School Performance Indicators

How to optimize school performance?

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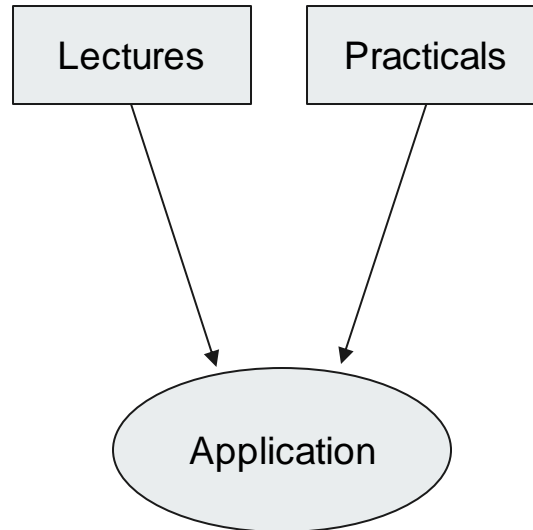
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Table of content

➢ The project

➢ Our idea

➢ Similar research

➢ Data

➢ Knowledge

➢ Visualization

➢ Problem encountered

➢ What we tried and Future ideas

The project

Answer a problem that could improve something with knowledge acquired from data.

Our idea

- ➢ What we were looking for?

- ➢ Our motivation

- ➢ Our target (**OUT -> OUT)**

Similar Research

IMPRESIÓN · Opinión ⓘ

PISA retrata el serio problema de la educación

INFORME INTERNACIONAL PISA 2018

España empeora en Matemáticas y Ciencias en el primer PISA con la Lomce.
El "ranking" vuelve a estar liderado por **China y Singapur** en ambas pruebas.

La educación valenciana empeora tras cuatro años de cambios

EDUCACIÓN

¿Escuela de ricos, escuela de pobres? Cómo la concertada y la pública segregan por clase social

El análisis de todos los centros de España y la renta de sus vecindarios explica cómo la desigualdad afecta al sistema educativo

- ➤ Program for international student assessment

- ➤ Measure the performance of the education system

- ➤ High school level lower than ever

- ➤ The Valencian results are lower than the Spanish average result.

- ➤ Differences between Public and Private schools

- ➤ Socioeconomic differences are a serious problem

Data

Download external Datas from different websites

Average grade of High schools (Bachillerato)
Type of the school
Libraries in Valencia
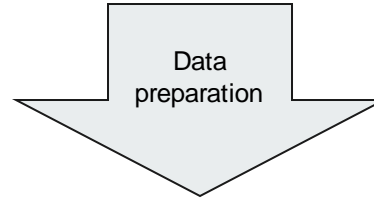Average income per section

What Knowledge?

What kind of knowledge we want to extract from these datas:

1. The type of school influence the grades?
2. Having libraries close to the school influence the grades?
3. The income influence the grades?

Data

1. School grades related to its type (Public or Private)

	Instituto	Media Expediente	Media PAU	private
1	IES REI EN JAUME	7.6	6.2	False
2	IES JOSÉ MARÍA PARRA	7.0	5.2	False
3	CENTRE PRIVAT NUESTRA SEÑORA DE LA SALUD	8.2	7.1	True
4	IES SANT VICENT FERRER	8.0	7.1	False
5	IES BERNAT GUINOVART	7.4	6.4	False
6	IES FRANCESC GIL	7.9	6.7	False
7	CENTRE PRIVAT MARÍA INMACULADA	8.0	6.4	True
8	CENTRE PRIVAT SAN ANTONIO DE PADUA	7.6	5.8	True
9	IES RICARDO MARÍN IBÁNEZ	8.0	6.8	False

2. Add geographical coordinates (google map)
-Libraries
-Schools
Using a distance function to get the number of libraries radius of the school

	Instituto	NumBib 2 km	NumBib 5 km	NumBib 8 km	NumBib 10 km
0	CENTRE PRIVAT LA PURÍSIMA	0	3	7	7
1	IES REI EN JAUME	0	1	5	7
2	IES JOSÉ MARÍA PARRA	0	1	5	7
3	CENTRE PRIVAT NUESTRA SEÑORA DE LA SALUD	1	3	6	9
4	IES SANT VICENT FERRER	1	3	6	9
...	...	...	...	...	...
457	ES L'ALLUSSER	1	8	15	44
458	CENTRO PRIVADO SAN ALBERTO MAGNO	1	1	3	3

Data

Mapping and visualizing the income
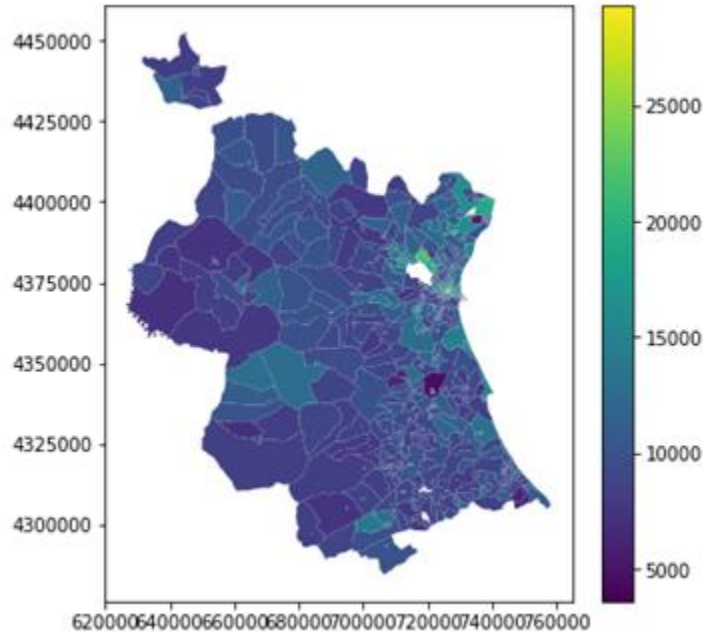
Data preparation

3. School grades related to the average income of its section

	Instituto	Media Expediente	Media PAU	income
0	CENTRE PRIVAT LA PURÍSIMA	7.9	6.6	10512.0
1	IES REI EN JAUME	7.6	6.2	9116.0
2	IES JOSÉ MARÍA PARRA	7.0	5.2	6739.0
3	CENTRE PRIVAT NUESTRA SEÑORA DE LA SALUD	8.2	7.1	4631.0
4	IES SANT VICENT FERRER	8.0	7.1	9683.0
5	IES BERNAT GUINOVART	7.4	6.4	4631.0
6	IES FRANCESC GIL	7.9	6.7	8858.0
7	CENTRE PRIVAT MARÍA INMACULADA	8.0	6.4	11698.0
8	CENTRE PRIVAT SAN ANTONIO DE PADUA	7.6	5.8	9170.0

Knowledge

	Media Expediente	Media PAU	NumBib 2 km	NumBib 5 km	NumBib 8 km	NumBib 10 km	private
Media Expediente	1.000000	0.373428	-0.041423	-0.049262	-0.046825	-0.046663	0.070004
Media PAU	0.373428	1.000000	0.059806	0.072667	0.062076	0.043815	0.109077
NumBib 2 km	-0.041423	0.059806	1.000000	0.789839	0.681658	0.625300	0.235951
NumBib 5 km	-0.049262	0.072667	0.789839	1.000000	0.823699	0.755935	0.247557
NumBib 8 km	-0.046825	0.062076	0.681658	0.823699	1.000000	0.887396	0.224689
NumBib 10 km	-0.046663	0.043815	0.625300	0.755935	0.887396	1.000000	0.206015
private	0.070004	0.109077	0.235951	0.247557	0.224689	0.206015	1.000000

With less data -->

	Media Expediente	Media PAU	income
Media Expediente	1.000000	0.558445	0.052204
Media PAU	0.558445	1.000000	0.192983
income	0.052204	0.192983	1.000000

Knowledge

public vs private schools exp
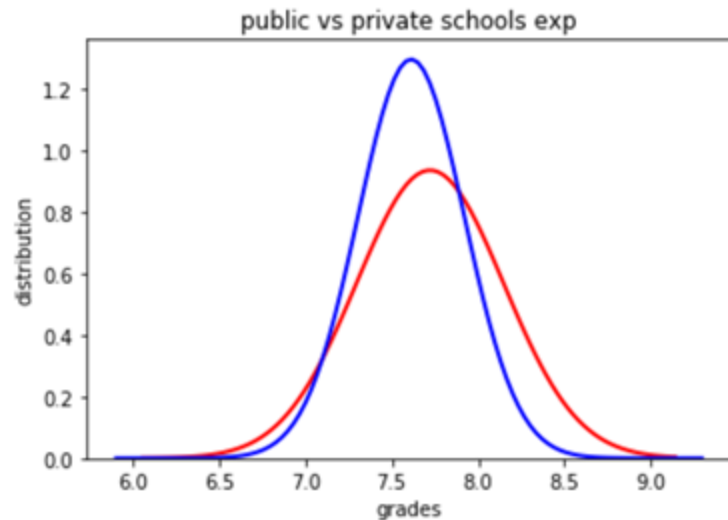
Avg public = 7.6
Avg private = 7.7

public vs private schools pau
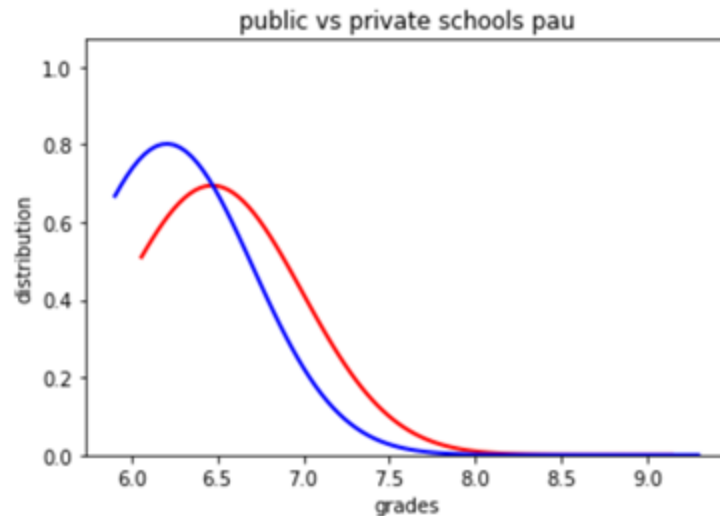
Avg public = 6.2
Avg private = 6.5

Visualization

Problems encountered

The **school system** is different compared to our countries.

It was difficult to **find data** related to education.

The information was stored in **different formats**

We were not used to working with **GeoData**.

But we overcome them!

What we tried and Future Ideas

What we tried

- We tried to built some predictive models, but without great results
- We tried to see the grades differences between the different locations

Ideas

- The map with all the schools could be a good tool for parents
- A more in-depth analysis can be made among all the schools in Spain
- A comparison can be made between the results of several years

Thank you for your attention!