

```
[163] type(data)
```

```
[164] pandas.core.frame.DataFrame
```

```
[171] #concise summary  
data.info
```

```
[171] <bound method DataFrame.info of  
0      31-08-00  23.18  16.530  121.717  1177.687  168.085  
1      31-01-00  27.68  16.810  79.022  1328.368  141.327  
2      31-02-00  23.15  16.709  79.952  1329.487  139.141  
3      31-03-00  23.58  16.478  81.011  1334.177  211.527  
4      31-04-00  22.58  15.618  93.344  1334.168  143.131  
..      ...      ...      ...      ...      ...      ...  
319    10-18-00  22.75  12.667  93.480  1178.261  176.955  
320    9-19-00  19.98  12.558  94.352  1184.119  257.071  
321    9-20-00  23.81  12.550  99.842  1188.917  189.826  
322    9-21-00  24.32  12.003  88.910  1192.879  318.006  
323    9-22-00  26.75  13.417  85.451  1186.342  148.312
```

```
      T-upperExt-2  T-lowerExt-2  UC2AA  whiteFlow-4  ...  steamFlow-4  \  
0      350.202      329.548  1.443      599.251  ...      67.122  
1      351.050      329.067  1.549      537.201  ...      68.012  
2      350.922      329.260  1.600      549.611  ...      61.304  
3      350.530      331.142  1.604      623.361  ...      68.456  
4      351.648      332.709  NaN      638.672  ...      70.022  
..      ...      ...      ...      ...      ...      ...  
319    347.205      310.970  1.523      813.958  ...      61.141  
320    399.135      319.576  1.451      870.068  ...      67.667  
321    373.932      314.591  1.457      549.186  ...      66.698  
322    364.801      300.559  1.523      504.851  ...      61.054  
323    356.289      310.482  1.474      497.175  ...      58.247
```

```
      Lower-HeatT-3  Upper-HeatT-3  Chipless-4  Weak liquorF  SlackFlow-2  \  
0      329.432      303.089      175.964      1127.157      1315.039  
1      339.823      304.879      163.202      665.575      1297.317  
2      329.140      303.383      164.013      877.534      1327.072  
3      328.375      302.254      181.487      767.853      1324.461  
4      328.352      300.954      183.929      888.448      1343.424  
..      ...      ...      ...      ...      ...  
319    338.117      304.006      148.174      1827.201      1367.271  
320    338.948      304.616      165.178      986.362      1311.177  
321    338.226      304.888      160.841      857.125      1319.226  
322    327.346      304.383      147.589      804.423      1320.225  
323    320.092      304.093      144.238      828.326      1320.040
```

```
      WeakWashF  SteamHeatF-3  T-Top-Chips-4  SulphidityL-4  
0      257.325      54.612      252.077      NaN  
1      241.182      46.603      251.406      29.11  
2      237.272      51.795      251.135      NaN
```

	WeaknessF	StressHeatF-3	T-Top-Chips-4	SulphidityL-4
0	287.325	54.612	252.077	NaN
1	243.182	46.003	251.406	29.13
2	237.272	51.795	251.535	NaN
3	239.478	54.846	250.312	29.03
4	218.372	54.126	248.916	29.02
..
319	301.643	48.264	252.947	30.00
320	25.494	50.520	252.092	30.70
321	0.630	45.549	252.430	NaN
322	0.000	43.725	253.176	31.13
323	1.776	43.848	253.218	...

```
descriptive_statistics
data.describe()
```

