Enhancing DAEN Program Effectiveness: Analysis of Alumni Interview Feedback at George Mason University

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Abstract

The effectiveness of the DAEN program at George Mason University is critical as the department aim to provide industry-relevant education, focusing on tools, technologies, and skills that are directly applicable in professional roles. This study presents analysis of the DAEN program at the College of Computing and Engineering at George Mason University, examining industry demands and program effectiveness through comprehensive alumni feedback. The research is conducted through alumni interviews. The interviews are designed with structured qualitative and quantitative questions to evaluate various aspects of program alumni including academic profile, employment trajectories, technical skill utilization in jobs, program technical skill utilization, and program feedback. Data was collected through anonymous interview recordings in either audio or text format based on the interview platform used. Audio interview recordings were processed confidentially using AWS transcribe to generate text transcripts. The text transcripts were cleaned and extracted into columns in a CSV file using local natural language processing toolkit. The data was visualized using Tableau to identify patterns in employment outcomes, skill utilization, and areas for program enhancement. The data visualizations provide actionable insights for curriculum development and program improvements, while also offering valuable metrics for assessing the program's effectiveness in preparing graduates for industry demands. This research contributes to the broader understanding of DAEN program effectiveness.

Keywords: DAEN, Alumni, Employment, Program, Data, Analysis, Skill, Interview, Industry

Contents

List of Abbreviations

DAEN	Data Analytics Engineering
AWS	Amazon Web Services

1 Introduction

1.1 Purpose

The primary objective of this research is to evaluate the DAEN program's effectiveness through comprehensive alumni interviews. Through structured feedback obtained from program alumni, this study conducts a detailed analysis of employment outcomes and program performance metrics. These insights are instrumental in enabling the DAEN department to implement strategic enhancements to the program's curriculum development and technology integration.

1.2 Readership

The report is intended for the DAEN program academic and administrative personnel including leaderships, stackholders, and development team. The findings presented in this report will provide valuable insights for improving program effectiveness, curriculum design, and student outcomes.

1.3 Doc Structure

This report is organized into seven main sections. The Introduction establishes the research context and objectives. The Problem Statement formulates the research questions and scope. The Data section outlines the interview-based data collection methodology, data processing methodology, data quality interpretation, and interview question design. The Analysis section details the data processing pipeline and techniques employed. The Visualization section presents the derived data visualizations and their interpretations. The Findings section synthesizes key insights obtained through visualizations. Finally, the Next Steps and Lessons Learned section proposes future research directions and methodological improvements.

2 Problem Statement

2.1 Alumni Feedback

There are 13 alumni participated in the interview who graduated between year of 2019 and 2023. From the 13 alumni interviewed, the average program rating is 3.7 out of 5, the average number of jobs held after graduation is 2 jobs. Data Analyst emerges as the most prevalent job title. The most frequently used technologies are python and SQL, the most frequently used cloud platform is AWS, the most used tools are Power BI and Tableau. The common area for program improvement reported by the 13 alumni are more hands-on projects, cloud, and practical application.

2.2 Focus

The study aims to evaluate the gap between the most used skills in alumni career and the most valuable skills acquired in the program. The study also aims to identify the areas for program improvement and how well the program prepared alumni for their career.

2.3 Problem

The DAEN program faces significant challenges in evaluating program effectiveness as this represents the first systematic effort to gather alumni feedback. The absence of a centralized alumni database and limited alumni engagement mechanisms make it difficult to reach and collect comprehensive feedback from program graduates. After the alumni feedback was gathered and processed, some key problems with the program was discovered. First, the data reveals that while most alumni work with cloud platforms in their current roles, many received limited exposure to cloud technologies during their coursework. Second, there is a significant demand for hands-on projects as many alumni prefer the courseworks to be less theoretical but more practical. Additionally, alumni highlighted several emerging industry trends that should be incorporated into the curriculum, including AI Ethics, DataOps, and Machine Learning Operations, to better align with current market demands. These challenges must be addressed to maintain the program's effectiveness in preparing graduates for successful careers.

3 Data

3.1 Collection Process

The data collection process was conducted through structured interviews with DAEN program alumni. Alumni were identified and contacted through LinkedIn for interview scheduling. To ensure consistency and comprehensive data gathering, each interview followed a standardized set of questions covering academic background, career progression, technology and tools used, and program feedback. Interviews were conducted remotely and recorded with permission while maintaining participant anonymity throughout the process.

3.2 Questions

The interviews were structured with the following 12 questions in the same order for each participating alumni:

1. What year and spring/fall did you graduate from the Data Analytics Engineering (DAEN) program?

This question aims to establish the alumni's graduation year and semester to track the program's impact over time.

2. Did you receive an M.S. or Certificate?

3. What was the title of your first job, the name of the company and the general responsibilities?

4. What technologies/tools did you use for this job title?

5. What is your current job title, the name of the company and the general responsibilites?

6. How many jobs have you had since you graduated?

7. List the most used technologies/tools in your career. (E.g. Programming language, framework, cloud, ML)

8. What knowledge and skills that you acquired in the DAEN program have been the most valuable to your career? Can you specify the concepts/methodologies/technologies that were most valuable?

9. If DAEN program provided these specific courses, topics, or training, I would have been more prepared in my career...

10. How well did the DAEN courses prepare you for your career? (Scale: 1 – Not well at all, 5 – Very good)

11. Have you completed any courses/certifications since you graduated from the DAEN program?

3.3 Data Process

[Explain how the data was processed and summarized]

3.4 Data Quality

[Discuss the quality and reliability of the data]

4 Analysis

[Present your detailed analysis]

5 Visualization

Figure 1: Your caption here

6 Findings

[Present your key findings]

7 Next Steps and Lessons Learned

7.1 Next Steps

[Outline future recommendations]

7.2 Lessons Learned

[Discuss key takeaways and learning points]

A Background

[Additional background information]

B References

References

[1] Author, A. (Year). Title. Journal/Publisher.