QBN1 — QBN1 TASK 1: BUSINESS CASE ANALYSIS

DEPLOYMENT — D602

PRFA — QBN1

COMPETENCIES

4162.1.1 : Analyzes a Business Case

The learner analyzes a business case to determine the requirements necessary for deployment.

INTRODUCTION

As a data analyst, you may be required to analyze a business case for stakeholders to determine the appropriateness of implementing machine learning solutions.

In this task, you will provide a business case summary for stakeholders that describes the objectives of an MLOps deployment architecture and identifies the constraints and requirements for implementing an MLOps deployment.

SCENARIO

You work as a data scientist for a regional supermarket chain, Kronkers, that is exploring how to leverage machine learning models to optimize various aspects of its operations, including personalized product recommendations, demand forecasting, and customer segmentation.

Currently, data analysts at Kronkers are working on each application of machine learning separately and are spread across teams at the company. Product recommendations and customer segmentation, for instance, are analyzed by the marketing team, while demand forecasting is analyzed within the procurement department. The company's analysts principally work in Python, but there is no programming language that is standard within the organization; some analyses have been written in R and some in Julia, depending on the particular needs of the project. Analyses are stored in a shared OneDrive space accessible to all analysts.

Use of completed machine learning models is not widespread, and deployment varies by model. One model is run using an internal API hosted on a company server, while others are run on a user's individual company laptop on an as-needed basis, often quarterly, to prepare business reports. Shifts in customer demand or other parameters that are used to run models are entered manually in the code or imported as text files. Datasets that serve as inputs and outputs from each model are stored with the model within the same OneDrive folder.

While there has been discussion of integrating multiple models together into one internal company

application, this has not been pursued because of the complexity involved in integrating models developed in multiple languages with multiple different sets of parameters.

While there are a few experienced programmers and data scientists at Kronkers, to date, there has been no role dedicated to maintenance of code, machine learning models, or deployment. However, there is a budget allocated in the current fiscal year for machine learning model maintenance, tracking, and quality control.

While some within the company recognize the importance of machine learning operations (MLOps), there are several senior leaders who question the utility of MLOps. Your manager has asked you to analyze the business case for implementing MLOps and to write a summary detailing objectives, constraints, and requirements for MLOps deployment.

REQUIREMENTS

Your submission must represent your original work and understanding of the course material. Most performance assessment submissions are automatically scanned through the WGU similarity checker. Students are strongly encouraged to wait for the similarity report to generate after uploading their work and then review it to ensure Academic Authenticity guidelines are met before submitting the file for evaluation. See Understanding Similarity Reports for more information.

Grammarly Note:
Professional Communication will be automatically assessed through Grammarly for Education in most performance assessments before a student submits work for evaluation. Students are strongly encouraged to review the Grammarly for Education feedback prior to submitting work for evaluation, as the overall submission will not pass without this aspect passing. See Use Grammarly for Education Effectively for more information.

Microsoft Files Note:
Write your paper in Microsoft Word (.doc or .docx) unless another Microsoft product, or pdf, is specified in the task directions. Tasks may not be submitted as cloud links, such as links to Google Docs, Google Slides, OneDrive, etc. All supporting documentation, such as screenshots and proof of experience, should be collected in a pdf file and submitted separately from the main file. For more information, please see Computer System and Technology Requirements.

You must use the rubric to direct the creation of your submission because it provides detailed criteria that will be used to evaluate your work. Each requirement below may be evaluated by more than one rubric aspect. The rubric aspect titles may contain hyperlinks to relevant portions of the course.

Create your business case summary by doing the following:

A. Describe the objectives of an MLOps deployment architecture.

B. Identify constraints to implementing an MLOps solution.

C. Identify *all* functional and non-functional requirements for the MLOps solution you propose.

D. Acknowledge sources, using in-text citations and references, for content that is quoted, paraphrased, or summarized.

E. Demonstrate professional communication in the content and presentation of your submission.

File Restrictions

File name may contain only letters, numbers, spaces, and these symbols: ! - _ . * ' ( )
File size limit: 200 MB
File types allowed: doc, docx, rtf, xls, xlsx, ppt, pptx, odt, pdf, csv, txt, qt, mov, mpg, avi, mp3, wav, mp4, wma, flv, asf, mpeg, wmv, m4v, svg, tif, tiff, jpeg, jpg, gif, png, zip, rar, tar, 7z

RUBRIC

A:OBJECTIVES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A description of the objectives of an MLOps deployment architecture is not provided.	The description of the objectives of an MLOps deployment architecture contains errors or is inappropriate for the given scenario.	The description of the objectives of an MLOps deployment architecture is appropriate for the given scenario and is free of errors.

B:CONSTRAINTS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
An identification of constraints to implementing an MLOps solution is not provided.	The identification of constraints to implementing an MLOps solution contains errors or is inappropriate for the given scenario.	The identification of constraints to implementing an MLOps solution is appropriate for the given scenario and is free of errors.

C:REQUIREMENTS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
An identification of functional and non-functional requirements for a MLOps solution is not provided.	The identification of functional and non-functional requirements for the MLOps solution contains errors or is inappropriate for the given scenario, or 1	The identification of functional and non-functional requirements for the MLOps solution is appropriate for the given scenario and is free of errors, and *all* requirements are included.

	or more requirements are not included.	

D:SOURCES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The submission does not include both in-text citations and a reference list for sources that are quoted, paraphrased, or summarized.	The submission includes in-text citations for sources that are quoted, paraphrased, or summarized and a reference list; however, the citations or reference list is incomplete or inaccurate.	The submission includes in-text citations for sources that are properly quoted, paraphrased, or summarized and a reference list that accurately identifies the author, date, title, and source location as available.

E:PROFESSIONAL COMMUNICATION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
This submission includes pervasive errors in professional communication related to grammar, sentence fluency, contextual spelling, or punctuation, negatively impacting the professional quality and clarity of the writing. Specific errors have been identified by Grammarly for Education under the Correctness category.	This submission includes substantial errors in professional communication related to grammar, sentence fluency, contextual spelling, or punctuation. Specific errors have been identified by Grammarly for Education under the Correctness category.	This submission includes satisfactory use of grammar, sentence fluency, contextual spelling, and punctuation, which promote accurate interpretation and understanding.

SUPPORTING DOCUMENTS

Kronkers Project Overview.docx