

Jai-Kumar786 /  
Assignments

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0f5b7e0 · 5 days ago



9042 lines (9042 loc) · 814 KB

Preview

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# LOW CURRENT OCV AT -10 degree celcius

In [37]:

```
import pandas as pd

# Read a specific sheet by name
low_curr_ocv_minus_10= pd.read_excel(r"C:\Users\jaiku\PycharmProjects\Assig

low_curr_ocv_minus_10.head(10)
```

Out[37]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index	Cycle_Index	Cur
0	1	3.010944	2012-06-29 16:51:38	3.010944	1	1	0.
1	2	3.026961	2012-06-29 16:51:38	0.015765	2	1	1.
2	3	8.035992	2012-06-29 16:51:44	5.007575	3	1	0.
3	4	13.043648	2012-06-29 16:51:49	10.015231	3	1	0.
4	5	18.051127	2012-06-29 16:51:54	15.022710	3	1	0.
5	6	23.058702	2012-06-29 16:51:59	20.030285	3	1	0.
6	7	28.066285	2012-06-29 16:52:04	25.037868	3	1	0.
7	8	33.073845	2012-06-29 16:52:09	30.045427	3	1	0.
8	9	38.081417	2012-06-29 16:52:14	35.053000	3	1	0.
9	10	43.089009	2012-06-29 16:52:19	40.060591	3	1	0.

In [38]:

```
low_curr_ocv_minus_10.describe()
```

Out[38]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index
count	29785.00000	29785.000000	29785	29785.000000	29785.000000
mean	14893.00000	79452.354943	2012-06-30 14:55:48.690951936	36718.816502	5.960987
min	1.00000	3.010944	2012-06-29 16:51:38	0.015765	1.000000
25%	7447.00000	40580.632806	2012-06-30 04:07:57	18022.251663	5.000000
50%	14893.00000	77867.013967	2012-06-30 14:29:23	36665.442255	5.000000
75%	22339.00000	118452.093694	2012-07-01 01:45:49	55308.632827	7.000000
max	29785.00000	159037.139119	2012-07-01 13:02:14	76334.569682	8.000000
std	8598.33322	44515.946548	NaN	21570.964248	1.013849

In [39]:

```
low_curr_ocv_minus_10.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 29785 entries, 0 to 29784
Data columns (total 19 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   Data_Point                            29785 non-null  int64
1   Test_Time(s)                          29785 non-null  float64
2   Date_Time                             29785 non-null  datetime64[ns]
3   Step_Time(s)                          29785 non-null  float64
4   Step_Index                            29785 non-null  int64
5   Cycle_Index                           29785 non-null  int64
6   Current(A)                            29785 non-null  float64
7   Voltage(V)                            29785 non-null  float64
8   Charge_Capacity(Ah)                   29785 non-null  float64
9   Discharge_Capacity(Ah)                29785 non-null  float64
10  Charge_Energy(Wh)                     29785 non-null  float64
11  Discharge_Energy(Wh)                  29785 non-null  float64
12  dV/dt(V/s)                            29785 non-null  float64
13  Internal_Resistance(Ohm)               29785 non-null  int64
14  Is_FC_Data                             29785 non-null  int64
15  AC_Impedance(Ohm)                     29785 non-null  int64
16  ACI_Phase_Angle(Deg)                  29785 non-null  int64
17  Temperature (C)_1                      29785 non-null  float64
18  Temperature (C)_2                      29785 non-null  float64
dtypes: datetime64[ns](1), float64(11), int64(7)
memory usage: 4.3 MB
```

# LOW CURRENT OCV AT 0 degree celcius

```
In [40]: low_curr_ocv_0=pd.read_excel(r"C:\Users\jaiku\PycharmProjects\Assignments\A
```

```
In [41]: low_curr_ocv_0.head(10)
```

Out[41]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index	Cycle_Index	Cur
0	1	3.014942	2012-06-18 11:49:18	3.014942	1	1	0.
1	2	3.046301	2012-06-18 11:49:18	0.031089	2	1	1.
2	3	8.054232	2012-06-18 11:49:23	5.007584	3	1	0.
3	4	13.061941	2012-06-18 11:49:28	10.015293	3	1	0.
4	5	18.073395	2012-06-18 11:49:33	15.026747	3	1	0.
5	6	23.080863	2012-06-18 11:49:38	20.034215	3	1	0.
6	7	28.088504	2012-06-18 11:49:43	25.041856	3	1	0.
7	8	33.096150	2012-06-18 11:49:48	30.049501	3	1	0.
8	9	38.103670	2012-06-18 11:49:53	35.057022	3	1	0.
9	10	43.111231	2012-06-18 11:49:58	40.064583	3	1	0.

```
In [42]: low_curr_ocv_0.describe()
```

