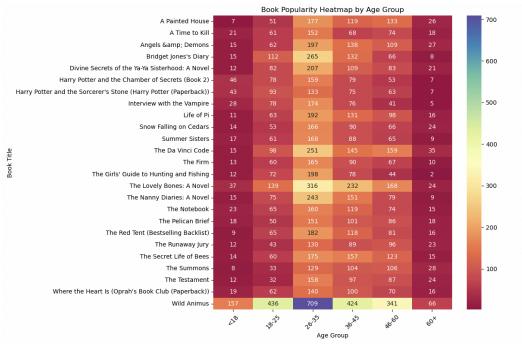
# Visualizing Book Popularity Across Age Groups and Authors

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## Heatmap highlighting book popularity by age group

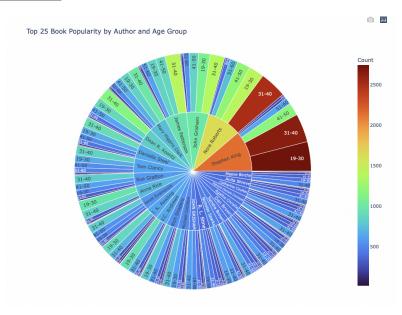


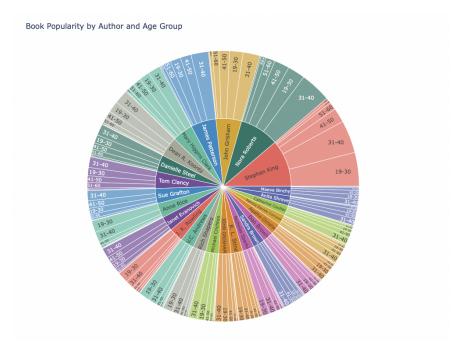
## 1. Legend

a. X-axis: Age Groupsb. Y-axis: Book Titles

c. Color Intensity: Number of ratings (the darker the shade, the more popular the book within that age group)

I made two sunburst charts. The first one shows the top 25 popular books by author and age group. I thought this looked messy, so I organized it better shown in the second sunburst chart.





## 2. Legend

- a. Middle Ring: Author name
- b. Outer Ring: Age groups of readers for that author
- c. Color: Coded using Plotly's qualitative "Vivid" palette or a continuous color scale based on count (as in the second version)

## **Key findings**

#### 3. Findings from heatmap

- a. Wild Animus stands out as the most popular book across almost all age groups.
- b. Age group 26–35 had the highest volume of book interactions across nearly all titles, suggesting this group is the most actively reading or rating books.
- c. Teenagers (<18) and older adults (60+) had much lower participation, with few titles reaching high popularity among them.
- d. The Harry Potter series maintains consistent interest across younger age groups, particularly <18 and 18–25.
- e. *The Da Vinci Code* has broad appeal among adult age groups (18-60). It consistently ranks high in popularity within these demographics.

#### 4. Findings from sunburst chart

- a. Stephen King and Nora Roberts dominate across all age demographics, showcasing their broad cross-generational appeal.
- b. Authors like Nora Roberts, Sue Grafton, and Dean Koontz show higher popularity among readers aged 31–50, indicating a strong following among Gen X.
- c. The use of a custom color palette (plotly.colors.qualitative.Vivid) helped visually separate authors and age groups, making the complex data more readable.
  - i. The visual revealed that certain authors are almost exclusively read by one age group, such as younger readers gravitating toward J.K. Rowling.

d. Despite being crowded, the chart highlighted clusters of authors popular within the same age bracket, supporting genre-based targeting for similar readers.

#### **Data and Method**

- 5. Dataset Source: Kaggle Books Dataset https://www.kaggle.com/datasets/saurabhbagchi/books-dataset
- 6. Preprocessing:
  - a. Removed duplicates and missing values
  - b. Categorized users into age groups
  - c. Grouped ratings data by age and book title (for the heatmap) and by age and author (for the sunburst chart)
- 7. Tools and methods used:
  - a. Python, Pandas for data manipulation
  - b. Seaborn for the heatmap visualization
  - c. Plotly for interactive and clean sunburst chart rendering
  - d. Since the dataset was so big I had to narrow down to top 25
- 8. Color Tuning:
  - a. Used plotly.colors.qualitative.Vivid to make categories visually distinct and intuitive in the sunburst chart

## **Significance Statement**

This project helps us see how different age groups engage with books, which is something that can be really useful for people in publishing, education, or even marketing. Instead of just guessing who likes what, we can actually see patterns—like how the 26–35 age group seems to be the most active when it comes to reading, or how certain authors (like Stephen King or Nora Roberts) attract a wide age range while others are more niche. The heatmap gives a straightforward look at which specific books are popular across age groups, while the sunburst chart goes a level deeper by breaking it down by author and age. That makes it easier to notice things like which authors have broad appeal and which ones are more targeted toward a certain generation. This kind of visualization doesn't just make the data easier to understand—it also shows how we can use data to learn more about people's interests and habits. We can learn from the sunburst chart and heat map to see what genres of books the most popular authors are publishing and be able to recommend books in those genres to people in the corresponding age groups. Additionally, we can see which age groups aren't reading as much, which gives us a chance to dig deeper into why that is and think about how to suggest or create books they'd actually enjoy. Books connect with people on a personal level, but looking at trends like these helps us understand how culture, age, and storytelling come together.