Automation in Spotfire

1) Automation of File Handling in Spotfire (Using Iron-Python)
2) Generating Report of Current file in ppt format (Using Python , Iron-Python)

1) Automation of File Handling in Spotfire (Using Iron-Python)

1) Automate the file handling/loading in Spotfire

I. Iron-Python is a Script used in Spotfire to interact with the interface of the software

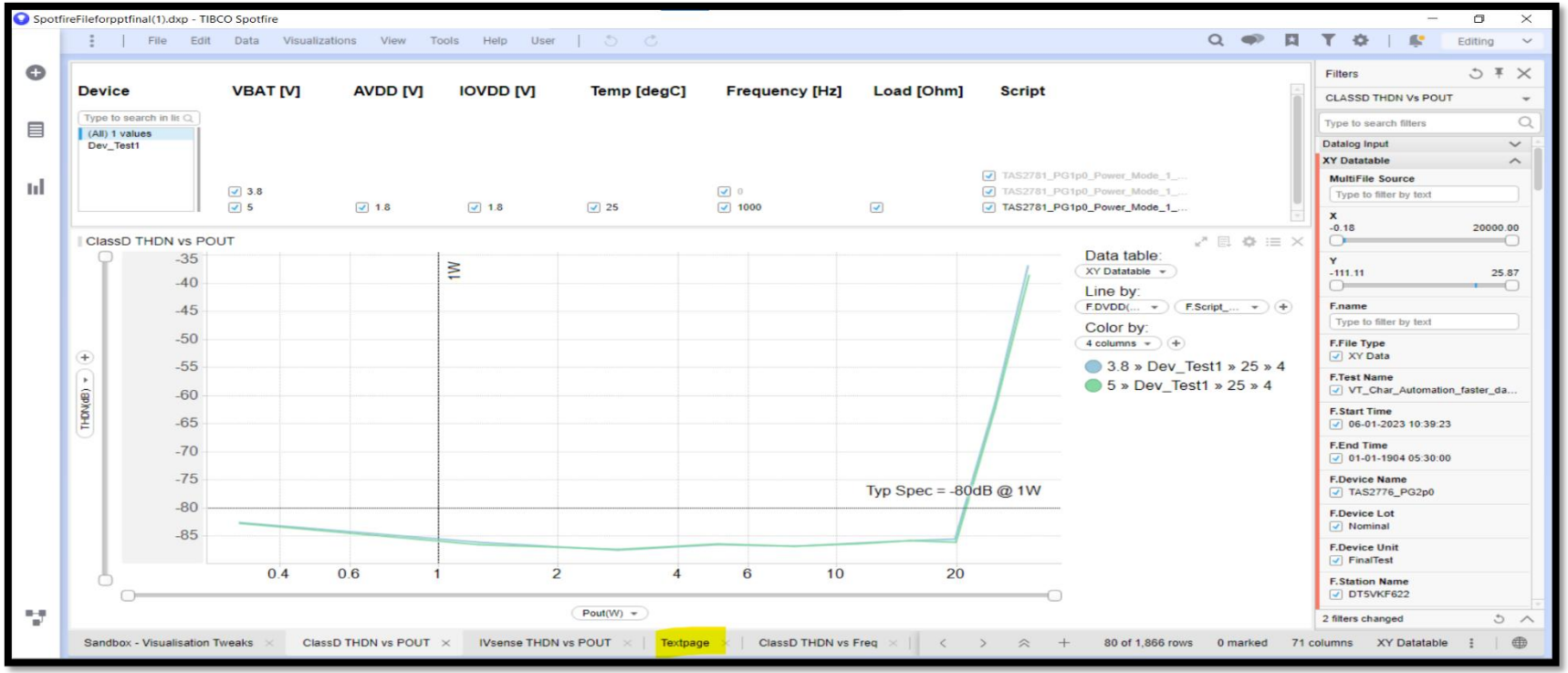
II. The objective of the project is to automate the process of file upload on Spotfire.