Out[42]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index
count	30249.000000	30249.000000	30249	30249.000000	30249.000000
mean	15125.000000	80615.643879	2012-06-19 10:12:51.466792448	36962.274515	5.962048
min	1.000000	3.014942	2012-06-18 11:49:18	0.031089	1.000000

<b>25%</b>	7563.000000	41162.668955	2012-06-18 23:15:18	17997.213788	5.000000
<b>50%</b>	15125.000000	79029.928468	2012-06-19 09:46:26	36930.843545	5.000000
<b>75%</b>	22687.000000	120193.073943	2012-06-19 21:12:29	55864.473308	7.000000
<b>max</b>	30249.000000	161359.267642	2012-06-20 08:38:36	76186.533244	8.000000
<b>std</b>	8732.278483	45209.697396	NaN	21853.017650	1.030102

In [43]:

low\_curr\_ocv\_0.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 30249 entries, 0 to 30248
Data columns (total 19 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   Data_Point                            30249 non-null  int64
1   Test_Time(s)                          30249 non-null  float64
2   Date_Time                             30249 non-null  datetime64[ns]
3   Step_Time(s)                          30249 non-null  float64
4   Step_Index                            30249 non-null  int64
5   Cycle_Index                           30249 non-null  int64
6   Current(A)                            30249 non-null  float64
7   Voltage(V)                            30249 non-null  float64
8   Charge_Capacity(Ah)                   30249 non-null  float64
9   Discharge_Capacity(Ah)                30249 non-null  float64
10  Charge_Energy(Wh)                     30249 non-null  float64
11  Discharge_Energy(Wh)                  30249 non-null  float64
12  dV/dt(V/s)                            30249 non-null  float64
13  Internal_Resistance(Ohm)               30249 non-null  int64
14  Is_FC_Data                            30249 non-null  int64
15  AC_Impedance(Ohm)                     30249 non-null  int64
16  ACI_Phase_Angle(Deg)                  30249 non-null  int64
17  Temperature (C)_1                      30249 non-null  float64
18  Temperature (C)_2                      30249 non-null  float64
dtypes: datetime64[ns](1), float64(11), int64(7)
memory usage: 4.4 MB
```

## LOW CURRENT OCV AT 10 degree celcius

In [44]:

low\_curr\_ocv\_10=pd.read\_excel(r"C:\Users\jaiku\PycharmProjects\Assignments\

In [45]:

low\_curr\_ocv\_10.head(10)

Out[45]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index	Cycle_Index	Cur
			2012-06-				
0	1	3.014079	11	3.014079	1	1	0

			18:47:47			
1	2	3.025053	2012-06-11 18:47:47	0.000002	2	1 1.
2	3	8.032849	2012-06-11 18:47:52	5.007554	3	1 0.
3	4	13.040499	2012-06-11 18:47:57	10.015204	3	1 0.
4	5	18.046321	2012-06-11 18:48:02	15.021026	3	1 0.
5	6	23.053825	2012-06-11 18:48:07	20.028530	3	1 0.
6	7	28.061527	2012-06-11 18:48:12	25.036233	3	1 0.
7	8	33.068989	2012-06-11 18:48:17	30.043694	3	1 0.
8	9	38.076571	2012-06-11 18:48:22	35.051276	3	1 0.
9	10	43.084085	2012-06-11 18:48:27	40.058790	3	1 0.

In [46]:

low\_curr\_ocv\_10.describe()

Out[46]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index
count	31898.00000	31898.000000	31898	31898.000000	31898.000000
mean	15949.50000	84407.542774	2012-06-12 23:21:28.604269824	35034.642104	5.807605
min	1.00000	3.014079	2012-06-11 18:47:47	0.000002	1.000000
25%	7975.25000	43127.482188	2012-06-12 12:56:42.249999872	14612.052933	5.000000
50%	15949.50000	83059.113340	2012-06-13 00:02:14.500000	34527.490563	5.000000
75%	23923.75000	126287.349589	2012-06-13 12:02:42.750000128	54492.820953	7.000000
max	31898.00000	169513.642825	2012-06-14 00:03:10	75041.088878	8.000000

std

9208.30378

47856.153587

NaN

22318.590732

1.210257

In [47]:

low\_curr\_ocv\_10.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 31898 entries, 0 to 31897
Data columns (total 19 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   Data_Point                            31898 non-null  int64
1   Test_Time(s)                          31898 non-null  float64
2   Date_Time                             31898 non-null  datetime64[ns]
3   Step_Time(s)                          31898 non-null  float64
4   Step_Index                            31898 non-null  int64
5   Cycle_Index                           31898 non-null  int64
6   Current(A)                            31898 non-null  float64
7   Voltage(V)                            31898 non-null  float64
8   Charge_Capacity(Ah)                   31898 non-null  float64
9   Discharge_Capacity(Ah)                31898 non-null  float64
10  Charge_Energy(Wh)                     31898 non-null  float64
11  Discharge_Energy(Wh)                  31898 non-null  float64
12  dV/dt(V/s)                            31898 non-null  float64
13  Internal_Resistance(Ohm)               31898 non-null  int64
14  Is_FC_Data                            31898 non-null  int64
15  AC_Impedance(Ohm)                     31898 non-null  int64
16  ACI_Phase_Angle(Deg)                  31898 non-null  int64
17  Temperature (C)_1                     31898 non-null  float64
18  Temperature (C)_2                     31898 non-null  float64
dtypes: datetime64[ns](1), float64(11), int64(7)
memory usage: 4.6 MB
```

