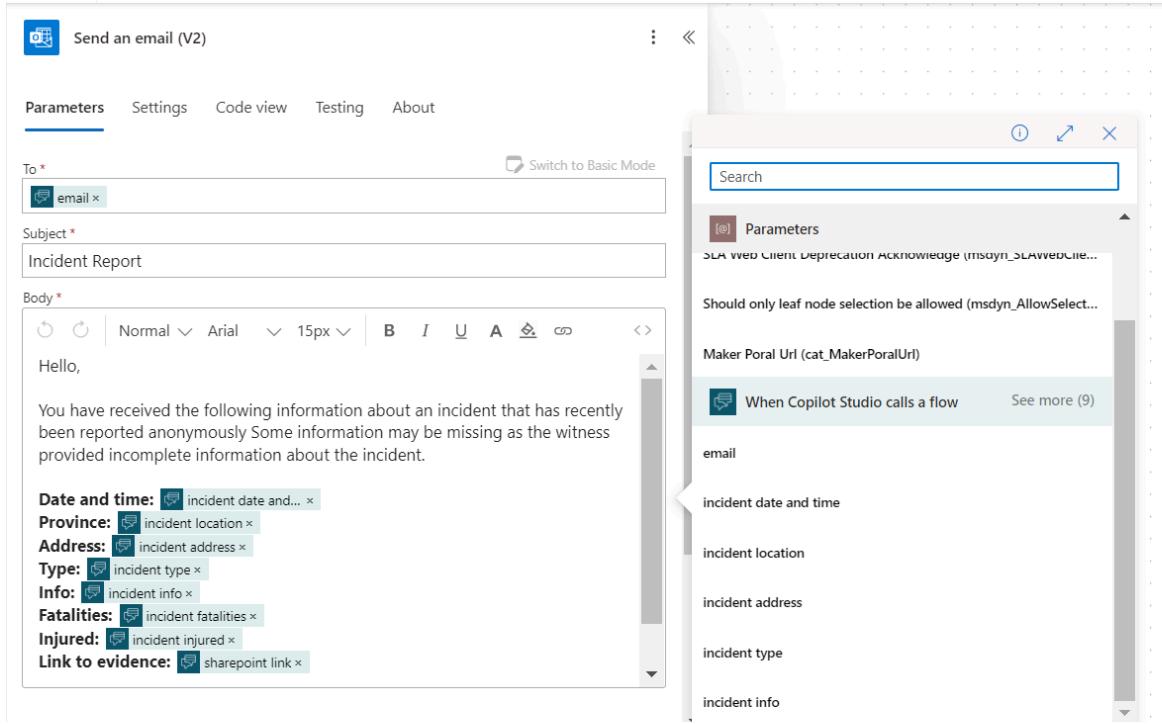
Input Parameter	Value
email	[ ]
incident date...	[ ]
incident locat...	[ ]
incident addr...	[ ]
incident type	[ ]
incident info	[ ]
incident fatali...	[ ]
incident injur...	[ ]
sharepoint link	[ ]

- **Step 4:** Afterwards, click the '+' button to create a new step and click 'Add an action'.

