JiaotongUniv

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Abstract

Introduction

Title of the project

Bike-Share Usage in London Network Analysis

Description

Dataset:

For this project, we are going to combine the data from two datasets. The first one is 'London and Taipei Bike-Share Data', and the second one is London bike sharing dataset.

London and Taipei Bike-Share Data

The raw data is collected from the respective cities open data sites.

London

Taipei

The data has been reformatted into CSV in order to be easier to use and compare. The content is unchanged. This gives the columns in the data comprise:

1.rental_id - id of people who rent the bike

2.duration - duration of rental

- 3.bike_id id of bike
- 4.end_rental_date_time date and time of end rental
- 5.end station id id of end station
- 6.end_station_name name of end station
- 7.start_rental_date_time date and time of start rental
- 8.start_station_id id of start station
- 9.start_station_name name of start station

London bike sharing dataset

This dataset runs from 4th January 2015 to 3rd January 2017 and reports total bike hire numbers for a bike rental scheme in London, England, alongside some weather info.

The data has been formatted into CSV in order to be easier to use and compare. This gives The columns in the data comprise:

- 1.mestamp timestamp field for grouping the data
- 2.cnt- the count of a new bike shares
- 3.t1 real temperature in C
- 4.t2 temperature in C "feels like"
- 5.hum humidity in percentage
- 6.windspeed wind speed in km/h
- 7.weathercode category of the weather
- 1 = Clear; mostly clear but have some values with haze/fog/patches of fog/ fog in vicinity
- 2 = scattered clouds / few clouds
- 3 = Broken clouds
- 4 = Cloudy
- 7 = Rain/ light Rain shower/ Light rain
- 10 = rain with thunderstorm
- 26 = snowfall
- 8.isholiday boolean field 1 holiday / 0 non holiday refers to bank holidays
- 9.isweekend boolean field 1 if the day is weekend / 0 if a working day
- 10.season category (0-spring; 1-summer; 2-autumn; 3-winter)

In addition to season and isweekend, from the timestamp feature we can extract many separate time features - day of the week (as one scaled column or as seven columns of ismonday, istuesday etc.), month number, day of the month, week number, hour, minute. In combination with external data, we could add islight for after dawn times and is_schoolholiday to match London school holiday times.

Link of dataset:

London and Taipei bikeshare

London bikeshare

Proposal

Recently, bike-sharing in big cities has become an important part of residents' daily life, which plays a significant role in urban transportation system. The data is spatiotemporal, in other words, it varies over space and time. That variation can be explored, described, and modeled in many different ways. The overlap of two datasets shows many factors affecting residents' bike-renting behavior.

Previous work has shown that weather is a key driver for variation in usage. By utilizing those datasets to analyze how extreme weather events like winter rains in London will affect bike-sharing system, it is safe to draw some conclusions to guide the process of making contingency plans. The locations of start-trip and end-trip is also considered to have the potential of revealing hot spots of bike-renting usage.

The result will be able to offer some suggestions for the decision maker of bike-sharing companies about the arrangement of bike density in different blocks, distribution between urban and rural areas and methods to tackle extreme weather conditions.

This manuscript is a template (aka "rootstock") for <u>Manubot</u>, a tool for writing scholarly manuscripts. Use this template as a starting point for your manuscript.

The rest of this document is a full list of formatting elements/features supported by Manubot. Compare the input (.md files in the /content directory) to the output you see below.

Basic formatting

Right-aligned text

Italic text

Combined italics and bold

Strikethrough

1. Ordered list item

- 2. Ordered list item
 - a. Sub-item
 - b. Sub-item
 - i. Sub-sub-item
- 3. Ordered list item
 - a. Sub-item
- List item
- · List item
- · List item

subscript: H₂O is a liquid

superscript: 2¹⁰ is 1024.

unicode superscripts⁰¹²³⁴⁵⁶⁷⁸⁹

unicode subscripts₀₁₂₃₄₅₆₇₈₉

A long paragraph of text. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Putting each sentence on its own line has numerous benefits with regard to <u>editing</u> and <u>version</u> control.

Line break without starting a new paragraph by putting two spaces at end of line.

Document organization

Document section headings:

Heading 1

Heading 2

Heading 3

Heading 4

Heading 5

Heading 6



Horizontal rule:

Heading 1's are recommended to be reserved for the title of the manuscript.

Heading 2's are recommended for broad sections such as Abstract, Methods, Conclusion, etc.

Heading 3's and Heading 4's are recommended for sub-sections.

