**Diagraming Amazon’s (Business) Analytics System**

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All, tech-invested companies utilize databases and software systems to integrate and interact their operations. A **systems diagram** is a visual model of this integration, the components and the interactions between the related computer systems (Gnome, 2019). ’This diagram is helpful to visualize the interactions of the hand-off channels between multiple systems of programs (Gnome, 2019). Amazon utilizes data systems and software applications for their various departments. For the scope of this assignment, I will focus on Amazon’s programming department and present a systems diagram that illustrates how they employ and utilize data systems.

Amazon is a productivity monster in the industry of online, video steaming. Amazon is my example company for implementing a new, business analytics systems, starting with a look at their Systems Diagram of the programs they use for their programming (machine learning) department. To create profit, Amazon Prime Video generates recommendations for clients. By interviewing the head of the engineering team, I am able to organize a system diagram of their project process. According to my source, Alex Swain, Software Engineering Manager at Amazon Prime, various teams use software to compile and analyze data. Mrs. Swain and collaborating teams use various data systems for analysis, for the purpose of creating video recommendations to clients’

Mrs. Swain oversees the programing department of machine learning for client retention. There are various teams that handle client data. Each team completes a data manipulation step for code generation. These teams gather, then analyze data to create algorithms which are then sent for testing and sent back for alterations. Data bases, software applications, target client goals (business user groups/user communities) are all at play in the process.

There are various staff teams that work in a streamline to analyze data in stages. Mrs. Swain’s team in the second and last stop to first, create code for machine learning (to make client, video suggestions) and then to refine the code, after code performance is analyzed. During my interview with Mrs. Swain, I created a Systems Diagram for their segmented data and I subsequently integrated a Neural Networking Software Application (🡪double check wording) to illustrate the new (Business Analytics) implementation.

The Systems Diagram illustrates their process. Data currently flows down a line of systems for the Prime Video Personalization Department. Beginning at the Application Database, down to the Data Pipeline System, then to the Data Warehouse, which is analyzed and entered into a Reporting Table Data System and then a report is sent back to the Data Warehouse System for improvements (Swain, 2023-🡪check APA).

A more in depth look at this data transfer would start with the first system, the Application Database. Data is automatically dumped (internally) here, that is raw, client behavior information. This is from real-time information of user interactions (of the client). Then, data entry personal transfer this to the second system, the Data Pipeline System.

This is where the raw data reaches Mrs. Swain’s team of software engineers. Now, some companies would insert external data (purchased, Customer Behavior Analysis data) here, into the computing process (Ware,2022). However, Mrs. Swain’s team does not utilize external data from other social media platform companies. They analyze and apply only internal data for their Machine Learning Code.

Progressively, the finalized code will then be implemented and the “Title Similarity Model,” known as the “Recommendations Model” will be manually entered into the third system. The third system is the Data Warehouse. The “Recommendations Model” is sent in a feedback loop to Product Analyst Department personal for efficiency testing. The Product Analysts create and send a “Summery Report” back to Mrs. Swain’s team of Engineers (and store the report in a Report Table Data System.). This report and revision can be traded multiple times until the code is properly reviewed/finalized and the whole process begins again with new, client behavior data.

Creating a system diagram of this step-by-step process in team efforts, can reflect a new implementation of neural networking between the third and fourth step (when code is sent to the Product Analyst Team). But implementing an Artificial Neural Networking Software Application (Manu, 2023) can further tailor Mrs. Swain’s “Recommendation Model,” with applicable information. This will be discussed further in the proceeding Milestone’s.

Taking a bird’s eye view of how these processes unfold, presented here, are steps that are outlined in Model 1.1 below. Data travels from the client’s Application Database to the Data Entry Team’s Data Pipeline System. From here, the data is analyzed to create a ‘Recommendation Report,” by the Prime Video Personalization Team and is stored in the third system, the ‘Data Warehouse.” According to Mrs. Swain, this is the use of “access management,’ as they do not interact with a Data Mart system in her department. The last team in the chain, the Product Analysts will analyze the code against efficiency reports and send back, in a feedback loop, a ‘Summery Report.’ The code is then tailored as it is analyzed, back and forth, between the Prime Video Personalization Team and the Product Analyst Team. The Product Analyst Team stores these “Summery Reports” in the fourth system for their (the Product Analyst’s) records only. This last system is a “Reporting Table Data System.

