



Econometrics I

Jan 31, 2023

WELCOME



Course information



Class name & course code

Matemáticas III

Econometría I

Álgebra Lineal
y modelos
económicos

Econometría II



Description

This course focuses on **designing, estimating** and **interpreting** results from econometric models based on macroeconomics and microeconomics



Prerequisites

- Intermediate **Probs & Statistics**
- Intro to **Econometrics**
- **English** (B1-B2)
- Basic **Econometric Software** Knowledge (stata, e-views)

Academic Profiles



Benjamín García

Tenured Lecturer

PhD in Economics from UNAM and **Master of Science** from Faculty of Engineering, University of London.

Studies in **Environmental Technology and Energy Economics and Development** from the Imperial College of Science and University of Surrey.



Humberto Acevedo

Associate professor

Bachelor of Economics, Major in **Applied Econometrics**, UNAM. Currently taking MS courses on **Public Policy**.

Working as a **Data Analyst** with more than 2 years of experience in projects related to **credit scoring** and **data engineering**.



Emilio Sandoval

Collaborator

Currently studying bachelor of economics, UNAM

Working as a **Machine Learning Engineer**.

Experience with **Recommender Systems, Natural Language Processing, Computer Vision** and **Generative models**.

34

sesssions

2

exam days

Class calendar

I Linear Regression

II Functional form

III Multicollinearity

IV Normality

V Homoskedasticity

VI Autocorrelation

VII Logit & Probit models

VIII Panel data

IX Simultaneous equations

X Time series

XI Cointegration

XII Intro to data science & BI

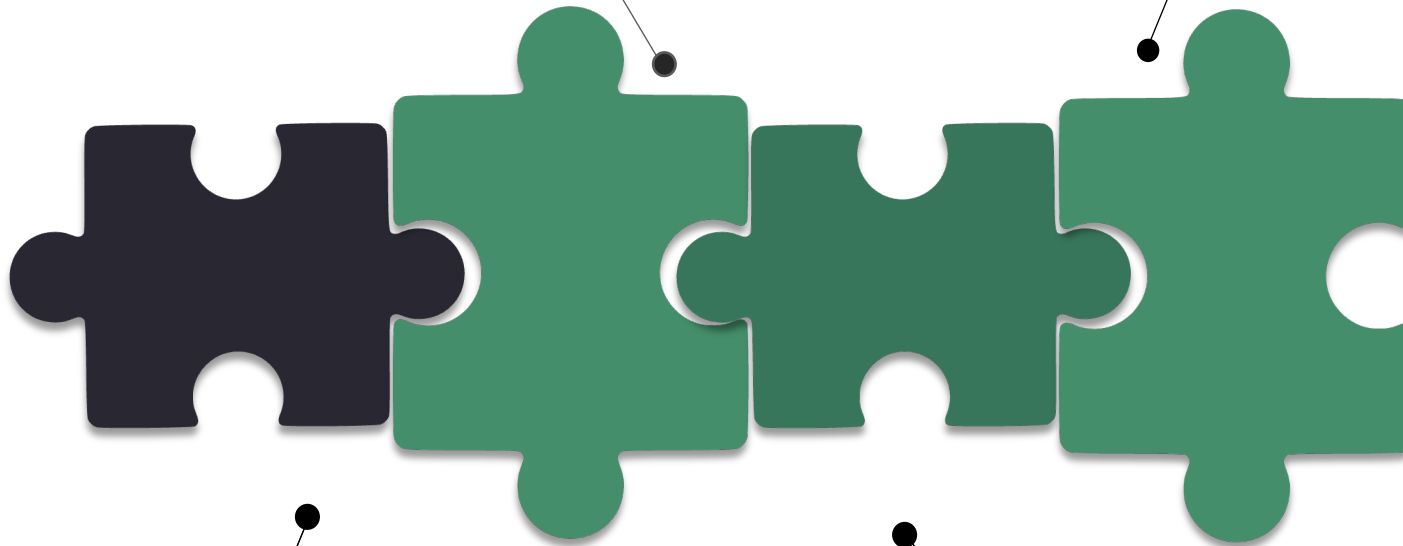
Academic Integrity and what we expect

Self-taught

Classes are better when they are complemented with our own time.

No doubts at all

Feel free to ask for help. Classes are not made for feeling stress but to learn in the best possible way.



