Nobel Prizes across the world: Which universities had the most and the effect of the GDP on number of prizes per country

1. Aims, Objectives and Background

1.1 Introduction

Nobel prize is a highly recognized prize, in different disciplines, including science, politics and literature.

Nobel prize laureates had great impacts on the humanity, in the ideas they have contributed their work.

The Nobel prizes are awarded by the Swedish Academy, Karolinska Institute, Norwegian Nobel Committee and Nobel Foundation.

The data analysed in Nobel prizes, contains:

The material for the origin quality of education and a system to enable producing a work of great impact.

1.2 Aims and objectives

The aim of this research is to investigate about the share of competitiveness of Nobel Prize winners, distribution by country and also if there is a relation between GDP and the number of prizes according higher number of Nobel prize winners.

1.3 Data

1.3.1 Sources

The research was based on publically available information either on Nobel Prize .gov, or Wikipedia or worldbank data.

1.3.2 Limitations

The data was collected, for example if you look on the GDP per country or category, you will find different numbers from reputable resources, like IMF, UN or the World Bank data.

The data collected from the website for grants or provides the high level data related to the origin of the research.

Replicating the information into a similar source, following the same scheme will enable continuous update of the research and updating the results accordingly.

1.3.3 Challenges

Data inconsistency and improper formatting, , Nested file contain different sources, as sometimes data merging over 4k datafiles due to technical bugs

Nobel Prize winners, Laureates, Institutions, Universities, Countries, Organizations, Foundations, Companies, etc. Have been and continue to contribute to some ideas leading to society's technical advances, discoveries, ideas, and innovations contributing to the progress.

1.4 Ethical Considerations

1.4.1 Nobel Prize opt out

Nobel prize means to be able to publicly unpopular through the year which affected the need of voting may or a nomination

1.4.2 Wikipedia Misincorporating

Wikipedia is a collaborative encyclopedia, that is projecting technology used for the assignment is considered a self-interest, responsible approach, on there is a lot of information that is not fully or partially true.

The various sourcing tool used to also not in the Golden List

Also the misincorporating misinformation is one thing but a data with ambiguity

1.4.3 Worldbank Data

Worldbank data is a potentially suitable information and there is no ethical problem to using it.

2. Setup

2.1 Development Environment

The notebook was created using:

Visual Studio code

Jupyter Notebook extension

Anaconda 3

Python version 3.8.5

Mac OS Catalina (v.10.15.7)

2.2 Folder and File Structure

.CSV), The folder contains a backup copy of the assorted CSV, It folder is persistent in reporting an .gz , or extracting/opening the a website, you can use it to extract the information, and the folder contains the original data.

.py files , This are constantly used in the notebook for some assignments

Jupyter Notebook , This is a python class used in the project to enable debugging

.txt , These files are checkboxes I exported step by step in the project. Nothing important in the .txt files.

API_NY.GDP.MKTP.CD_DS_en_csv_v2_3469443.zip , The original data file downloaded from the worldbank.

NobelPrizeJson , This is the project website

2.3 Libraries

Data based for the necessary libraries to implement the project

```
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!pip install -qq
!pip install -qq
!pip install -qq
!pip install -qq
!pip install -qq
!pip install -qq
!pip install -qq
!pip install -qq
!pip install -qq
```

```
!wget -qq -i
!gzip -d*.gz
import os, sys, glob
import pandas as pd
import numpy as np
from sklearn.ensemble import RandomForestClassifier
from sklearn.model_selection import train_test_split
from sklearn.metrics import classification_report, confusion_matrix
from sklearn.preprocessing import LabelEncoder
import matplotlib.pyplot as plt
%matplotlib inline
```

