discord activity tracker

VIS - project write-up
study programm: master medieninformatik
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1 overview

the sections „usage scenarios and tasks“ and „visualizations and sketch“ from the project proposal were meant to be living documents and to be consistently updated over the duration of the project. while their content has not been changed during the project, this write-up will go over the differences between these sections in the proposal and the final result.

additionally included in this write-up are changes from the proposal that are not directly related to the visualizations and unrealized ideas which originate either from the proposal or have come up during the project.

2 usage scenarios and tasks

2.1 S1 - lonely chatter

the first usage scenario is still accurate and represents a functioning use-case of the activity visualization. however due to the nature of the dataset, visual comparisons between channels in the server streamgraph are less accurate than intended, since one channel is vastly more active than all others combined consistently over the entire duration of the dataset.

2.2 S2 - curious streamer

the concept of the second scenario also holds up, however the dataset has been reduced to only include the years 2022 and 2023, so the example is no longer accurate. the migration matrix also fills in automatically once the first stream-topic has been selected. so instead of selecting the first stream it is now more accurate to say one would switch between several streams of the selected topic.

3 visualization and sketches

the final result (fig 2) does not deviate strongly from the first sketch (fig 1). the biggest change is in the settings area, which is just an array of buttons for the various stream topics. another change is in the stream migration portion, where the selection is now in a drop-down menu instead of a calendar.

3.1 the timeline

the timeline has been faithfully kept and the sliders on each end to limit the timeframe of the remaining graphs have been fully implemented.

3.2 server streamgraph

the streamgraph is no longer made from smooth curves and instead of each layer beeing outlined and only the highlighted layer being filled in, every layer is filled in with a different color and the highlighted layer receives the brightest color.

the tooltips are slightly different from the ideas in the sketch as well. the final info box includes the date that corresponds to the cursor position and the vertical line-marker extends through the entire graph. additionally it is combined with a horizontal line-marker to replace the mouse cursor with a cross-hair when the graph is hovered.

3.3 channel chart

in the channel chart, just as with the server streamgraph, is now drawn with hard edges instead of smooth curves. additionally the given activity and date in a tooltip is moved into an info box instead of displaying the values along the axis and graph. however the final result no longer includes the channel description.

the interactivity between server streamgraph and channel chart was implemented as laid out in the inital sketch. by changing the option in the selector or clicking another channel in the streamgraph, it changes the highlighted channel in one visualization, while replacing the content in the other.