III. Files are dumped from the tester in a folder and we manually upload the latest file and refresh the Spotfire.

IV. Automating the manual process to get the latest file from the folder and uploading the data in Spotfire using Iron-Python

V. If the latest file is in 2 parts (Header and Data) ,It converts the file automatically into a single file and uploads the combined file in Spotfire

Interface of Spotfire :



1) Automate the file handling/loading in Spotfire

- Multiple files are dumped into a folder location and we have to Upload and Reload the required file in the Spotfire
- The script will take the address of the folder in the text area and on pressing Go button it will updated the Spotfire with the latest created file.If the latest file is present into two parts as Header file and Data file then this code will merge two files into a single file as combined file and upload this file in the Spotfire
- Iron python Script: We will ask user to give the location of the folder in which our files will be stored .We will iterate through each file to check for the latest and second latest file by iterating through the files . If the latest file is in correct format then it will directly update the spotfire with this file.
- If the latest file is Header or Data file then it will merge it with the second latest file accordingly taking into consideration all cases and upload the merged file in the spotfire displaying a message that the file has been uploaded with its address.

Working of the Script

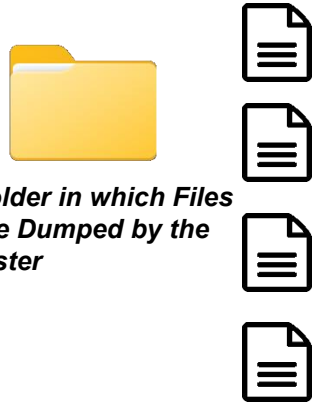
Text Area in Spotfire :

- **Address of the folder in which files are stored** (Address in the form C:\\Users\\Desktop\\MYFolder)

Will give the latest file in the folder.If Header and Data files are present it will combine the files into a new merges file and import it

Address: C:\\Users\\a0504877\\Desktop\\My_folder Run

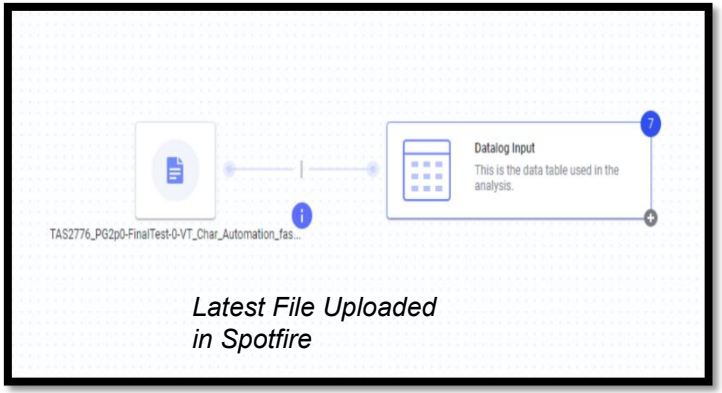
CASE 1 : If the latest File is Complete File



Folder in which Files are Dumped by the tester

*ON PRESSING **RUN***
(Will take the Latest file from the folder and load that file on Spotfire and plot corresponding visuals)

The latest file(TAS277_Pg…) is updated on Spotfire and all the visuals can be seen for that file in different pages



Latest File Uploaded in Spotfire

- CASE 2: If the Latest File is broken into Header and Data File

Folder in which multiple Files are dumped by the tester

File1 (Header)

File1 (DATA)

