6 7 8 9 10 11	1975       5998.144346         1976       7062.131392         1977       7100.126170         1978       7247.967035         1979       7602.912681         1980       8355.968120         1981       9434.390652         1982       9619.438377         1983       10416.536590
15 16 17 18 19 20 21	1984       10790.328720         1985       11018.955850         1986       11482.891530         1987       12974.806620         1988       15080.283450         1989       16426.725480         1990       16838.673200         1991       17266.097690
23 24 25 26 27 28 29	1992 16412.083090 1993 15875.586730 1994 15755.820270 1995 16369.317250 1996 16699.826680 1997 17310.757750 1998 16622.671870 1999 17581.024140 2000 18987.382410
32 33 34 35 36 37	2001       18601.397240         2002       19232.175560         2003       22739.426280         2004       25719.147150         2005       29198.055690         2006       32738.262900         2007       36144.481220         2008       37446.486090
39 40 41 42 43 44	2009 32755.176820 2010 38420.522890 2011 42334.711210 2012 42665.255970 2013 42676.468370 2014 41039.893600 2015 35175.188980 2016 34229.193630
	heatmap(data = can_income,cmap = "viridis")  plotlib.axessubplots.AxesSubplot at 0x260adb0dc40>  -40000 -35000 -30000 -25000 -20000 -15000 -10000
0]: can_ 0]:	year per capita income (US\$)  year per capita income (US\$)  year 1.000000 0.943884  capita income (US\$) 0.943884 1.000000  heatmap (can income.corr())
2]: <mat< td=""><td>plotlib.axessubplots.AxesSubplot at 0x260add567f0&gt;  -100 -0.99 -0.98 -0.97 -0.96</td></mat<>	plotlib.axessubplots.AxesSubplot at 0x260add567f0>  -100 -0.99 -0.98 -0.97 -0.96
	year per capita income (US\$)  a sklearn.linear_model import LinearRegression  = LinearRegression()
9]:	<pre>can_income['year'] can_income['per capita income (US\$)']  ain, X_test, y_train, y_test = train_test_split(X, y, test_size=0.33,random_state=42)  ain, X_test, y_train, y_test  1987 2014</pre>
15 9 16 29 32 45 0 31 30 5 11 34 1	1985 1979 1986 1999 2002 2015 1970 2001 2000 1975 1981 2004
41 21 2 35 23 37 10 22 18 46 20 7	2011 1991 1972 2005 1993 2007 1980 1992 1988 2016 1990 1977
27 39 26 43 24 36 12	2012 1984 1998 2008 e: year, dtype: int64, 1997 2009 1996 2013 1994 2006 1982 1989
4 25 8 3 6 40 33 13 Nam 17 44 15	1974 1995 1978 1973 1976 2010 2003 1983 e: year, dtype: int64, 12974.806620 41039.893600 11018.955850 7602.912681
16 29 32 45 0 31 30 5 11 34 1 41 21	11482.891530 17581.024140 19232.175560 35175.188980 3399.299037 18601.397240 18987.382410 5998.144346 9434.390652 25719.147150 3768.297935 42334.711210 17266.097690
2 35 23 37 10 22 18 46 20 7 42 14	4251.175484 29198.055690 15875.586730 36144.481220 8355.968120 16412.083090 15080.283450 34229.193630 16838.673200 7100.126170 42665.255970 10790.328720
27 39 26 43 24 36 12 19 4 25	16622.671870 37446.486090 e: per capita income (US\$), dtype: float64, 17310.757750 32755.176820 16699.826680 42676.468370 15755.820270 32738.262900 9619.438377 16426.725480 5576.514583 16369.317250
6]: sns.	7247.967035 4804.463248 7062.131392 38420.522890 22739.426280 10416.536590 e: per capita income (US\$), dtype: float64)  scatterplot(x ='per capita income (US\$)', y = 'year', data = can_income)  plotlib.axessubplots.AxesSubplot at 0x260af53a430>
20 20 199 199	00 - 90 - 80 - 70 - 80 - 80 - 80 - 80 - 80 - 8
5]: Line 8]: y_pr 9]: y_pr	5000 10000 15000 20000 30000 35000 40000  per capita income (U5\$)  fit (X_train.values.reshape(-1,1),y_train)  arRegression()  ed = reg.predict(X_test.values.reshape(-1,1))  ed  y([22132.18455106, 31971.19876346, 21312.26670003, 35250.8701676, 19672.43099796, 29511.44521036, 9833.41678556, 15572.84174279,
reg.	3274.07397729, 20492.34884899, 6553.74538142, 2454.15612625, 4913.90967935, 32791.1166145 , 27051.69165726, 10653.33463659])  r =[2019] .predict([year]) ay([40170.3772738])  t = {'year':2019, 'per capita income (US\$)':40170.3772738}
df df .5]:	year per capita income (US\$)
1 2 3	year         per capita income (US\$)           1970         3399.299037           1971         3768.297935           1972         4251.175484           1973         4804.463248           1974         5576.514583
6 7 8 9 10 11	1975       5998.144346         1976       7062.131392         1977       7100.126170         1978       7247.967035         1979       7602.912681         1980       8355.968120         1981       9434.390652         1982       9619.438377          1983       10416.536500
14 15 16 17 18 19 20	1983       10416.536590         1984       10790.328720         1985       11018.955850         1986       11482.891530         1987       12974.806620         1988       15080.283450         1989       16426.725480         1990       16838.673200         1991       17266.097690
23 24 25 26 27 28	1992       16412.083090         1993       15875.586730         1994       15755.820270         1995       16369.317250         1996       16699.826680         1997       17310.757750         1998       16622.671870         1999       17581.024140
31 32 33 34 35 36 37	2000 18987.382410 2001 18601.397240 2002 19232.175560 2003 22739.426280 2004 25719.147150 2005 29198.055690 2006 32738.262900 2007 36144.481220 2008 37446.486090
40 41 42 43 44 45	2009       32755.176820         2010       38420.522890         2011       42334.711210         2012       42665.255970         2013       42676.468370         2014       41039.893600         2015       35175.188980         2016       34229.193630
У =	<pre>new['per capita income (US\$)'] new['year'] .iplot(kind='scatter',title ='canada income preductions')</pre>
6]: 0.88 6]: plt.	reg.score(X_train.values.reshape(-1,1),y_train)  43856415982171  .xlabel('per capita income (US\$)',fontsize=20) .ylabel('year',fontsize=20)
sns.	.scatterplot(x ='per capita income (US\$)',y = 'year',data = can_income)  cplotlib.axessubplots.AxesSubplot at 0x260b2db1340>
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