

# CSCI 491: Data Visualization

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## 6- Visualizing amounts

# Visualizing amounts

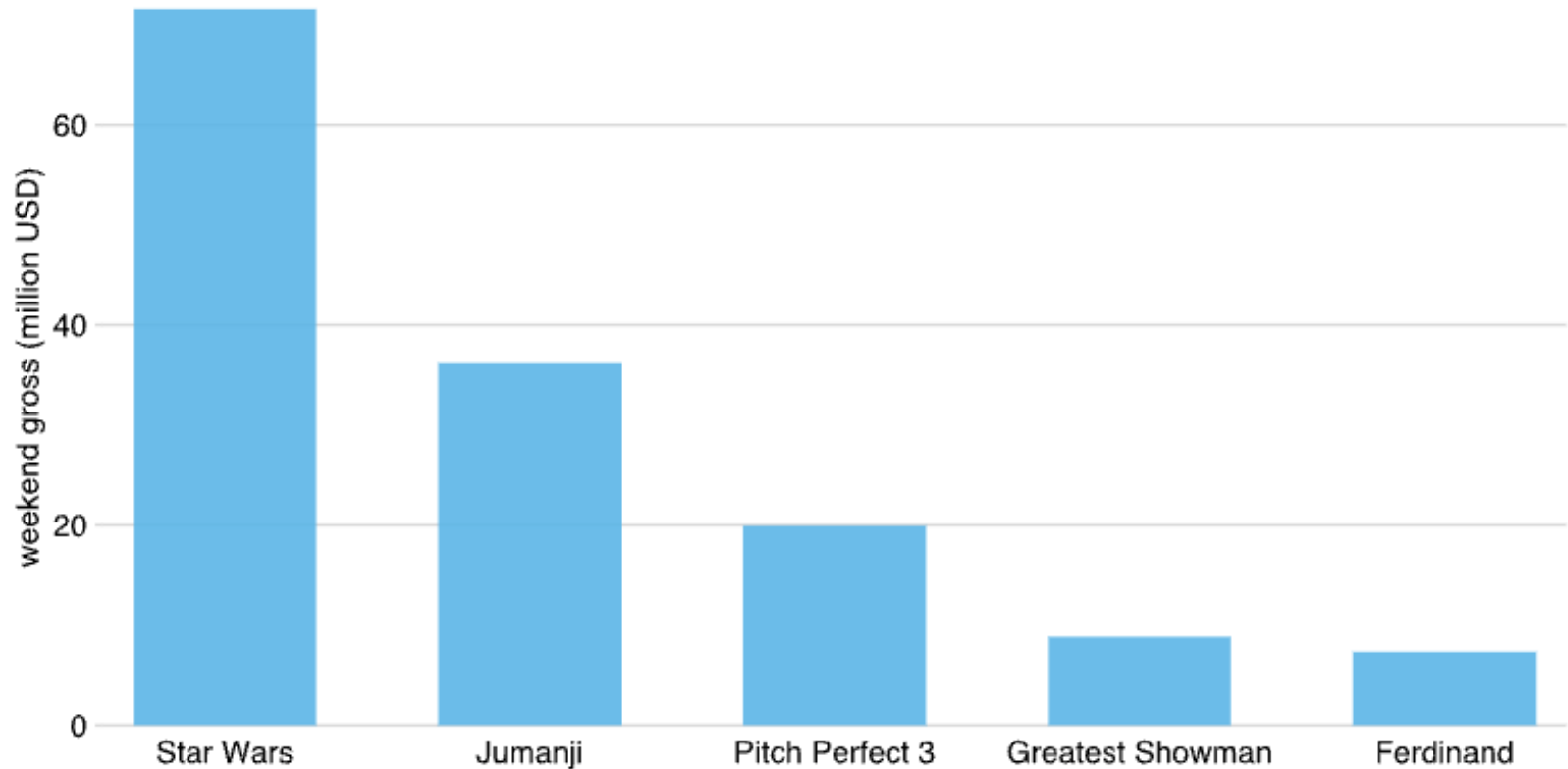
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- We often encounter datasets containing simple amounts and in the magnitude of these amounts.
- Example: Highest grossing movies Dec. 2017

Rank	Title	Weekend gross
1	<i>Star Wars: The Last Jedi</i>	\$71,565,498
2	<i>Jumanji: Welcome to the Jungle</i>	\$36,169,328
3	<i>Pitch Perfect 3</i>	\$19,928,525
4	<i>The Greatest Showman</i>	\$8,805,843
5	<i>Ferdinand</i>	\$7,316,746