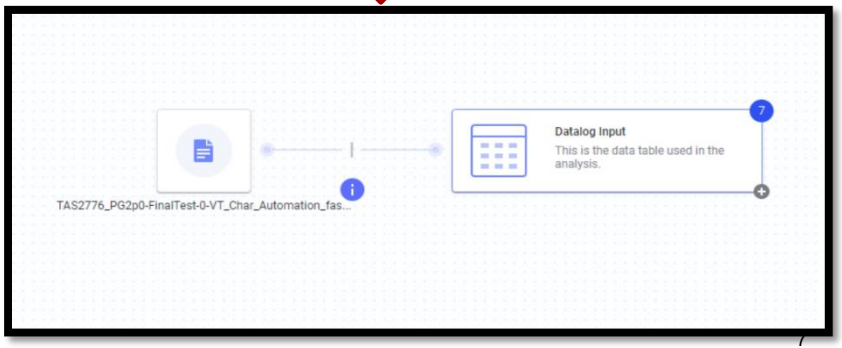
File2

File3

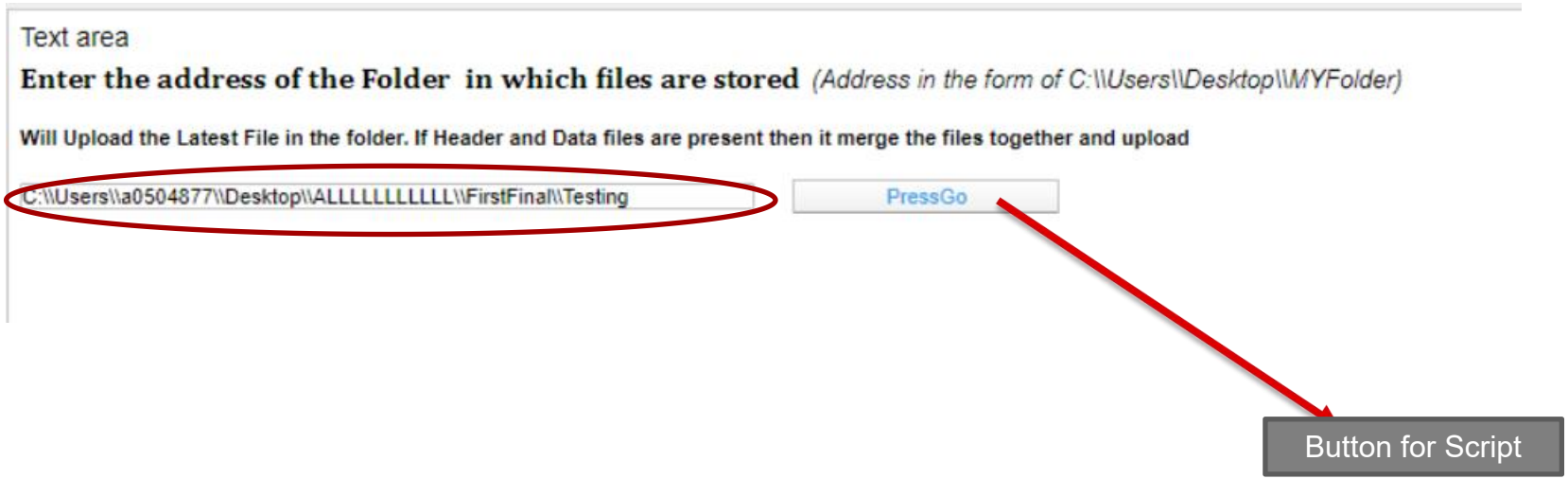
*ON PRESSING **RUN***
For the latest file it will
Will merge the Header and
Data file into a combined file