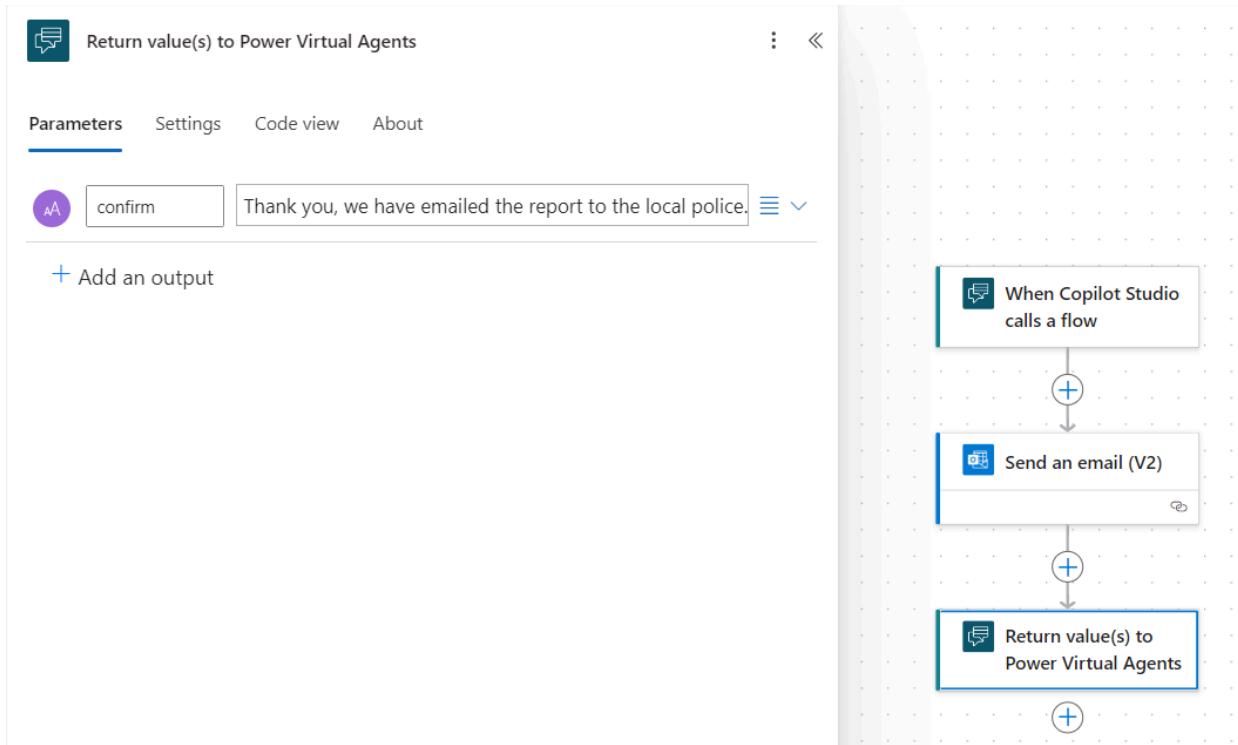


- **Step 5:** Type ‘send an email (V2)’ in the search bar and click the first option under Office 365 Outlook

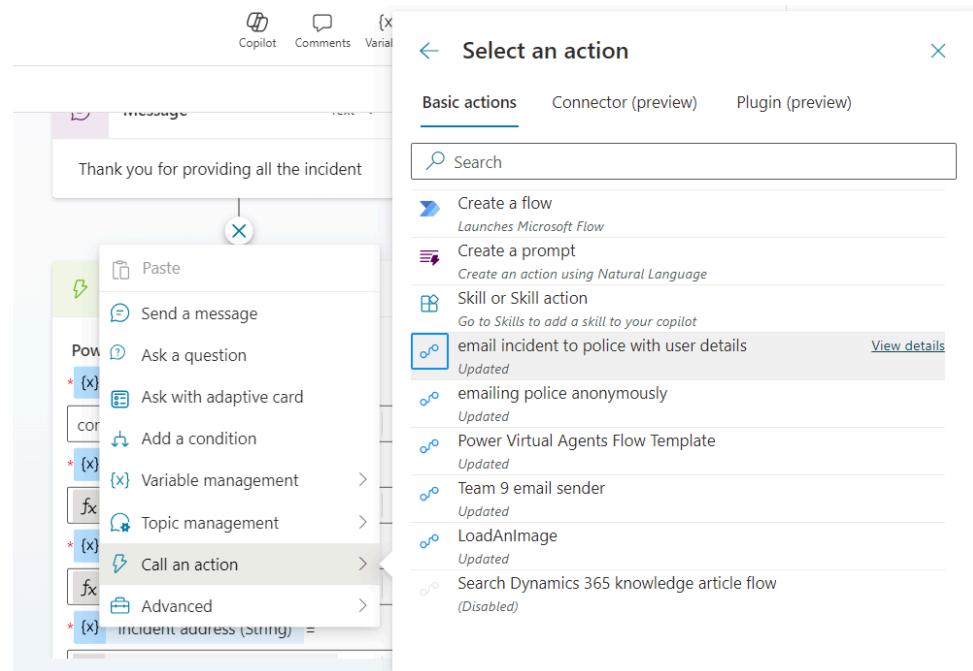
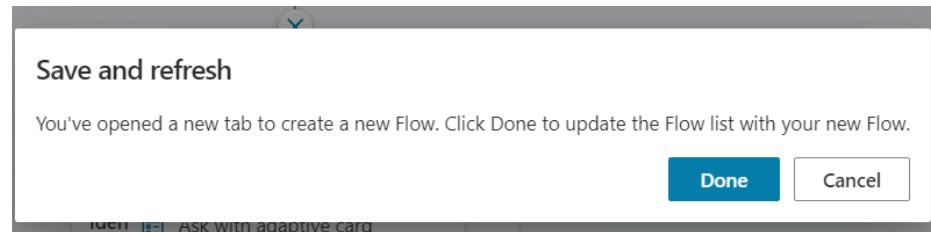
- **Step 6:** Fill out the following details below where you put the input parameters as the user response as well as the recipient’s email. To do so, click the lightning button for the ‘body’ and ‘To’ section of the email and scroll down to find the input parameter.