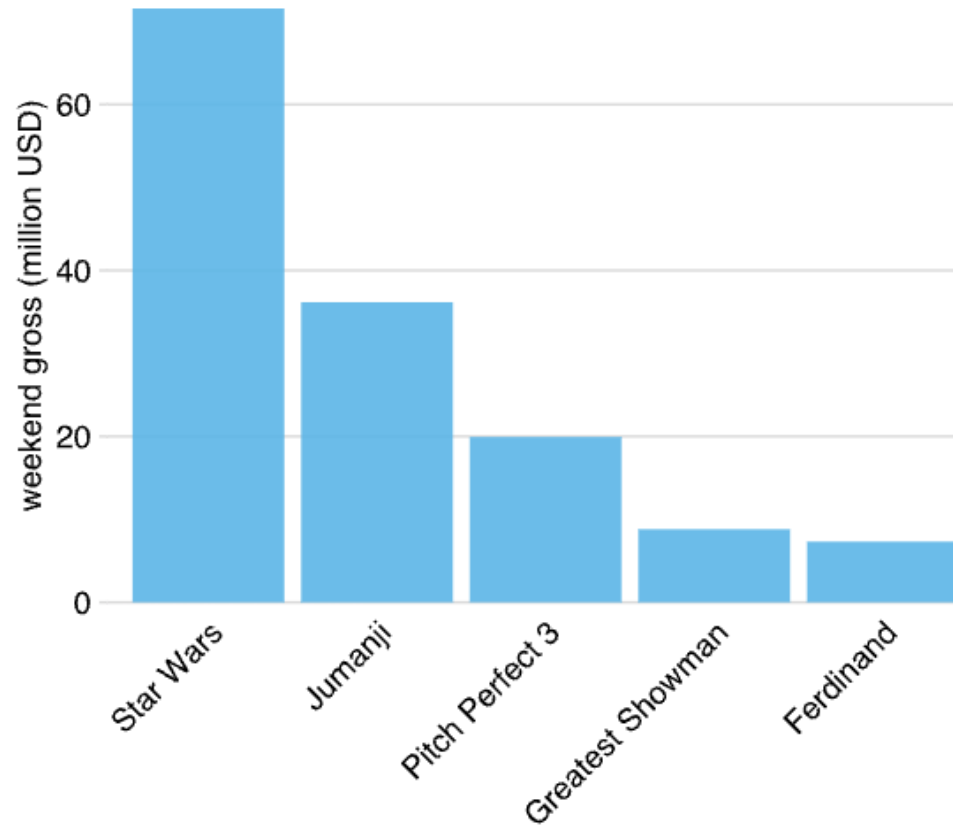
# Bar plots

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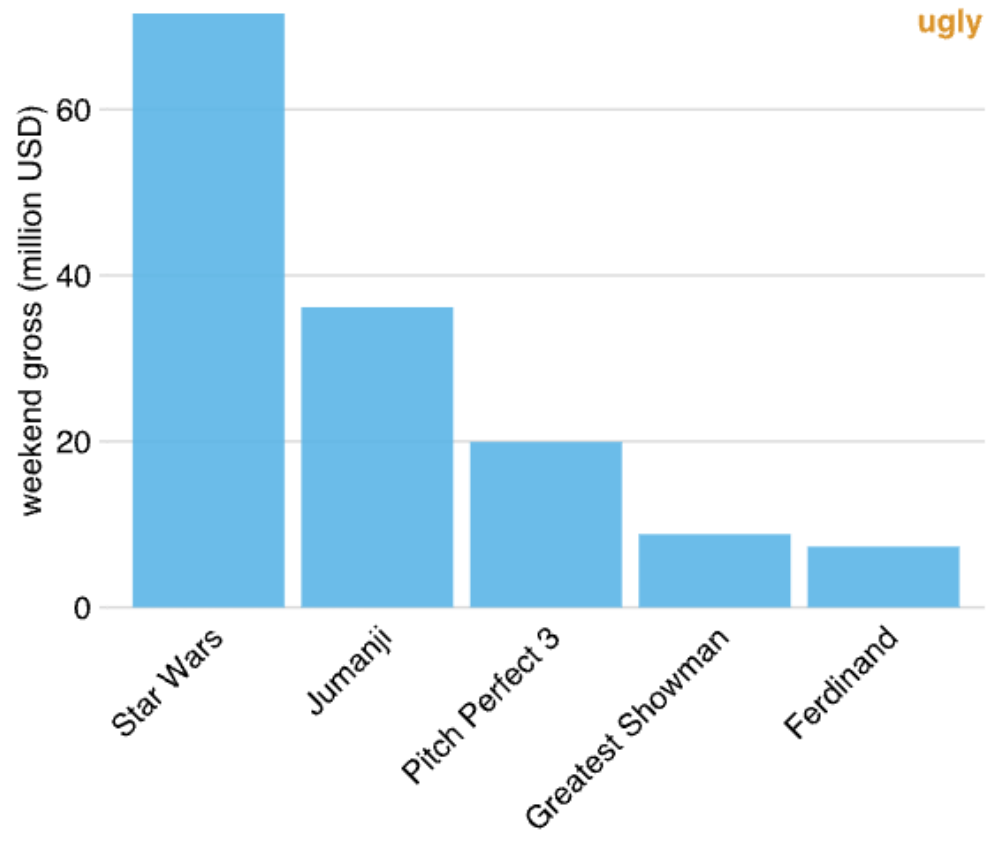
# What is wrong with this plot?

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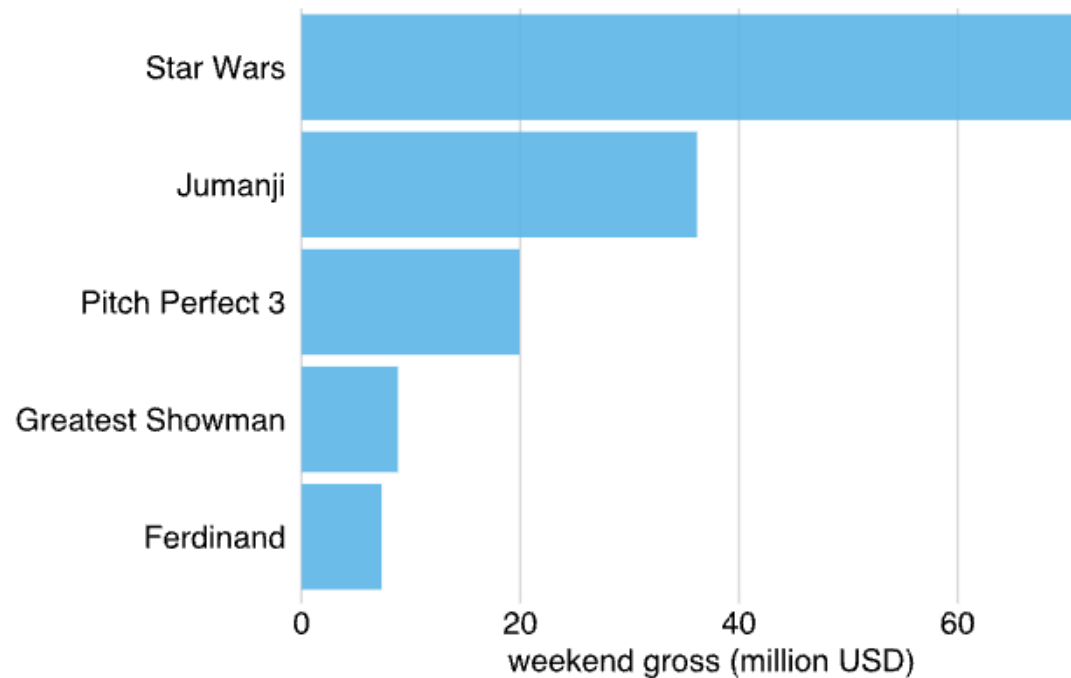
# Avoid rotated axis labels

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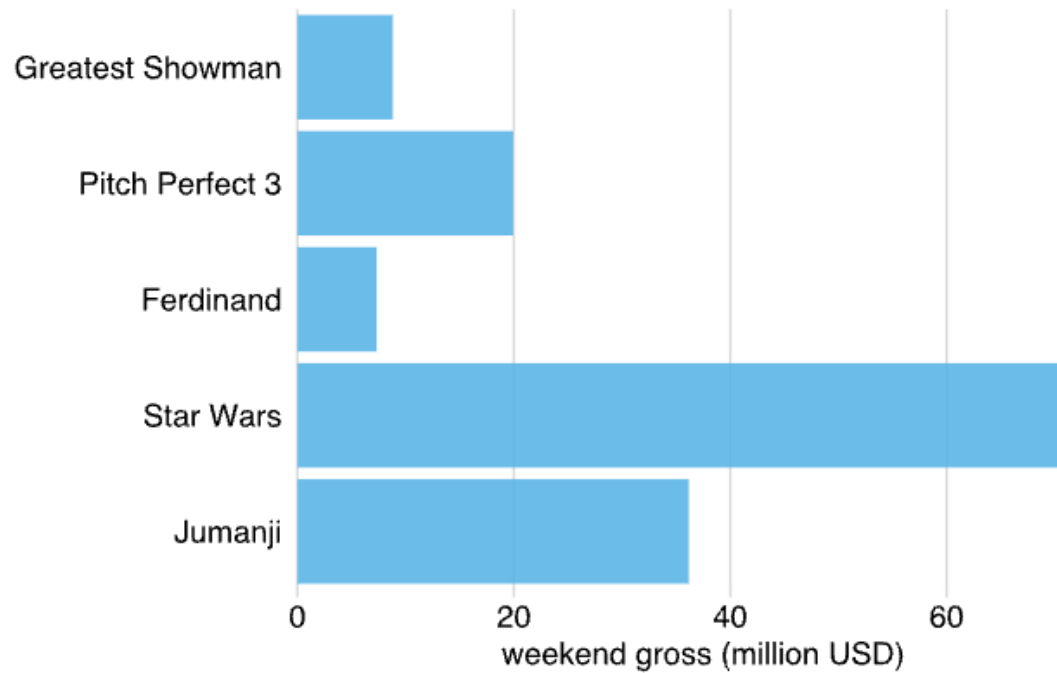
# You can make horizontal bars

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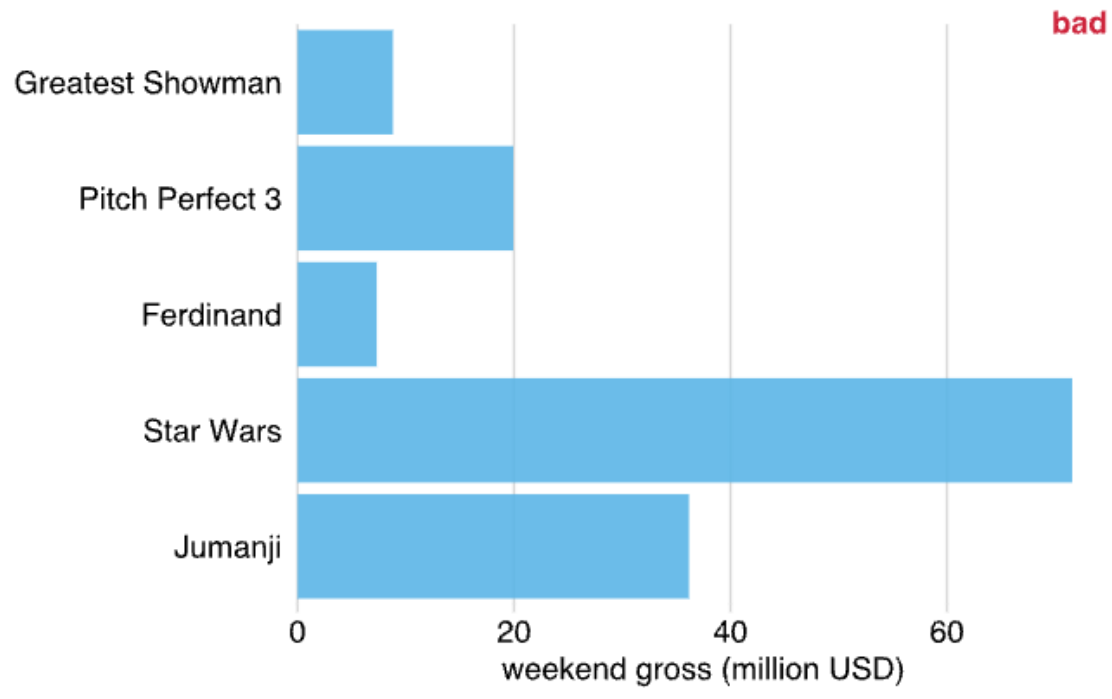
# What about this one?