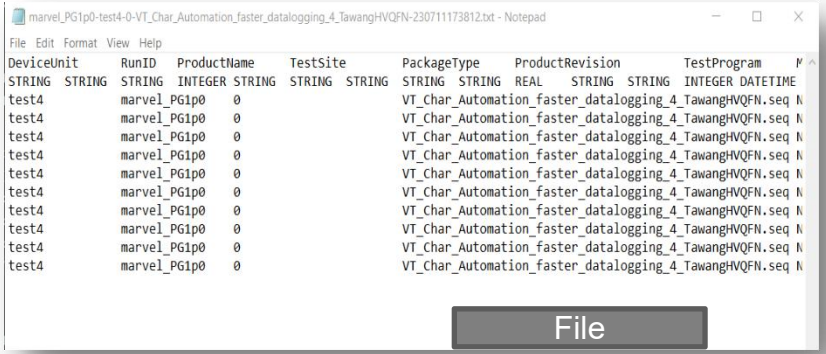
Combined File

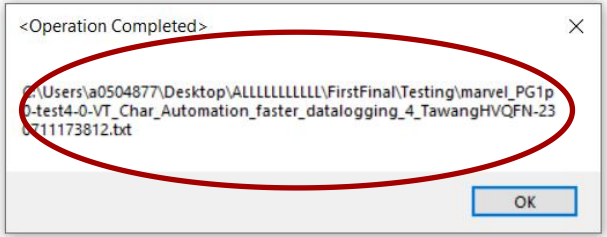
Uploads the Data in Spotfire

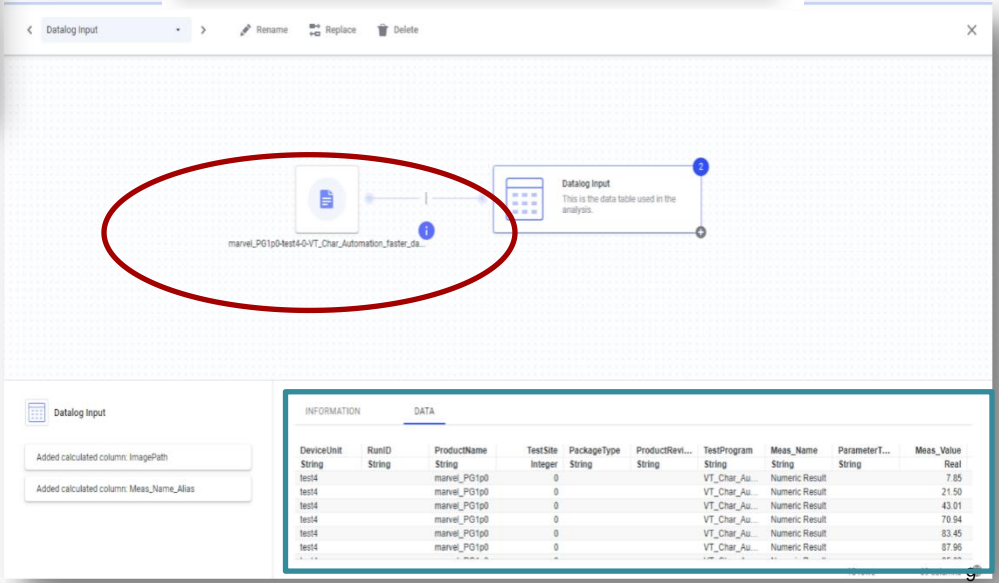


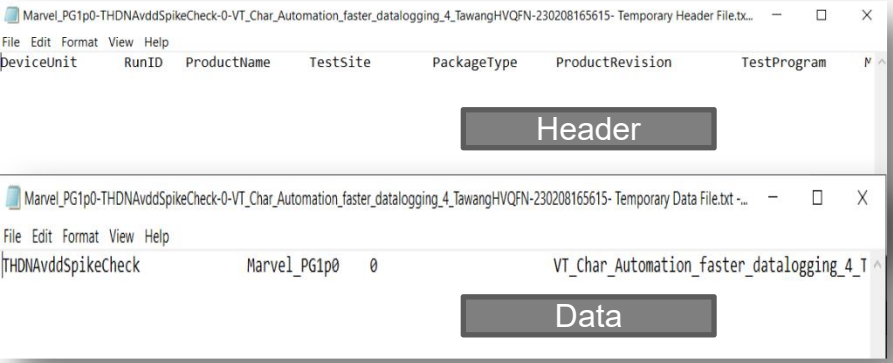
Input in Text Page