	Y-Kappa	ChipIate	BF- CMratio	BlowFlow	ChipLeveH	upperExt- 2	T- lowerExt-2	UCZAA	WhiteFlow- 4	AAWhiteSt- 4	...	SteamFlow- 4	Lower- HeatT-3	UpI Heat
count	324.000000	319.000000	307.000000	308.000000	323.000000	322.000000	322.000000	299.000000	323.000000	173.000000	...	323.000000	322.000000	322.000
mean	20.635370	14.347957	87.464456	1257.837614	258.164483	356.904295	324.020180	1.492010	591.732260	6.140410	...	66.668285	325.967820	300.525
std	3.070036	1.499095	7.995012	100.593735	87.987452	9.209290	7.621402	0.105923	67.016351	0.081629	...	5.708587	4.609862	4.568
min	12.170000	9.963000	68.645000	0.000000	0.000000	339.168000	284.633000	1.182000	405.111000	5.890000	...	48.568000	318.051000	293.312
25%	16.362500	13.358000	81.829000	1193.215250	215.527000	350.241250	321.420000	1.431500	540.969500	6.389000	...	62.518000	321.385500	296.515
50%	20.645000	14.308000	86.739000	1273.138500	271.792000	358.843000	325.689000	1.498000	592.895000	6.135000	...	67.429000	324.741000	299.126
75%	23.032500	15.517000	92.372000	1289.196000	321.660000	362.242250	329.175000	1.560500	639.480500	6.199000	...	71.522000	329.845250	304.244
max	27.600000	16.956000	121.717000	1351.240000	419.014000	399.135000	337.012000	1.747000	751.394000	6.340000	...	76.147000	335.854000	311.144

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```
[29]: data=data.drop_duplicates()
      data
```

	Observation	Y-Kappa	ChipRate	BF-CMratio	SlowFlow	ChipLevel4	T-upperExt-2	T-lowerExt-2	UCZAA	WhileFlow-4	...	SteamFlow-4	Lower-HeatT-3	Upper-HeatT-3	ChipMass-4	WeakLI
0	31-00:00	23.10	16.520	121.717	1177.607	169.805	358.282	329.545	1.443	599.253	..	67.122	329.432	303.099	175.964	11
1	31-01:00	27.60	16.810	79.022	1328.360	341.327	351.050	329.067	1.549	537.201	..	60.012	330.823	304.879	163.202	6
2	31-02:00	23.19	16.709	79.562	1329.407	239.161	350.022	329.260	1.600	549.611	..	61.304	329.140	303.383	164.013	6
3	31-03:00	23.60	16.478	81.011	1334.877	213.527	350.938	331.142	1.604	623.362	..	68.496	328.075	302.254	181.487	7

2	31-02-00	23.19	16.709	79.562	1329.407	239.161	350.022	329.260	1.600	549.611	..	61.304	329.140	303.383	164.013	6
3	31-03-00	23.60	16.478	81.011	1334.877	213.527	350.938	331.142	1.604	623.362	..	68.496	328.675	302.254	181.487	7
4	31-04-00	22.93	15.618	93.244	1334.168	243.131	351.640	332.709	NaN	638.672	..	70.022	328.352	300.954	183.929	8
...
298	12-09-00	20.90	15.167	84.640	1283.706	339.440	354.803	311.041	1.635	532.419	..	65.561	332.924	307.626	145.299	8
299	12-10-00	24.96	NaN	85.034	1276.345	368.564	357.723	321.387	NaN	520.365	..	65.729	332.523	307.169	151.544	9
300	12-11-00	21.00	NaN	86.013	1307.722	278.842	357.436	323.757	NaN	553.070	..	65.795	331.283	306.400	157.954	9
301	12-12-00	21.40	NaN	85.490	1255.906	273.484	361.365	322.609	NaN	590.199	..	71.456	333.032	308.732	174.069	9
307	31-05-00	20.89	14.308	94.172	1327.832	251.120	351.263	332.485	1.522	631.514	..	71.286	328.699	300.706	180.229	9

301 rows x 23 columns

←		→
---	--	---

