Design Overview

After browsing through the five potential datasets, we selected the movies dataset since its data attributes seemed intriguing, and we wanted to further explore this data. We then had to pick which style of visualization would effectively communicate the data, and we decided on the storytelling style of visualization because we thought it would be a compelling way to show how movies changed over time. Since our dataset involved movies, we created a video player background with fast forward and rewind buttons. We presented the movies by year to display variations in movies as time passes. For each year, the movies were displayed as circles, with a larger size corresponding to a higher IMDb score. Circles were chosen to represent the data because it is a simple and effective data mark. Accompanying the video player is the storytelling text which provides further insight into the dataset through numeric calculations.

There were several analytical questions that we considered when investigating the dataset. Examples include "What is the total number of movies made in 2011?", "What was the highest rated (IMDb score) movie in 2010?", "Is there a pattern of movies having longer durations over time?", "Which movies fall under the genres of action and crime?", and "Who was the director of the movie, *Alice in Wonderland*?". Our objective was to communicate interesting characteristics of the movie dataset through both text and visuals. Through the combination of storytelling text and the video player's visuals, we highlighted different fascinating aspects of the data, such as trends in the data as well as genres that performed the best at the box office. In order to effectively convey the data to our users, we had to create not only a functional interface, but also an aesthetically pleasing interface that allows users to complete several analytic tasks through the use of interactivity. In accordance with Shneiderman's mantra, our visualization allows for overview first, zoom and filter, and then details on demand.

List of Analytic Tasks:

- Retrieve Value
    - Hovering over a data case makes the tooltip appear which contains information about the movie's title, director, actors, year, genres, content rating, IMDb score, and budget.
    - Users can also see specific attributes of a movie based on its color. They can color the data items based on the category they choose: color, language, country, or content rating.
- Filter
    - Users can filter the data by genre, and multiple genres can be selected. For example, selecting 'Action' and 'Animation' would show all movies having either of those genres.
- Compute Derived Value

- Multiple values are computed and displayed in the storytelling aspect of the visualization. These values include the total number of movies made per year as well as the average duration, gross, and budget of all the movies for that year.

- Find Extremum
  - The movies with the highest and lowest IMDb scores as well as movies with the most amount of Facebook likes and the highest gross are listed in the storytelling text.
- Sort
  - The movies are sorted by the year in which they were created and arranged in chronological order.
- Correlation
  - In the storytelling feature of the visualization, the text lists the percent change in the number of movies made per year and the percent change in the average duration of movies. This reveals if there is a pattern of movies having longer durations and if there is a trend of more movies being created as time passes.