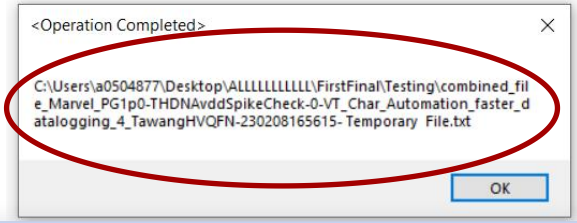


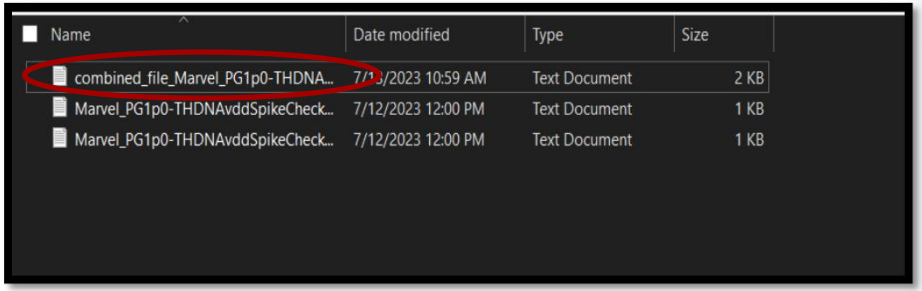


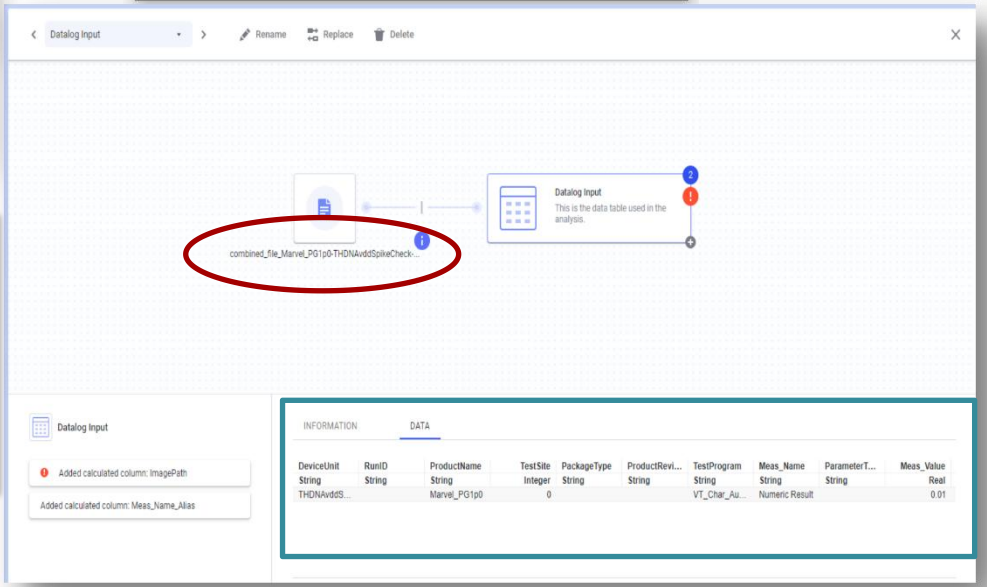




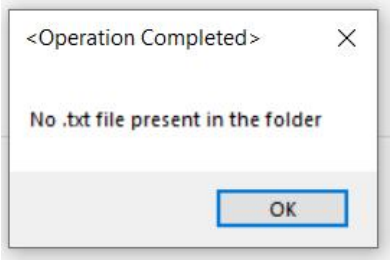


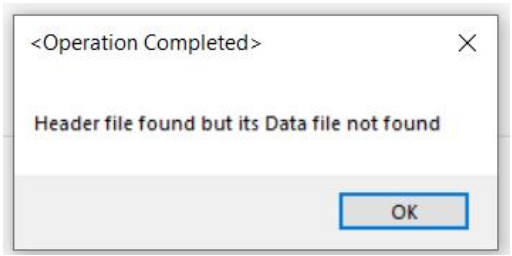


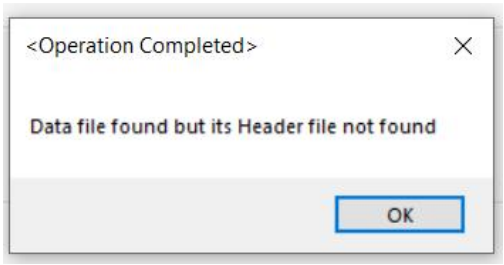


