Training Software Leaders

Part 1: Proposal

Value

This proposal will delve into the importance of implementing software analytic training for a music streaming company. I selected this topic because the large amount of data collected by the company is of no use for future endeavors if the raw data is not understandable. Using software analytics will benefit in making sense of the information collected and allow the company to understand what the data is telling us. The large amount of data collected from the users who use the company's music-playing platform allows the company to look for patterns within said data. These patterns lead to the development and improvement of recommendation algorithms. Better algorithms will benefit users with relatable playlists and newly released song recommendations. As for benefits for artists using the platform, users with compatible music tastes are recommended music according to their past likes and dislikes.

Training Objectives

1. I believe the most vital objective to accomplish via the training is predictive analysis. Understanding and predicting future outcomes can impact risk assessment plans. Using previously collected data can also influence the success of algorithm implementation [1]. One thing to keep in mind is the possible poisoning of data from ghost users. An example of this type of user profile is disliking all recommended songs and liking songs which would confuse the recommendation algorithms. Using the likes and dislikes of a user cannot always be entrusted because of the presence of ghost users. Data poisoning poses a threat in training data when using AI for writing and improving algorithms [2]. Accepting these risks and fully understanding the patterns of all types of users can help better utilize the collected data.
2. Another objective I wish to accomplish during training is the application of descriptive analysis [1]. Positively transforming the cost and profit through consistent summarization of past data benefits the company in the long run. Providing monthly revenue reports and profile usage allows the decision-makers to see valuable features that are flourishing and those which require improvement [1]. Using KPI Dashboards visually tracks overall performance through charts and provides the company with a simple visible display of the company's collected data.
3. The last objective is prescriptive analysis [1]. User error is always the possibility of a deterrent when analyzing data. Implementing artificial intelligence can help alleviate these threats. The ability to optimally process and analyze copious amounts of data

benefits the company in lower overall costs and levels of potential errors made by humans.

Best Reference for Further Investigation

At first, I researched simple videos describing what system analytics were and how to implement practices within our company. Due to lack of content, the next step was looking for papers that implemented system analytics on their project. Understanding what they did and any issues they ran into would benefit me before implementing it myself. Personal research led me to a paper describing just that. This reference provides an excellent example of the process of implementing a software analytics system for a Microsoft products team. The authors identify some important lessons they learned during their implementation process. Identification of all critical problems before project implementation was a necessary lesson that they included. The knowledge of success and failures is beneficial to implementing software analytics within our company [3].

Part 2: Training Outline

Training Objective Selection

Descriptive Analysis : Analysis and documentation of collected data.

Training Outline

- ❖ Select a Data analytic team
    - o Hold an interview process for viable candidates
        - ▪ Meet requirements for the position
        - ▪ Work ethic and strive align with the company
    - o Assign job assignments to team
        - ▪ Hold team building events to boaster moral
        - ▪ Offer open support to the team on any issue impacting them.
- ❖ Weekly stand-up meeting
    - o Allow team members to voice any questions, thoughts, or general concerns regarding the completion of the assignments.
- ❖ Key Performance Indicators (KPI) Dashboard [1]
    - o Progress tracking on project benchmarks
    - o Individual performance timeline available for viewing
- ❖ Provide Excel workshop to the team or any other employee looking to learn

- o Participants will know how to creates graphs such as pie, tree map, or a combination of them.
    - Circle graphs: used to compare smaller parts vs the whole data set
    - Double Bar graphs: used to compare multiple data sets with each other
    - Histogram: using intervals this graph shows the frequency of the data
    - Line graph: uses the data to show the change over time
    - Etc.
- o Participants will understand when to use which graphs for all the raw collected data from the users.
    - Circle graphs: which countries the users are from
    - Double Bar graphs: types of music genres based on gender
    - Histogram: creating new users based on what month of the year it is
    - Line graph: total amount of user profiles created
    - Etc.
- ❖ Data selection and filtering [3]
    - o Correct selection/usage of raw data is important in the creation of helpful visualizations
    - o Data could potentially be corrupt with abnormal values created from *ghost* profiles
    - o Identification and filtrations of the data to reduce potential errors
    - o Look for reoccurring patterns and determine its frequency
    - o Record the impact of each of these patterns
    - o Determine causal relationships between the patters
    - o Find and reduce anomalies in data
- ❖ Create monthly revenue reports
    - o the overall company reports for the President
    - o includes past, present, and future diagrams

References

1. Gibson, P. Types of Data Analysis. *Chartio*, 2022. https://chartio.com/learn/data-analytics/types-of-data-analysis/.
2. Poremba, S. Data Poisoning: When Attackers Turn AI and ML Against You. *Security Intelligence*, 2022. https://securityintelligence.com/articles/data-poisoning-ai-and-machine-learning/.
3. Zhang, D., Han, S., Dang, Y., Lou, J., Zhang, H. and Xie, T. Software Analytics in Practice. Taoxie.cs.illinois.edu, 2022. https://taoxie.cs.illinois.edu/publications/ieeesoft13-softanalytics.pdf.