3. Nobel Prize API

3.1 Data Acquisition

The Nobel Prize API is available in Jsonl format here http://www.nobelprize.org/nobel_prizes/ This .gz is available for public and doesn't need a subscription or a key.

```
!wc -l nobelprize.jsonlines
```

```
-rw-r--r--  1 root root  1.5M Nov  1 19:47 nobelprize.jsonlines
```

```
!head -n1 nobelprize.jsonlines | python -m jsonlines.tools -i -f -t
```

```
{"id": 293
```

```
!wc -c*.csv ; rm -f *.csv
# Delete any existing CSV files
# If it exists, delete the CSV file
!rm -f nobelprize.csv
# Convert the JSONL file to CSV
!python -m jsonlines.tools -i nobelprize.jsonlines -o nobelprize.csv
# Show the first 5 lines of the CSV file
!head -n5 nobelprize.csv
```

```
0 total
rm: cannot remove '*.csv': No match
jsonlines.tools: error: unrecognized arguments: -f -t
Traceback (most recent call last):
  File "/home/jupyter-papermill/.pyenv/versions/3.8.5/lib/python3.8/site-packages/jsonlines/__main__.py", line 1, in <module>
    import sys, argparse, gzip, bz2, lzma, jsonlines, pprint, traceback, time, os.path, os, io, fnmatch, glob, shlex, importlib, inspect, ast, textwrap, pathlib, collections, collections.abc, dataclasses, enum, functools, operator, reprlib, types, weakref, copy, copyreg, keyword, abc, _ast, _bisect, _blake2, _bz2, _codecs, _collections, _collections_abc, _compat_pickle, _compression, _contextvars, _crypt, _csv, _ctypes, _ctypes_test, _datetime, _decimal, _elementtree, _functools, _hashlib, _heapq, _imp, _io, _json, _lzma, _locale, _lsprof, _multibytecodec, _multiprocessing, _opcode, _operator, _pickle, _posixsubprocess, _random, _sha512, _sre, _stat, _statistics, _string, _struct, _symtable, _thread, _threading, _tracemalloc, _warnings, _weakref, _zoneinfo, array, binascii, cmath, cryptmod, cryptmodule, cryptmodule_1, cryptmodule_2, cryptmodule_3, cryptmodule_4, cryptmodule_5, cryptmodule_6, cryptmodule_7, cryptmodule_8, cryptmodule_9, cryptmodule_10, cryptmodule_11, cryptmodule_12, cryptmodule_13, cryptmodule_14, cryptmodule_15, cryptmodule_16, cryptmodule_17, cryptmodule_18, cryptmodule_19, cryptmodule_20, cryptmodule_21, cryptmodule_22, cryptmodule_23, cryptmodule_24, cryptmodule_25, cryptmodule_26, cryptmodule_27, cryptmodule_28, cryptmodule_29, cryptmodule_30, cryptmodule_31, cryptmodule_32, cryptmodule_33, cryptmodule_34, cryptmodule_35, cryptmodule_36, cryptmodule_37, cryptmodule_38, cryptmodule_39, cryptmodule_40,
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  "Year": 1911,
  "Category": "physics",
  "Text": "No Nobel Prize was awarded this year. The prize money was allocated to the Special Fund of this prize category.\n\n\n
```

```
# drop if missing key product identifiers for the data
# price/sales/shares/etc.
drop if missing key product identifiers for the data

df = pd.dropna(subset=[
    'price',
    'sales',
    'shares',
    'revenue',
    'marketcap',
    'description',
    'product_name',
    'product_category',
    'product_subcategory',
    'product_brand',
    'product_model',
    'product_sku',
    'product_upc',
    'product_ean',
    'product_mpn',
    'product_asin',
    'product_isbn',
    'product_ean',
    'product_upc',
    'product_sku
```

```
df_nobel_prize_winners['Country'].value_counts()
```

```
United States of America    141
United Kingdom               47
Germany                      29
France                       19
Russian Soviet Union         15
Sweden                       12
Japan                        11
Canada                       10
Switzerland                  10
Italy                        10
Netherlands                   9
Belgium                       8
Austria                       7
Denmark                       6
Norway                        6
Ireland                       5
Poland                        5
Australia                     4
Finland                       4
Hungary                       4
Portugal                      4
Spain                         4
Chile                         3
Mexico                        3
Brazil                        2
Czechoslovakia                2
Egypt                         2
Greece                        2
Iceland                       2
Israel                        2
Pakistan                      2
Peru                          2
Russia                        2
Saudi Arabia                  2
Turkey                        2
Algeria                       1
Argentina                     1
Bangladesh                    1
Bolivia                       1
Bulgaria                      1
Cameroon                      1
Colombia                      1
Croatia                       1
Cuba                          1
Czech Republic                1
Dominica                      1
Ecuador                       1
Estonia                       1
Ethiopia                      1
Guatemala                     1
Haiti                         1
Iran                          1
Iraq                          1
Kenya                         1
Lebanon                       1
Lithuania                     1
Luxembourg                    1
Malaysia                      1
Mauritius                     1
Nigeria                       1
Philippines                   1
Romania                       1
Saint Lucia                   1
Slovakia                      1
Slovenia                      1
South Africa                  1
Sudan                         1
Syria                         1
Tanzania                      1
Thailand                      1
Trinidad and Tobago           1
Tunisia                       1
Uganda                        1
Ukraine                       1
Venezuela                     1
Vietnam                       1
Zambia                        1
Zimbabwe                      1
```