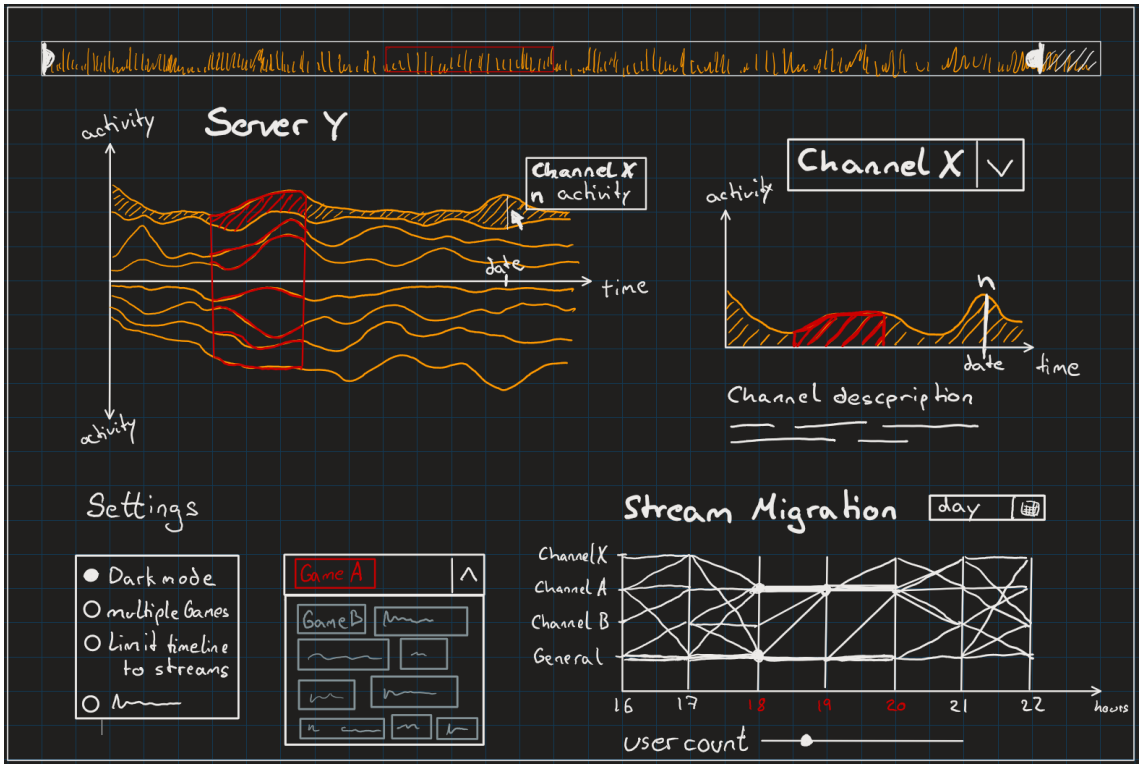

Figure 1 original sketch of the „discord activity tracker“ app

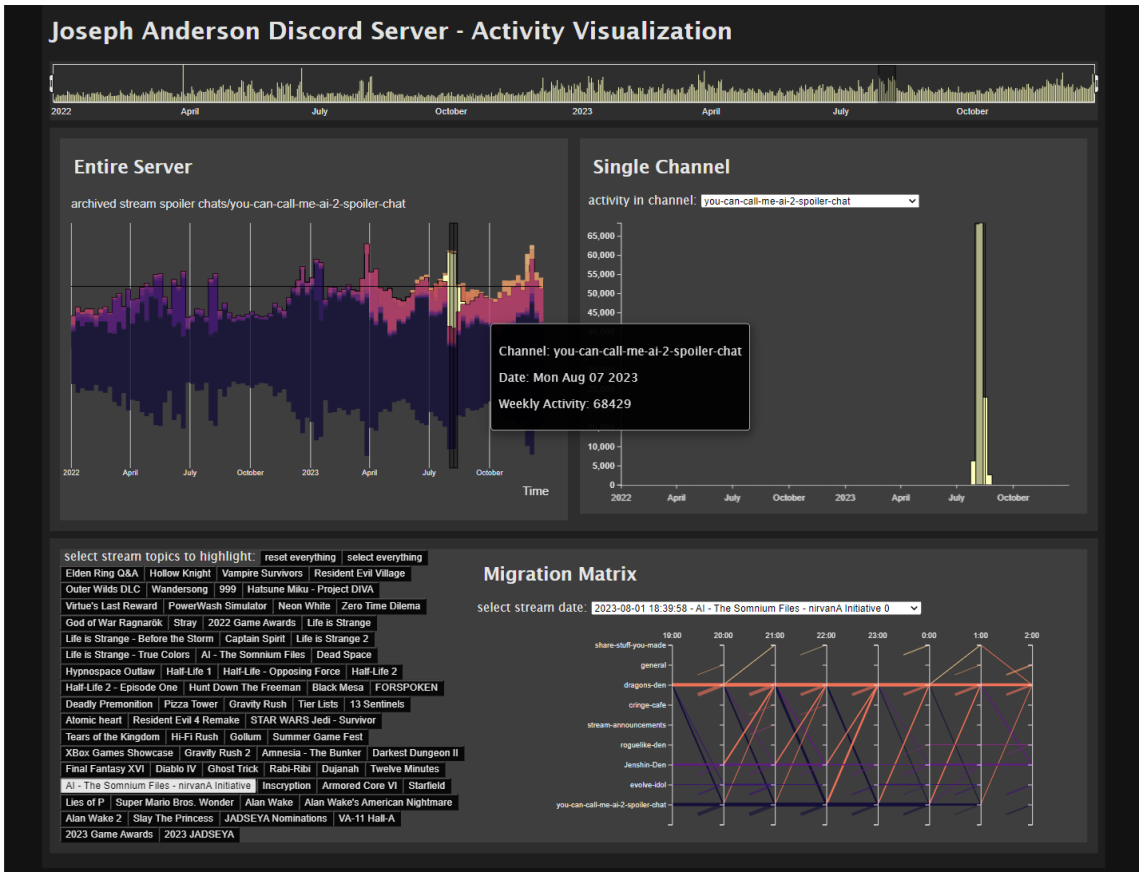

Figure 2 full view of the final app

3.4 settings segment

the final version does not include any global options to change color-schemes or other details. instead the list of stream topics has been turned into an array of buttons of which any number can be selected. selecting a topic will highlight the period between the first and last stream of said topic in all graphs and add each individual stream as option to the migration matrix.

3.5 migration matrix

the migration matrix is different from the sketch in two key aspects and contains some details that have not been considered before. in fig 3 the stream selection happens from a calendar and the timeline highlights the actual stream time in a distinct color. the final version as seen in fig 2 handles stream selection through a drop-down menu, as this is easier to navigate when multiple topics are added that have been streamed far apart. the stream time is no longer highlighted, instead the selected option in the drop-down contains the start-time of that stream.

while this has not been considered during the proposal, the final migration matrix contains lines that are color-coded by channel (based on the target channel of each migration). additionally users that have not been active before and now join a channel are visualized through lines appearing from in between the channels to separate them from users that are migrating from a different channel.