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# Pay attention to the order of the bars

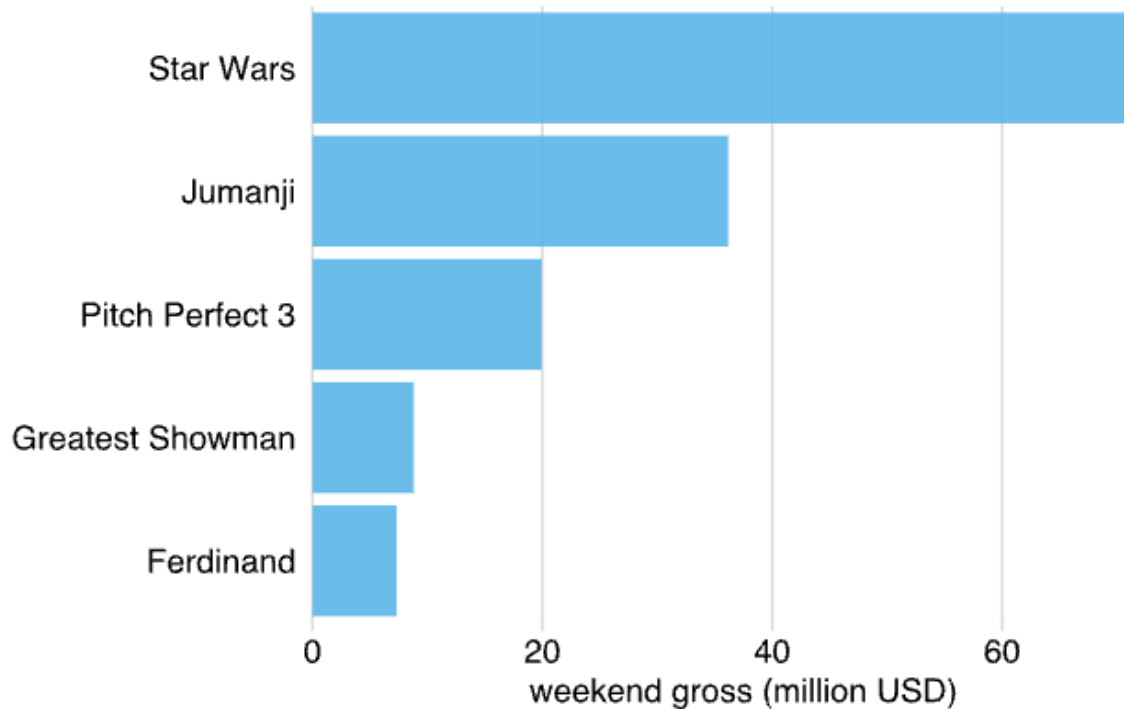
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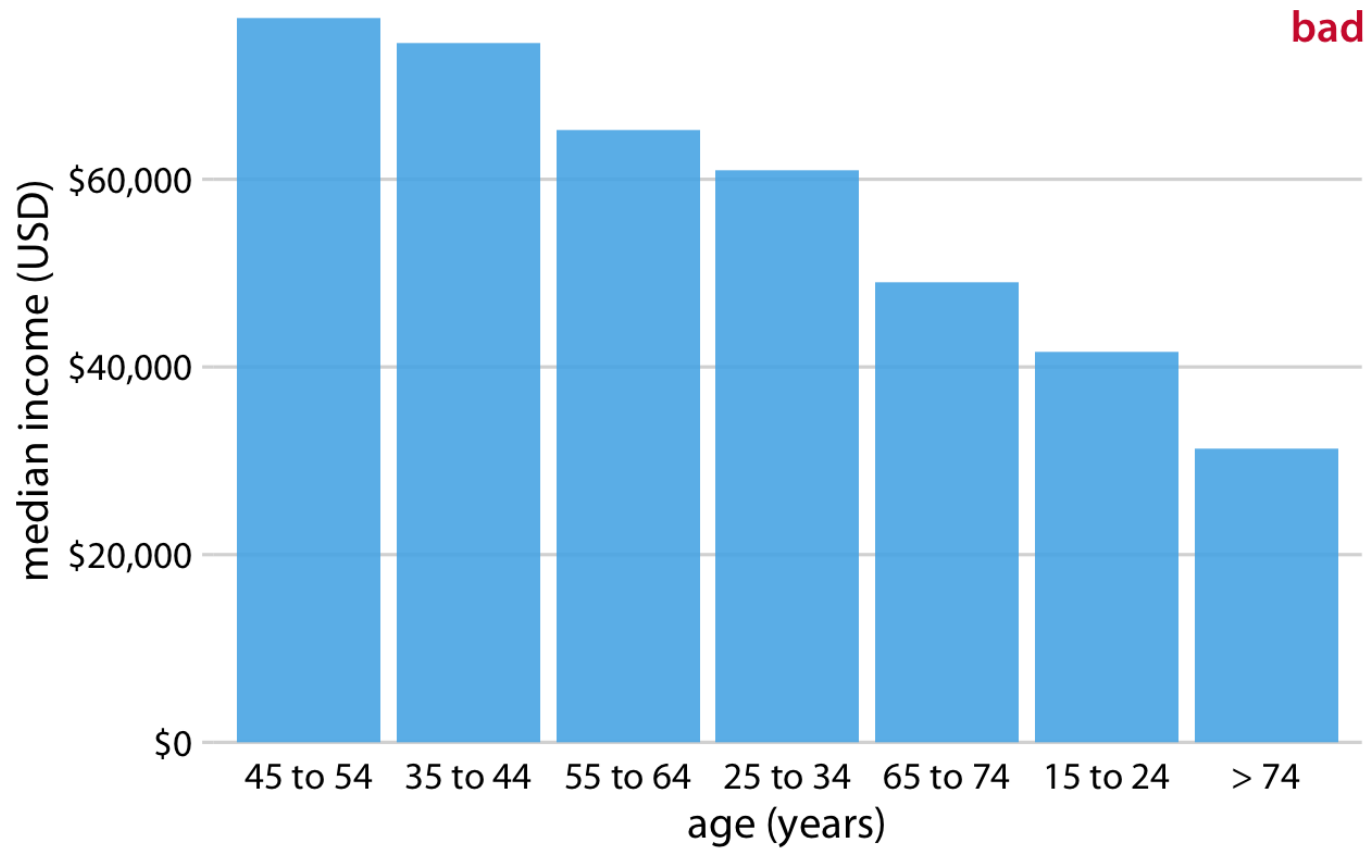
# Pay attention to the order of the bars

