

INFO8120 – Emerging Trends

Assignment 2

Streaming Analytics in Industry

DUE BEFORE 11:59 PM. April 20, 2021

BE SURE TO READ THE ASSIGNMENT QUESTIONS CAREFULLY

1. Submission Guidelines

All assignments must be submitted via the econestoga course website before the due date into the assignment folder.

You may make multiple submissions, but only the most current submission will be graded.

Assignments submitted after the due date and time will receive a 20% penalty.

Assignments submitted after 8am the day following the due date will receive a mark of 0.

Submissions should include be in MS WORD format. This will allow me to make comments directly on your assignment if needed.

2. Grading

This assignment will be worth 10% of your total grade in the course.

Assignments submitted after the due date will receive a 20% penalty. Assignments submitted after 8am the day following the due date will receive a mark of 0.

3. Background

Frequently, your employer will hear about a new technology or product at a conference, online, or from a sale representative and will ask you to research and discover more about it. This assignment is designed to replicate that experience and to give you the opportunity to develop the following skills:

- a. Research an emerging technology or product efficiently.
- b. Summarizing the technology for a general audience.
- c. Identifying the most relevant details and applications to your particular context.

This assignment covers and expands on two presentations given in the course: Presentation 3 – Streaming Analytics and Presentation 4 – Streaming Algorithms. Additionally, the student presentation on event stream processing may be helpful. Finally, though each section has a link to an article, you may need to do additional research to properly answer your employer's question.

4. Assignment Task

a. Question 1 – 50 marks

You work for BDSA Health, a health care association which consists of 10 doctors, 15 nurse practitioners, and various other medical and support personal. BDSA has annual revenues of \$12,000,000, has 15,000 patients and offers 24 hour service. Your employer had been reading about streaming analytics and suggests to you that BDSA should begin using streaming technology and streaming analytics to help the business.

Your manager asks you to assess four applications of Big Data and streaming technology to see if they will help BDSA. Additionally, he wants you to suggest on additional application of Big Data or streaming technology that can help BDSA.

For each application:

1. Briefly describe the technological application in your own words (2 marks)
2. Declare if it is a good solution for BDSA (1 mark)
3. State any additional information about BDSA you would like to help make your recommendation (1 mark)
4. Describe three analytical techniques or technologies you think could be used to solve the problem (E.g. time series, decision trees, naïve Bayesian classification, text updates, in app reports, etc), state which one you recommend and why. (3 marks)
5. Describe three platforms that could be used (e.g. Apache Flink, SAS Event Stream Processing, etc.), recommend one and explain why. (3 marks)

NOTE – If you recommend the same platform for more than one application, you do not need to describe it again each time.

1. Plan staffing

Your employer has read the article in Forbes (**Big Data In Healthcare: Paris Hospitals Predict Admission Rates Using Machine Learning, Forbes, Dec 13, 2016**)

(<https://www.forbes.com/sites/bernardmarr/2016/12/13/big-data-in-healthcare-paris-hospitals-predict-admission-rates-using-machine-learning/#192ef0c279a2>).

He wants to know if a similar solution can help BDSA plan staffing and if can be done using streaming analytics.

2. Reduce Fraud

Your manager has read an article that talks, in part, about fraud prevention in health care and wants to know how BDSA can use similar ideas to reduce fraud.

What's the Potential for Real-Time Analytics in Healthcare?, Perry Price, November 28, 2018

<https://www.rtinsights.com/whats-the-potential-for-real-time-analytics-in-healthcare/>

3. Patient Alerts in Real Time

Your manager has read an old article about inhalers being used to help asthmatics track their asthma and wants to know if BDSA Health can do something similar for other conditions and how they would do it.

Asthmapolis Wants to Hack the Inhaler and Help 26 Million Americans better track and Manage Their Asthma, Tech Crunch, May 4, 2013

<https://techcrunch.com/2013/04/05/asthmapolis-wants-to-hack-the-inhaler-and-help-26-million-americans-better-track-and-manage-their-asthma/>

4. Patient Engagement

Your manager has read an article on how to increase communication and engagement using streaming and real time and data wants to know if it can help BDSA Health.

How to use real-time data to keep patients and doctors informed

<https://www.beckershospitalreview.com/healthcare-information-technology/how-to-use-real-time-data-to-keep-patients-and-doctors-informed.html>

5. Another Suggestion of How to Use Streaming Technology

Your manager is very excited about Big Data and streaming technologies and asks you to suggest one additional way that it can be used to help BDSA serve their patients, reduce costs or increase revenue.

Follow the same outline as for the other four technologies.