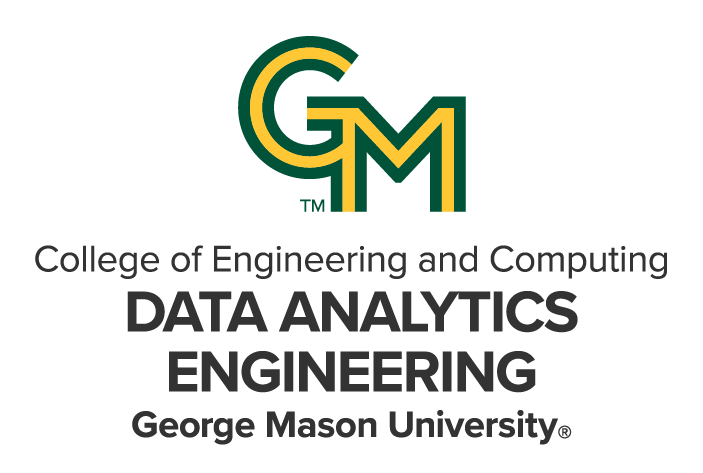
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DAEN 690

Project Report

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Spring 2025

Proposal Helper: Intelligent Proposal Generator

**About the Cover**

This semester, the DAEN program is proud to spotlight one of our esteemed capstone partners, Daniel Erasmus—a visionary whose groundbreaking work influences leaders worldwide. As the founder and CEO of Erasmus.AI, Daniel is a renowned futurist and a pioneer in scenario planning, artificial intelligence, and strategic foresight. His innovative approach to blending AI with human-centric decision-making has profoundly shaped global conversations on technology, sustainability, and future-readiness. Through his thought leadership, Daniel continues to inspire organizations across the globe to embrace change and build resilient futures.

At Erasmus.AI, Daniel conceived and led the development of ClimateGPT—the world’s first foundational AI model family focused on climate change. Built on over a decade of collecting and processing planetary-scale datasets, this groundbreaking innovation leverages AI to uncover hidden connections in global news, from Human-Centered Extreme Weather Dashboards to maps of global innovations, risks, and breakthroughs. The Erasmus.AI platform exemplifies his commitment to using technology to inform and address some of the world’s most pressing challenges.

As co-founder of The Digital Thinking Network (DTN), Daniel has spent over 25 years leading large-scale scenario planning and transformation processes. His work has driven notable actions, such as initiating a response to food security challenges during COVID-19 that delivered 1 million meals within three months and has since provided over 60 million meals in Sub-Saharan Africa. His scenario processes have also anticipated major global events, including the Global Financial Crisis in 2006 and the Oil Price Collapse in 2012—each resulting in multi-billion-dollar benefits for his clients. In the public sector, DTN's transformative initiatives include the Rotterdam Advisory Board, which spearheaded the Rotterdam Climate Initiative in 2005 with the ambitious goal of halving CO2 emissions by 2025, and the creation of the 30-year global future scenarios Ci’Num.

An accomplished author, Daniel has written three books on innovation and the networked society, as well as numerous columns, including the Information Society column for the Financial Times Review. He has also held various prominent board positions and fellowships, including serving on the University of Stellenbosch’s Faculty of Science Advisory Board, Cambridge-based Titan Advanced Energy Solutions, and the supervisory board of the Quad9 Foundation. Through his visionary leadership, Daniel continues to shape the future across disciplines and industries.

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Abstract

Abstract

**INSTRUCTIONS**

[NOTE: The project abstract is a separately graded assignment in the course. The final approved project abstract is to be copied word-for-word from the other assignment into this report.]

Write one paragraph of no more than 300 words that summarizes your project. Here are the typical kinds of information found in most abstracts which you should use as an outline as you develop your abstract.

The order of the first four items may be changed, if doing so helps you tell a better story. The other items must occur in the order you see below. One or two sentences of each item of information should suffice, except for #6 which might have 3-4 sentences.