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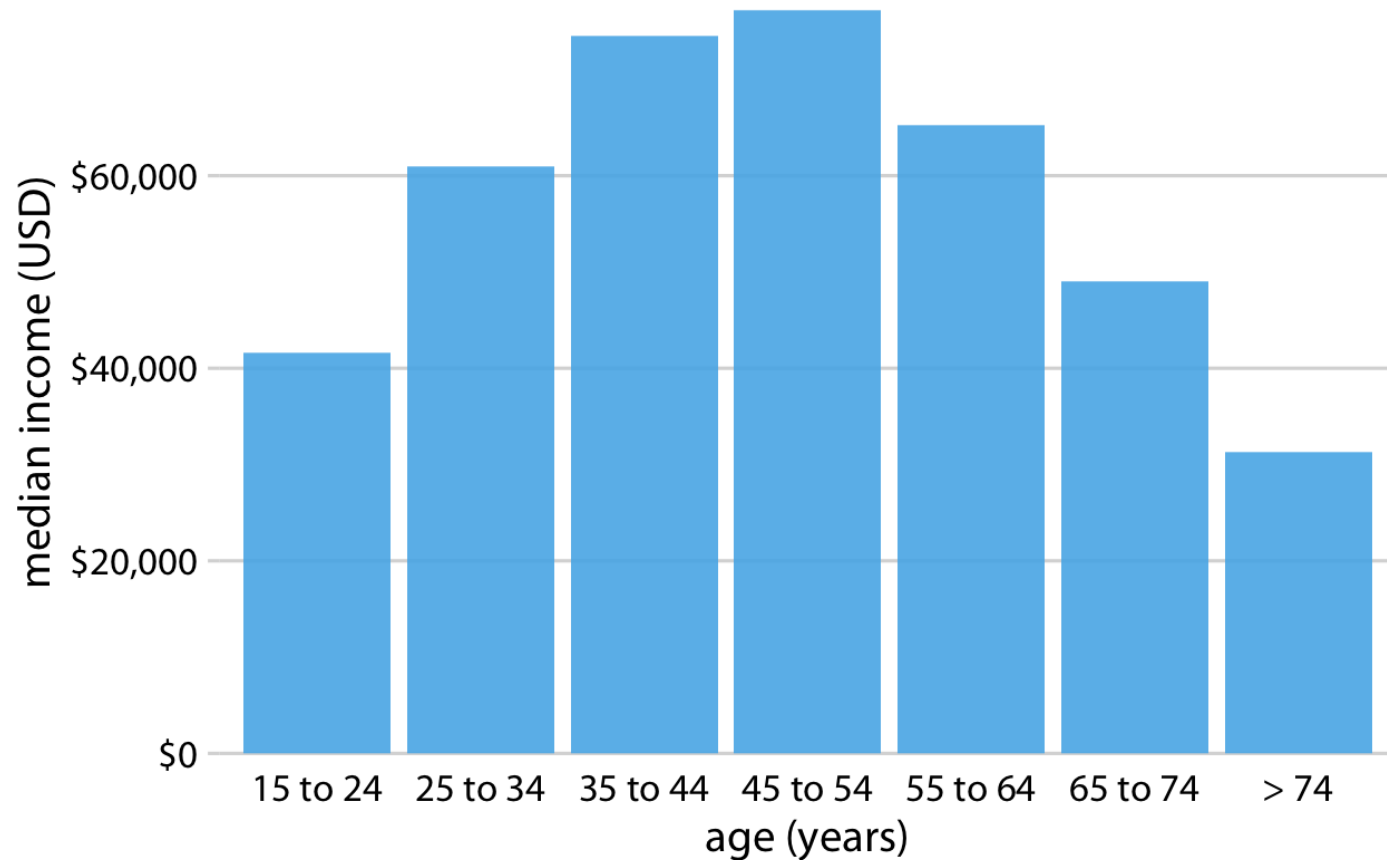
- Is there a case that ordering the bars based on their length is not recommended?

# Pay attention to the order of the bars



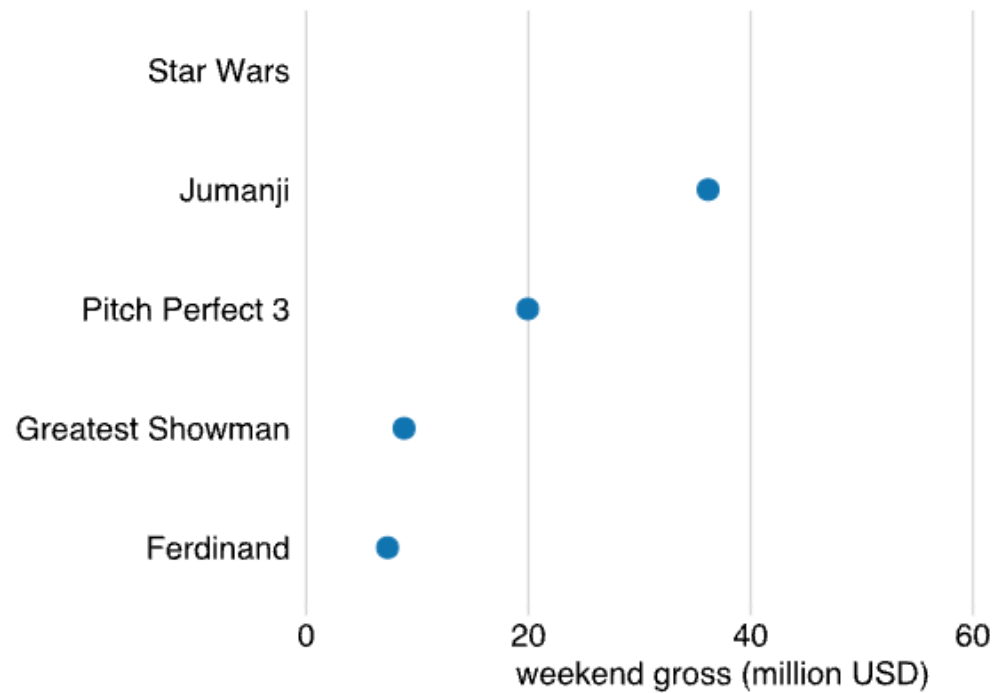
# Pay attention to the order of the bars

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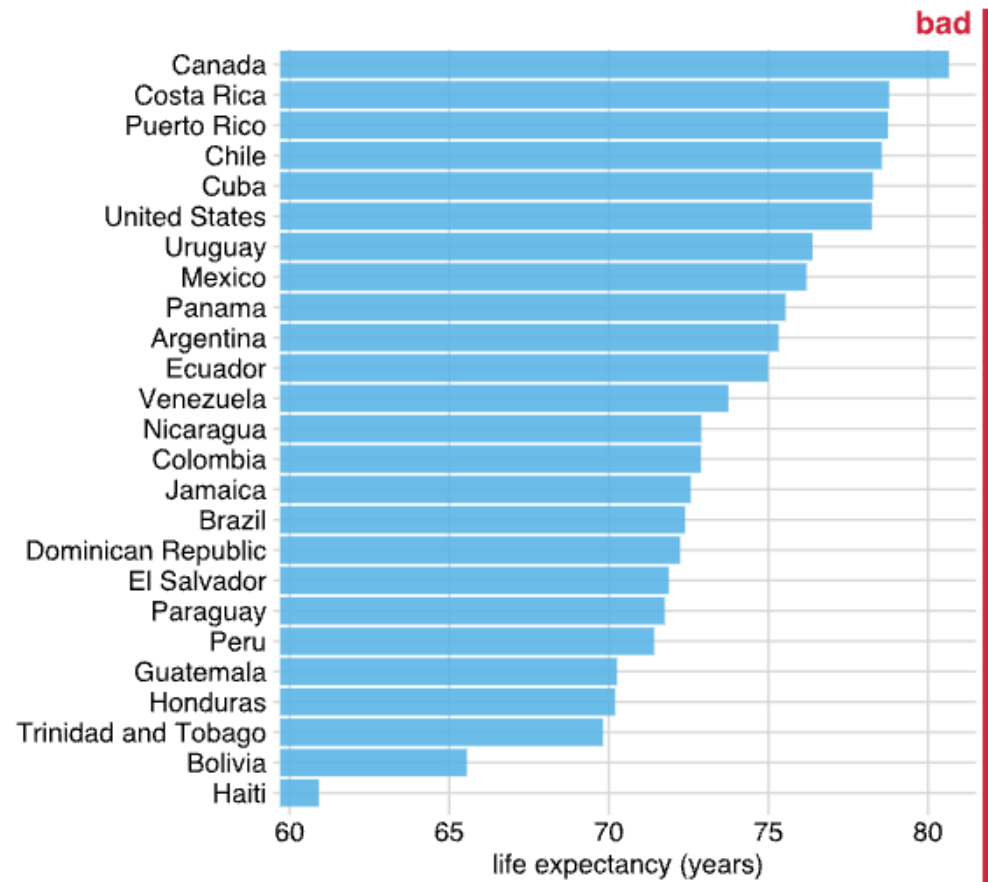
# Dot Plots

