

Part 1. User Login Analysis

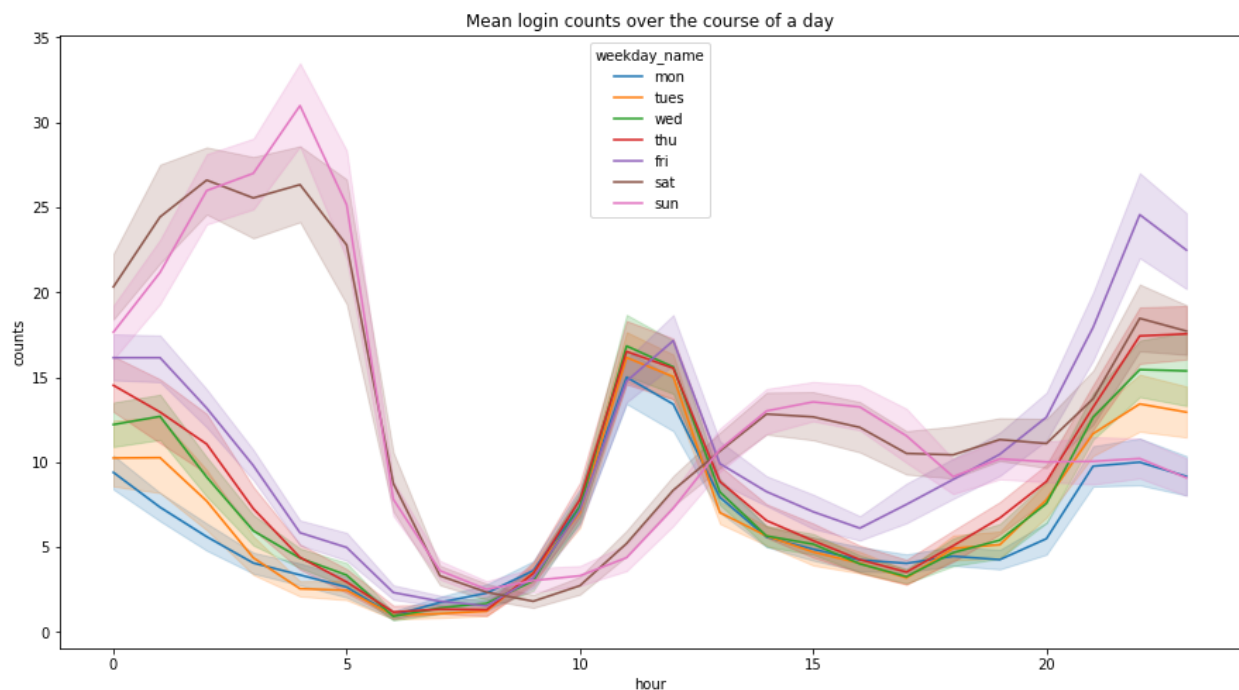
Key findings

Overall, user demand was highest at midday and midnight, and lowest in the mid-morning hours. Exact peaks and troughs of demand depended on whether it was a weekday or weekend day, with Friday evening acting like a weekend “day” and Sunday evening acting like a weekday.

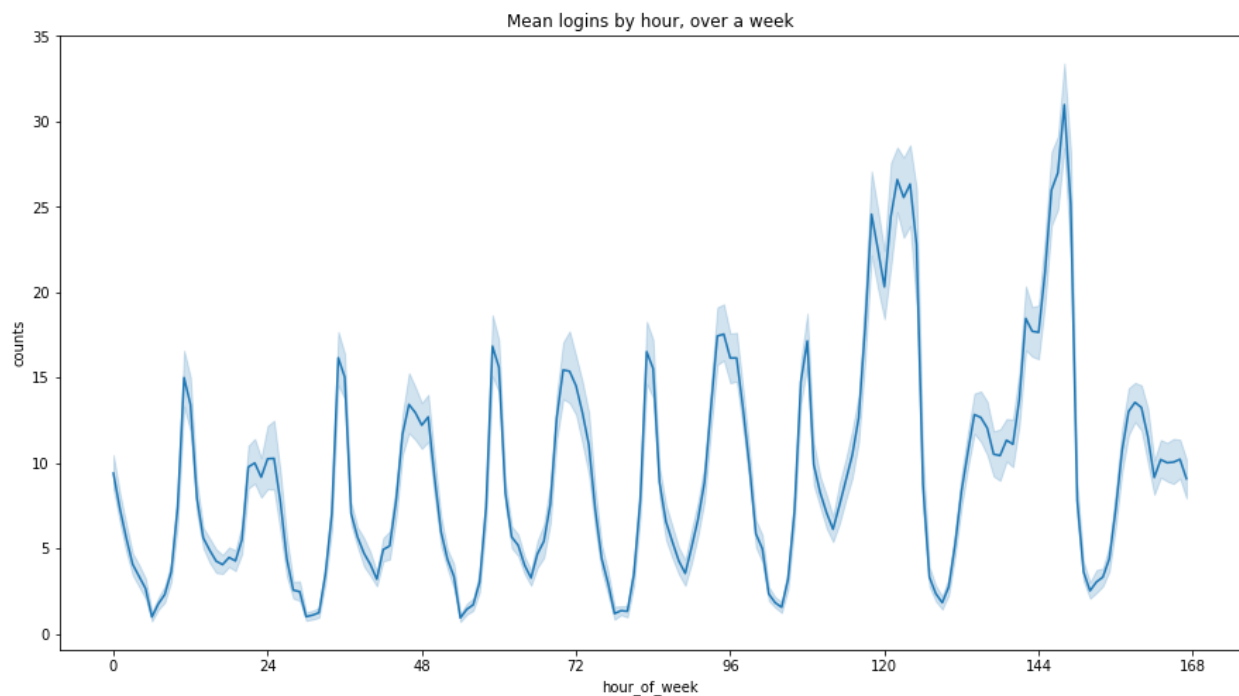
Data quality was good, however approximately 1% of all entries were duplicates,

Plots of demand cycles

Below is a plot showing the average logins by hour over the course of a day, for each day of the week. Saturday and Sunday early morning have the highest demand overall, with other peaks in activity happening between 11am and noon on weekdays, and after 8pm on most days, but notably not Sunday or Monday evenings.



Looking at logins over the course of an entire week, you can see the cyclic nature also seen in the plot above, where there is a sharp peak around noon and a softer peak around midnight on weekdays. As the week progresses, the peaks grow larger.



Finally here we can see the true difference between weekday and weekend demand. Here, “weekend” is defined as Friday 8pm to Sunday 8pm. In both cases there is an activity dip between 8-9am. However, while weekdays have two distinct peaks, weekends, activity picks up starting mid afternoon, and continually increases until the early morning hours, roughly around 4am.