Links

Bare URL link: https://manubot.org

<u>Long link with lots of words and stuff and junk and bleep and blah and stuff and other stuff and more stuff yeah</u>

Link with text

Link with hover text

Link by reference

Citations

Citation by DOI [doi:10.7554/eLife.32822?].

Citation by PubMed Central ID [1].

Citation by PubMed ID [2].

Citation by Wikidata ID [3].

Citation by ISBN [4].

Citation by URL [5].

Citation by alias [6].

Multiple citations can be put inside the same set of brackets $[\underline{4,6,\text{doi:}10.7554/\text{eLife.32822?}}]$. Manubot plugins provide easier, more convenient visualization of and navigation between citations $[\underline{1,2,6,7}]$.

Citation tags (i.e. aliases) can be defined in their own paragraphs using Markdown's reference link syntax:

Referencing figures, tables, equations

Figure 1

Figure 2

```
Figure 3

Figure 4

Table 1

Equation 1

Equation 2
```

Quotes and code

Quoted text

Quoted block of text

Two roads diverged in a wood, and I—I took the one less traveled by, And that has made all the difference.

Code in the middle of normal text, aka inline code.

Code block with Python syntax highlighting:

```
from manubot.cite.doi import expand_short_doi

def test_expand_short_doi():
    doi = expand_short_doi("10/c3bp")
    # a string too long to fit within page:
    assert doi == "10.25313/2524-2695-2018-3-vliyanie-enhansera-copia-i-
        insulyatora-gypsy-na-sintez-ernk-modifikatsii-hromatina-i-
        svyazyvanie-insulyatornyh-belkov-vtransfetsirovannyh-geneticheskih-
        konstruktsiyah"
```

Code block with no syntax highlighting:

```
Exporting HTML manuscript
Exporting DOCX manuscript
Exporting PDF manuscript
```

Figures



Figure 1: A square image at actual size and with a bottom caption. Loaded from the latest version of image on GitHub.



Figure 2: An image too wide to fit within page at full size. Loaded from a specific (hashed) version of the image on GitHub.



Figure 3: A tall image with a specified height. Loaded from a specific (hashed) version of the image on GitHub.



Figure 4: A vector .svg image loaded from GitHub. The parameter sanitize=true is necessary to properly load SVGs hosted via GitHub URLs. White background specified to serve as a backdrop for transparent sections of the image.

Tables

Table 1: A table with a top caption and specified relative column widths.

Bowling Scores	Jane	John	Alice	Bob
Game 1	150	187	210	105
Game 2	98	202	197	102
Game 3	123	180	238	134

Table 2: A table too wide to fit within page.

	Digits 1-33	Digits 34-66	Digits 67-99	Ref.
pi	3.14159265358979323 846264338327950	28841971693993751 0582097494459230	78164062862089986 2803482534211706	piday.org
е	2.71828182845904523 536028747135266	24977572470936999 5957496696762772	40766303535475945 7138217852516642	nasa.gov

 Table 3: A table with merged cells using the attributes plugin.

	Colors		
Size	Text Color	Background Color	
big	blue	orange	
small	black	white	

Equations

A LaTeX equation:

$$\int_0^\infty e^{-x^2} dx = \frac{\sqrt{\pi}}{2} \tag{1}$$

An equation too long to fit within page:

$$x = a + b + c + d + e + f + g + h + i + j + k + l + m + n + o + p + q + r + s + t + u + v + w + x + y + z + 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9$$
(2)

Special

▲ WARNING The following features are only supported and intended for .html and .pdf exports. Journals are not likely to support them, and they may not display correctly when converted to other formats such as .docx.

LINK STYLED AS A BUTTON

Adding arbitrary HTML attributes to an element using Pandoc's attribute syntax:

Manubot Manubot Manubot Manubot Manubot. Manubot Manubot Manubot Manubot. Manubot. Manubot Manubot. Manubot. Manubot. Manubot. Manubot.

Adding arbitrary HTML attributes to an element with the Manubot attributes plugin (more flexible than Pandoc's method in terms of which elements you can add attributes to):

Manubot Manubot.

Available background colors for text, images, code, banners, etc:

white lightgrey grey darkgrey black lightred lightyellow lightgreen lightblue lightpurple red orange yellow green blue purple

Using the Font Awesome icon set:



Light Grey Banner
useful for general information - manubot.org

1 Blue Banner

useful for important information - manubot.org

○ Light Red Banner useful for *warnings* - <u>manubot.org</u>

This is an introduction

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