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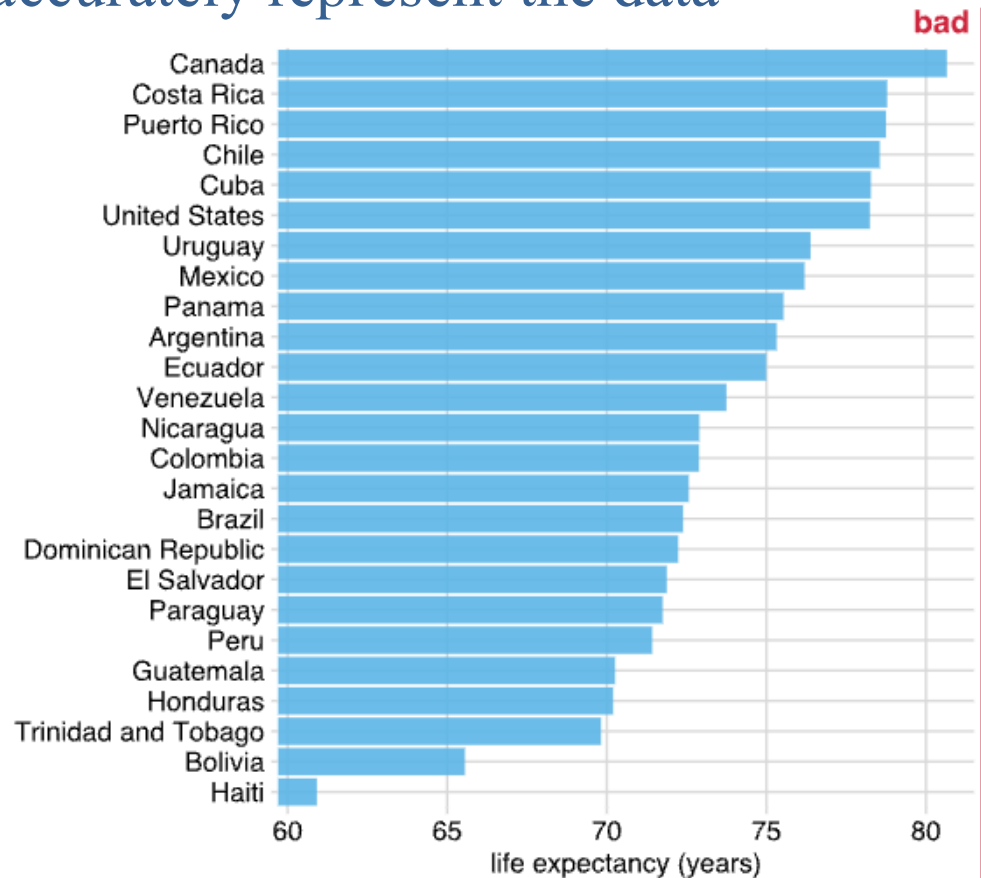
# Dot plots

- What is the problem with this bar chart?



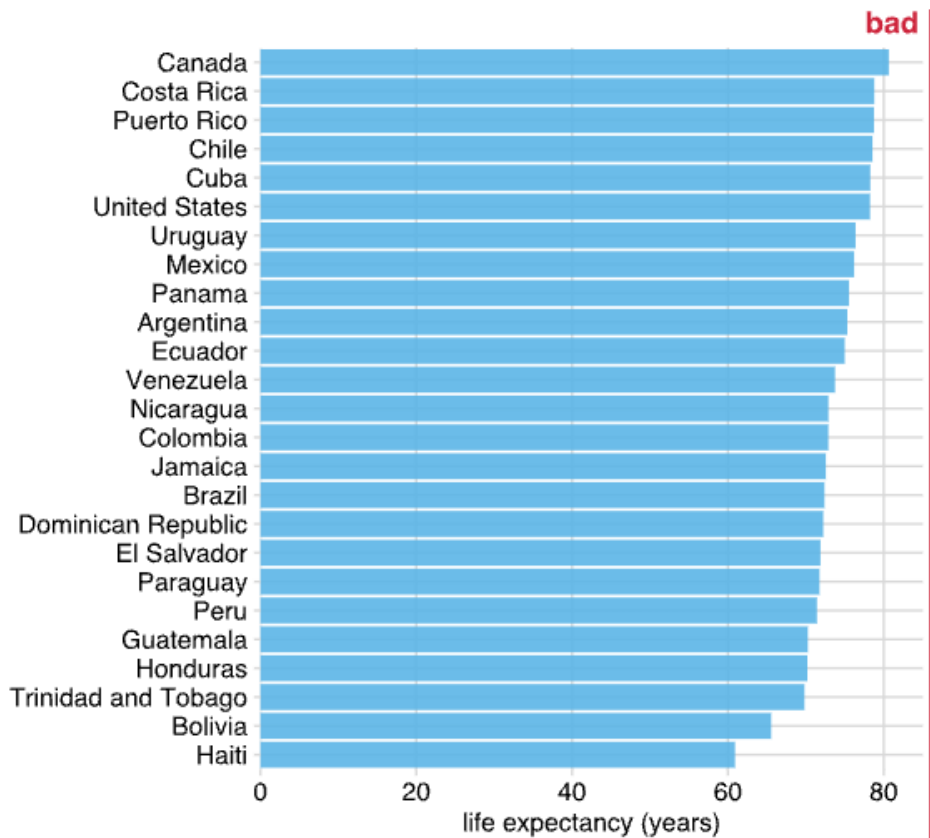
# Dot plots

- What is the problem with this bar chart?
- Bar lengths do not accurately represent the data values