```
[18]: data.isnull()
```

```
[19]:
```

	Observation	Y-Kappa	ChipRate	BF-CMratio	BlowFlow	ChipLevel4	T-upperExt-2	T-lowerExt-2	UCZAA	WhiteFlow-4	...	SteamFlow-4	Lower-HeatT-3	Upper-HeatT-3	ChipMass-4	WeakLic
0	False	False	False	False	False	False	False	False	False	False	..	False	False	False	False	
1	False	False	False	False	False	False	False	False	False	False	..	False	False	False	False	
2	False	False	False	False	False	False	False	False	False	False	..	False	False	False	False	
3	False	False	False	False	False	False	False	False	False	False	..	False	False	False	False	
4	False	False	False	False	False	False	False	False	True	False	..	False	False	False	False	
...
298	False	False	False	False	False	False	False	False	False	False	..	False	False	False	False	
299	False	False	True	False	False	False	False	False	True	False	..	False	False	False	False	
300	False	False	True	False	False	False	False	False	True	False	..	False	False	False	False	
301	False	False	True	False	False	False	False	False	True	False	..	False	False	False	False	
307	False	False	False	False	False	False	False	False	False	False	..	False	False	False	False	

301 rows x 23 columns

```
[31]: data.isnull().sum()
```

```
[31]: Observation      8
      Y-Kappa         8
      ChipRate        4
      BF-CMratio     14
      BlowFlow       13
      ChipLevel4      1
      T-upperExt-2    1
      T-lowerExt-2    1
      UCZAA          24
      WhiteFlow-4     1
      AAWhiteExt-4    141
      AA-MOOD-4       1
      ChipMoisture-4   1
      SteamFlow-4     1
      Lower-HeatT-3    1
      Upper-HeatT-3    1
      ChipMass-4       1
      LeakLiquorF      1
      BlackFlow-2      1
      LeakLashF        1
      SteamExtF-3      1
      T-Top-Chips-4    1
      Sulphidity-4    141
      dtype: int64
```

```
[31]: data.notnull()
```

```
[31]:
```

	Observation	Y-Kappa	ChipRate	BF-CMratio	BlowFlow	ChipLevel4	T-upperExt-2	T-lowerExt-2	UCZAA	WhiteFlow-4	...	SteamFlow-4	Lower-HeatT-3	Upper-HeatT-3	ChipMass-4	WeakLic
0	True	True	True	True	True	True	True	True	True	True	..	True	True	True	True	True
1	True	True	True	True	True	True	True	True	True	True	..	True	True	True	True	True
2	True	True	True	True	True	True	True	True	True	True	..	True	True	True	True	True
3	True	True	True	True	True	True	True	True	True	True	..	True	True	True	True	True
4	True	True	True	True	True	True	True	True	False	True	..	True	True	True	True	True
...
298	True	True	True	True	True	True	True	True	True	True	..	True	True	True	True	True
299	True	True	False	True	True	True	True	True	False	True	..	True	True	True	True	True
300	True	True	False	True	True	True	True	True	False	True	..	True	True	True	True	True
301	True	True	False	True	True	True	True	True	False	True	..	True	True	True	True	True
307	True	True	True	True	True	True	True	True	True	True	..	True	True	True	True	True

```
<!DOCTYPE html>
<html>
  <head>
    <title>Simple file</title>
    <link rel="stylesheet" href="task2css.css"
  </head>
  <body>
    <header>
      <h1>Simple Web Page</h1>
    </header>
    <nav>
      <ul>
        <li><a href="#">Home</a></li>
        <li><a href="#">About</a></li>
        <li><a href="#">Contact</a></li>
      </ul>
    </nav>
    <main>
      <section>
        <h2>About me</h2>
        <p>Hello! I'm Susmitha Tallapudi.</p>
      </section>
      <section>
        <h2>Contact me</h2>
        <p>Phone:9966338844<br>Email:susmitha@gmail.com</p>
      </section>
    </main>
    <footer>
      <p>&copy;This is my sample web page. All rights reserved</p>
    </footer>
  </body>
</html>
```