# LOW CURRENT OCV AT 20 degree celcius

In [48]:

low\_curr\_ocv\_20=pd.read\_excel(r"C:\Users\jaiku\PycharmProjects\Assignments\

In [49]:

low\_curr\_ocv\_20.head(10)

Out[49]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index	Cycle_Index	Cur
0	1	3.007810	2012-06-14 12:13:15	3.007810	1	1	0.
1	2	3.008080	2012-06-14 12:13:15	0.000002	2	1	1.
2	3	8.015990	2012-06-14 12:13:20	5.007662	3	1	0.
3	4	13.023481	2012-06-14 12:13:25	10.015153	3	1	0.

			12:13:25			
			2012-06-			
4	5	18.035039	14	15.026711	3	1 0
			12:13:30			
			2012-06-			
5	6	23.042624	14	20.034296	3	1 0
			12:13:35			
			2012-06-			
6	7	28.050181	14	25.041853	3	1 0
			12:13:40			
			2012-06-			
7	8	33.057714	14	30.049386	3	1 0
			12:13:45			
			2012-06-			
8	9	38.065421	14	35.057093	3	1 0
			12:13:50			
			2012-06-			
9	10	43.072973	14	40.064645	3	1 0
			12:13:55			



In [50]:

low\_curr\_ocv\_20.describe()

Out[50]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index
count	31018.000000	31018.000000	31018	31018.000000	31018.000000
mean	15509.500000	82530.938666	2012-06-15 11:08:43.815655168	37436.752180	5.955671
min	1.000000	3.007810	2012-06-14 12:13:15	0.000002	1.000000
25%	7755.250000	42125.027738	2012-06-14 23:55:17.249999872	17983.441759	5.000000
50%	15509.500000	80954.993049	2012-06-15 10:42:27.500000	37399.049136	5.000000
75%	23263.750000	123082.373990	2012-06-15 22:24:35.750000128	56814.656519	7.000000
max	31018.000000	165211.592285	2012-06-16 10:06:45	76708.858391	8.000000
std	8954.269661	46356.820098	NaN	22362.338814	1.053492



In [51]:

low\_curr\_ocv\_20.info()