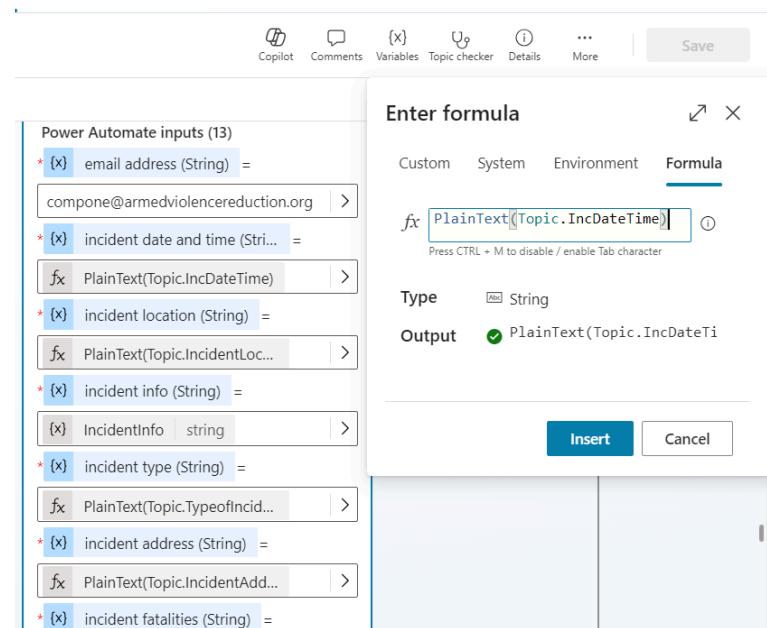
- **Step 7:** Finally, click on the ‘Return value(s) to Power Virtual Agents’ node and add an output parameter by performing the similar process described in step 3.



- **Step 8:** Go back to copilot studios and click ‘Done’ and create a new node that calls an action after the summary of the incident report, and search for the action flow that you recently made using Power Automate.



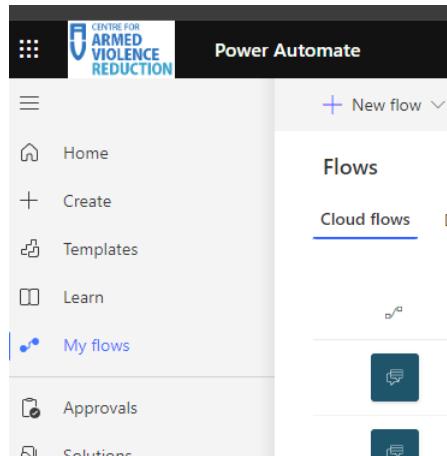
- **Step 9:** Insert the email of the local police you would like the report to be forwarded to as shown below as well as the different variables that store the key information about the incident as the input parameters for the email.



