

Milestone 2

Project goal:

The goal of our project is to create a website for people to discover their favorite movie actors throughout interactive representations. Users will be able to first explore the actors connection graph, by choosing an actor (represented by a node) and seeing how much he/she is connected to other actors. The connection will be established based on movies actors played in together (each connection will be weighted to show the strength of the connection) and for each node its strongest connections will be highlighted around it. The exploration of this graph will be made possible either by interacting directly with the graph or by searching for a specific actor in the search bar to find his node faster. Each actor will also have its profile page with a colorful tree map visualization portraying their movie portfolio and genre diversity. In each profile, users will also be able to find some overall and over time metrics about the actor's career, like their number of movies, revenues and ratings.

To summarize we split our main goal in several pieces to implement:

- 1) The connection graph : it is the core of our project and most complex part
 - overall graph structure with nodes representing actors and weighted edges for the connections
 - selected node view: after selecting an actor we want to have a zoomed view on his node with the strongest connections around it
- 2) The actor's movie and genres treemap
- 3) The actor's career metrics
- 4) Search bar for faster actor lookup

In order to achieve this project we will mainly need two tools: python for data preprocessing and d3js for visualizations. We will probably also use d3plus for some of the visualizations (e.g. treemap). Obviously, lectures 1 to 4 (javascript, basics of d3js) will be useful for the whole project. Lecture 5 will allow us to add interactivity to our visualizations. Lectures 6 and 7 helped us choose the right visualizations and will be useful to correctly select colors and shapes in the final product. Moreover, lecture 10 will help us improve our connection graph. Finally, lecture 12 will give us insights on how to tell a story with our visualizations.

Visualizations

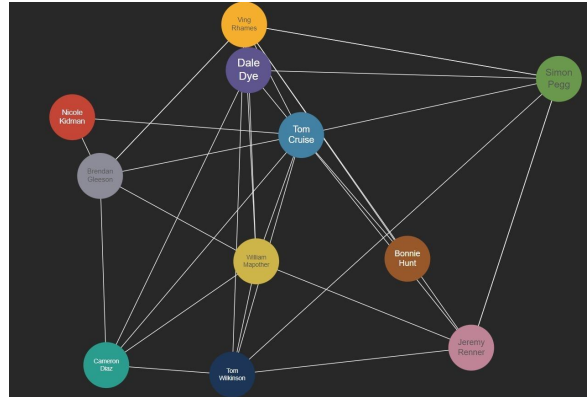
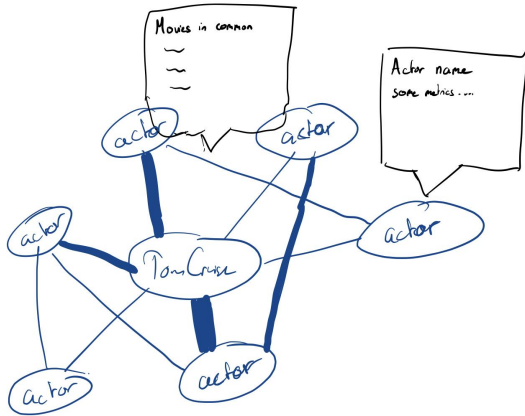
1. Actors connection graph

Taking inspiration from here¹ and the Movie Galaxies project (<https://moviegalaxies.com/>), we want to represent the connection graph as shown below. Actors are nodes and the view is always centered on a specific actor. Edges between actors are more or less thick depending on the number of movies they appeared in together. The selected actor's node will be bigger than the other, the other nodes will all have the same size. We might limit the number of connected actors shown (e.g. top 10 more connected actors) to make the visualization more readable. When the user hovers a node, a tooltip with some metrics about the actor is shown. If an actor's node is clicked then the graph is updated and the clicked node becomes the center of the visualization and its connections are shown. If we manage

¹<https://rockcontent.com/blog/movie-galaxies-uses-social-graph-organization-to-visualize-movie-interconnectedness/>

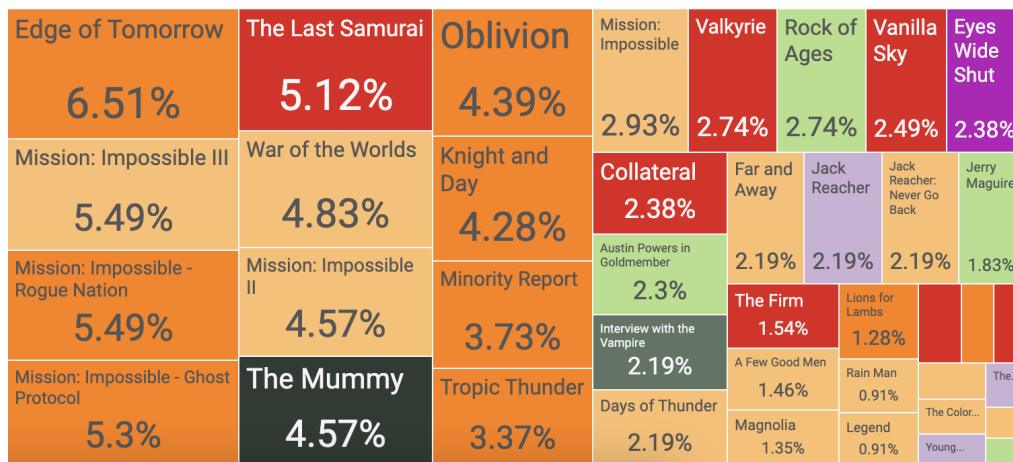
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to, we would like to show a tooltip on the edges between actors to show the movies they appeared in together. Moreover, if possible, we would like the color of each actor's node to be generated from the genre diversity of an actor. Below on the left is a sketch, and on the right is a first version of the visualization in d3js.



2. Actor's movie and genres treemap

We decided to opt for a treemap to represent the actor's portfolio and genre diversity. The size of the movie square depends on its budget. The color is dependent on the genre. Below is a first working visualization using D3plus. We still have to show the budget in absolute number instead of a percentage, change the colors and add a legend with the genre's colors.

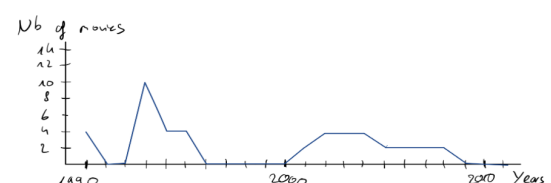


3. Actors' metrics

On this visualization, overall metrics about the actor's career will be displayed. Moreover, a time series graph with the number of movies the actor was in each year will be shown below. We might add additional metrics over time (e.g. budget, revenue, etc...). You can find a sketch of what we have in mind on the right.

Actor: Tom Cruise

Number of films: 50 Average rating: 4.3
Average budget: 10.2M \$ Total budget: 353M \$
etc...



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Website skeleton:

<https://com-480-data-visualization.github.io/datavis-project-2022-datartists/>

This is a skeleton of the website. Only the treemap is displayed dynamically. The other visualizations are just images (for now). The connection graph takes the whole left half space being the primary visualization. The other visualizations are stacked on the right, in an information pane about the actor. In the final website, when an actor is selected, either by clicking on a node or by using the search bar on the top right, all the visualizations (connection graph, treemap and actor's metrics) will be updated to show the selected actor's connections, metrics and movie / genre portfolio.