1. The context or background information for your research; the general topic under study; the specific topic of your research.
2. The central questions or statement of the problem your research addresses.
3. What’s already known about this question, what previous research was conducted or shown.
4. The main reason(s), the exigency, the rationale, the goals for your research — why is it important to address these questions? Are you, for example, examining a new topic? Why is that topic worth examining? Are you filling a gap in previous research? Applying new methods to take a fresh look at existing ideas or data? Resolving a dispute within the literature in your field?
5. Your methods: How did you collect and analyze your data? (Or another question more appropriate to the project).
6. Your main findings, results, or arguments.
7. The significance or implications of your findings or arguments.

Your abstract should be intelligible on its own, without a reader’s having to read your entire paper.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

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Report

# Introduction

## Report Purpose

This report introduces an enhanced solution for Allwyn Corporation to improve their proposal development method, which demands lengthy manual hours to gather historic data and case studies. To solve this problem, we propose an automated Generative AI Retrieval-Augmented Generation (RAG) chatbot system that retrieves data automatically, allowing users to quickly access past proposals and performance statistics. In this study, the implementation of a scalable, serverless chatbot that makes use of Amazon Web Services (AWS) to accomplish these goals is described in detail, as are the efforts that were made to achieve them. The main purpose of this study is to reduce the extensive manual effort made to retrieve past performance data and proposals.

## Report Readership

This report is meant for the management team at Allwyn Corporation, more especially the people in charge of the project who will be making decisions on technological solutions, developing the business, and generating proposals. Team members in charge of IT and development inside the organization who may be responsible for implementing the RAG solution driven by AI will also find this report useful. Critical insights into the problems with the present proposal’s creation process and how to adopt the newly created solution to improve accuracy and efficiency are provided in the report.

We hope that by reading this report, you will have a better grasp of the project's technical details, such as how we used RAG and AWS services to generate proposals. Evaluation of the solution's effect on proposal quality, turnaround time, and resource allocation will be done by the management team using the report. Also, the technical documentation will be used by the development and IT teams to make sure the system is scalable, easy to install, and maintained in the long run.

## Report Structure

This report is structured to first provide an overview of the current proposal development process at Allwyn Corporation, highlighting the challenges of manual data retrieval in the Introduction. The Problem Definition section delves deeper into the inefficiencies of gathering historical data and case studies. The Solution Overview introduces an automated Generative AI RAG chatbot system integrated with AWS Lex and Lambda to streamline data retrieval. The System Design and Architecture section outlines the technical components and structure of the proposed solution, followed by the Implementation and Workflow section, which explains the step-by-step process of using the system. In the Results and Performance Evaluation section, the effectiveness of the solution is assessed by comparing manual and automated processes. The Discussion reflects on the system’s impact, challenges faced, and potential solutions. Finally, the Conclusion summarizes the key findings, while the Future Work section suggests directions for further improvements and enhancements.

# Problem Definition

## Problem Space

**REPORT SECTION INSTRUCTIONS**

This section describes the specific problem that you will attempt to solve completely or part of the problem. Note well that most project scope their solutions to a part of the problem space. Poor project teams usually fail to understand the problem and our eager to start implementing a solution to what they think is the problem. Most problems a very large and understanding the size of the problem mitigates the risk of foolhardy attempts that usually fail.

Even with a well-defined sponsored project that may be scoped it is critical to provide the reader with the whole problem space in a concise a terse description, while providing the reader with a map of what part of the problem you are going to solve. This should allow the team to write the project extensions in the section 7 (Future Work). This is actually a lie since the team will discover many new path and areas of the problem space while working on the project.

Consider The GMU Writing Center quick guide on writing Problem Proposals which has a section on writing a problem description. <https://writingcenter.gmu.edu/writing-resources/different-genres/problem-proposals>

This section should be about 2 pages and should show that the team understands the breadth and dept of the problem space.