```
body{
    background-color: beige;
}
header {
    background-color:#333;
    padding: 10px;
    color: #fff;
}
nav ul {
    margin: 0;
    padding: 10px;
}
nav li{
    display: inline;
}
nav a {
    color: #333;
    padding: 20px;
}
nav a:hover {
    background-color:#333;
    color: #fff;
}
main {
    margin: 20px;
}
/*Styles for desktop screens*/
.container{
width: 960px;
margin: 0 auto;
}
/*styles for tablets*/
@media (max-width: 768px) {
.container{
width: 720px;
}
}
/*styles for mobile devices*/
@media (max-width: 480px) {
.container{
width: 100%;
padding: 10px;
}
}
```

Simple Web Page

[Home](#) [About](#) [Contact](#)

About me

Hello! This is my first web page.

Contact me

Phone: 0902123456
Email: example@example.com

This is my simple web page. All rights reserved.




```
▶ import pandas as pd # Importing pandas library to do data manipulation
```

```
[ ] from google.colab import files # Uploading the data file  
    uploaded = files.upload()
```

```
df.info() # explore the data type
```

```
<class 'pandas.core.frame.DataFrame'>
```

```
RangeIndex: 324 entries, 0 to 323
```

```
Data columns (total 23 columns):
```

#	Column	Non-Null Count	Dty
0	Observation	324 non-null	obj
1	Y-Kappa	324 non-null	flo
2	ChipRate	319 non-null	flo
3	BF-CMratio	307 non-null	flo
4	BlowFlow	308 non-null	flo
5	ChipLevel4	323 non-null	flo
6	T-upperExt-2	322 non-null	flo
7	T-lowerExt-2	322 non-null	flo
8	UCZAA	299 non-null	flo
9	WhiteFlow-4	323 non-null	flo
10	AAWhiteSt-4	173 non-null	flo
11	AA-Wood-4	323 non-null	flo

```
df.info() # explore the data types
```

```
<class 'pandas.core.frame.DataFrame'>
```

```
RangeIndex: 324 entries, 0 to 323
```

```
Data columns (total 23 columns):
```

#	Column	Non-Null Count	Dtype
----	-----	-----	-----
0	Observation	324 non-null	object
1	Y-Kappa	324 non-null	float64
2	ChipRate	319 non-null	float64
3	BF-CMratio	307 non-null	float64
4	BlowFlow	308 non-null	float64
5	ChipLevel4	323 non-null	float64
6	T-upperExt-2	322 non-null	float64
7	T-lowerExt-2	322 non-null	float64
8	UCZAA	299 non-null	float64
9	WhiteFlow-4	323 non-null	float64
10	AAWhiteSt-4	173 non-null	float64
11	AA-Wood-4	323 non-null	float64
12	ChipMoisture-4	323 non-null	float64
13	SteamFlow-4	323 non-null	float64
14	Lower-HeatT-3	322 non-null	float64
15	Upper-HeatT-3	322 non-null	float64
16	ChipMass-4	323 non-null	float64
17	WeakLiquorF	323 non-null	float64
18	BlackFlow-2	322 non-null	float64
19	WeakWashF	323 non-null	float64
20	SteamHeatF-3	322 non-null	float64
21	T-Top-Chips-4	323 non-null	float64
22	SulphidityL-4	173 non-null	float64