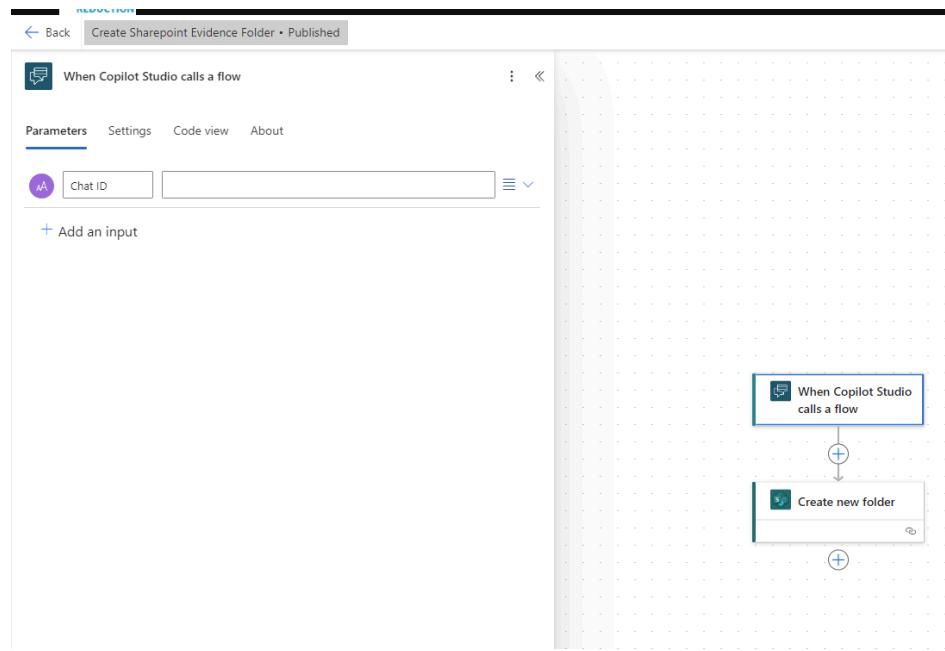
- **Step 10:** Once you have finished editing your topic, click ‘Save’ on the top right corner to save your changes.

### 7.3.1.5. Creating other flows with Power Automate

- **Step 1:** Login to <https://make.powerautomate.com/>
- **Step 2:** Navigate to “My Flows”



- **Step 3:** Click “New Flow” > select from available options generally “instant flow” is used for Copilot flows
- **Step 4:** Create inputs (if required) that will be used for the flow, adding inputs here allows Copilot studio to assign variables to each input which can then be used within Power Automate, essentially it allows you to export variables from Copilot Studio to Power Automate.
- **Step 5:** Use the inputs from Copilot studio and the available functions in Power Automate to create thousands of possible data integrations and data processing flows. For example, our team has created a flow to create a folder within Sharepoint that correlates with the unique conversation ID generated for each Copilot Virtual Agent chat that is started.



## Overview of flow

**Create new folder**

**Parameters** **Settings** **Code view** **Testing** **About**

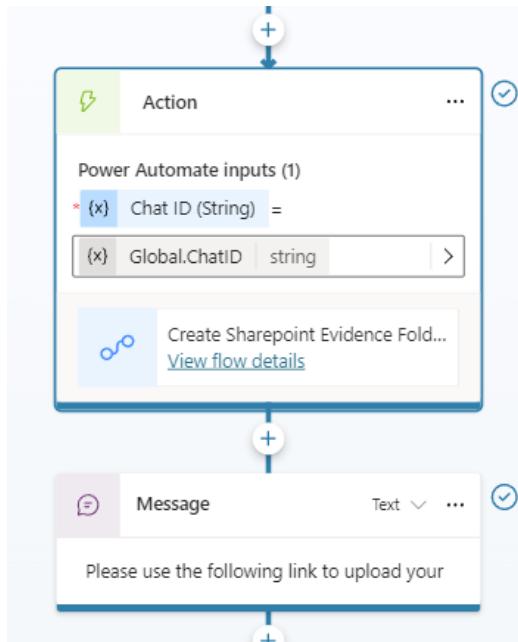
**Site Address \***: Public Upload - <https://armedviolencereduction.sharepoint.com/sites/PublicUpload>

**List Or Library \***: Public Upload

**Folder Path \***: Chat ID

**Advanced parameters**

Create sharepoint folder named after unique Chat/Conversation ID function.



Copilot Studio nodes that provide the unique conversation ID to power automate to create the relevant sharepoint folder for the current conversation/chat.