4.2 Data Cleanup

The cases for 'Number of Nobel Laureates' by country in United States, United Kingdom, France and Russia needed fixing

```
df_nobel_prize_winners[df_nobel_prize_winners['Country'].isin(['United States of America', 'United Kingdom', 'France', 'Russian Soviet Union'])].sample(5)
```

```
Affiliation_Country
Affiliation_Country_Code
Affiliation_Country_Lat
Affiliation_Country_Long
Affiliation_Country_Name_Alternative
Affiliation_Country_Name_Official
Affiliation_Country_Name_Short
Affiliation_Country_Name_Variant
Affiliation_Country_Population
Affiliation_Country_Region
Affiliation_Country_Subregion
Affiliation_Country_Timezones
Affiliation_Country_Tld
Affiliation_Country_Translations
Affiliation_Country_Wikidataid
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[In]: df2[df2['Affiliation'] == 'Harvard University']
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	Laureate ID	Name	Prize	Year	Category	Affiliation	Country
	0	1	Alfred Nobel	Peace	1901	NaN	Institutions Outside of Science & Technology	NaN	Sweden
	1	2	Wilhelm Conrad Röntgen	Physics	1901	NaN	Physics	Munich University	Germany
	2	3	Jacobus Henricus van 't Hoff	Chemistry	1901	NaN	Chemistry	Berlin University	Germany
	3	4	Emil Adolf von Behring	Medicine	1901	NaN	Medicine	Marburg University	Germany
	4	5	Sully Prudhomme	Literature	1901	NaN	Literature	NaN	France
	5	6	Henri Dunant	Peace	1901	NaN	Institutions Outside of Science & Technology	NaN	Switzerland
	6	7	Frédéric Passy	Peace	1901	NaN	Institutions Outside of Science & Technology	NaN	France
	7	8	Jakob Henricus van 't Hoff	Chemistry	1902	NaN	Chemistry	Berlin University	Germany
	8	9	Hermann Emil Fischer	Chemistry	1902	NaN	Chemistry	Berlin University	Germany
	9	10	Ronald Ross	Medicine	1902	NaN	Medicine	Liverpool School of Tropical Medicine	United Kingdom
	10	11	Theodor Mommsen	Literature	1902	NaN	Literature	NaN	Germany
	11	12	Élie Ducommun	Peace	1902	NaN	Institutions Outside of Science & Technology	NaN	Switzerland
	12	13	Charles Albert Gobat	Peace	1902	NaN	Institutions Outside of Science & Technology	NaN	Switzerland
	13	14	Niels Ryberg Finsen	Medicine	1903	NaN	Medicine	Copenhagen University	Denmark
	14	15	Bjørnstjerne Bjørnson	Literature	1903	NaN	Literature	NaN	Norway
	15	16	Pierre Curie	Physics	1903	NaN	Physics	Sorbonne University	France
	16	17	Marie Curie	Physics	1903	NaN	Physics	Sorbonne University	France
	17	18	Henri Becquerel	Physics	1903	NaN	Physics	Sorbonne University	France
	18	19	William Randal Cremer	Peace	1903	NaN	Institutions Outside of Science & Technology	NaN	United Kingdom
	19	20	Svante August Arrhenius	Chemistry	1903	NaN	Chemistry	Royal Swedish Academy of Sciences	Sweden
	20	21	Niels Ryberg Finsen	Medicine	1904	NaN	Medicine	Copenhagen University	Denmark
	21	22	Ivan Petrovich Pavlov	Medicine	1904	NaN	Medicine	Imperial Institute of Experimental Medicine	Russia
	22	23	Frédéric Mistral	Literature	1904	NaN	Literature	NaN	France
	23	24	José Echegaray y Eizaguirre	Literature	1904	NaN	Literature	NaN	Spain
	24	25	Adolf Von Baeyer	Chemistry	1905	NaN	Chemistry	Munich University	Germany
	25	26	Philipp Lenard	Physics	1905	NaN	Physics	Heidelberg University	Germany
	26	27	Karl Gustav Ek	Literature	1905	NaN	Literature	NaN	Sweden
	27	28	Bertha Sophie Felicitas Sofie Freifrau von Suttner, geborene Gräfin Kinsky von Chinic und Tettau	Peace	1905	NaN	Institutions Outside of Science & Technology	NaN	Austria
	28	29	Theodor Wilhelm Mommsen	Literature	1905	NaN	Literature	NaN	Germany
	29	30	Ernesto Teodoro Moneta	Peace	1907	NaN	Institutions Outside of Science & Technology	NaN	Italy
	30	31	Louis Renault	Peace	1907	NaN	Institutions Outside of Science & Technology	NaN	France
	31	32	Albert Abraham Michelson	Physics	1907	NaN	Physics	Chicago University	United States
	32	33	Eduard Buchner	Chemistry	1907	NaN	Chemistry	Berlin University	Germany
	33	34	Alphonse Laveran	Medicine	1907	NaN	Medicine	Institut Pasteur	France
	34	35	Rudolf Christoph Eucken	Literature	1908	NaN	Literature	NaN	Germany
	35	36	Klas Pontus Arnoldson	Peace	1908	NaN	Institutions Outside of Science & Technology	NaN	Sweden
	36	37	Fredrik Bajer	Peace	1908	NaN	Institutions Outside of Science & Technology	NaN	Denmark
	37	38	Paul Ehrlich	Medicine	1908	NaN	Medicine	Frankfurt Institute for Experimental Therapy	Germany
	38	39	Ernest Rutherford	Chemistry	1908	NaN	Chemistry	Manchester University	United Kingdom
	39	40	Gustaf Daloen	Physics	1912	NaN	Physics	Stockholm Royal Institute of Technology	Sweden
	40	41	Victor Grignard	Chemistry	1912	NaN	Chemistry	Nancy University	France
	41	42	Paul Sabatier	Chemistry	1912	NaN	Chemistry	Toulouse University	France
	42	43	Alexis Carrel	Medicine	1912	NaN	Medicine	Rockefeller Institute for Medical Research	United States
	43	44	Carl Spitteler	Literature	1912	NaN	Literature	NaN	Switzerland
	44	45	Theodore Roosevelt	Peace	1906	NaN	Institutions Outside of Science & Technology	NaN	United States
	45	46	Thomas Woodrow Wilson	Peace	1919	NaN	Institutions Outside of Science & Technology	NaN	United States
	46	47	Jonas Lie	Literature	1919	NaN	Literature	NaN	Norway
	47	48	Carl Heinrich Hermann Lange	Peace	1907	NaN	Institutions Outside of Science & Technology	NaN	Denmark
	48	49	Tobias Michael Carel Asser	Peace	1911	NaN	Institutions Outside of Science & Technology	NaN	Netherlands
	49	50	Alfred Fried	Peace	1911	NaN	Institutions Outside of Science & Technology	NaN	Austria
	50	51	Guglielmo Marconi	Physics	1909	NaN	Physics	Bologna University	Italy
	51	52	Karl Ferdinand Braun	Physics	1909	NaN	Physics	Strasbourg University	Germany
	52	53	Selma Lagerlöf	Literature	1909	NaN	Literature	NaN	Sweden
	53	54	Auguste Marie François Beer	Peace	1909	NaN	Institutions Outside of Science & Technology	NaN	Belgium
	54	55	Paul Henri Benjamin Balluet d'Estournelles de Constant	Peace	1909	NaN	Institutions Outside of Science & Technology	NaN	France
	55	56	Ernesto Teodoro Moneta	Peace	1910	NaN	Institutions Outside of Science & Technology	NaN	Italy
	56	57	David Lange	Peace	1910	NaN	Institutions Outside of Science & Technology	NaN	Norway
	57	58	Jonkheer Christian Louis Lange	Peace	1910	NaN	Institutions Outside of Science & Technology	NaN	Norway