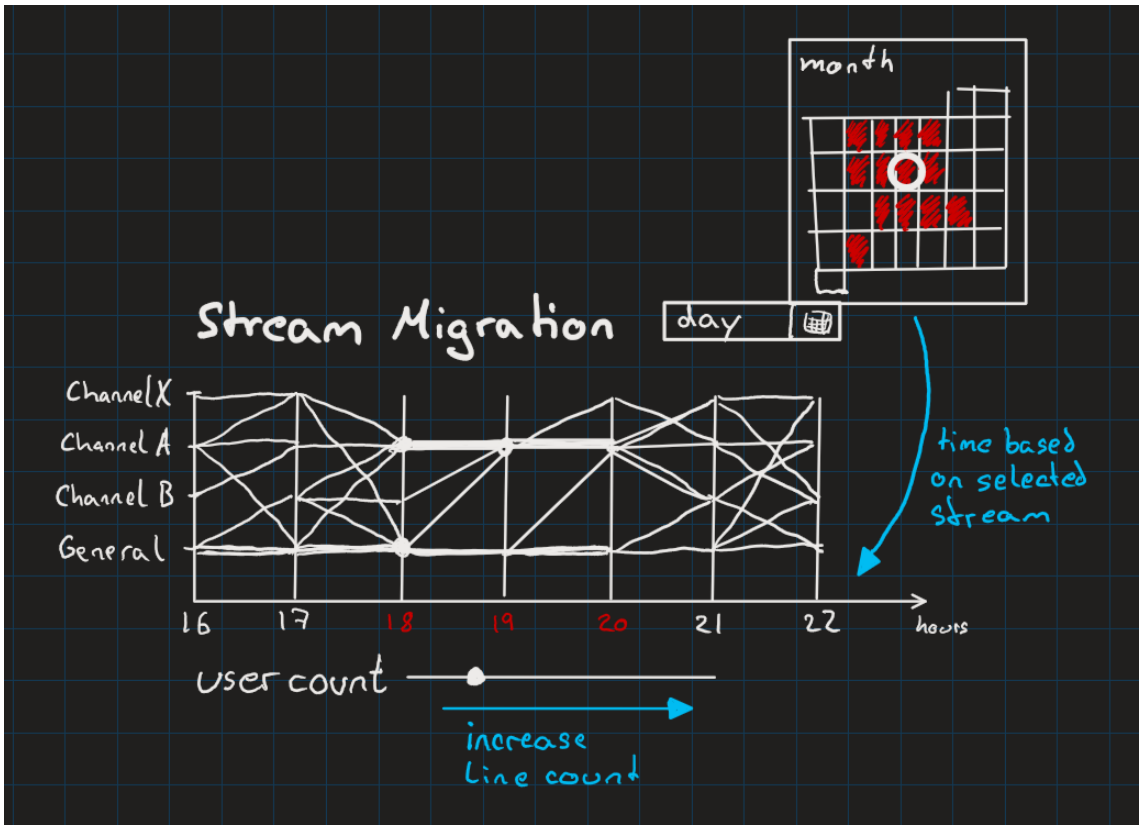

Figure 3 close-up of the migration view with further explanation and calendar component

4 additional changes

while the visualizations and the functionality has been mostly kept similar to the plans within the project proposal, the dataset for all visualizations has been changed significantly.

instead of all futher work being based on the roughly 40 JSON files for the entire Joseph Anderson Discord Server, the dataset has been reduced to the period of 2022 and 2023 and consequently only the 34 channels that are active in this time. furthermore the basis for all further work are now CSV files, which are obtained using the same tool as the original JSON files, but contain less unneeded information.

using python these files have been pre-processed to create several specific files which are then used in the final visualization. one file only contains daily timestamps and the entire combined activity for each day, which is used to form the timeline. another file contains weekly timestamps as well as the activity in each individual channel across these weeks. a currently unused file contains the same file structure but grouped daily instead of weekly.

and finally the dataset for the migration matrix consists of one file per stream, which includes all migration movements around the time of that stream. these migration movements consist of a start and end timestamp, a start and end channel name and the number of times this movement has happened.

5 future options

to make the app easier to digest, it would be beneficial to include more general information within the app. maybe adding a legend would also further improve the readability of the visualizations.

by extracting the data from the original JSON files, the channel chart could be extended with the channel description as shown in the initial sketch.

also since the necessary dataset exists already, an option to show the daily data in the server streamgraph and the channel chart, could be added to either manually switch or to switch automatically once the user zooms in far enough.

the last idea to improve the readability of the app would be to give an option to exclude channels from the server streamgraph. since the activity in the channel „dragons-den“ is much higher than in all other channels, excluding it temporarily could make comparing the other channels easier for the user.