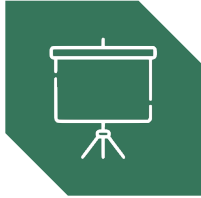
Independence

Do not wait to be given every single thing. We are here for leading you, but not to make for you.

Responsibility

Even when we adapt material for each group independently, we expect you to take full responsibility to keep track of your studies.

Grading



Workshops

Each class teachers will conduct a pptx with theoretical information.



Case Studies

At the end of every workshop, a case study relevant to main topic will be coded either in STATA or Python.



Reports

For every workshop a report in LaTeX showing principles of the topic and practice must be submitted.



Class participation

We encourage students to participate during classes as it enhances our understanding. If you ask no one losses but we all gain!



Papers

We have collected research papers for each workshop in order for students to learn how to read scientific proposals.

Books

Two or three books will be recommended. The purpose is to discuss ideas about the author and how it relates to this course.



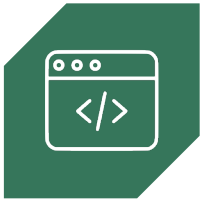
Competitions

A dataset will be given and in teams students will analyze, model and evaluate it. After discussing business idea, the winner will be stated.



Code

We will do econometrics in Python. Yes, do not be afraid to code!



Test

At the end of each block of units, a test will be provided during class (2 test in whole semester)

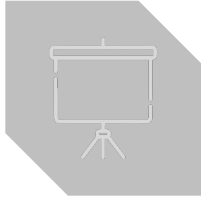


Interactive websites

We bet on different ways for students to learn. We will provide websites we are sure they will enhance your understanding.



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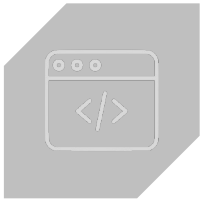
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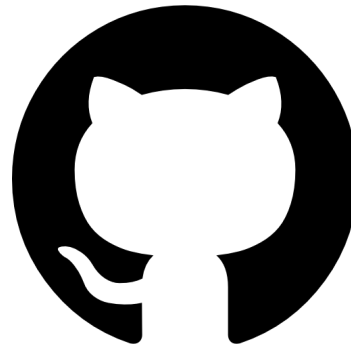


Tools



Code

Create econometrics models with STATA, replicate them in Python with google colab, and write a report with LaTeX



Repository

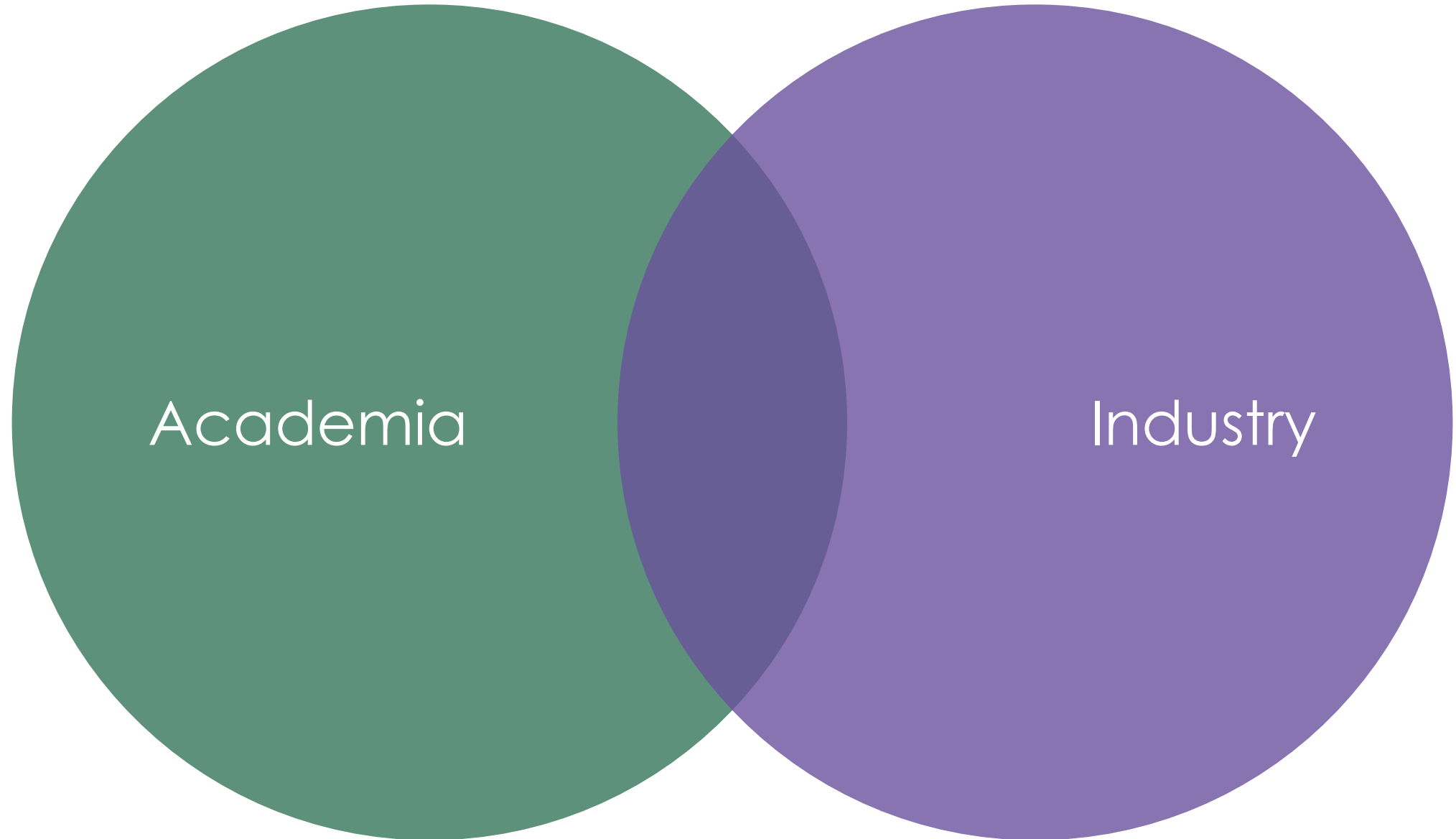
All material are provided and available in a github repository



