UNLOCKING BTD6 PLAYER INSIGHTS!

AN ANALYTICAL APPROACH TO ENHANCE THE GAME, BOOST PLAYER ENGAGEMENT, AND OPTIMIZE MONETIZATION

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- BUSINFO 718: FINTECH ANALYTICS INDUSTRY PROJECT - CONTRIBUTION SUMMARY

- 997 WORDS
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CONTRIBUTION SUMMARY

Introduction

Our team embarked on a comprehensive data analytics project for Ninja Kiwi, focusing on clustering analysis, churn prediction, and IAP prediction for the game Bloons TD 6 (BTD6). Over seven weeks, we systematically acquired and analyzed data, culminating in insightful findings and actionable recommendations. This report highlights my contributions and evaluates our team's performance across project management, technical execution, and teamwork.

Performance Evaluation

Project Management:

Regarding project management, I was pivotal in setting up regular group meetings, and ensuring all team members were on the same page with our goals and timelines. We had an average of two to three weekly group meetings, either in-person or online. Meetings with our mentor and our clients were also regularly scheduled to seek guidance and to keep ourselves on track to meet the business requirements. In week 8, our team visited the company's office to confirm our approach and to present some interesting findings. We were pleased to hear from them that they were happy with our progress. I contributed to developing a detailed project plan, outlining key milestones, and assigning tasks based on our strengths. The project tasks were broadly divided among our teammates as follows:

Group Member UPI	Task
rift670	Feature engineering in SQL
fsid783	EDA and visualization
pli135	EDA and visualization
vjai535	Clustering and classification models in Python
Hppo600	Clustering in SPSS and recommendations

Table 1: Task allocation to teammates

Over the seven weeks, unforeseen and peculiar problems arose. Our client's server would often be down, leading us to work on other aspects of our project in the meantime. I also helped coordinate with the client about the status of the server on which we were working. Our teammates were not only fixated on their specific tasks, but they also helped and coordinated with others as all tasks were interconnected and tied into each other. For example, I was in constant communication with #rift670, to tell her about the ideal variables that I needed to input into my machine learning models. We tried to load big data into a Python notebook, which was very time-consuming. We worked around this by dealing with a fair sample, a practice also adopted by our client. Also, running the fine-tuned binary classification models took a lot of computational resources and time, since it involved trials and errors. This task needed to be completed within the stipulated time, allowing us to do subsequent tasks.

Project Execution:

Throughout the project, I was deeply involved in the technical aspects, particularly during Weeks 4 and 5. My specific contributions included building the k-means clustering model and the binary classification models for player churn and IAP prediction in Python. As the first few weeks involved feature engineering, data cleaning, and EDA, I gave my teammates working on those tasks a sense of what I was looking for, for my machine learning models. Meanwhile, I also came up with a code template so that as soon as the final table with the required variables was ready, I could just plug it into my Python notebook and then fine-tune it, saving our team a lot of time.

In Week 4, I led the clustering analysis by developing a k-means clustering model to identify distinct player groups, which provided valuable insights for tailoring game content. In Week 5, I focused on developing and fine-tuning binary classification models to predict player churn and IAP behaviors. These models leveraged Python's powerful libraries and helped uncover critical factors influencing player retention and monetization.

My involvement also extended to interpreting the results and summarizing key insights. I played a part in drafting the technical appendix and client presentation, ensuring our findings were in line with our work and communicated. During Weeks 6 and 7, I played a critical role in discussing findings and formulating recommendations, ensuring they were actionable and aligned with Ninja Kiwi's strategic goals.

Teamwork:

Teamwork was a cornerstone of our project's success. I facilitated effective communication within the team, fostering a collaborative environment. This was particularly evident during Week 3 when we faced complex analytical tasks. I encouraged open discussions, ensuring everyone's ideas were considered. When disagreements arose, such as differing opinions on clustering methods, I mediated discussions to reach a consensus. One instance was when we had earlier decided on predicting the in-app purchase amount, which was supposed to be our fourth research question. Since a few team members felt that this would not add much value to our project and was not a client requirement, we held a poll to drop this question from the scope of our project.

Leadership was another area where I contributed significantly. I motivated team members, assigned tasks based on individual strengths, and ensured everyone had the resources they needed. My leadership helped maintain high morale and productivity throughout the project.

Conclusion

The project was a valuable learning curve that highlighted the importance of effective project management, technical proficiency, and teamwork. Working with all my teammates was a good exposure for me, as I could engage in a healthy exchange of ideas. Every team member contributed in a unique way to the project. My contributions were critical in building the k-means clustering model and the binary classification models for player churn and IAP prediction, leading analytical efforts, and ensuring seamless communication within the team. The most effective strategies included regular meetings, clear task assignments, and open communication. In hindsight, I recognize the need for even more rigorous initial data validation to prevent delays. One thing our group wished we had done was to play the game during the quarter break, so that when we were given the variables in week 1, we could have hit the ground running, instead of spending time trying to understand the variables. On my part, I would give myself more time to build the machine learning model and fine-tune it, accommodating trials and errors. Moving forward, I will continue to refine these strategies and foster a collaborative team environment to achieve even greater success in future projects.

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