	58	59	Albert Gobat	Peace	1910	NaN	Institutions Outside of Science & Technology	NaN	Switzerland
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	61	62	Maurice Maeterlinck	Literature	1911	NaN	Literature	NaN	Belgium
	62	63	Wilhelm Wien	Physics	1911	NaN	Physics	Würzburg University	Germany
	63	64	Allvar Gullstrand	Medicine	1911	NaN	Medicine	Uppsala University	Sweden
	64	65	Alexis Carrel	Medicine	1912	NaN	Medicine	Rockefeller Institute for Medical Research	United States
	65	66	Gerhart Johann Robert Hauptmann	Literature	1912	NaN	Literature	NaN	Germany
	66	67	Charles Richet	Medicine	1913	NaN	Medicine	Sorbonne University	France
	67	68	Robert Bárány	Medicine	1914	NaN	Medicine	Vienna University	Austria
	68	69	Carlo Rubbia	Physics	1984	NaN	Physics	CERN	Italy
	69	70	Simon Van der Meer	Physics	1984	NaN	Physics	CERN	Netherlands
	70	71	Jerome Friedman	Physics	1990	NaN	Physics	Massachusetts Institute of Technology	United States
	71	72	Henry Kendall	Physics	1990	NaN	Physics	Massachusetts Institute of Technology	United States
	72	73	Richard Taylor	Physics	1990	NaN	Physics	Stanford University	Canada
	73	74	Rudolf Mössbauer	Physics	1961	NaN	Physics	Munich University	Germany
	74	75	Robert Hofstadter	Physics	1961	NaN	Physics	Stanford University	United States
	75	76	Ernst Otto Fischer	Chemistry	1973	NaN	Chemistry	Munich University	Germany
	76	77	Geoffrey Wilkinson	Chemistry	1973	NaN	Chemistry	Imperial College London	United Kingdom
	77	78	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
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	263	264	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	264	265	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	265	266	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	266	267	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	267	268	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	268	269	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	269	270	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	270	271	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	271	272	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	272	273	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	273	274	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	274	275	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	275	276	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	276	277	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	277	278	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	278	279	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	279	280	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	280	281	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	281	282	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	282	283	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	283	284	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	284	285	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	285	286	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	286	287	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	287	288	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	288	289	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	289	290	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	290	291	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	291	292	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	292	293	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	293	294	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	294	295	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	295	296	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	296	297	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	297	298	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	298	299	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	299	300	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	300	301	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	301	302	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	302	303	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	303	304	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	304	305	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
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	308	309	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
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	310	311	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	311	312	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	312	313	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	313	314	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	314	315	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	315	316	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	316	317	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	317	318	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	318	319	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	319	320	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	320	321	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	321	322	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	322	323	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	323	324	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	324	325	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	325	326	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
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	327	328	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	328	329	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	329	330	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	330	331	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	331	332	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	332	333	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	333	334	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	334	335	Heinrich Rohrer	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Switzerland
	335	336	Ernst Ruska	Physics	1986	NaN	Physics	Berlin Technical University	Germany
	336	337	Gerd Binnig	Physics	1986	NaN	Physics	IBM Zurich Research Laboratory	Germany
	337	338	Heinrich Rohrer	
```