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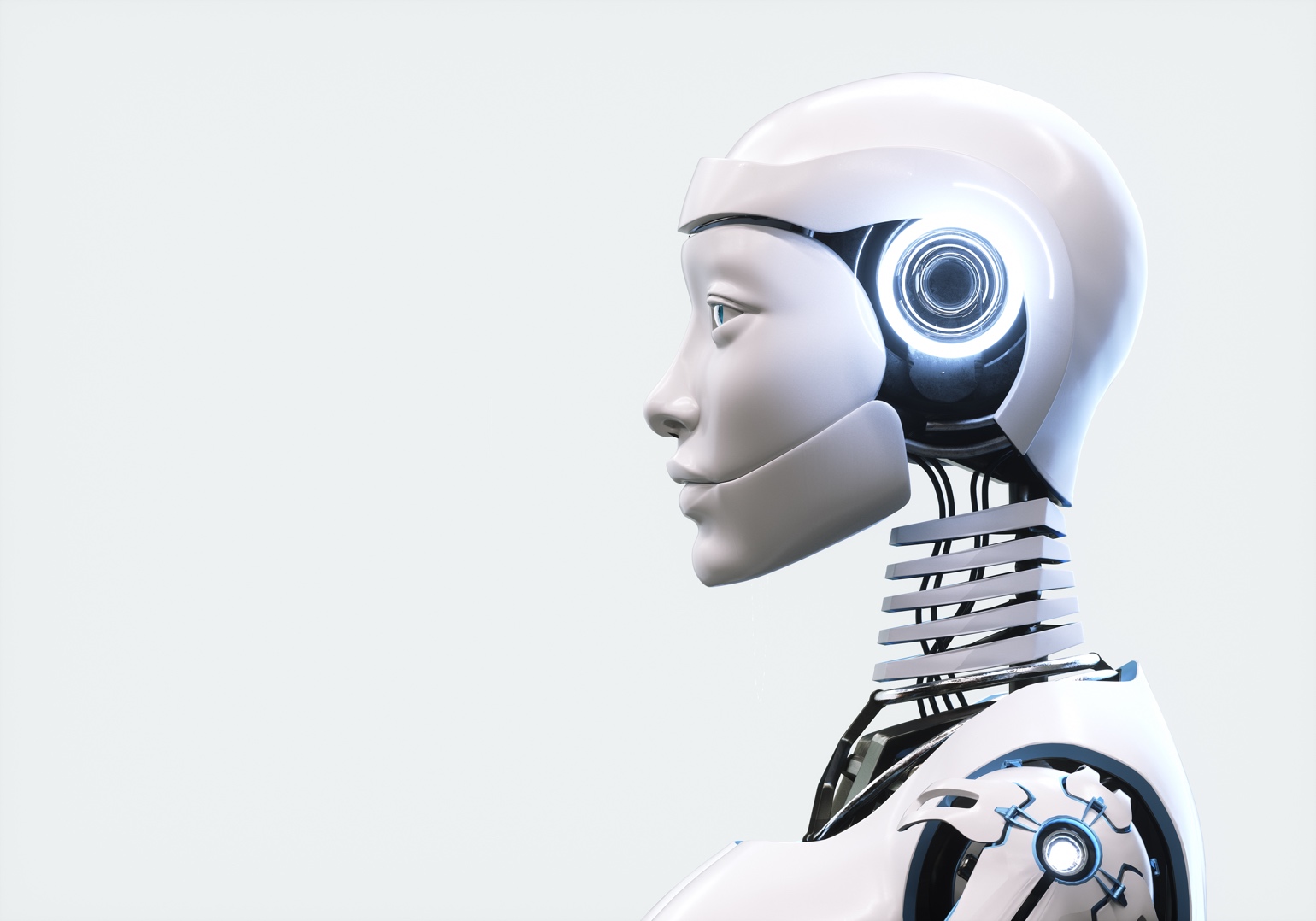


Figure : ChatGPT is the latest Natural Language Processing tool for Data Analytics.

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Figure : Data Analytics Engineering has the power to be transformative for an organization.

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## Research

**REPORT SECTION INSTRUCTIONS**

This section documents the research the team performed while either developing the solution or attempting to understand a solution path provided by the sponsor.