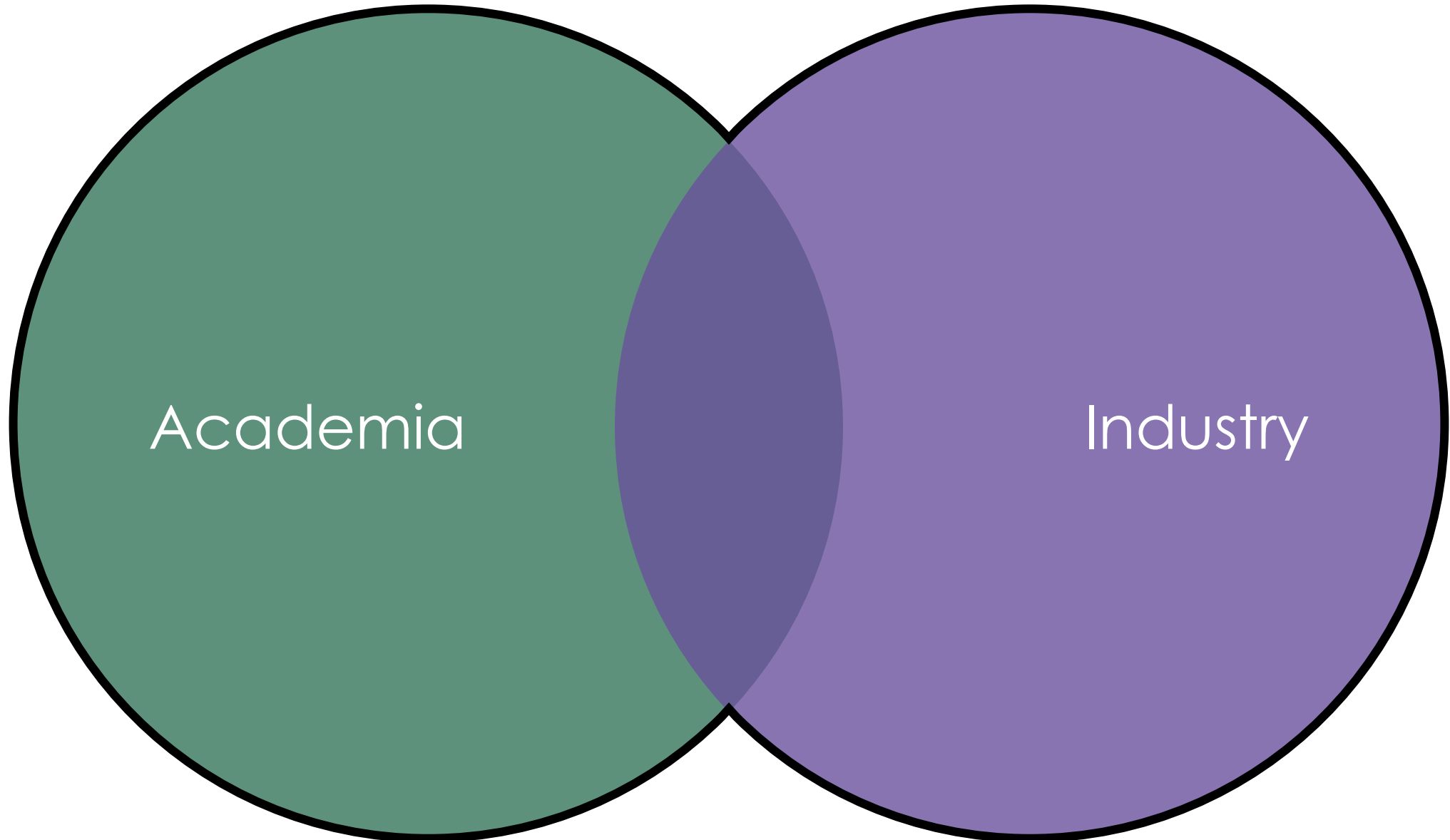
Brilliant & interactive webpages

As a complement and for visual explanations

Approach



Approach



Case studies

21

case studies

12

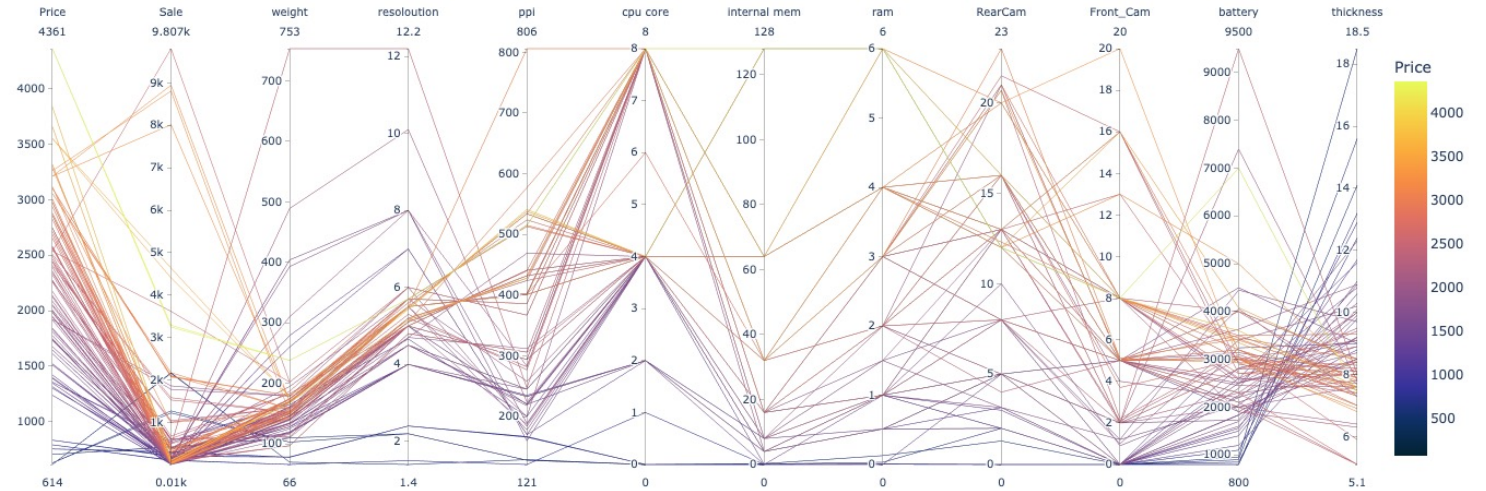
STATA

7

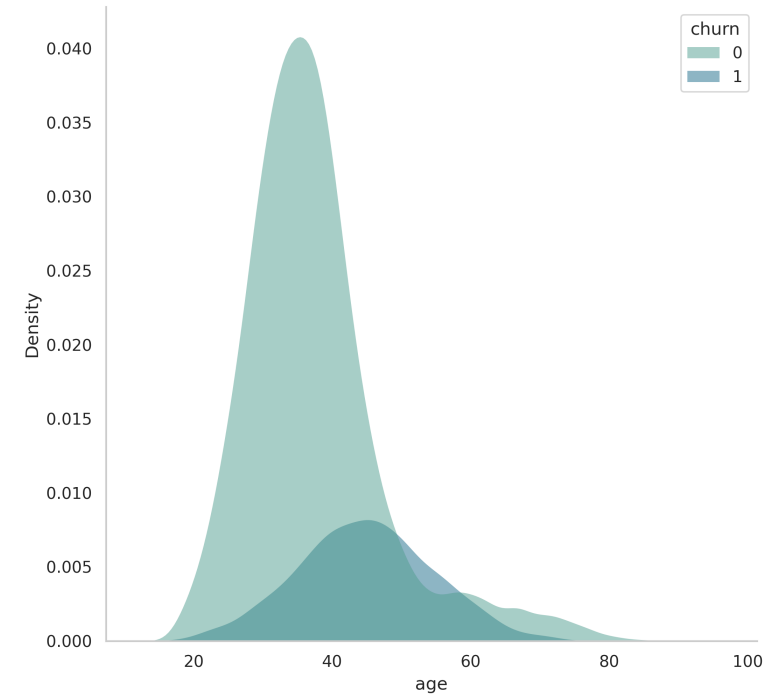
Python

1

Tableau



Product_id	1	0.17	0.22	0.04	-0.02	0.21	-0.01	0.09	0.26	0.24	0.17	0.07	0.03	0.04
Price	0.17	1	0.27	0.14	0.4	0.82	0.69	0.73	0.78	0.9	0.74	0.68	0.56	-0.72
Sale	0.22	0.27	1	0.02	0.02	0.24	0.07	0.1	0.49	0.37	0.29	0.44	0.12	-0.05
weight	0.04	0.14	0.02	1	0.89	-0.05	0.22	0.22	0.1	0.15	-0.03	-0.01	0.83	-0.19
resolution	-0.02	0.4	0.02	0.89	1	0.18	0.47	0.51	0.2	0.33	0.25	0.2	0.84	-0.53
ppi	0.21	0.82	0.24	-0.05	0.18	1	0.49	0.71	0.62	0.75	0.77	0.49	0.3	-0.5