<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 31018 entries, 0 to 31017  
Data columns (total 19 columns):  
# Column Non-Null Count Dtype  
--- -



```
0  Data_Point          31018 non-null  int64
1  Test_Time(s)        31018 non-null  float64
2  Date_Time           31018 non-null  datetime64[ns]
3  Step_Time(s)        31018 non-null  float64
4  Step_Index          31018 non-null  int64
5  Cycle_Index         31018 non-null  int64
6  Current(A)          31018 non-null  float64
7  Voltage(V)          31018 non-null  float64
8  Charge_Capacity(Ah) 31018 non-null  float64
9  Discharge_Capacity(Ah) 31018 non-null  float64
10 Charge_Energy(Wh)    31018 non-null  float64
11 Discharge_Energy(Wh) 31018 non-null  float64
12 dV/dt(V/s)          31018 non-null  float64
13 Internal_Resistance(Ohm) 31018 non-null  int64
14 Is_FC_Data          31018 non-null  int64
15 AC_Impedance(Ohm)    31018 non-null  int64
16 ACI_Phase_Angle(Deg) 31018 non-null  int64
17 Temperature (C)_1    31018 non-null  float64
18 Temperature (C)_2    31018 non-null  float64
dtypes: datetime64[ns](1), float64(11), int64(7)
memory usage: 4.5 MB
```

# LOW CURRENT OCV AT 25 degree celcius

In [52]:

low\_curr\_ocv\_25=pd.read\_excel(r"C:\Users\jaiku\PycharmProjects\Assignments\

In [53]:

low\_curr\_ocv\_25.head(10)

Out[53]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index	Cycle_Index	Cur
0	1	3.003881	2012-09-05 09:50:31	3.003881	1	1	0.
1	2	8.004174	2012-09-05 09:50:36	5.000008	2	1	1.
2	3	13.004248	2012-09-05 09:50:41	10.000082	2	1	1.
3	4	18.004260	2012-09-05 09:50:46	15.000093	2	1	1.
4	5	23.005579	2012-09-05 09:50:51	20.001413	2	1	1.
5	6	28.005657	2012-09-05 09:50:56	25.001492	2	1	1.
6	7	33.011929	2012-09-05 09:51:01	30.007763	2	1	1.

OCV Test						
7	8	38.011951	2012-09-05 09:51:06	35.007785	2	1 1.
8	9	43.011997	2012-09-05 09:51:11	40.007831	2	1 1.
9	10	48.012036	2012-09-05 09:51:16	45.007870	2	1 1.

In [54]:

low\_curr\_ocv\_25.describe()

Out[54]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index
count	32307.00000	32307.000000	32307	32307.000000	32307.000000
mean	16154.00000	85506.863991	2012-09-06 09:35:35.959884800	36302.546619	5.837713
min	1.00000	3.003881	2012-09-05 09:50:31	3.003881	1.000000
25%	8077.50000	43696.841249	2012-09-05 21:58:45.500000	15874.938811	5.000000
50%	16154.00000	84091.821468	2012-09-06 09:12:01	36076.586865	5.000000
75%	24230.50000	127800.461601	2012-09-06 21:20:30.500000	56272.784453	7.000000
max	32307.00000	171495.535618	2012-09-07 09:28:46	76592.209924	8.000000
std	9326.37191	48357.812231	NaN	22968.249246	1.217815

In [55]:

low\_curr\_ocv\_25.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 32307 entries, 0 to 32306
Data columns (total 18 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   Data_Point                            32307 non-null  int64
1   Test_Time(s)                          32307 non-null  float64
2   Date_Time                             32307 non-null  datetime64[ns]
3   Step_Time(s)                          32307 non-null  float64
4   Step_Index                            32307 non-null  int64
5   Cycle_Index                           32307 non-null  int64
6   Current(A)                            32307 non-null  float64
7   Voltage(V)                            32307 non-null  float64
8   Charge_Capacity(Ah)                   32307 non-null  float64
9   Discharge_Capacity(Ah)                 32307 non-null  float64
10  Charge_Energy(Wh)                      32307 non-null  float64
11  Discharge_Energy(Wh)                   32307 non-null  float64
```

```
12 dV/dt(V/s) 32307 non-null float64
13 Internal_Resistance(Ohm) 32307 non-null int64
14 Is_FC_Data 32307 non-null int64
15 AC_Impedance(Ohm) 32307 non-null int64
16 ACI_Phase_Angle(Deg) 32307 non-null int64
17 Temperature (C)_1 32307 non-null float64
dtypes: datetime64[ns](1), float64(10), int64(7)
memory usage: 4.4 MB
```

## LOW CURRENT OCV AT 30 degree celcius

```
In [56]: low_curr_ocv_30=pd.read_excel(r"C:\Users\jaiku\PycharmProjects\Assignments\
```