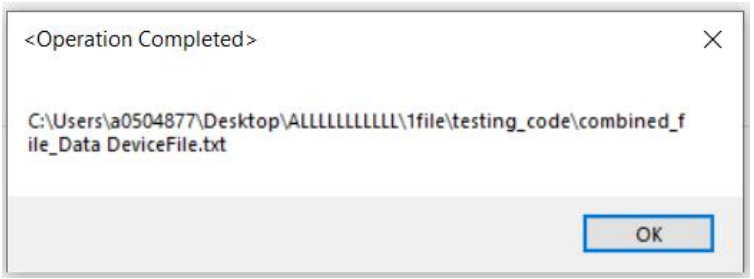


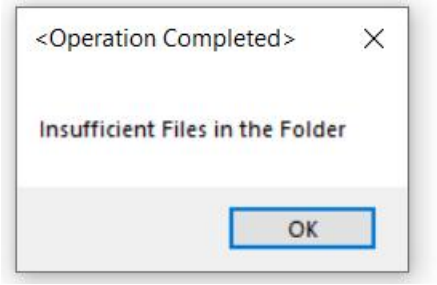
Error Handling





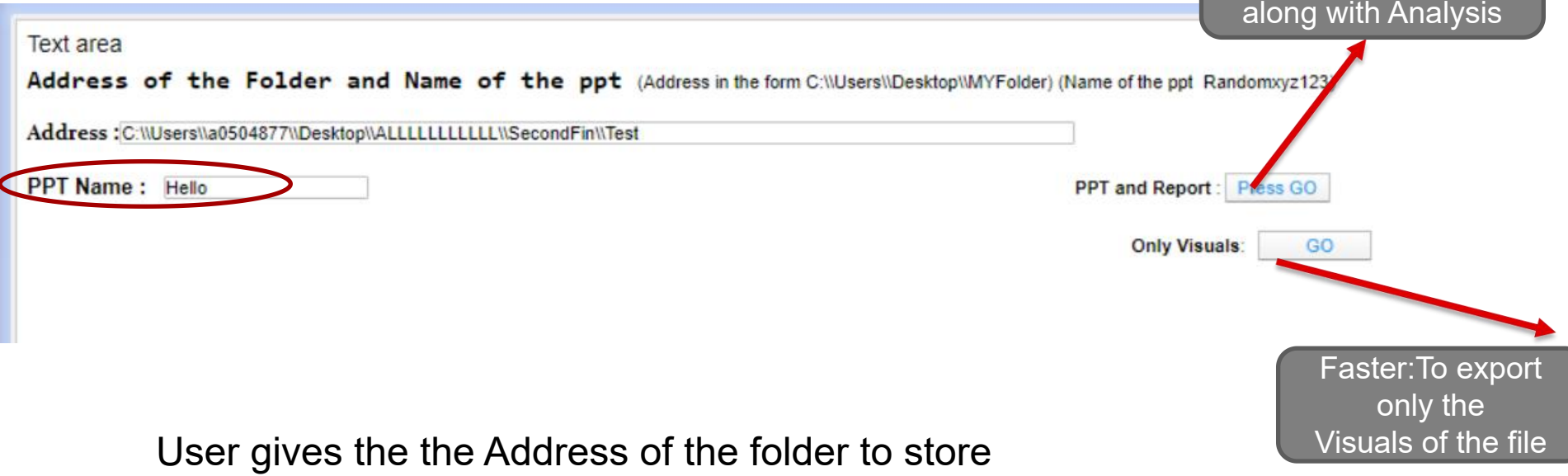






2) Generating a report of the Current file in ppt format using (Iron-Python and Python Script)

