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In [38]: print("innovation in education across USA, China, and Germany: world need ideas and innovation to deal progressively w

#literacy rates across USA, China, and Germany
print(' the following data frames and graphs below show how the literacy rates vary between USA,China and Germany')
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd

dataframe = pd.read_csv('cross-country-literacy-rates two.csv')

dataframe
```

innovation in education across USA, China, and Germany: world need ideas and innovation to deal progressively with the major problems the humanity face.Countries should create opportunities and conditions to cultivate such creative and talented people who contribute to this important work. let us look at the human resources'quality of those three coun tries

the following data frames and graphs below show how the literacy rates vary between USA,China and Germany

Out[38]:

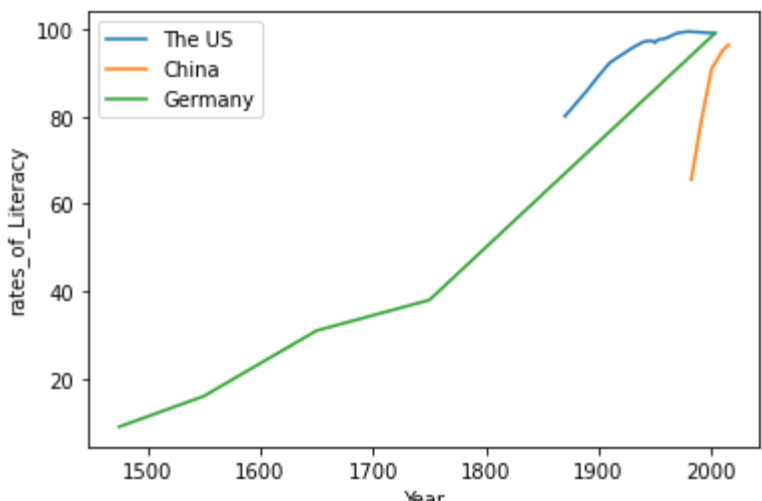
	COUNTRY_Code	Year	rates_of_Literacy
0	Germany DEU	1475	9.000000
1	Germany DEU	1550	16.000000
2	Germany DEU	1650	31.000000
3	Germany DEU	1750	38.000000
4	Germany DEU	2003	99.000000
5	China CHN	1982	65.505089
6	China CHN	1990	77.785057
7	China CHN	2000	90.920212
8	China CHN	2010	95.124481
9	China CHN	2015	96.357452
10	United States USA	1870	80.000000
11	United States USA	1880	83.000000
12	United States USA	1890	86.000000
13	United States USA	1900	89.300003
14	United States USA	1910	92.300003
15	United States USA	1920	94.000000
16	United States USA	1930	95.699997
17	United States USA	1940	97.099998
18	United States USA	1947	97.300003
19	United States USA	1950	96.800003
20	United States USA	1952	97.500000
21	United States USA	1959	97.800003
22	United States USA	1969	99.000000
23	United States USA	1979	99.400002
24	United States USA	2003	99.000000

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In [44]: # let us Compare Literacy rates across the US, China and Germany
US = dataframe[ dataframe.COUNTRY_Code == 'United States USA' ]
China = dataframe[ dataframe.COUNTRY_Code == 'China CHN' ]
Germany = dataframe[ dataframe.COUNTRY_Code == 'Germany DEU' ]
Germany
```

Out[44]:

	COUNTRY_Code	Year	rates_of_Literacy
0	Germany DEU	1475	9.0
1	Germany DEU	1550	16.0
2	Germany DEU	1650	31.0
3	Germany DEU	1750	38.0
4	Germany DEU	2003	99.0

```
In [50]: plt.plot(US.Year, US.rates_of_Literacy)
plt.plot(China.Year, China.rates_of_Literacy)
plt.plot(Germany.Year, Germany.rates_of_Literacy)
plt.legend(['The US', 'China', 'Germany'])
plt.xlabel('Year')
plt.ylabel('rates_of_Literacy')
plt.show()
```



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In [ ]: # as we can see from these graphs, US was leader for gaining higher literacy rates within
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In [59]: researchers = pd.read_csv('researchers-in-rd-per-million-people.csv')
researchers
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Out[59]:

	Entity	Code	Year	Researchers in R&D (per million people)	
	China	CHN	1996	442	5655
	China	CHN	1997	471	9949
	China	CHN	1998	386	7717
	China	CHN	1999	420	6021
	China	CHN	2000	547	3039
	China	CHN	2001	581	5319
	China	CHN	2002	631	78
	China	CHN	2003	667	5321
	China	CHN	2004	713	2845
	China	CHN	2005	856	8455
	China	CHN	2006	932	3142
	China	CHN	2007	1078	625
	China	CHN	2008	1200	295
	China	CHN	2009	863	9263
	China	CHN	2010	902	9598
	China	CHN	2011	977	6821
	China	CHN	2012	1035	879
	China	CHN	2013	1089	192
	China	CHN	2014	1113	72
	China	CHN	2015	1176	577
	Germany	DEU	1996	2811	614
	Germany	DEU	1997	2875	741
	Germany	DEU	1998	2898	567
	Germany	DEU	1999	3107	283
	Germany	DEU	2000	3148	801
	Germany	DEU	2001	3231	718
	Germany	DEU	2002	3253	52
	Germany	DEU	2003	3297	91
	Germany	DEU	2004	3318	869
	Germany	DEU	2005	3349	646
	Germany	DEU	2006	3452	21
	Germany	DEU	2007	3597	239
	Germany	DEU	2008	3751	782
	Germany	DEU	2009	3940	736
	Germany	DEU	2010	4077	767
	Germany	DEU	2011	4211	255
	Germany	DEU	2012	4379	75
	Germany	DEU	2013	4399	672
	Germany	DEU	2014	4363	78
	Germany	DEU	2015	4431	82
	United States	USA	1996	3122	573
	United States	USA	1997	3224	239
	United States	USA	1998	3388	209
	United States	USA	1999	3445	31
	United States	USA	2000	3475	695
	United States	USA	2001	3545	832
	United States	USA	2002	3630	618
	United States	USA	2003	3870	57
	United States	USA	2004	3765	103
	United States	USA	2005	3718	195
	United States	USA	2006	3781	808
	United States	USA	2007	3757	867
	United States	USA	2008	3911	535
	United States	USA	2009	4073	176
	United States	USA	2010	3868	566
	United States	USA	2011	4011	329
	United States	USA	2012	4015	887
	United States	USA	2013	4117	674
	United States	USA	2014	4231	989

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