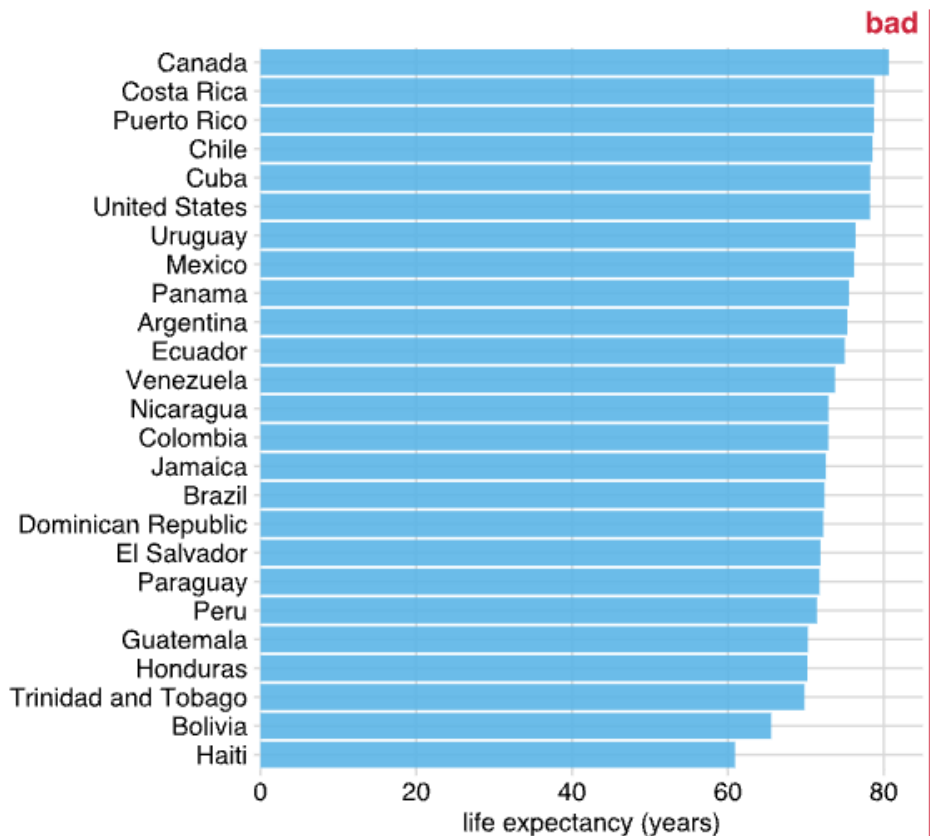
# Dot plots

- Now what is the problem?
- if we want to truncate the axes



# Dot plots

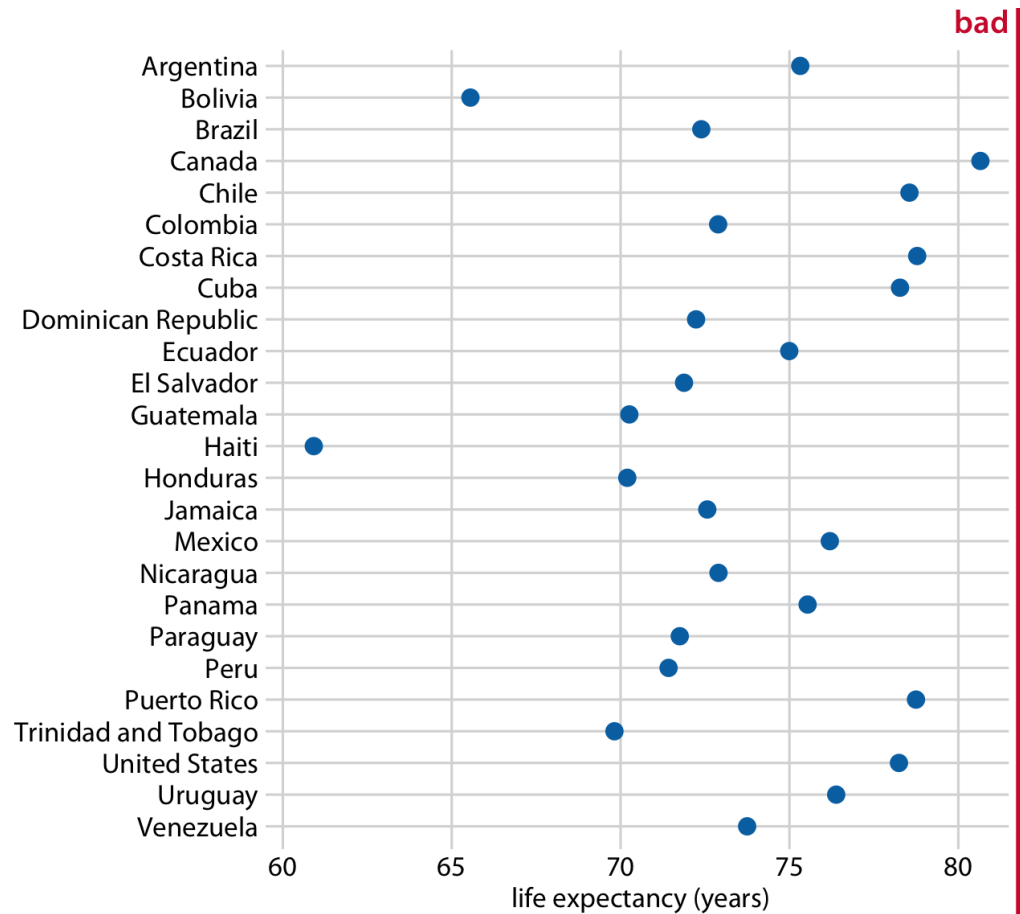
- Now what is the problem?
- Key features of the data are obscured
- Dots are preferable





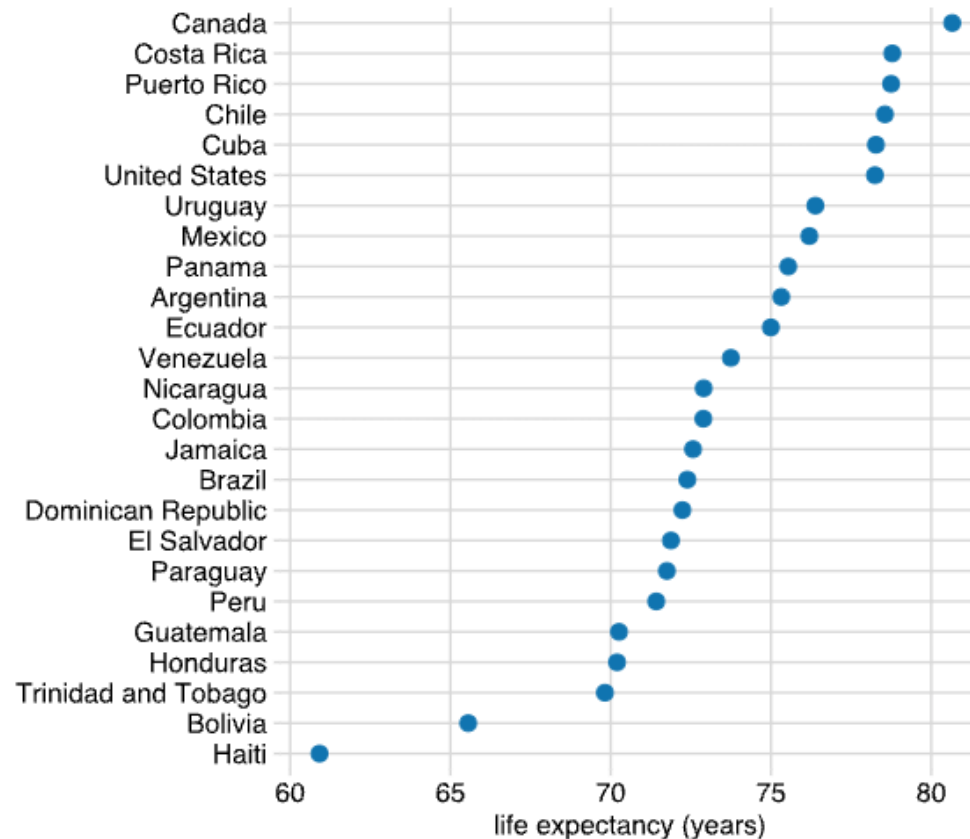
# Dot plots

- How about this one?



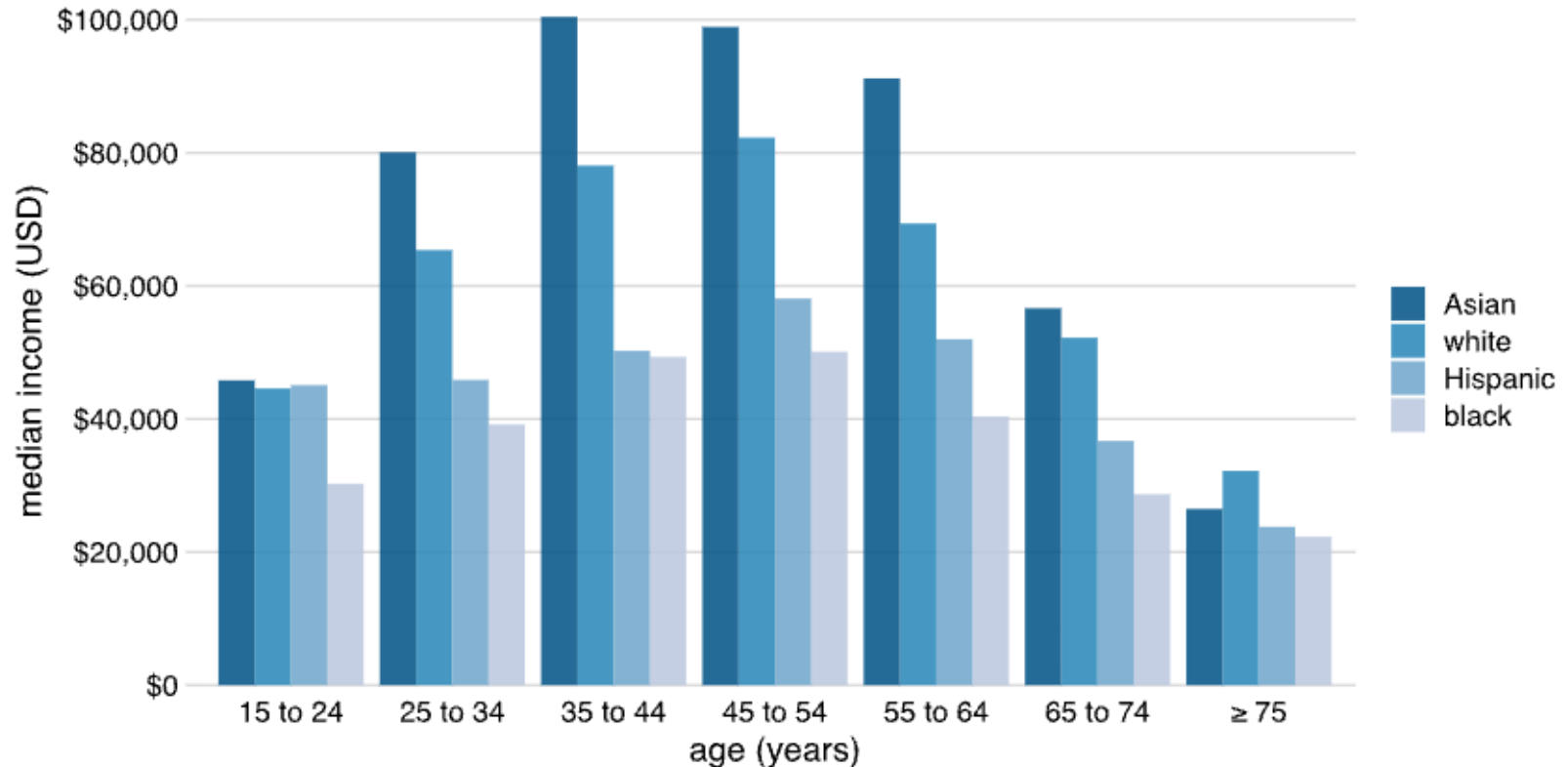
# Dot plots

- Dots are preferable if we want to truncate the axes
- Pay attention to the order of dots