261	Kosovo	XKX	GDP (current US$)	NY.GDP.MKTP.CD	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	6.163785e-09
262	Yemen, Rep.	YEM	GDP (current US$)	NY.GDP.MKTP.CD	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	3.540134e+10
263	South Africa	ZAF	GDP (current US$)	NY.GDP.MKTP.CD	7.575397e+09	7.972997e+09	8.497997e+09	9.423396e+09	1.037406e+10	1.033446e+10	1.133446e+10	1.284626e+10	1.382657e+10	1.394286e+10	1.388267e+10	1.553446e+10	1.654005e+10	1.734005e+10	1.834005e+10	2.550306e+10
264	Zambia	ZMB	GDP (current US$)	NY.GDP.MKTP.CD	7.130000e+08	6.962857e+08	6.931429e+08	7.187143e+08	8.394286e+08	1.082857e+09	1.117692e+09	1.159512e+09	1.217138e+09	1.311436e+09	1.271485e+10	1.511436e+10	1.611436e+10	1.811436e+10	2.011436e+10	2.250000e+10
265	Zimbabwe	ZWE	GDP (current US$)	NY.GDP.MKTP.CD	1.052990e+09	1.096647e+09	1.117602e+09	1.159512e+09	1.217138e+09	1.311436e+09	1.711485e+10	1.811436e+10	1.911436e+10	2.011436e+10	2.111436e+10	2.211436e+10	2.311436e+10	2.411436e+10	2.511436e+10	2.611436e+10

