INFO101: Tabular Data

What makes data tidy?

MARINCS 100B | Intro to Marine Data Science | Winter 2025

Key concepts

Make it a rectangle

	A	B	C
1	site	species	count
2	Santa Rosa	blue	3
3	Santa Rosa	fin	4
4	Santa Rosa	humpback	2
5	San Miguel	blue	4
6	San Miguel	fin	6
7	San Miguel	humpback	4
8	Santa Cruz	blue	5
9	Santa Cruz	fin	10
10	Santa Cruz	humpback	9

Non-rectangular examples

	A	B	C	D	E
1			species		
2			blues	fins	humpbacks
3		Santa Rosa	3	4	5
4	sites	San Miguel	4	6	10
5		Santa Cruz	2	4	9

	A	B	C	D
1	site	blues	fins	humpbacks
2	Santa Rosa	3	4	5
3	San Miguel	4	6	10
4	Santa Cruz	2	4	9

Don’t confuse the computer

	A	B	C
1	latitude	depth_m	temp_c
2	45	5	10.6
3	45	100	7.1
4	30	5	21.8
5	30	100	18.3
6	15	5	27.1
7	15	100	22.6

Confusing examples

latitude	depth	temp (°C)
45	5m	10.6
45	100m	7.1
30	5m	21.8
30	100m	18.3
15	5m	27.1
15	100m	22.6

latitude	5m	100m
45	10.6	7.1
30	21.8	18.3
15	27.1	22.6

Consistent names and formats

	A	B	C
1	date	air_temp_c	water_temp_c
2	2024-03-01	14.1	10.3
3	2024-03-02	NA	NA
4	2024-03-03	16.3	11.5
5	2024-03-04	17.8	11.2

Inconsistent examples

date	air_temp_c	waterTempC
3/1/24	14.1	10.3
3/2/24	No survey	-
Mar 3 24	16.3	11.5
2024-03-04	17.8	11.2

Recap

New vocabulary and lingering questions

New vocabulary

Lingering questions

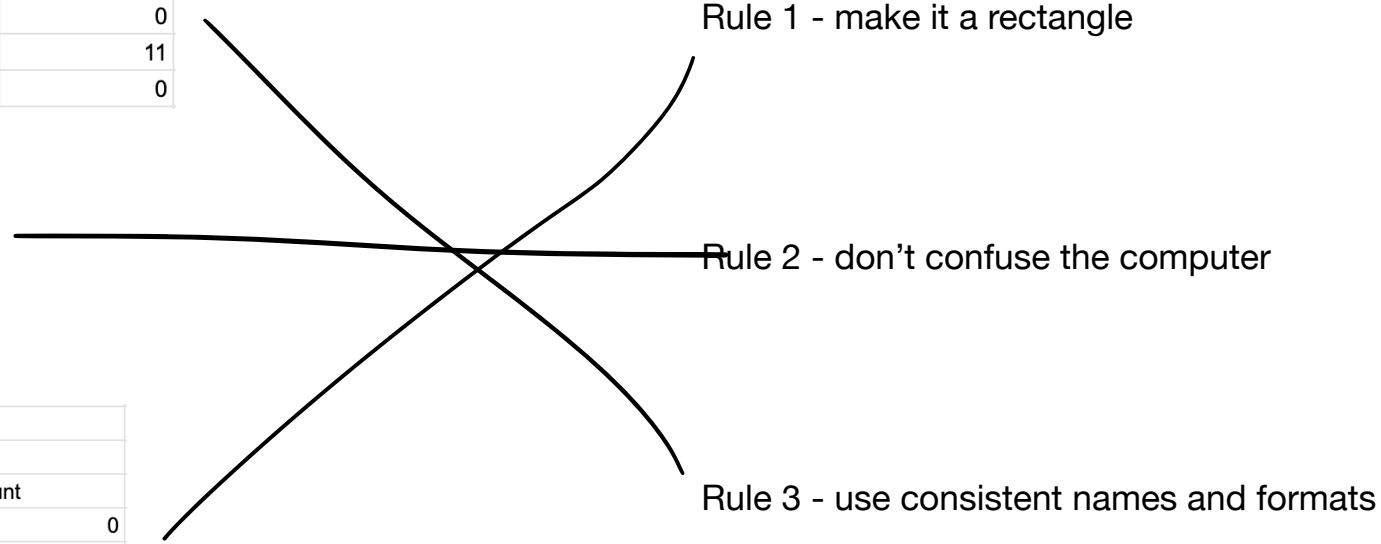
Exercises

Match the tables to the tidy rule they violate

l1	l2	b	c
-124.2	40.8	1	0
-124.3	40.7	1	0
-124.4	40.6	1	11
-124.5	40.5	2	0

location	beaufort_state	count
-124.2, 40.8	1	0
-124.3, 40.7	1	0
-124.4, 40.6	1	11
-124.5, 40.5	2	0

# Marbled Murrelet at-sea survey data May 2015			
# Data collected by AJR, WEP, and LSI			
lon	lat	beaufort_state	count
-124.2	40.8	1	0
-124.3	40.7	1	0
-124.4	40.6	1	11
-124.5	40.5	2	0



INFO101: Tabular Data

Creating and importing data frames in R

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Key concepts

Two views, same data

latitude	depth_m	temp_c
45	5	10.6
45	100	7.1
30	5	21.8
30	100	18.3

Creating a data frame

Demo in R

New vocabulary and lingering questions

New vocabulary

Lingering questions

Exercises

Complete the exercises in exercises/exercises101b.R

INFO101: Tabular Data

Indexing data frames

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Key concepts

How to index into data frames

latitude	depth_m	temp_c
45	5	10.6
45	100	7.1
30	5	21.8
30	100	18.3

latitude	depth_m	temp_c
1,1	1,2	1,3
2,1	2,2	2,3
3,1	3,2	3,3
4,1	4,2	4,3

Pull rows and columns from data frames

latitude	depth_m	temp_c
45	5	10.6
45	100	7.1
30	5	21.8
30	100	18.3

Filtering rows

latitude	depth_m	temp_c
45	5	10.6
45	100	7.1
30	5	21.8
30	100	18.3

New vocabulary and lingering questions

New vocabulary

Lingering questions

Exercises

Complete the exercises in exercises/exercises101c.R