```
dtypes: float64(22), object(1)
```

```
memory usage: 58.3+ KB
```

✓ Handling Missing Values

▶ `df.isnull().sum()`

➡

Observation	0
Y-Kappa	0
ChipRate	5
BF-CMratio	17
BlowFlow	16
ChipLevel4	1
T-upperExt-2	2
T-lowerExt-2	2
UCZAA	25
WhiteFlow-4	1
AAWhiteSt-4	151
AA-Wood-4	1
ChipMoisture-4	1
SteamFlow-4	1
Lower-HeatT-3	2
Upper-HeatT-3	2
ChipMass-4	1
WeakLiquorF	1
BlackFlow-2	2
WeakWashF	1
SteamHeatF-3	2
T-Top-Chips-4	1
SulphidityL-4	151
dtype: int64	

▶ filtered_data = df[(df['ChipRate'] > 4) & (df['BlowFlow'] < 1000)]
filtered_data



	Observation	Y- Kappa	ChipRate	BF- CMratio	BlowFlow	ChipLevel14	T- upperExt- 2	T- lowerExt- 2	UCZAA	WhiteFlow- 4
182	7-13:00	23.83	14.227	87.464456	0.000	220.074	352.981	323.718	1.416	594.970
279	11-14:00	21.27	11.383	84.165000	981.920	342.858	352.315	322.292	1.553	592.539
280	11-15:00	23.74	11.667	88.130000	990.724	349.088	349.697	311.997	1.555	579.875
281	11-16:00	24.41	11.242	80.458000	954.092	365.583	342.403	302.669	1.556	546.509
283	11-18:00	20.37	10.967	99.982000	998.153	302.251	344.295	305.080	1.604	471.537

5 rows × 23 columns

	Observation	Y- Kappa	ChipRate	BF- CMratio	BlowFlow	ChipLevel14	T- upperExt- 2	T- lowerExt- 2	UCZAA	WhiteFlow- 4
80	3-07:00	26.50	16.300	75.411	1229.199	358.256	352.871	325.690	1.416	531.174
81	3-08:00	23.20	16.700	73.381	1225.454	288.327	353.400	325.761	1.532	546.814
82	3-09:00	24.20	16.458	75.625	1244.665	270.511	355.729	328.243	1.484	611.104
121	5-00:00	25.56	14.900	84.953	1289.167	373.726	358.028	326.809	1.265	568.074
122	5-01:00	24.29	15.175	85.006	1294.216	320.890	358.343	327.266	1.309	592.336
154	6-09:00	19.02	15.900	82.638	1292.604	218.707	362.036	330.491	1.546	695.383
155	6-10:00	16.12	15.642	81.822	1294.158	104.615	360.561	328.752	1.631	708.251

7 rows × 23 columns



df.describe()



	Y-Kappa	ChipRate	BF- CMratio	BlowFlow	ChipLevel14	T- upperExt- 2	T- lowerExt- 2	UCZAA	WhiteFlow- 4	AAWhiteSt- 4	...
count	324.000000	324.000000	324.000000	324.000000	324.000000	324.000000	324.000000	324.000000	324.000000	324.000000	...
mean	20.635370	14.347937	87.464456	1237.837614	258.164483	356.904295	324.02018	1.492010	591.73226	6.142130	...
std	3.070036	1.487447	7.781774	98.070606	87.851143	9.180734	7.59777	0.101741	66.91253	0.080111	...
min	12.170000	9.983000	68.645000	0.000000	0.000000	339.168000	284.63300	1.182000	405.11100	5.890000	...
25%	18.382500	13.364750	82.156750	1194.525750	213.527000	350.291750	321.48600	1.436000	541.00225	6.092250	...
50%	20.845000	14.347937	87.253500	1254.658500	271.605500	356.901648	325.63850	1.492010	592.71700	6.137500	...
75%	23.032500	15.498250	92.123250	1288.628750	321.285000	362.104750	329.14700	1.555250	639.45775	6.200000	...
max	27.600000	16.958000	121.717000	1351.240000	419.014000	399.135000	337.01200	1.747000	731.39400	6.340000	...

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Register</title>
</head>
<body>
  <h1>Register</h1>
  <form method="POST" action="{ { url_for('register') } }">
    <label for="username">Username:</label>
    <input type="text" id="username" name="username" required>
    <br>
    <label for="email">Email:</label>
    <input type="email" id="email" name="email" required>
    <br>
    <label for="password">Password:</label>
    <input type="password" id="password" name="password" required>
    <br>
    <button type="submit">Register</button>
  </form>
</body>
</html>
```