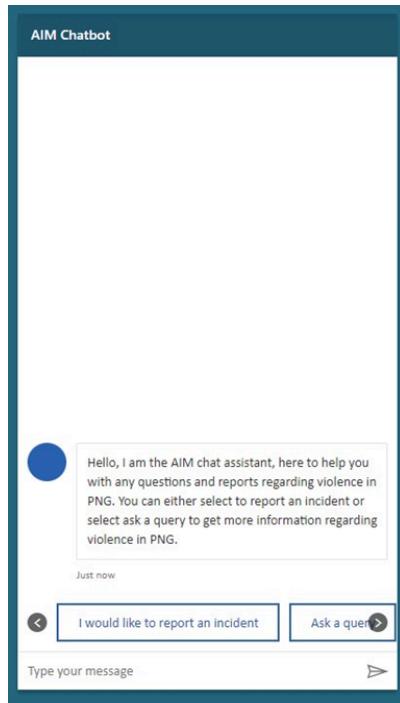
### Step 6: Use Microsoft's list of existing integrations within Power Automate for easy data integration and processing

Microsoft Dataverse Premium	Microsoft Dataverse Premium	Power BI
Microsoft Forms	Microsoft Teams	When a data driven alert is triggered <span style="float: right;">Trigger</span>
Microsoft Teams	MSN Weather	Add a note to a check-in <span style="float: right;">Preview</span>
Notifications	Office 365 Outlook	Add rows to a dataset <span style="float: right;">(i)</span>
Office 365 Users	OneDrive	Create a check-in <span style="float: right;">Preview</span>
OneDrive for Business	OneDrive for Business	Create a goal <span style="float: right;">Preview</span>
OneNote (Business)	Outlook.com	Create a scorecard <span style="float: right;">Preview</span>
Planner	Power BI	Export To File for Paginated Reports <span style="float: right;">(i)</span>
		Export To File for Power BI Reports <span style="float: right;">(i)</span>
		Get a goal <span style="float: right;">Preview</span>
		Get a goal check-in <span style="float: right;">Preview</span>
		Get goal check-ins <span style="float: right;">Preview</span>

Example of one of the hundreds of native integrations Microsoft already has templates for. This specific example allows seamless integration with PowerBI data.

### 7.3.2. End Users

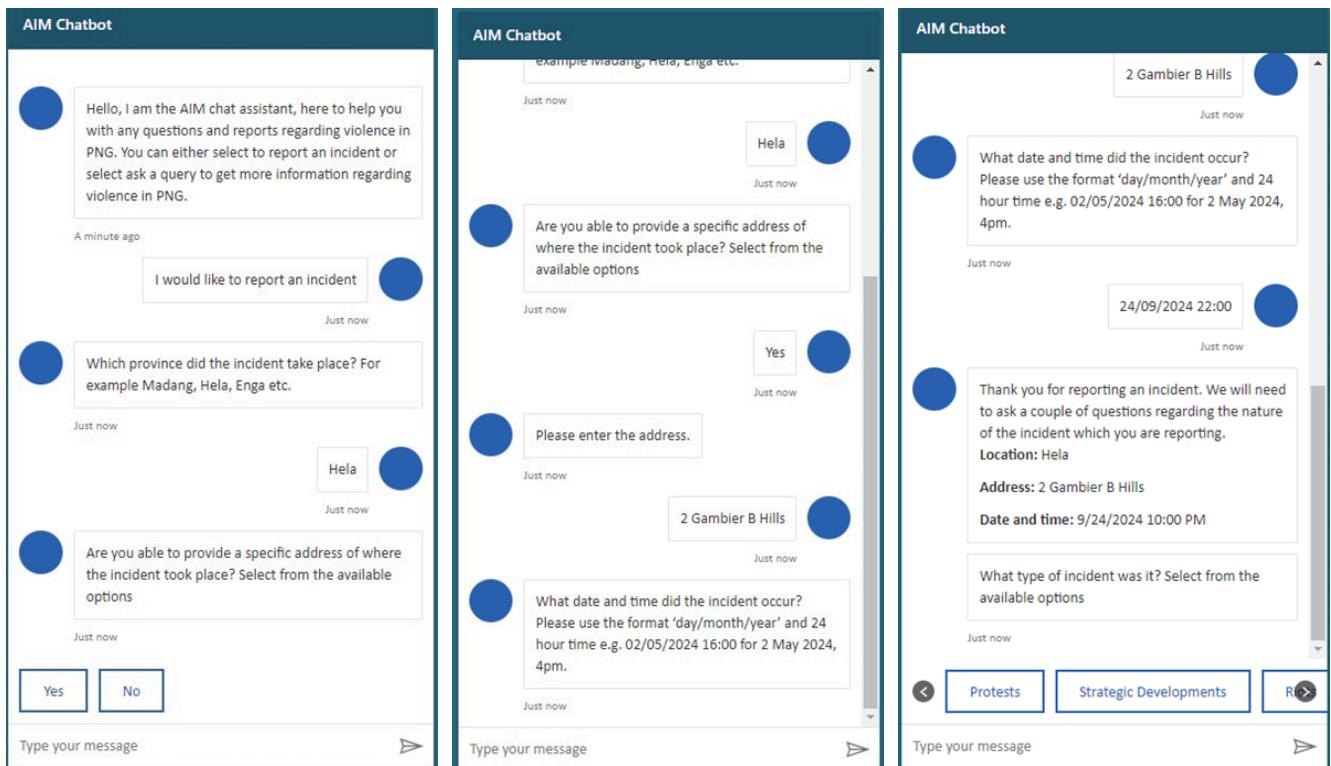
1. Open/Login to WhatsApp or launch virtual agent website using the following link:  
[https://copilotstudio.microsoft.com/environments/Default-70ce6364-4f89-42dc-ab2d-30a1e2bf3d48/bots/cr1e8\\_copilot/canvas?\\_\\_version\\_\\_=2&enableFileAttachment=false](https://copilotstudio.microsoft.com/environments/Default-70ce6364-4f89-42dc-ab2d-30a1e2bf3d48/bots/cr1e8_copilot/canvas?__version__=2&enableFileAttachment=false)
2. Add AIM Virtual Agent as a connection on WhatsApp or Messenger (number/contact will be provided once generated)
3. Initiate Conversation:  
The system greets the user with a welcome message stating its purpose, and the user is presented with the following options:
  - Report an incident (button).
  - Ask a query (button).
  - Rate your experience (button):.



