

# Assignment No. 01

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**Subject : Machine Learning**

**Class : TE-IT (B)**

```
[1]: import numpy as np # Linear algebra
import pandas as pd # data processing, CSV file I/O (e.g. pd.read_csv)
import seaborn as sns
```

```
[2]: from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
import matplotlib.pyplot as plt
# import matplotlib.pyplot as plt
```

```
[3]: data = pd.read_csv("../input/temperatures-of-india/temperatures.csv")
df = data
```

```
[6]:
```

	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	JAN-FEB	MAR-MAY	JUN-SEP	OCT-DEC
112	2013	24.56	26.59	30.62	32.66	34.46	32.44	31.07	30.76	31.04	30.27	27.83	25.37	29.81	25.58	32.58	31.33	27.83
113	2014	23.83	25.97	28.95	32.74	33.77	34.15	31.85	31.32	30.68	30.29	28.05	25.08	29.72	24.90	31.82	32.00	27.81
114	2015	24.58	26.89	29.07	31.87	34.09	32.48	31.88	31.52	31.55	31.04	28.10	25.67	29.90	25.74	31.68	31.87	28.27
115	2016	26.94	29.72	32.62	35.38	35.72	34.03	31.64	31.79	31.66	31.98	30.11	28.01	31.63	28.33	34.57	32.28	30.03
116	2017	26.45	29.46	31.60	34.95	35.84	33.82	31.88	31.72	32.22	32.29	29.60	27.18	31.42	27.95	34.13	32.41	29.69

```
[8]: data.shape
```

```
[8]: (117, 18)
```

```
[4]: data.describe()
```

```
[4]:
```

	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
count	117.000000	117.000000	117.000000	117.000000	117.000000	117.000000	117.000000	117.000000	117.000000	117.000000
mean	1959.000000	23.687436	25.597863	29.085983	31.975812	33.565299	32.774274	31.035897	30.507692	30.486752
std	33.919021	0.834588	1.150757	1.068451	0.889478	0.724905	0.633132	0.468818	0.476312	0.544295
min	1901.000000	22.000000	22.830000	26.680000	30.010000	31.930000	31.100000	29.760000	29.310000	29.070000
25%	1930.000000	23.100000	24.780000	28.370000	31.460000	33.110000	32.340000	30.740000	30.180000	30.120000
50%	1959.000000	23.680000	25.480000	29.040000	31.950000	33.510000	32.730000	31.000000	30.540000	30.520000
75%	1988.000000	24.180000	26.310000	29.610000	32.420000	34.030000	33.180000	31.330000	30.760000	30.810000
max	2017.000000	26.940000	29.720000	32.620000	35.380000	35.840000	34.480000	32.760000	31.840000	32.220000

OCT	NOV	DEC	ANNUAL	JAN-FEB	MAR-MAY	JUN-SEP	OCT-DEC
117.000000	117.000000	117.000000	117.000000	117.000000	117.000000	117.000000	117.000000
29.766581	27.285470	24.608291	29.181368	24.629573	31.517607	31.198205	27.208120
0.705492	0.714518	0.782644	0.555555	0.911239	0.740585	0.420508	0.672003
27.900000	25.700000	23.020000	28.110000	22.250000	29.920000	30.240000	25.740000
29.380000	26.790000	24.040000	28.760000	24.110000	31.040000	30.920000	26.700000
29.780000	27.300000	24.660000	29.090000	24.530000	31.470000	31.190000	27.210000
30.170000	27.720000	25.110000	29.470000	25.150000	31.890000	31.400000	27.610000
32.290000	30.110000	28.010000	31.630000	28.330000	34.570000	32.410000	30.030000

```
[32]: plt.scatter(x_train, y_train, color='blue')
plt.plot(x_test, y_pred, color='red', linewidth=3)
plt.title("Temperature vs Year")
plt.xlabel("Year")
plt.ylabel("Temperature")
plt.show()
```