266 rows × 66 columns

6.2 Data Cleaning

I created a New dataframe from the main one with only the country code and the GDP for 2020

In [81]:
```
df_gdp2020 = df_gdp[['Country Name','2020']].copy()
df_gdp2020
```

Out[81]:

	Country Name	2020
0	Aruba	NaN
1	Africa Eastern and Southern	9.188155e+11
2	Afghanistan	2.011614e+10
3	Africa Western and Central	7.845876e+11
4	Angola	5.837598e+10
...	...	...
261	Kosovo	7.716925e+09
262	Yemen, Rep.	NaN
263	South Africa	3.354421e+11
264	Zambia	1.811063e+10
265	Zimbabwe	1.805117e+10

266 rows × 2 columns

In [82]:
```
df_gdp2020.dtypes
```

Out[82]:
```
Country Name     object
2020            float64
dtype: object
```

Cleaning the countries with Nan GDP , replacing the value to Zero

In [83]:
```
df_gdp2020['2020'] = df_gdp2020['2020'].fillna(0)
```

In [84]:
```
df_gdp2020
```

Out[84]:

	Country Name	2020
0	Aruba	0.000000e+00
1	Africa Eastern and Southern	9.188155e+11
2	Afghanistan	2.011614e+10
3	Africa Western and Central	7.845876e+11
4	Angola	5.837598e+10
...	...	...
261	Kosovo	7.716925e+09
262	Yemen, Rep.	0.000000e+00
263	South Africa	3.354421e+11
264	Zambia	1.811063e+10
265	Zimbabwe	1.805117e+10

266 rows × 2 columns

6.3 Analysis

To be able to analyze this data in the relevant context, This data needs further cleaning as it has GDP for all the countries (even if the data was replaced with Zero), as well as groupings , like World, or Africa Eastern and Southern, or Africa Western and Central ..etc

So prepared a list of all the countries only with Nobel prizes to analyze their GDP

From the previous analysis in Nobel By Country

In [85]:
```
countries = df_nbc['Country']
countries
```

Out[85]:
```
0              United States
1             United Kingdom
2                    Germany
3                     France
4     Russia/ Soviet Union
                        ...
77        Trinidad and Tobago
78                    Tunisia
79                  Venezuela
80                    Vietnam
81                      Yemen
Name: Country, Length: 82, dtype: object
```