Input in Text Page in Spotfire

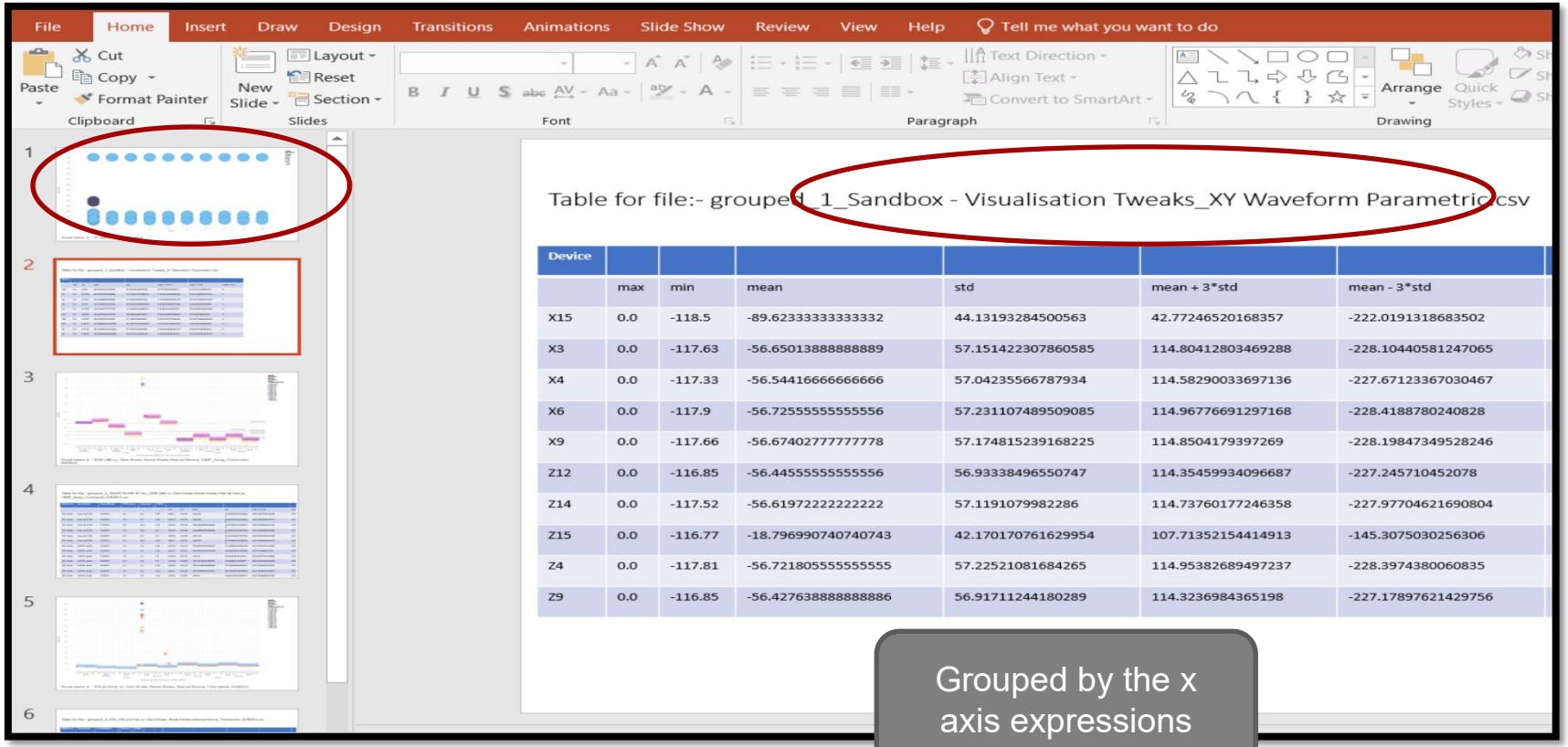


User gives the the Address of the folder to store the report in ppt format, and give a name of the output ppt

For the active File in the Spotfire If we press the Press Go button then we get the ppt in the desired location with the Visuals and Analysis

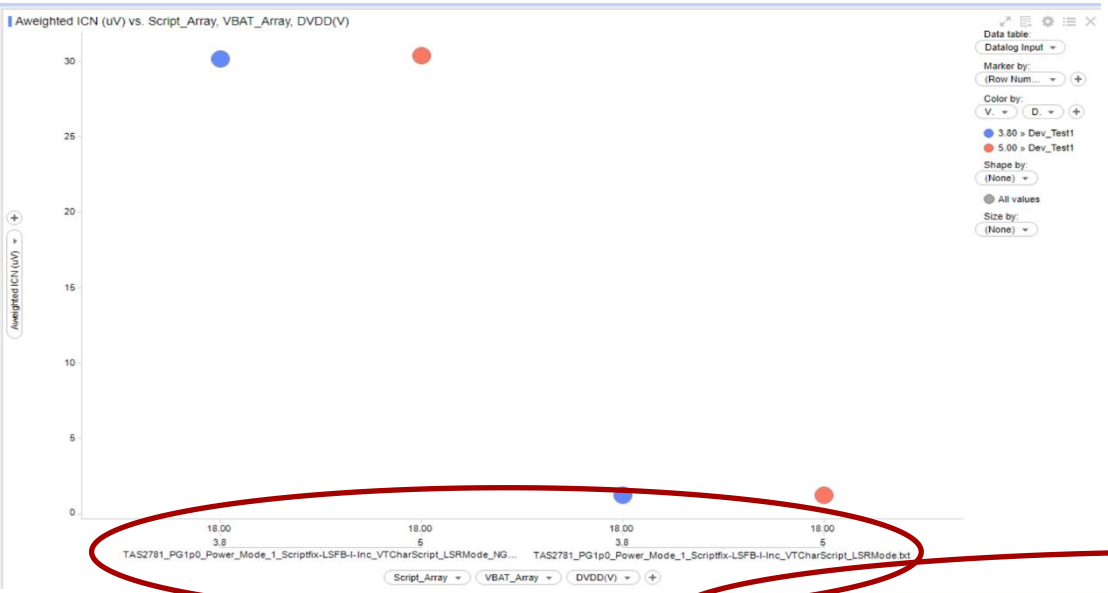
- Spotfire has different pages and every page has different visuals
- Different Visuals are formed by different files (Data log Input or XY Data log)
- Every visual is formed based on the filtering conditions applied on the particular file
- Every visual is grouped by using particular columns and Graphs are plotted
- The Y expression of the can be any mathematical expression as the function of the column
- Final code works on Iron-Python Script and Python Script and should be able to do overcome all the problems

