TTD Applications’ Insights

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Abstract

PwC is an international accounting firm with a lot of independent teams and internal applications. TRACK is one such application, and it is used for translation of accounting data into tax form data. Because of PwC’s enormous size, it would be impossible to interact with a representative sample of the user base in a personal way, and so PwC must use data analytics to better understand the application’s audience.

The goal of our project was to use data from the TRACK application to produce insights and visualizations. We retrieved the data from AppDynamics and Google Analytics. These are platforms that track and store web application data. Once we had access to the data, we were able to use Python to analyze and chart this data so we could find properties that we thought could be helpful. Then we formatted the data into csv files so they would be compatible with QlikSense. In QlikSense we created dynamic visualizations that can be used to make executive decisions to enhance the performance of their applications.

Architecture

Database

Google Analytics

AppDynamics

Analysis/Scripts

Python Script
• Used to pull specific data from Google Analytics & AppDynamics
• Process and numerically analyze data
• Used to format data to be compatible for QlikSense

Libraries
• Matplotlib
• PrettyTable
• Google Analytics API

Visualizations

Qlik Sense

Impact

This project was exploratory in nature, and we believe that we showcased the potential of data analytics on these datasets to produce operational improvements at PwC. Given additional time and resources, we believe that many useful insights can be gleaned from the data that they are collecting. In addition to operational improvements, Google Analytics in particular has the potential to provide insights that would be useful for improving the UX of the TRACK application.

Metric

Amount of data visualized and analyzed: 1,113 KB

The amount of data we analyzed and visualized is an important metric because this is an exploratory project and the more we evaluated and understood the data we were provided, the better feedback we can give to PwC. We feel it is a more nuanced and representative metric than we could have otherwise used, like number of visualizations or insights gained.

Results

Working within the constraint of our limited access to data, we were able to get basic demographics on TRACK’s user base, some usage statistics, and a little bit of user experience data.

The first and most obvious trend that we found was in usage data, on both daily and weekly timescales. As would be expected, there is a steady upward trend in usage from around 9 AM to 1 PM, then as the day progresses, usage lessens. In addition to this trend, there was also a weekly trend in usage, whereby usage peaks towards the middle of the week, and drops as Friday approaches. While we were lacking in multiple years of data, we also hypothesize that there are repeated trends within yearly usage, as there was significantly increased interest in the application around the month of March, when corporate taxes are filed, however this claim can’t be backed up due to lack of data.

New York and Boston composed the majority of the user base and 22 years had been collectively spent using TRACK. An overwhelming majority uses Windows to access TRACK, most of them also using IE, with Chrome users coming in second. Two sessions came from Ya Browser, which we found entertaining.

We also developed a model for estimating the number of users in a given month based on the current trend, accounting for cycles.

Summary

Web analytics is still an up and coming field. Its goal is to use data collected to optimize and better understand web applications. This project is in a domain that is still very foreign for a lot of organizations. PwC has taken this opportunity to see the possible benefits of using services like Google Analytics and AppDynamics. After obtaining and analyzing the data, we were able to put together some statistics on the web applications usage, UI/UX, and user information. Although the results we obtained didn’t containing any shocking revelations, it does showcase the viability of analytics for producing insights if the correct data is used. Overall, this was a PoC project. We believe, in the future, as the web applications are more integrated with analysis tools and more data is collected, there is the possibility of finding deeper demographic data and correlations.

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