Consider how to organize your research:

* Chronologically (“First we…”)
* Type of Source (Reading, internet search, interview, etc.)
* By Theme (As a literature review is typically organized)

This should be a summary of readings, Internet searches, collaborations, etc. Length of this section can vary but usually around 2-3 pages

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Solution Space

**REPORT SECTION INSTRUCTIONS**

Describe your solution approach. High level and provides your reader with an idea of approach.

Describe the solution space for the reader. For example: “Our system delivers value to its users when it accurately reports veracity scores for submitted articles. Users derive value from these scores when they feel more confident in their chosen news sources or avoid being misled when presented with fake news. We expect our system can help steer users to more authoritative news outlets by altering browsing behaviors.”

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Project Objectives

**REPORT SECTION INSTRUCTIONS**

Answer the following questions regarding the project objectives.

1. What does the team assume it will learn after finishing this project?
2. What does the team assume they will achieve as a solution when they finish this project?
3. What does the team assume it will achieve in terms of understanding about the problem after they finish this project?
4. What does the team assume it will provide in value as a product of this project work to the world, targeted group, etc.?

The above questions about the project objectives can be used to develop the primary user stories in section 1.6.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Primary User Stories

**REPORT SECTION INSTRUCTIONS**

This story, or stories, explicitly state what the project is attempting to address written as a narrative (not just a single sentence “User Story”). For example:

*Based on the user context and value proposition, we developed the following primary user story to guide our project.*

*“As a User, I want to submit an article to the Veracity System and receive a veracity score to know how much to trust a particular news article.”*

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Product Vision

**REPORT SECTION INSTRUCTIONS**

This section describes scenarios for why someone would want to use this solution.

* For:
* Who:
* The:
* Is a:
* That:
* Unlike:
* Our product:
* Caveats:

Provide at least two scenarios below for the project.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

### Scenario #1

### Scenario #2

# Datasets

## Overview

**REPORT SECTION INSTRUCTIONS**

Provide a descriptive overview of your datasets.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Field Descriptions

**REPORT SECTION INSTRUCTIONS**

This section describes your dataset fields. Make sure you study the example below and you will more than likely expand these fields:

1. URL (Type: string) – The web address or Universal Resource Locator for the webpage that contained the news article. This includes the protocol (http or https), host name, and subdomain. Some URLs also include parameters (text following ‘?’) or named anchors (text following a ‘#’). Each URL can only be present once in the database, even if the webpage is not static over time.
2. Title (Type: string) – The title of the news article as parsed by the Newspaper 3K module. This field may be null (~150 articles in our dataset do not have titles).
3. Authors (Type: string) –The authors of the news article as parsed by the Newspaper 3K module. This field may be null (~23,000 articles do not have authors) and articles with multiple authors have their names joined with a comma into a single string. This field may also pick up descriptions of the author, including their titles and background.
4. Publication Date (Type: datetime) – The article publication date and time as parsed by the Newspaper 3K module. The datetime is displayed in ISO 8601 format (YYYY-MM-DD Thh:mm:ss+offset). Publish dates without specified times are assumed to be published at midnight. Publication dates with time information, but without a time zone listing, are assumed to be in Eastern Standard Time. This field is not allowed to be null.
5. Text (Type: string) – The text of an article as parsed by Newspaper 3K. This field may be null (~8,000 articles do not have text) as some news stories are delivered as only video, audio, or a picture. The mean word count for text is 538.9 across all news sources.
6. Tags (Type: string) – Article tags as determined by Newspaper 3K. These appear to be important (rare or “topicy”) words taken from the article text, not meta tags contained in the article’s HTML. Multiple tags are concatenated with a comma into a single string.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Data Context

**REPORT SECTION INSTRUCTIONS**

Provide a description of the data context.

Data context is the set of circumstances that surround a collection of data. Capturing and interpreting context is a basic step in data analysis. Use of out-of-context data is a common source of errors in scientific research, business decisions, and professional advice.