#### A. Report an Incident:

- User opts to report an incident:
- The user will then be given a series of questions for the purpose of gathering important information about the violent crime being reported. These will be offered in either the form of yes/no prompts or text responses.
- Once all questions have been responded to accordingly, the ChatBot will send a final prompt as to whether the user would like to report another incident or ask any questions relating to violence in PNG

- Demo conversation flow is shown below



The virtual agent will prompt for each of the following possible questions in the provided order:

1. In what province did the incident take place?
2. Are you able to provide a specific address of where the incident took place (yes or no button and then enter address if yes selection is asked.)
3. What date and time did the incident occur (in day/month/year , 24hr format)
4. What type of incident was it? (Button Options: Protests, strategic developments, riots, violence against civilians, battles).
5. Provide more details as to what happened, who was involved and how it happened. (Raw text input from user)
6. Did people die from the incident? (yes or no button and then enter number of deaths if yes is selected).
7. Was anyone injured from the incident (yes or no button and then enter number of injuries if yes is selected).
8. Choice to enter witness details (name and contact information including mobile number and email address).
9. Summary of incident report is detailed and provided back to the user as a text box.

10. Users are prompted if they would like to report another incident or ask any questions about violence in PNG.
11. In the backend the report is then emailed to stakeholders, users have no impact on this automated flow.

#### B. Ask a query:

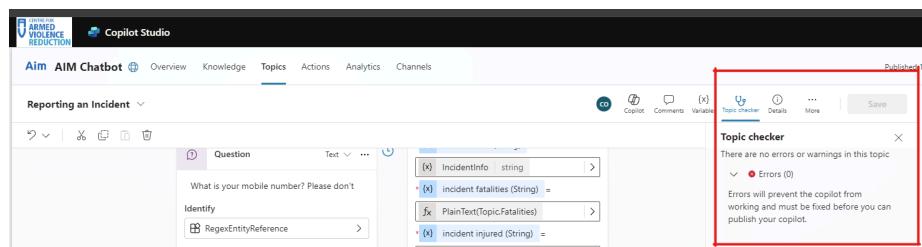
- After clicking the button, the user is prompted to ask a question. The user is able to ask questions regarding violence in PNG where the Virtual Agent will attempt to answer the question.
- The Virtual Agent will use its extensive knowledge base to provide answers to users and will reference any data that it has used/sourced in its response

#### C. Rate your experience:

- After their conversation, the user is given the option to give a rating on their experience.
- If the user chooses to give a rating, they can select a rating of 1-5 based on their experience.