<u>UI Screenshots + Descriptions</u>

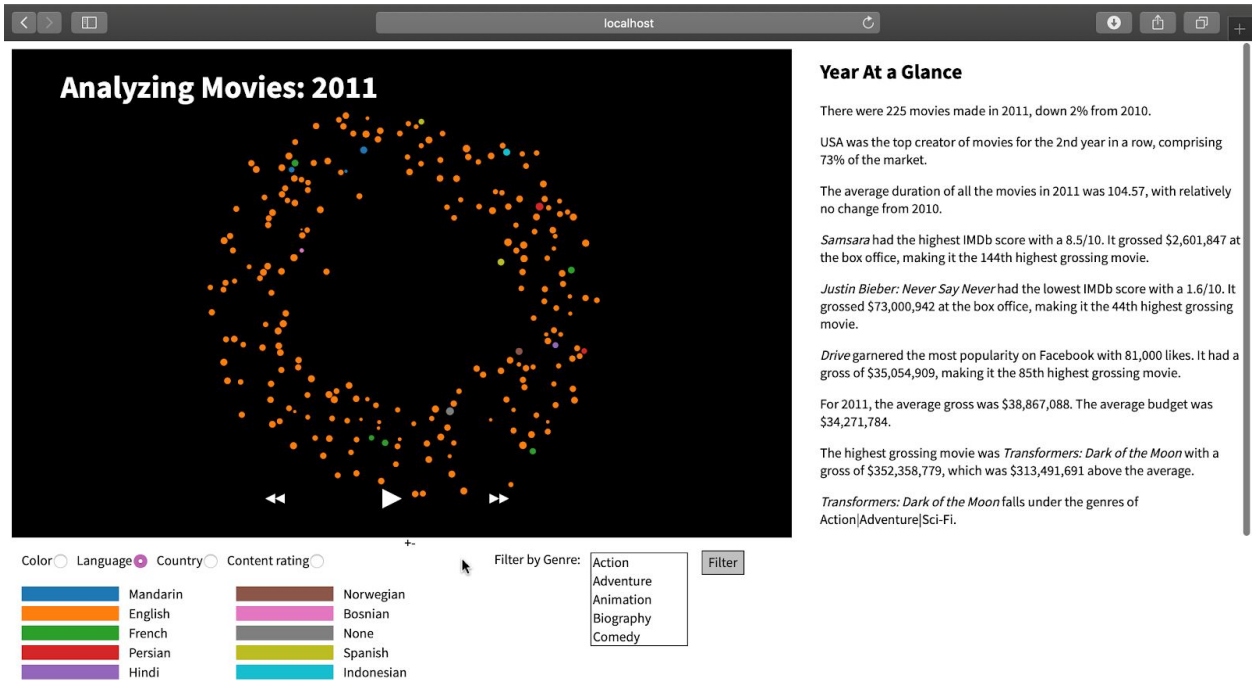

Figure 1: Overview, with storytelling text highlighting trends and correlations

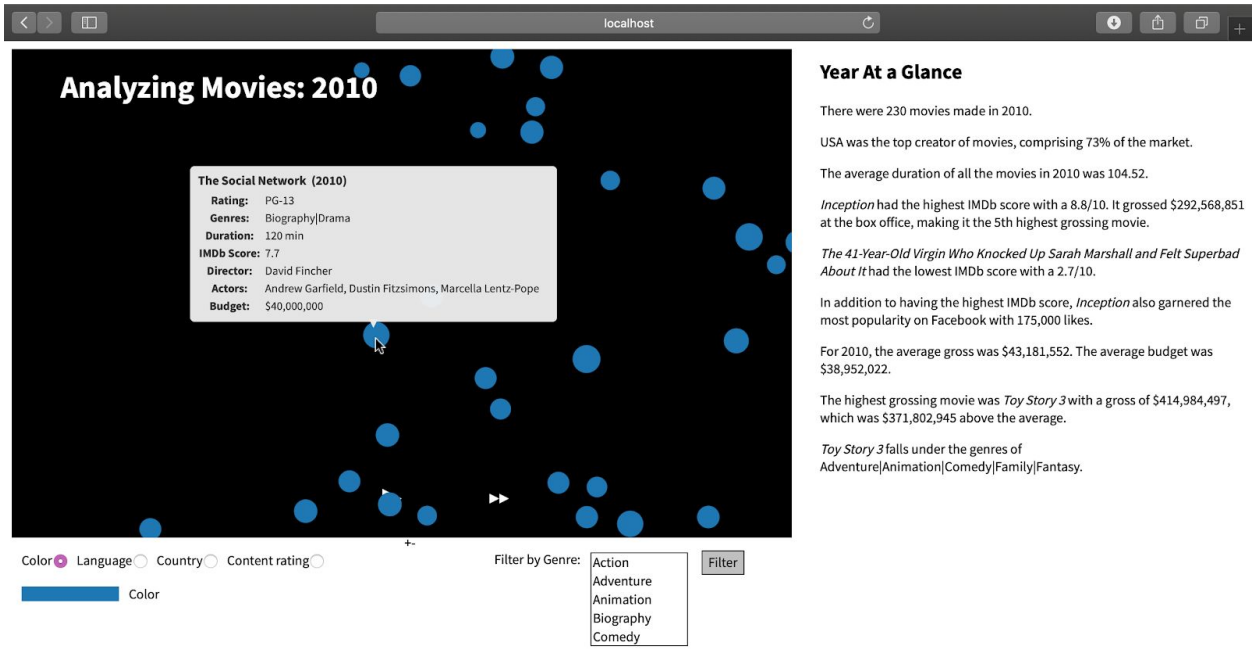

Figure 2: Details for *The Social Network*

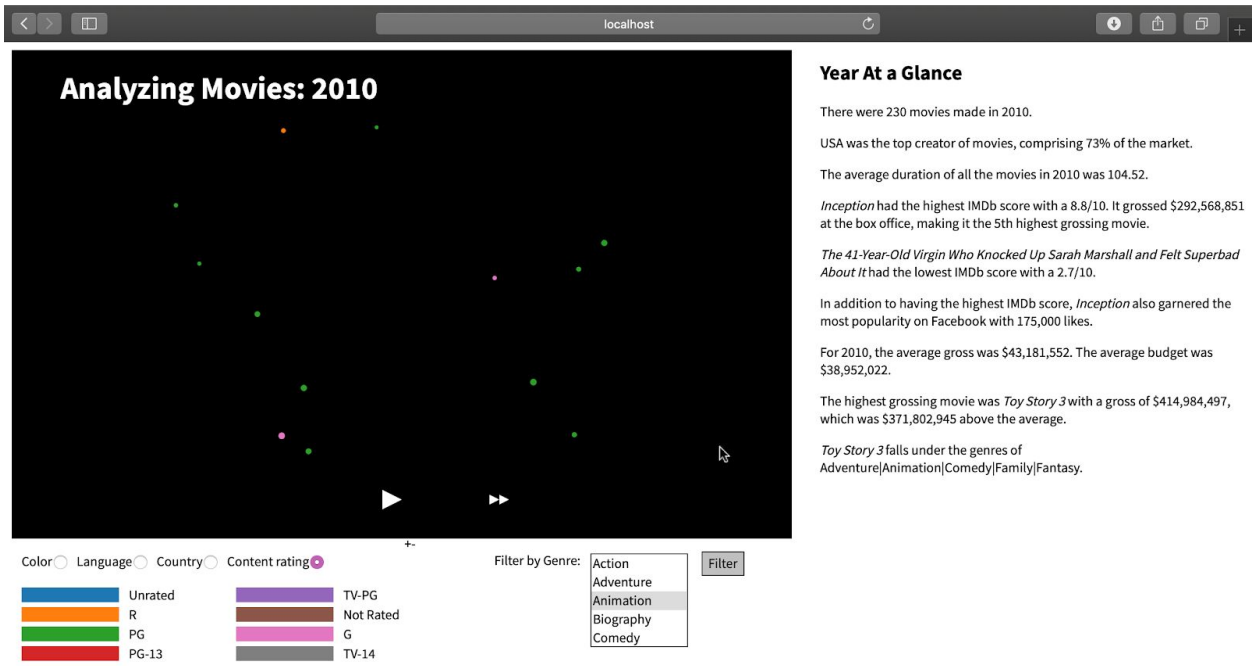

Figure 3: Viewing animated movies in 2010 by content rating

Video Player

The video player shows the movies which are colored by content rating and sized by IMDb score. A legend is provided that shows what each color maps to. Users can also color the data with other attributes, including the movie's country, language, and color. Another feature of the visualization is that users can explore the data through double clicking on the video player background and dragging the cursor around. Hovering over a data case reveals the tooltip which highlights important information for each movie, including the title, director, actors, genre, year, content rating, IMDb score, and budget. Users can navigate through the years by pressing the fast forward and rewind buttons. There is also a zoom in and zoom out feature (press the +- or use the keyboard touchpad to zoom in and out) which allows for overview and detail, and a drop-down menu which allows users to filter the data by genre. Multiple genres can be selected by holding down the Ctrl (Windows) / Command (Mac) button.

Storytelling Text

The storytelling aspect of the visualization features text describing details about the specific year, including the total amount of movies made, the leading maker of movies for that year, the highest and lowest rated movies according to its IMDb scores, the average duration, gross, and budget of all the movies, the movie with the most amount of likes on Facebook, and details about the highest-grossing movie.