In business analytics (BA), gathering context from external sources can provide useful information about events that have significance for the organization. Context for an unexplained surge in sales, for example, could be provided by pulling in data from news and social media as well as less obvious sources, such as weather over that period. Explored in context, it may be able to identify external causes for the increase, and that information might be used to guide future business decisions.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Data Conditioning

**REPORT SECTION INSTRUCTIONS**

Describe the data conditioning required for each data set.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Data Quality Assessment

**REPORT SECTION INSTRUCTIONS**

At a minimum you must assess your data sets with the following attributes:

* Completeness
* Uniqueness
* Accuracy
* Atomicity
* Conformity
* Overall Quality

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Other Data Sources

**REPORT SECTION INSTRUCTIONS**

If you have evaluated other data sources but chose not to use them, please explain why they were excluded.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Storage Medium

**REPORT SECTION INSTRUCTIONS**

Discuss the storage medium selected for the project data set storage.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Storage Security

**REPORT SECTION INSTRUCTIONS**

Discuss the storage security required for the project data set storage.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Storage Costs

**REPORT SECTION INSTRUCTIONS**

Discuss storage costs associated with the storage medium used for the project data set storage.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

# Select Section Title Based on Project Type

**REPORT SECTION INSTRUCTIONS**

**Adjust the title to this section to match the type of project the team is working on this semester**!

* Section 4: Algorithms and Analysis, [Analytics Project]
* Section 4: Machine Learning Model Exploration and Selection [Machine Learning project]
* Section 4: Implementation [DevSecOps or MLOps project]

If the type of data analytics project doesn’t neatly fit into the above categories, then discuss it with your instructor to come up with a section title which is appropriate for the type of work being performed during Sprint 3.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

**REPORT SECTION INSTRUCTIONS**

Not every subsection in Section 4 is relevant to every type of project. Select the subsections which apply to the type of project you are working on this semester. Add new subsections as necessary to address other relevant aspects of Sprint 3 for your project. Deleting the unnecessary subsections will automatically renumber the subsections.

* 4.1 Algorithms and Analysis, [Analytics Project]
* 4.2 Machine Learning Model Exploration and Selection [Machine Learning project]
* 4.3 Solution Approach [DevSecOps or MLOps projects]

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Algorithms and Analysis

**REPORT SECTION INSTRUCTIONS**

For analysis projects discuss algorithms and analysis performed on the data.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

### Algorithms

### Analysis

## Machine Learning Model Exploration and Selection

**REPORT SECTION INSTRUCTIONS**

For machine learning projects discuss the model exploration and selection process.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

### Model Exploration

### Model Selection

## Solution Approach

**REPORT SECTION INSTRUCTIONS**

For DevSecOps and MLOps projects discuss the solution approach and systems architecture.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

### Systems Architecture

### Systems Security

### Systems Data Flows

# Select Section Title Based on Project Type

**REPORT SECTION INSTRUCTIONS**

**Adjust the title to this section to match the type of project the team is working on this semester**!

* Section 5: Visualizations, [Analytics Project]
* Section 5: Machine Learning Model Training, Evaluation, and Validation [Machine Learning project]
* Section 5: Testing and Validation [DevSecOps or MLOps project]

If the type of data analytics project doesn’t neatly fit into the above categories, then discuss it with your instructor to come up with a section title which is appropriate for the type of work being performed during Sprint 4.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

**REPORT SECTION INSTRUCTIONS**

Not every subsection in Section 4 is relevant to every type of project. Select the subsections which apply to the type of project you are working on this semester. Add new subsections as necessary to address other relevant aspects of Sprint 3 for your project. Deleting the unnecessary subsections will automatically renumber the subsections.