```
In [57]: low_curr_ocv_30.head(10)
```

```
Out[57]:
```

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index	Cycle_Index	Cur
0	1	3.010808	2012-06-25 10:58:13	3.010808	1	1	0.
1	2	3.041952	2012-06-25 10:58:13	0.030896	2	1	1.
2	3	8.057809	2012-06-25 10:58:18	5.015575	3	1	0.
3	4	13.065362	2012-06-25 10:58:23	10.023128	3	1	0.
4	5	18.072954	2012-06-25 10:58:28	15.030720	3	1	0.
5	6	23.080509	2012-06-25 10:58:33	20.038275	3	1	0.
6	7	28.088092	2012-06-25 10:58:38	25.045859	3	1	0.
7	8	33.095648	2012-06-25 10:58:43	30.053414	3	1	0.
8	9	38.103228	2012-06-25 10:58:48	35.060994	3	1	0.
9	10	43.110795	2012-06-25 10:58:53	40.068561	3	1	0.

In [58]:

low\_curr\_ocv\_30.describe()

Out[58]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index
count	31150.000000	31150.000000	31150	31150.000000	31150.000000
mean	15575.500000	82879.119805	2012-06-26 09:59:30.199871488	37868.880320	5.967159
min	1.000000	3.010808	2012-06-25 10:58:13	0.030896	1.000000
25%	7788.250000	42289.364036	2012-06-25 22:43:00.24999872	18343.988166	5.000000
50%	15575.500000	81284.579150	2012-06-26 09:32:55.500000	37842.221660	5.000000
75%	23362.750000	123576.509714	2012-06-26 21:17:47.750000128	57340.455169	7.000000
max	31150.000000	165868.338984	2012-06-27 09:02:40	77269.004464	8.000000
std	8992.374779	46527.087207	NaN	22474.828502	1.040072

In [59]:

low\_curr\_ocv\_30.info()

<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 31150 entries, 0 to 31149  
Data columns (total 19 columns):  
# Column Non-Null Count Dtype  
--- -  
0 Data\_Point 31150 non-null int64  
1 Test\_Time(s) 31150 non-null float64  
2 Date\_Time 31150 non-null datetime64[ns]  
3 Step\_Time(s) 31150 non-null float64  
4 Step\_Index 31150 non-null int64  
5 Cycle\_Index 31150 non-null int64  
6 Current(A) 31150 non-null float64  
7 Voltage(V) 31150 non-null float64  
8 Charge\_Capacity(Ah) 31150 non-null float64  
9 Discharge\_Capacity(Ah) 31150 non-null float64  
10 Charge\_Energy(Wh) 31150 non-null float64  
11 Discharge\_Energy(Wh) 31150 non-null float64  
12 dV/dt(V/s) 31150 non-null float64  
13 Internal\_Resistance(Ohm) 31150 non-null int64  
14 Is\_FC\_Data 31150 non-null int64  
15 AC\_Impedance(Ohm) 31150 non-null int64  
16 ACI\_Phase\_Angle(Deg) 31150 non-null int64  
17 Temperature (C)\_1 31150 non-null float64  
18 Temperature (C)\_2 31150 non-null float64  
dtypes: datetime64[ns](1), float64(11), int64(7)  
memory usage: 4.5 MB

# LOW CURRENT OCV AT 40 degree

ceicius

In [60]:

low\_curr\_ocv\_40=pd.read\_excel(r"C:\Users\jaiku\PycharmProjects\Assignments\

In [61]:

low\_curr\_ocv\_40.head(10)

Out[61]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index	Cycle_Index	Cur
0	1	3.010283	2012-06-27 11:43:25	3.010283	1	1	0.
1	2	3.026131	2012-06-27 11:43:25	0.015609	2	1	1.
2	3	8.033910	2012-06-27 11:43:30	5.007549	3	1	0.
3	4	13.041500	2012-06-27 11:43:35	10.015140	3	1	0.
4	5	18.049071	2012-06-27 11:43:40	15.022711	3	1	0.
5	6	23.056643	2012-06-27 11:43:45	20.030282	3	1	0.
6	7	28.064215	2012-06-27 11:43:50	25.037854	3	1	0.
7	8	33.071785	2012-06-27 11:43:55	30.045425	3	1	0.
8	9	38.079286	2012-06-27 11:44:00	35.052926	3	1	0.
9	10	43.086932	2012-06-27 11:44:05	40.060571	3	1	0.

In [62]:

low\_curr\_ocv\_40.describe()

Out[62]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index
count	31258.000000	31258.000000	31258	31258.000000	31258.000000
mean	15629.500000	83182.146533	2012-06-28 10:49:45.445390080	38403.674272	5.985124

<b>min</b>	1.000000	3.010283	2012-06-27 11:43:25	0.015609	1.000000
<b>25%</b>	7815.250000	42427.009169	2012-06-27 23:30:30.249999872	18823.463111	5.000000
<b>50%</b>	15629.500000	81557.428742	2012-06-28 10:22:40.500000	38388.046949	5.000000
<b>75%</b>	23443.750000	123985.717499	2012-06-28 22:09:49.750000128	57952.630847	7.000000
<b>max</b>	31258.000000	166414.916638	2012-06-29 09:56:59	77785.938692	8.000000
<b>std</b>	9023.551694	46653.945691	NaN	22568.608281	1.019973



In [63]:

```
low_curr_ocv_40.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 31258 entries, 0 to 31257
Data columns (total 19 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   Data_Point                            31258 non-null  int64
1   Test_Time(s)                          31258 non-null  float64
2   Date_Time                             31258 non-null  datetime64[ns]
3   Step_Time(s)                          31258 non-null  float64
4   Step_Index                            31258 non-null  int64
5   Cycle_Index                           31258 non-null  int64
6   Current(A)                            31258 non-null  float64
7   Voltage(V)                            31258 non-null  float64
8   Charge_Capacity(Ah)                   31258 non-null  float64
9   Discharge_Capacity(Ah)                31258 non-null  float64
10  Charge_Energy(Wh)                     31258 non-null  float64
11  Discharge_Energy(Wh)                  31258 non-null  float64
12  dV/dt(V/s)                            31258 non-null  float64
13  Internal_Resistance(Ohm)               31258 non-null  int64
14  Is_FC_Data                             31258 non-null  int64
15  AC_Impedance(Ohm)                     31258 non-null  int64
16  ACI_Phase_Angle(Deg)                  31258 non-null  int64
17  Temperature (C)_1                      31258 non-null  float64
18  Temperature (C)_2                      31258 non-null  float64
dtypes: datetime64[ns](1), float64(11), int64(7)
memory usage: 4.5 MB
```

## LOW CURRENT OCV AT 50 degree celcius

In [64]:

```
low_curr_ocv_50=pd.read_excel(r"C:\Users\jaiku\PycharmProjects\Assignments\
```



In [65]:

```
low_curr_ocv_50.head(10)
```

Out[65]:

```
Data_Point  Test_Time(s)  Date_Time  Step_Time(s)  Step_Index  Cycle_Index  Cur
```

0	1	3.008714	2012-07-02 10:52:00	3.008714	1	1	0
1	2	3.020297	2012-07-02 10:52:00	0.000002	2	1	1
2	3	8.037763	2012-07-02 10:52:05	5.007566	3	1	0
3	4	13.045325	2012-07-02 10:52:10	10.015128	3	1	0
4	5	18.052910	2012-07-02 10:52:15	15.022712	3	1	0
5	6	23.060484	2012-07-02 10:52:20	20.030287	3	1	0
6	7	28.068046	2012-07-02 10:52:25	25.037848	3	1	0
7	8	33.075622	2012-07-02 10:52:30	30.045425	3	1	0
8	9	38.083297	2012-07-02 10:52:35	35.053100	3	1	0
9	10	43.090758	2012-07-02 10:52:40	40.060561	3	1	0

In [66]:

low\_curr\_ocv\_50.describe()

Out[66]:

	Data_Point	Test_Time(s)	Date_Time	Step_Time(s)	Step_Index
count	31475.000000	31475.000000	31475	31475.000000	31475.000000
mean	15738.000000	83704.689997	2012-07-03 10:07:02.332041216	38368.988081	5.975473
min	1.000000	3.008714	2012-07-02 10:52:00	0.000002	1.000000
25%	7869.500000	42695.210585	2012-07-02 22:43:32.500000	18645.694362	5.000000
50%	15738.000000	82097.290906	2012-07-03 09:40:15	38347.986437	5.000000
75%	23606.500000	124794.372180	2012-07-03 21:31:52.500000	58047.774699	7.000000