# Grouped Bars

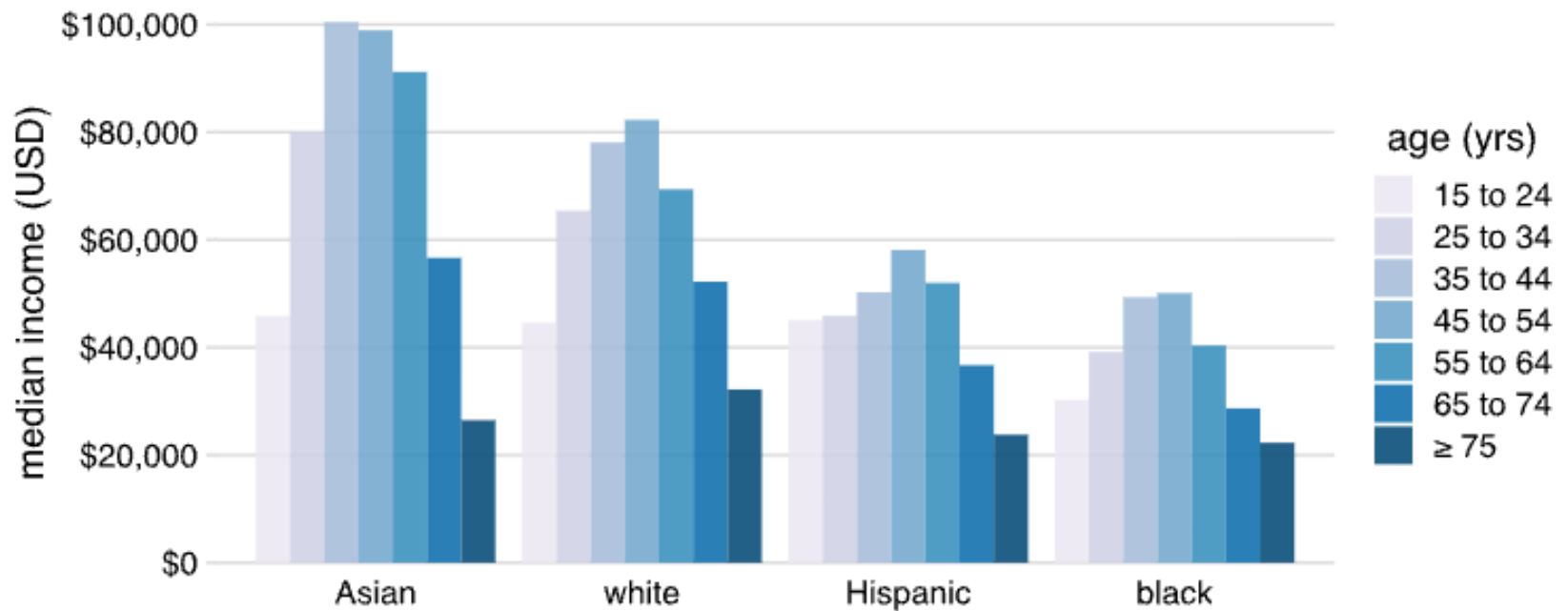
- We use grouped bars for higher-dimensional datasets



Data source: United States Census Bureau, 2016

# Grouped Bars

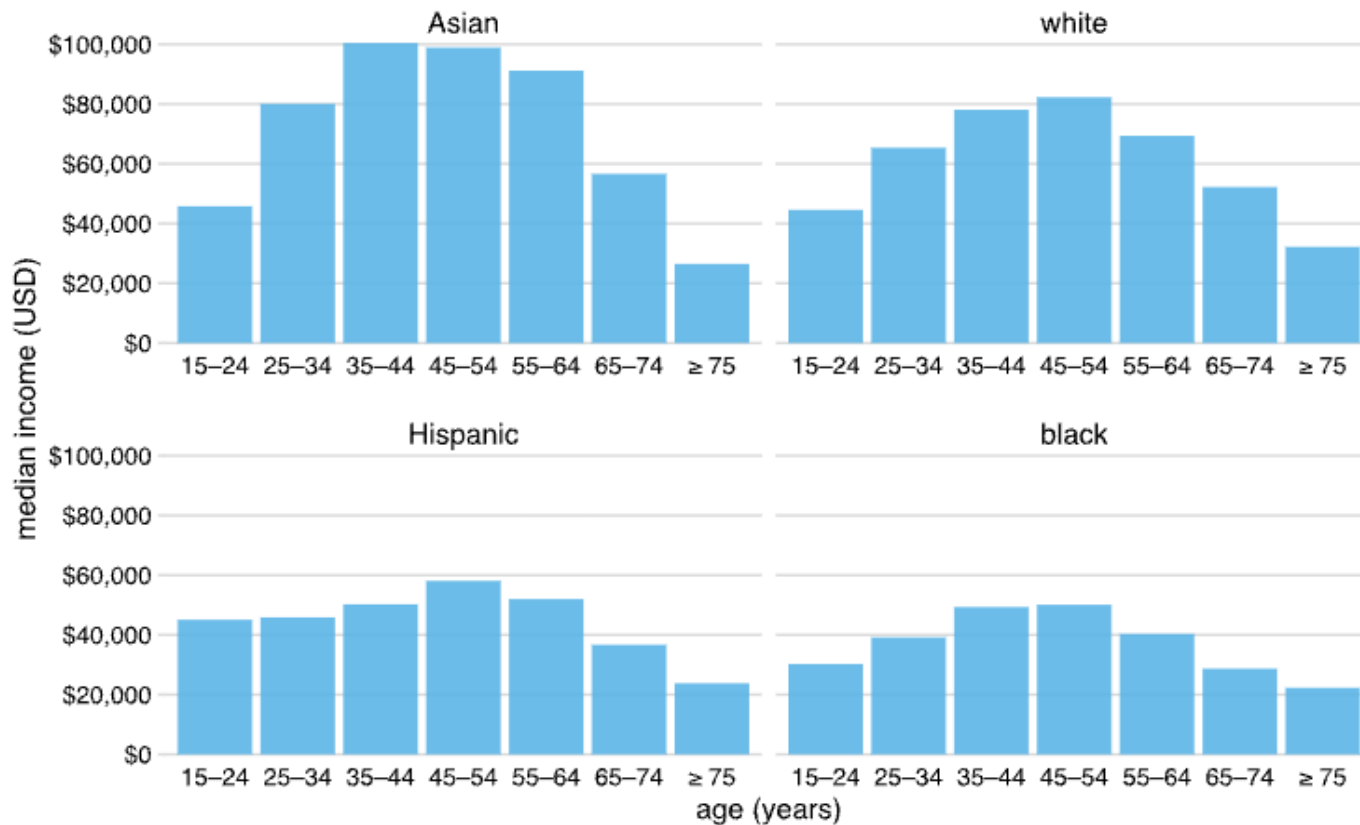
- We are free to choose by which variable to group