* 5.1 Visualizations, [Analytics Project]
* 5.2 Machine Learning Model Training, Evaluation, and Validation [Machine Learning project]
* 5.3 Solution Approach [DevSecOps or MLOps projects]

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

## Visualizations

**REPORT SECTION INSTRUCTIONS**

For analysis projects provide the visualizations produced and their respective interpretation.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

### Visualizations and Interpretations

## Machine Learning Model Training, Evaluation, and Validation

**REPORT SECTION INSTRUCTIONS**

**For Machine Learning projects**, discuss your approach to the following with respect to the ML Model:

1. Training,
2. Evaluation, and
3. Validation of the ML Model.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

### Model Training

### Model Evaluation

### Model Validation

## Testing and Validation

**REPORT SECTION INSTRUCTIONS**

For DevSecOps and MLOps projects discuss the solution approach and systems architecture.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

### Testing

### Validation

# Findings

**REPORT SECTION INSTRUCTIONS**

Discuss the major findings of the project.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

# Summary

**REPORT SECTION INSTRUCTIONS**

Summarize the overall project and results for the reader. What did you discover, prove, disprove, etc.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

# Future Work

**REPORT SECTION INSTRUCTIONS**

This is critical section of the report. Propose future follow-on work or next step(s) for the project.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

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Appendix

Appendix A: Domain Background

**REPORT SECTION INSTRUCTIONS**

This section provides 4-5 pages of content for the reader with enough background information about the problem context that allows the paper to be standalone. In other words, assume the reader does not have a background for your project problem and you provide enough content in this section so the reader at a minimum can understand the problem space that you are going to discuss later. Terminology is important and guiding. For example, attempt to minimize the domain vocabulary and when introducing new terms make sure at a minimum, they are defined in Appendix B: Glossary.

Utilize figures, pictures, and tables since visualization are processed faster by the mind.

All references throughout the report follow the IEEE Citation Style.

**DELETE THIS TEXT BOX AFTER YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS.**

Appendix B: Glossary

Table : Glossary Table

|  |  |
| --- | --- |
| **Term** | **Definition** |
| **Retrieval-Augmented Generation (RAG)** | A machine learning approach that combines **retrieval-based** and **generative models** to fetch relevant external knowledge and generate informed responses. |
| **Generative AI** | A type of artificial intelligence that can generate text, images, or other content based on patterns learned from data. |
| **AWS QnABot** | An **AWS-based chatbot solution** that integrates **Amazon Lex, Lambda, DynamoDB, and Elasticsearch** to create conversational AI interfaces. |
| **Amazon Lex** | A conversational AI service in AWS that enables the development of chatbots with automatic speech recognition (ASR) and natural language understanding (NLU). |
| **AWS Lambda** | A serverless computer service that runs code in response to events, used for processing chatbot requests in **QnABot architecture**. |
| **Amazon DynamoDB** | A NoSQL database service in AWS used for storing chatbot-related data, including **conversation history and responses**. |
| **Amazon Elasticsearch** | A search engine service in AWS is used for indexing and retrieving **documents, past performance records, and case studies** in the chatbot system. |
| **Prompt Engineering** | The practice of designing and refining **text inputs (prompts)** to optimize the behavior of **large language models (LLMs)** such as Anthropic Claude. |
| **Anthropic Claude** | A generative AI model developed by Anthropic, designed for safe and interpretable AI-powered conversations and automation. |
| **Role Prompting** | A technique in AI where the model is given a **specific role** (e.g., proposal writer) to shape its responses according to that context. |
| **Proposal Automation** | The process of using **AI and automation tools** to generate business proposals by leveraging structured data and predefined templates. |
| **Knowledge Base** | A structured repository of **past performance records, case studies, and proposal templates** that the chatbot can retrieve information from. |
| **Authentication System** | A security mechanism ensures that only authorized users can access **the chatbot and proposal generation features**. |
| **AI-Powered Document Generation** | The use of artificial intelligence to automatically generate structured documents such as proposals, reports, and summaries. |
| **Data Security and Compliance** | The measures are taken to protect **sensitive corporate data** and ensure compliance with regulations like **GDPR and CCPA**. |
| **Capstone Project** | A graduate-level academic project that requires students to work on **real-world problems**, applying their technical knowledge to deliver a solution. |
| **Intellectual Property (IP)** | Proprietary information and assets owned by Allwyn Corporation, including **past performance databases, proposal templates, and case study repositories**. |
| **Sprint** | A fixed time period in Agile methodology (e.g., 2 weeks) during which specific project tasks and deliverables are completed. |
| **Stakeholders** | Individuals or entities with a vested interest in the project, including **team members, Allwyn Corp representatives, and academic advisors**. |
| **CloudFormation Template** | An AWS tool that automates the provision of infrastructure resources for deploying **QnABot and its components**. |
| **Chatbot Web Interface** | The user-facing component of the chatbot where users interact, input queries, and receive responses. |
| **Knowledge-Sharing Session** | A team meeting dedicated to presenting **research findings, project updates, and technical learnings** to ensure all members are aligned. |