cpu core	-0.01	0.69	0.07	0.22	0.47	0.49	1	0.49	0.28	0.48	0.61	0.59	0.46	-0.7
cpu freq	0.09	0.73	0.1	0.22	0.51	0.71	0.49	1	0.44	0.63	0.63	0.36	0.47	-0.61
internal mem	0.26	0.78	0.49	0.1	0.2	0.62	0.28	0.44	1	0.88	0.45	0.56	0.46	-0.37
ram	0.24	0.9	0.37	0.15	0.33	0.75	0.48	0.63	0.88	1	0.65	0.65	0.54	-0.52
RearCam	0.17	0.74	0.29	-0.03	0.25	0.77	0.61	0.63	0.45	0.65	1	0.6	0.29	-0.55
Front_Cam	0.07	0.68	0.44	-0.01	0.2	0.49	0.59	0.36	0.56	0.65	0.6	1	0.3	-0.49
battery	0.03	0.56	0.12	0.83	0.84	0.3	0.46	0.47	0.46	0.54	0.29	0.3	1	-0.41
thickness	0.04	-0.72	-0.05	-0.19	-0.53	-0.5	-0.7	-0.61	-0.37	-0.52	-0.55	-0.49	-0.41	1
Price	Product_id	Sale	weight	resolution	ppi	cpu core	cpu freq	internal mem	ram	RearCam	Front_Cam	battery	thickness	



Classroom Policies

Important to consider



Language

Class materials (i.e. pptx, Google Colab) are given in english.

Homeworks can be written in either spanish or english



Attendance

Fifteen minutes for tolerance

Please, pay attention in classroom



Penalty

You can send your practices even when the deadline has passed, but with no opportunity to get the highest grade



Ethics & plagiarism

We are all grown-ups and accountable for our actions, so please, do not make us to ban you from the class

Now tell us about your
expectative, desires and
opinons



TypeForm





THANK YOU!

Any question? Do not hesitate to contact us!

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emilio.sandpal@gmail.com ✉