# You and Your Project Proposals

**Learning goals:**

- **Get some tips for feasible and interesting project proposals.**
- **See some examples of interesting research questions.**

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**COGS 108 Winter 2020**
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**Discussion 3**

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**OH: Thurs 11a-12p in SSRB 100**

# Sam’s Guide for a Good Project Proposal

- **Find 3 interesting datasets.**
  - **I suggest looking at Data is Plural.**
- **Come up with 3 research questions for each dataset.**
- **Pick one.**
- **Why does this work? Quantity > quality for brainstorming.**

# How do I pick a question?

- Ask a question that would be interesting to a friend.
- Many good questions relate two quantities that are not obviously related.
  - Boring: What's the most common name in COGS 108?
  - Boring: Can you predict a person's sex from their name?
  - Fun: Can you predict a person's age from their name?
  - Fun: Can you predict a person's sex from the last letter of their name?

# Fill out this form:
# bit.ly/wi20-names

# Then, I have a demo:
# bit.ly/sam-wi20

(The demo is based off of https://www.textbook.ds100.org/ch/01/lifecycle_intro.html)

# Example research questions from last week's Data is Plural newletter:

- Does China primarily loan to countries with low GDP? Or countries that are military / economic allies?
- Are there more radio stations per capita for mountainous areas?
- Do cities with more disconnected streets have worse health conditions?
- Are cannabis testing labs consistent with each other?
- Does the number of backyard ice skating rinks change with global temperature patterns?

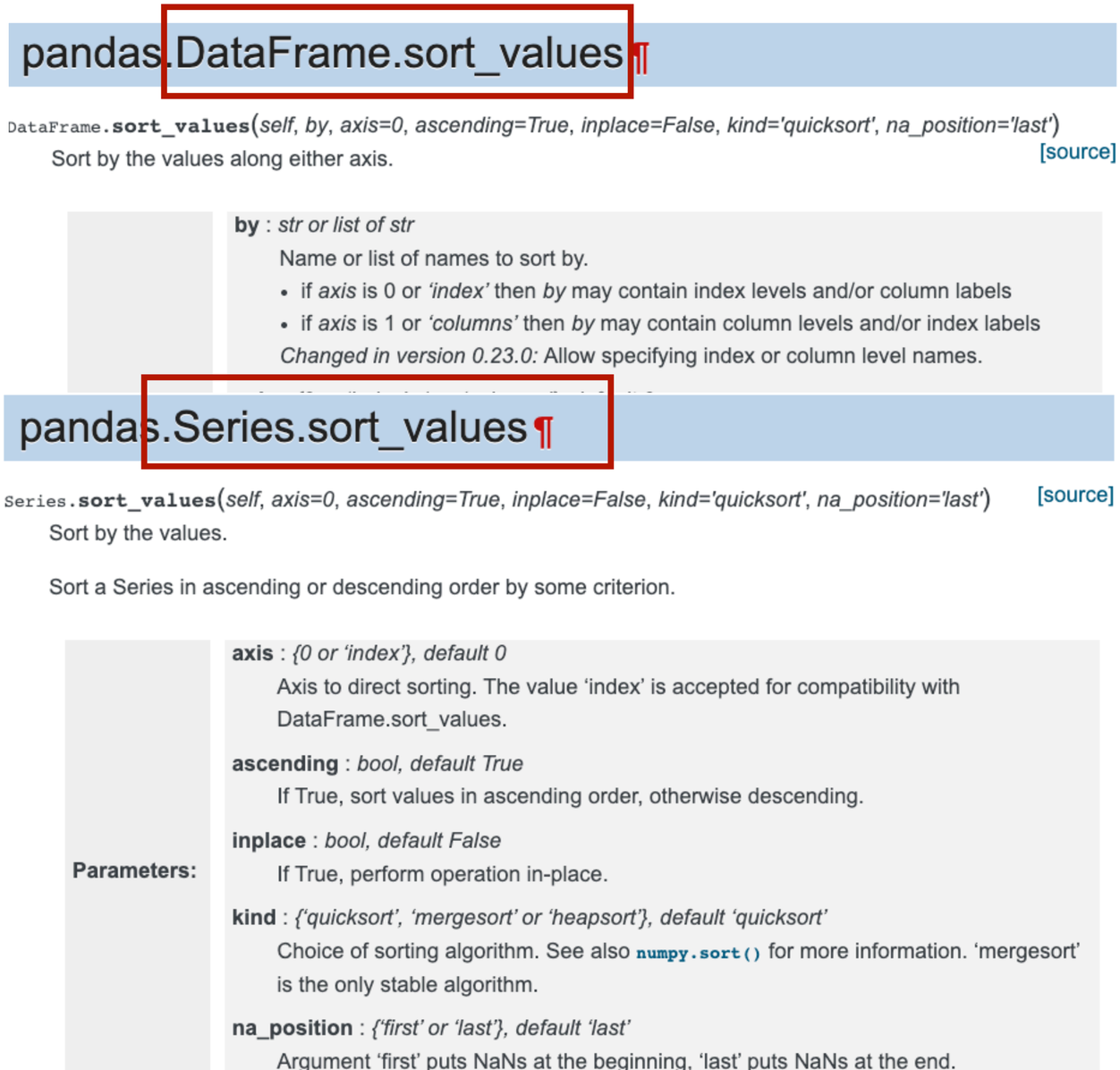
**Rest of time:**

**Work on project proposals.**

**I will walk around and give feedback.**

# Preview of Next week

- **Difference between pandas DataFrames and Series.**
- **How to use Google to solve problems on A2.**
- **How to read the pandas documentation.**
- **A2 problem walkthroughs.**



pandas.DataFrame.sort_values¶

`DataFrame.sort_values(self, by, axis=0, ascending=True, inplace=False, kind='quicksort', na_position='last')` [source]

Sort by the values along either axis.

**by** : *str or list of str*
Name or list of names to sort by.
- if *axis* is 0 or *'index'* then *by* may contain index levels and/or column labels
- if *axis* is 1 or *'columns'* then *by* may contain column levels and/or index labels

*Changed in version 0.23.0:* Allow specifying index or column level names.

pandas.Series.sort_values¶

`Series.sort_values(self, axis=0, ascending=True, inplace=False, kind='quicksort', na_position='last')` [source]

Sort by the values.

Sort a Series in ascending or descending order by some criterion.

**Parameters:**

**axis** : *{0 or 'index'}, default 0*
Axis to direct sorting. The value 'index' is accepted for compatibility with DataFrame.sort_values.

**ascending** : *bool, default True*
If True, sort values in ascending order, otherwise descending.

**inplace** : *bool, default False*
If True, perform operation in-place.

**kind** : *{'quicksort', 'mergesort' or 'heapsort'}, default 'quicksort'*
Choice of sorting algorithm. See also `numpy.sort()` for more information. 'mergesort' is the only stable algorithm.

**na_position** : *{'first' or 'last'}, default 'last'*
Argument 'first' puts NaNs at the beginning, 'last' puts NaNs at the end.

# Attendance

**Count off and remember your number; that number is what you need to enter in the attendance form.**

**I'll keep track of the maximum number for our section.**

**http://bit.ly/at-wi20**