Appendix C: GitHub Repository

Overview

This section is a showcase of our GitHub repository. This repository will cover all the relevant code, research, reports and slides. Also, since we are an Agile Scrum project, this repository will be updated in real time.

README.md Content

This report introduces an enhanced solution for Allwyn Corporation to improve their proposal development method, which demands lengthy manual hours to gather historic data and case studies. To solve this problem, we propose an automated Generative AI Retrieval-Augmented Generation (RAG) chatbot system that retrieves data automatically, allowing users to quickly access past proposals and performance statistics. In this study, the implementation of a scalable, serverless chatbot that makes use of Amazon Web Services (AWS) to accomplish these goals is described in detail, as are the efforts that were made to achieve them. The main purpose of this study is to reduce the extensive manual effort made to retrieve past performance data and proposals.

GitHub Repository Link

<https://github.com/iamhenryhe/DAEN690_Project/tree/main>

GitHub Repository Contents

The repository contains the following key components:

* **Report:** A comprehensive report detailing the project's issue, approach, outcomes, and conclusions.
* **Research:** Reviews of relevant technical studies on RAG and generative AI models included here.
* **Weekly Slides:** Weekly updates and summaries offered, including both successes and setbacks.
* **README.md:** An overview document detailing the project, its installation, and how to use it.

Appendix D: Risks

Sprint 1 Risks

Table : Sprint 1 Risks

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| **Risk** | **Description** | **Probability** | **Impact** | **Mitigation** |
| Access to Allwyn test files | Gaining access in time to the sample set of documents in Allwyn’s SharePoint Repository to allow us to do the planned work in this sprint. We can’t move forward without access to the SharePoint and files. | Low | High | We will communicate with Allwyn’s CTO and Intern to work through gaining access and will keep our professor informed. Our professor will be able to work with Allwyn to resolve the issue or change our overall project objective if necessary. |
| Access to AWS services account | Kendra and Bedrock are expected to be important elements of our technical solution. If we can’t gain access to this sprint, we will not be in position to start doing work with them next spring and this will delay our progress. | Low | High | We will communicate with our professor to understand where we are along the path to gaining access and he will be able to help us resolve access issue. |
| Connecting Kendra to Allwyn’s SharePoint | None of us have worked with these systems before and we may not be successful in learning how to make them work. | Medium | High | We will aggressively pursue learning from available web sources and will communicate with our professor if we’re blocked. He will be able to get technical support from AWS to help us resolve real blockers. |
| Organizing the team to work effectively | We are all new to Scrum and the Product Owner and Scrum Master are inexperienced in these roles | High | Low | The project is small enough that we could fall back to less organized methods and still be successful, however we want to use the system and will have internal team training sessions to normalize expected behavior and activities. We will also find more training resources if necessary. |

Sprint 2 Risks

**REPORT SECTION INSTRUCTIONS**

Include the risk table associated with the Sprint. Below the risk table provide a narrative description of how the risks and mitigation plans were identified, what the team got correct, what the team could have done differently, how accurate was the team in identifying the risks, did the team encounter any unanticipated risks, etc. Think of this writeup as a “lessons learned” that you would like to pass along to any project team thinking of doing a similar project.