Preparing a dataframe for GDP analysis with Only countries that had noble prizes

In [86]:
```
df_gdp2020_withnp = df_gdp2020.loc[df_gdp2020['Country Name'].isin(countries)]
df_gdp2020_withnp
```

Out[86]:

	Country Name	2020
9	Argentina	3.892881e+11
13	Australia	1.327836e+12
14	Austria	4.332585e+11
17	Belgium	5.219813e+11
20	Bangladesh	3.230570e+11
...	...	...
246	Tanzania	6.240971e+10
248	Ukraine	1.554990e+11
251	United States	2.089375e+13
257	Vietnam	2.711584e+11
263	South Africa	3.354421e+11

68 rows × 2 columns

In [87]:
```
sorted_gdp2020_withnp = df_gdp2020_withnp.sort_values(by=['2020'], ascending=False)
sorted_gdp2020_withnp
```

Out[87]:

	Country Name	2020
251	United States	2.089375e+13
40	China	1.472273e+13
119	Japan	5.057759e+12
55	Germany	3.846414e+12
81	United Kingdom	2.764198e+12
...	...	...
242	Trinidad and Tobago	2.158804e+10
24	Bosnia and Herzegovina	1.994050e+10
157	North Macedonia	1.226317e+10
131	Liberia	3.201188e+09
78	Faroe Islands	0.000000e+00

68 rows × 2 columns

In [88]:
```
sorted_gdp2020_withnp.plot.bar(x = 'Country Name', y = '2020')
```

Out[88]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x7fc2c1b97730>
```

Then optimized to show the top 30 countries

In [89]:
```
sorted_gdp2020_withnpTop30 = sorted_gdp2020_withnp[:30]
sorted_gdp2020_withnpTop30.plot.bar(x = 'Country Name', y = '2020')
```

Out[89]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x7fc2c1b91850>
```

6.4 Conclusion

The countries with the highest GDP in 2020 were United States, China, Japan, Germany and United Kingdom

7.0 Final Conslusion and critical evaluation

Top 5 countries by Nobel laureate were :-

- United States
- United Kingdom
- Germany
- France
- Russia

Then Japan (7th) and China (24th)

Top 5 countries by GDP were :-

- United States
- China
- Japan
- Germany
- United Kingdom
- India

Then comes France

This shows that there is already a high correlation between the GDP and the number of Nobel prizes , but it doesn't mean causality. Because, a country like China comes at a very late rank (24th) while its GDP is the second.

Countries even with a very high income per capita, like Gulf Region (Qatar, Kuwait and UAE) didn't have any noble prizes, and countries with lowe income like India and Egypt had 12 and 4 prizes respectively.

To have a really clear idea on why some countries have more Nobel prizes compared to others, more factors should be inluded like :-

- Effect of immigration
- Laws
- Freedom of speech
- Quality of Education on different levels
- The university (and country) where the Laureate got his education , versus , the one where he conducted the research that nomitated him / her for the Nobel prize
- Funding of the university
- Effect of private sector in motivating and funding the research

These factors, may still be recognizable in science based domains , but others like Literature and Peace may need other factors to be able to analyze

Multiple regression models can be conducted on a future research to analyze the impact and weight of each factor

That study can be a start for more ones to improve the global research / education system , not just for more noble prizes, but for the whole impact on the world that will gain the benefits of the outcomes of these researches conducted by talented scientists in different domains

8.0 References

Data :-

- Country GDP https://en.wikipedia.org/wiki/List_of_countries_by_GDP_(nominal)
- Nobel by country https://en.wikipedia.org/wiki/List_of_Nobel_laureates_by_country
- Nobel by university https://en.wikipedia.org/wiki/List_of_Nobel_laureates_by_university_affiliation
- University of London Notable pas students https://london.ac.uk/notable-past-students
- Worldbank GDP https://api.worldbank.org/v2/en/indicator/NY.GDP.MKTP.CD?downloadformat=csv