## 7.4. Troubleshooting

When an end user is utilising the chatbot, issues could occur if the users' input is undetermined or irrelevant. In order to address this concern, the chatbot is programmed to respond to irrelevant inputs by repeating its last question. For example, if an end-user were to report a crime in an area that is not part of Papua New Guinea, the chatbot will repeat the question as the input is not relevant to violent crime in Papua New Guinea. A useful tool for admins is available to troubleshoot topics within the copilot itself (this is the main method of setting up how the agent interacts with users), this troubleshooting tool is called "Topic Checker". The tool allows admins to check a topic for any errors, missing variables, redundancies and more and it will warn an admin before publishing their copilot if anything is detected.



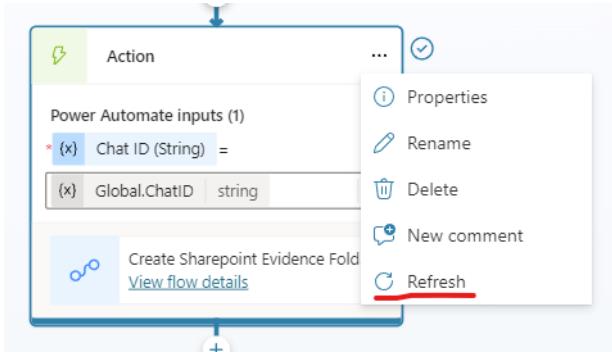
*Topic Checker tool in Copilot Studio.*

Microsoft also provides extensive documentation on all of their applications including Copilot Studio and Power Automate (which are the 2 main apps we have used), any errors we have received have most often been resolved by referring to Microsoft documentation on the

topic. The following link provides an overview of all microsoft documentation segmented by their different apps and products and will prove to be very useful if any errors are encountered: <https://learn.microsoft.com/en-us/docs/>.

Other common tips while troubleshooting:

1. Ensure a stable internet connection is established
2. Ensure all apps are up to date (ie WhatsApp, Messenger, Chrome, Edge or other browser)
3. Ensure all devices themselves are up to date, i.e. mobile phones have the latest possible version of Android or iOS and computers have the latest possible version of Windows or MacOS.
4. If all else fails, please restart the device or if required, reinstall the current app being used to access the Copilot Virtual Agent.
5. *For admins:* Ensure all changes are saved to both the Copilot being test AND any Power Automate flows being used. Sometimes Power Automate flows need to be refreshed if both Copilot Studio and Power Automate are being worked on at the same time. In this case, click on the 3 dots in the top right corner of a Node within Copilot Studio and click "Refresh"



## 7.5. Frequently Asked Questions

- **Is the chatbot service available 24 hours a day?**  
Yes, the chatbot service is available to be used 24/7.
- **Can I submit an anonymous report?**  
Yes, as detailed above, during the reporting process you will have the option to remain anonymous by choosing not to provide your personal information.
- **Is WhatsApp/Messenger a secure platform?**

WhatsApp employs end-to-end encryption to protect messages and calls, ensuring that only you and the person/agent you're communicating with can access them. This means that even WhatsApp cannot read or listen to these exchanges.

- **Does WhatsApp/Messenger work on tablets?**

WhatsApp and Messenger are designed primarily for use on mobile phones, but it can be used on tablets as well with some possible limitations. For the best experience we recommend sticking to apps provided on mobile phones (ie on iOS and Android)

- **Can I use WhatsApp/Messenger on multiple devices?**

WhatsApp and Messenger are primarily designed for use on a single mobile device. However, both can be used on multiple devices through the web or desktop app. For the best experience we recommend using the Virtual Agent on one device at a time for the smoothest experience.

- **Can the chatbot provide immediate assistance to danger?**

No. If you or any others are in a dangerous situation, please contact emergency services immediately.

- **Do I have to enter my personal details?**

No you do not. You have the option to remain anonymous if you choose to do so.