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Table : Sprint 2 Risks

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Sprint 3 Risks

**REPORT SECTION INSTRUCTIONS**

Include the risk table associated with the Sprint. Below the risk table provide a narrative description of how the risks and mitigation plans were identified, what the team got correct, what the team could have done differently, how accurate was the team in identifying the risks, did the team encounter any unanticipated risks, etc. Think of this writeup as a “lessons learned” that you would like to pass along to any project team thinking of doing a similar project.

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Sprint 4 Risks

**REPORT SECTION INSTRUCTIONS**

Include the risk table associated with the Sprint. Below the risk table provide a narrative description of how the risks and mitigation plans were identified, what the team got correct, what the team could have done differently, how accurate was the team in identifying the risks, did the team encounter any unanticipated risks, etc. Think of this writeup as a “lessons learned” that you would like to pass along to any project team thinking of doing a similar project.

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Sprint 5 Risks

**REPORT SECTION INSTRUCTIONS**

Include the risk table associated with the Sprint. Below the risk table provide a narrative description of how the risks and mitigation plans were identified, what the team got correct, what the team could have done differently, how accurate was the team in identifying the risks, did the team encounter any unanticipated risks, etc. Think of this writeup as a “lessons learned” that you would like to pass along to any project team thinking of doing a similar project.

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Table : Sprint 5 Risks

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Appendix E: Agile Development

Scrum Framework Team Approach

**REPORT SECTION INSTRUCTIONS**

Provide a narrative of the team efforts in adapting a scrum framework for a data analytics engineering project. Describe how easy/difficult was it to adapt to the Scrum framework. Did the team conduct a daily standup? If not, how often did the team conduct a standup. Describe how easy/difficult it was to use the YouTrack tool to manage the project. Don’t be limited to just these questions. Think of this writeup as a “lessons learned” that you would like to pass along to any project team thinking of doing a similar project.

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Figure : Sprint project dates.

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Sprint 1 Lessons Learned

**REPORT SECTION INSTRUCTIONS**

Provide a narrative of the team’s efforts during this Sprint. Be sure to include – but not be limited to – how the team identified the User Stories, how well the team performed with the various tasks, how easy/difficult it was for the team to manage their activities during the Sprint, what did the team do correct, what could/should the team have done differently, etc. Think of this writeup as a “lessons learned” that you would like to pass along to any project team thinking of doing a similar project.

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Sprint 2 Lessons Learned

**REPORT SECTION INSTRUCTIONS**

Provide a narrative of the team’s efforts during this Sprint. Be sure to include – but not be limited to – how the team identified the User Stories, how well the team performed with the various tasks, how easy/difficult it was for the team to manage their activities during the Sprint, what did the team do correct, what could/should the team have done differently, etc. Think of this writeup as a “lessons learned” that you would like to pass along to any project team thinking of doing a similar project.

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Sprint 3 Lessons Learned

**INSTRUCTIONS**

Provide a narrative of the team’s efforts during this Sprint. Be sure to include – but not be limited to – how the team identified the User Stories, how well the team performed with the various tasks, how easy/difficult it was for the team to manage their activities during the Sprint, what did the team do correct, what could/should the team have done differently, etc. Think of this writeup as a “lessons learned” that you would like to pass along to any project team thinking of doing a similar project.

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Sprint 4 Lessons Learned

**REPORT SECTION INSTRUCTIONS**

Provide a narrative of the team’s efforts during this Sprint. Be sure to include – but not be limited to – how the team identified the User Stories, how well the team performed with the various tasks, how easy/difficult it was for the team to manage their activities during the Sprint, what did the team do correct, what could/should the team have done differently, etc. Think of this writeup as a “lessons learned” that you would like to pass along to any project team thinking of doing a similar project.

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Sprint 5 Lessons Learned

**REPORT SECTION INSTRUCTIONS**

Provide a narrative of the team’s efforts during this Sprint. Be sure to include – but not be limited to – how the team identified the User Stories, how well the team performed with the various tasks, how easy/difficult it was for the team to manage their activities during the Sprint, what did the team do correct, what could/should the team have done differently, etc. Think of this writeup as a “lessons learned” that you would like to pass along to any project team thinking of doing a similar project.

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