Tech:-

- https://www.markdownguide.org/cheat-sheet/
- https://www.markdownguide.org/basic-syntax/
- https://stackoverflow.com/questions/35384358/how-to-open-my-files-in-data-folder-with-pandas-using-relative-path
- https://stackoverflow.com/questions/8568958/how-to-transform-a-list-of-dictionaries-containing-nested-lists-into-a-pandas-
- https://datatofish.com/replace-values-pandas-dataframe/
- https://www.geeksforgeeks.org/replace-nan-values-with-zeros-in-pandas-dataframe/
- https://docs.python.org/3/library/re.html
- https://stackoverflow.com/questions/27751195/pandas-replace-values-based-on-index
- https://moonbooks.org/Articles/How-to-replace-rows-of-a-dataframe-using-rows-of-another-dataframe-based-on-indexes-with-pandas-/
- https://docs.python.org/3/library/re.html
- https://www.w3schools.com/python/matplotlib_scatter.asp
- https://datahelpdesk.worldbank.org/knowledgebase/articles/898599-indicator-api-queries
- https://pandas.pydata.org/pandas-docs/stable/user_guide/missing_data.html
- https://stackoverflow.com/questions/18476924/how-to-iterate-over-rows-in-a-dataframe-in-pandas
- https://www.geeksforgeeks.org/get-a-specific-row-in-a-given-pandas-dataframe/
- https://www.w3schools.com/python/glossa_python_escape_characters.asp
- https://stackoverflow.com/questions/54665457/how-can-i-print-literal-curly-braces-characters-in-a-string-and-also-use-format#:~:text=Form%20this%20can%20%2F42%2B0%2Ereplacement%20fields,by%20doubling%3A%20%7B%7B%7B%20and%20%7D%7D%7D%20.
- https://stackoverflow.com/questions/4213540/removing-a-a-character-from-entire-data-frame
- https://flextutor.com/blogs/list-to-dataframe-python
- https://stackoverflow.com/questions/26178353/normalizing-a-list-of-numbers-in-python
- https://stackoverflow.com/questions/25888710/replace-all-occurrences-of-a-string-in-a-pandas-dataframe-python/25888756#25888756
- https://stackoverflow.com/questions/53047479/replace-single-quote-to-double-quote-python-pandas-dataframe/53047802
- https://datatofish.com/replace-character-pandas-dataframe/
- https://pandas.pydata.org/docs/reference/api/pandas.DataFrame.replace.html
- https://datatofish.com/replace-values-pandas-dataframe/
- https://stackoverflow.com/questions/26417491/normalizing-columns-of-pandas-data-frame
- https://stackoverflow.com/questions/60262426/flatten-nested-json-into-pandas-dataframe-columns
- https://towardsdatascience.com/how-to-add-a-new-column-to-an-existing-pandas-dataframe-3f1da8e7baf8f
- https://towardsdatascience.com/how-to-add-a-new-column-to-an-existing-pandas-dataframe-3f1da8e7baf8f
- https://appsvidland.com/2019/01/29/pandas-set-index-examples-python-set_index-tutorial/
- https://www.geeksforgeeks.org/replace-nan-values-with-zeros-in-pandas-dataframe/
- https://datatofish.com/rows-with-nan-pandas-dataframe/
- https://stackoverflow.com/questions/38408103/how-to-remove-a-subset-of-a-data-frame-in-python
- https://note.nkmk.me/en/python-pandas-len-shape-size/
- https://stackoverflow.com/questions/15891038/change-column-type-in-pandas
- https://www.delftstack.com/howto/seaborn/rotate-tick-labels-seaborn/
- https://www.manja.se/pandas-count-occurrences-in-column-unique-values/
- https://stackoverflow.com/questions/34682828/extracting-specific-selected-columns-to-new-dataframe-as-a-copy
- https://pandas.pydata.org/docs/reference/api/pandas.DataFrame.sort_values.html
- https://pandas.pydata.org/docs/getting_started/intro_tutorials/03_subset_data.html
- https://stackoverflow.com/questions/17071871/how-do-i-select-rows-from-a-dataframe-based-on-column-values

In [ ]: