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# Forbes Analysis **WORLD'S BILLIONAIRES** **2021**

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Forbes Analysis

# WORLD'S BILLIONAIRES

2021

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## Theme: World's Billionaires

We found a csv file on kaggle that listed 2755 billionaires. It had a lot of interesting data, and we thought that it would enable us to create some fun visualisations.

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# Project Process

ETL



API



Flask



GitHub



Final Output



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## Data Cleaning

	Name	NetWorth	Country	Source	Rank	Age	Residence	Citizenship	Status	Children	Education	Self_made	geometry
0	Jeff Bezos	177.0	United States	Amazon	1	57.0	Seattle, Washington	United States	In Relationship	4.0	Bachelor of Arts/Science, Princeton University	True	POINT (-122.3300624 47.6038321)
1	Elon Musk	151.0	United States	Tesla, SpaceX	2	49.0	Austin, Texas	United States	In Relationship	7.0	Bachelor of Arts/Science, University of Pennsy...	True	POINT (-97.74369950000001 30.2711286)
2	Bernard Arnault & family	150.0	France	LVMH	3	72.0	Paris, France	France	Married	5.0	Bachelor of Arts/Science, Ecole Polytechnique ...	False	POINT (2.3514616 48.8566969)
3	Bill Gates	124.0	United States	Microsoft	4	65.0	Medina, Washington	United States	Divorced	3.0	Drop Out, Harvard University	True	POINT (-122.2264453 47.620548)
4	Mark Zuckerberg	97.0	United States	Facebook	5	36.0	Palo Alto, California	United States	Married	2.0	Drop Out, Harvard University	True	POINT (-122.1598465 37.4443293)

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id	name	networth	country	source	rank	age	residence	citizenship	status	children	education	self_made	degree	university	longitude	latitude	groupednetworth	fullname	
0	0	Jeff Bezos	177.0	United States	Amazon	1	57.0	Seattle, Washington	United States	In Relationship	4.0	Bachelor of Arts/Science, Princeton University	true	Bachelor of Arts/Science	Princeton University	-122.330062	47.603832	Over \$70 b	jeff-bezos
1	1	Elon Musk	151.0	United States	Tesla, SpaceX	2	49.0	Austin, Texas	United States	In Relationship	7.0	Bachelor of Arts/Science, University of Pennsy...	true	Bachelor of Arts/Science	University of Pennsylvania	-97.743700	30.271128	Over \$70 b	elon-musk
2	2	Bernard Arnault & family	150.0	France	LVMH	3	72.0	Paris, France	France	Married	5.0	Bachelor of Arts/Science, Ecole Polytechnique ...	false	Bachelor of Arts/Science	Ecole Polytechnique de Paris	2.351462	48.856697	Over \$70 b	bernard-arnault
3	3	Bill Gates	124.0	United States	Microsoft	4	65.0	Medina, Washington	United States	Divorced	3.0	Drop Out, Harvard University	true	Drop Out	Harvard University	-122.226445	47.620548	Over \$70 b	bill-gates
4	4	Mark Zuckerberg	97.0	United States	Facebook	5	36.0	Palo Alto, California	United States	Married	2.0	Drop Out, Harvard University	true	Drop Out	Harvard University	-122.159847	37.444329	Over \$70 b	mark-zuckerberg

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## Frontend

- Dashboard style built with Bootstrap
  - Layout optimised to show multiple visualisations
  - Responsive text to highlight data
  - User interaction options:
    - Dropdown menus for country and billionaire
    - Interactive plots and map
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## Javascript

Pie Charts:

1. Number of Self Made

2. Marital Status

Bar Chart:

1. Top 10 Billionaires

Billionaire Info Box

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## Javascript: Leaflet



Leaflet is an open-source JavaScript library for mobile-friendly interactive maps. It was designed with simplicity, performance and usability in mind. It works efficiently across all major desktop and mobile platforms and can be extended with lots of plugins.

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## Javascript: Interactive Grouped Scatterplot

1. Net Worth vs Age

2. Net Worth vs Number of Children

Functions built within D3.js:

- Multi-axes
- Animated transition when click on axis title
- Selection pop up for individual circle
- A color scale is created with `scaleOrdinal`, attributing a different color for categorical groups.

```
var color = d3.scaleOrdinal()  
  .domain(["Over $70 b", "Over $20 b", "the rest"])  
  .range(["#440154ff", "#21908dff", "#fde725ff"])
```

Visualisation time

Limitations:

- Highlight group when hover over can be improved for future use

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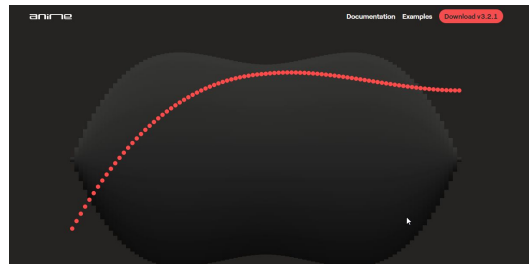
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## New Javascript Libraries

Libraries that were considered:

- Highcharts.js
- Chart.js
- AOS.js
- scrollReveal.js



These were not used mainly due to time constraints, because they had little benefit over existing libraries or because they were behind a paywall.

The external library that we ended up using was anime.js. This library allows one to animate their site in many different ways. We used it to animate the title “Billionaires”.

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## Conclusion

Any questions?