Product Analyst Team

Recommendation

Model

🡪

🡪 🡪 Summary Report

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Modle1.1 Systems Diagram of Amazon Prime’s Personalization, data analysis

As seen in Model 1.1, company teams are working together, to filter and apply data to create code for machine learning. This “Recommendation Report” is developed for every client user of Amazon Prime Video. They only use internal data for this process of better serving all their clients. According to Mrs. Swain, their target, user communities are not limited or specific. They are selling to everyone.

The second part of implementing Business Analytics for Amazon would be the progressive dynamic between the personal and the new executions. It’s vital to consider the human factor during implementation change. Management must ease employees towards acceptance of any new, work methodology. Addressing this aspect can be the most significant hurdle in achieving successful growth, as guidance and collaboration can frequently receive insufficient attention, leading to project failures (Stair & Reynolds, 2018).

In this instance of applying neural networking, the Prime Video Personalization team would be a large part of executing this system directly. They would be designing the application with a new hardware and/or software. They would also have to reflect and weigh the cons of using Segment Grouping and a more Linear Regression Model (according to Alex Swain) to further tailor their model with therefore, applicable data.

The team would be invested to discuss and consider this new implementation. According to Mrs. Swain, one argument that the team may present is, “if it’s not broken, why fix it?” They would consider the pros and cons of remaining vigilant with their current implementations as well as how this would benefit the other company departments (which would extend this group discussion to other stakeholders). They would also consider how Neural Networking would improve their Recommendation Model and further tailor the model to their customers. Moreover, any obstacles would be identified and resolved as fundamental elements in this discussion.

The team would then reach an understanding that their job security would be enhanced. Any improvements would thereafter, be reflected in their yearly review, where their collaboration in this implementation would be discussed and rewarded. The determined and positive changes required, would be more readily embraced, as engineers recognize the advantages in terms of their job security and performance evaluations (Stair & Reynolds, 2018).

To lead personnel successfully after the creation of a new model and the selection of a new program, management can employ Lewin's Change Model to ease the transition. This model is often referred to as the Unfreeze-Change-Refreeze model. The three-stage process ensures a smooth transformation and a successful adoption of the new technology (Stair & Reynolds, 2018).

The three stages are as follows: The “Unfreeze” stage creates awareness by weighing the reasoning behind a new model. How will these improvements enhance the customer experience on Prime Video and positively reflect back upon the engineers’ work-ethics (Stair & Reynolds, 2018)? This would be an open forum discussion among team members and parallel departments.

Once agreed upon, the third stage, “Change”, would cover any trainings/resources necessary (The engineers may not require additional training, as they are already educated in this area) before a possible pilot implementation is executed. Then a verbal, feedback system would be in place. Team members would contribute by offering input, reporting problems, and suggesting improvements pertaining to the new implementation. Furthermore, continuous support and encouragement would be provided, with acknowledgment of milestones achieved during the process. Additionally, adjustments and refinements would be taken into account throughout the process. (Stair & Reynolds, 2018).

Following the second stage, would be the “Refreeze Stage.” This stage entails efficacy and a new standard. Management would update any processes, documentation, and guidelines to reflect the new way of working while collaborating with the company stakeholders. The team would then celebrate the successful adoption (determined by a continuation to monitor and evaluate effectiveness) of the new technology and acknowledge the contributions of the individual personnel (Stair & Reynolds, 2018).

By applying Lewin's Change Model in this manner, Mrs. Swain can guide the Prime Video Personalization team through a smooth transition towards the state-of-the-art, neural networking implementation. Moreover, the previously discussed systems diagram can serve as a reference to draw upon before implementing this change, as it provides a visual representation of the current systems and processes. This diagram would assist the Prime Video Recommendation team, as well as other stakeholders understand the current state of the systems to identify and address needed improvement for modification (Pham and Desai-Naik, 2023). The logical conclusion would be to configure a new model and incorporate neural networking into their data analysis.

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