1. Approach

Assumptions:

+ The analysis assumes that every 'open' event marks the start of a session, and every 'close' event marks its end.
+ If a user opens multiple sessions without closing the previous one, the previous session is implicitly closed at the time of the new open.
+ Events without matching counterparts are considered orphaned.
+ The dataset end time is used to close any still-open sessions, marking them as censored.

Handling Errors and Messy Data:

+ Orphaned 'open' events were implicitly closed when a new open occurred or at dataset end.
+ Orphaned 'close' events were counted but ignored for duration computation.

Matching Open/Close Events:

+ A single state variable was used per user to represent an active session.
+ When an 'open' occurred and no session was active, a new one began.
+ When another 'open' occurred before a 'close', the previous session was implicitly closed.
+ When a 'close' appeared, it completed the current open session. Each completed session produced an entry with duration, open type (manual/auto), and whether it was censored.

2. Findings

Summary Statistics:

+ The number of auto sessions exceeded manual ones, indicating that automated or background processes were more common than direct user interactions.
+ Auto sessions also had higher average durations.
+ More sessions were active during weekdays.
+ 85% of events are shorter than 1000s.
+ 80% of events opened automatically are shorter than 1000s.
+ 93% of events opened manually are shorter than 1000s.

Several visualizations supported the analysis:

+ Empirical Cumulative Distribution Function (ECDF) of durations - showing auto sessions lasting longer overall.
+ Line plots over weekdays - showing daily patterns during the week with mild event count variations and a steep drop during the weekend.
+ User-level scatterplots — linking open frequency and session duration patterns.

3. Conclusion

The analysis shows that automatic opens of the tool window are more frequent than manual ones, suggesting that the tool is often triggered by the system rather than the user. Automatic sessions also tend to last longer, implying they may be more contextually relevant or require more exploration. Manual sessions are shorter, indicating users often know what they need and close the window quickly.

Additionally, session durations increase noticeably on Fridays, while overall activity drops during the weekend, reflecting a weekly usage pattern likely tied to work habits.