Data source: United States Census Bureau, 2016

# Grouped Bars

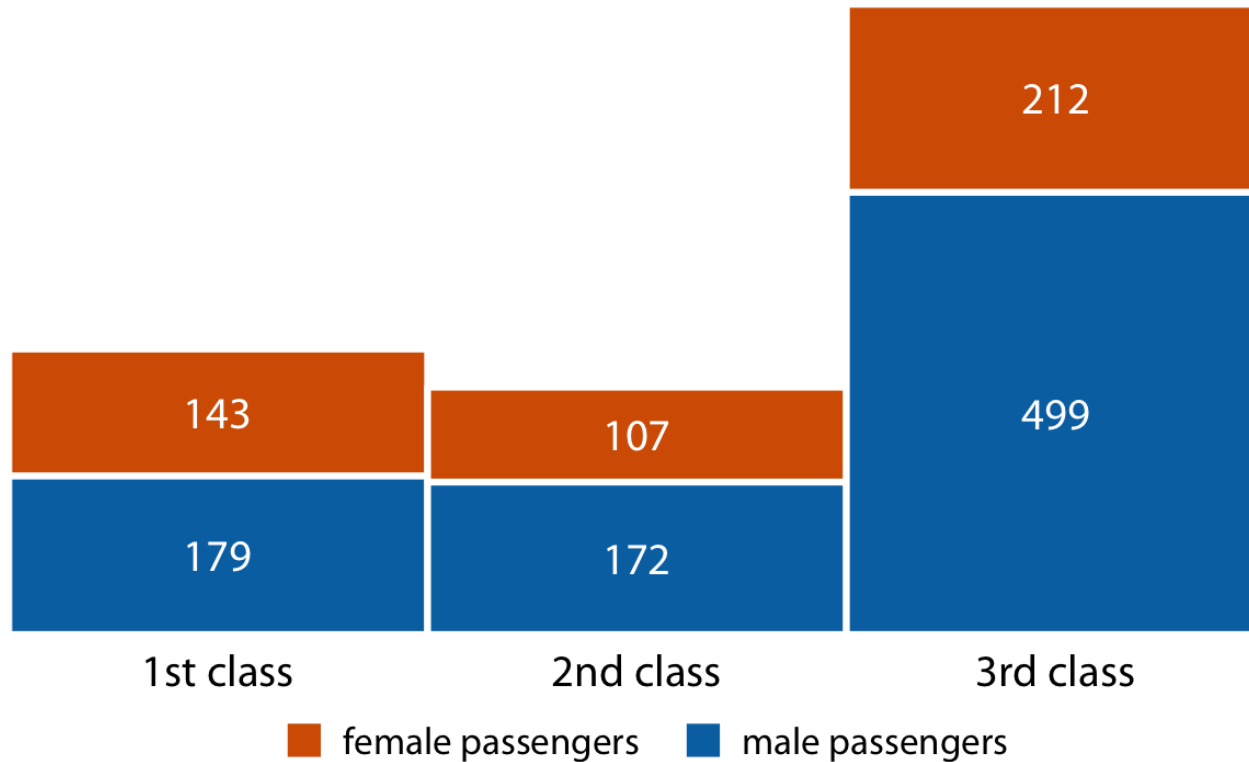
- We can also use multiple plot panels



Data source: United States Census Bureau, 2016

# Stacked Bars

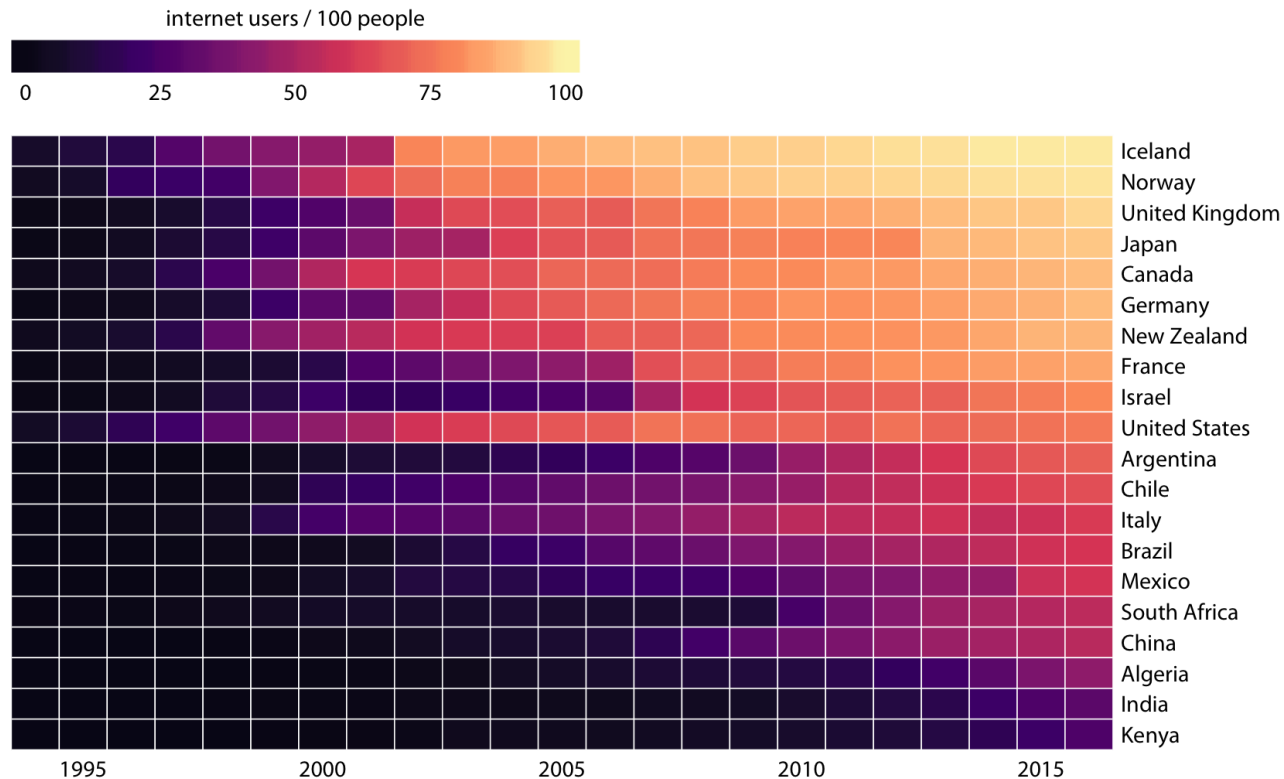
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Numbers of female and male passengers on the Titanic traveling in 1st, 2nd, and 3rd class. Data source: Encyclopedia Titanica.

# Heat maps

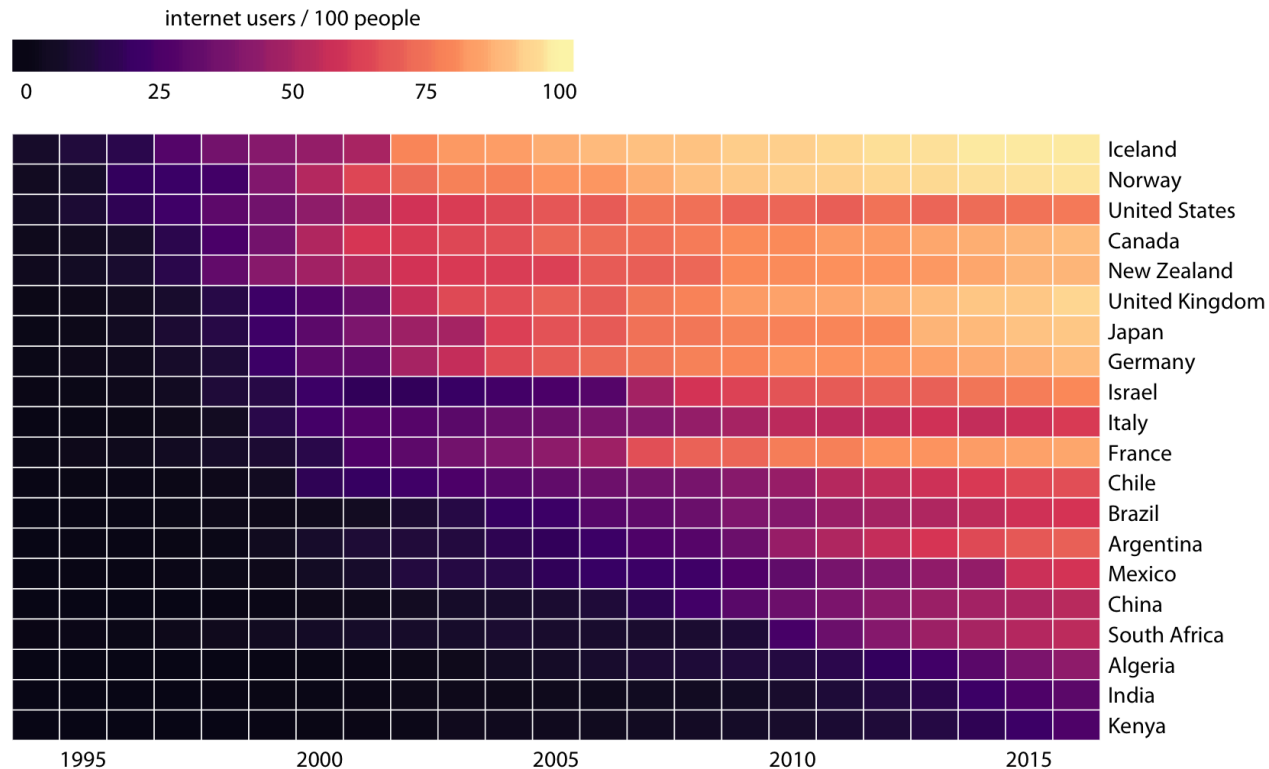
- When are heat maps preferred?



Internet adoption over time, for select countries. Color represents the percent of internet users for the respective country and year. Countries were ordered by percent internet users in 2016. Data source: World Bank.

# Heat maps

- Does the order matter in heat maps?



Internet adoption over time, for select countries. Countries were ordered by the year in which their internet usage first exceeded 20%. Data source: World Bank.