Output PPT formed by pressing PressGo



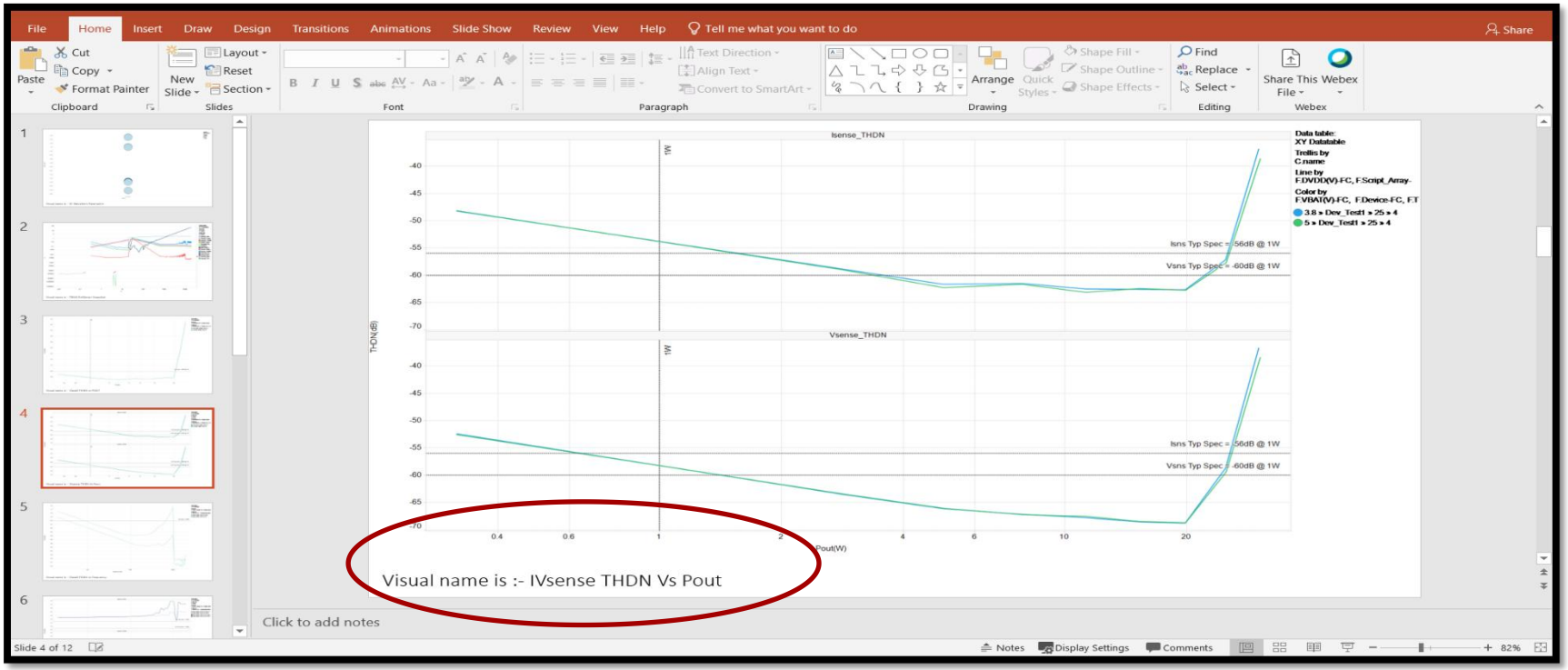
Device						
	max	min	mean	std	mean + 3*std	mean - 3*std
X15	0.0	-118.5	-89.62333333333332	44.13193284500563	42.77246520168357	-222.0191318683502
X3	0.0	-117.63	-56.65013888888889	57.151422307860585	114.80412803469288	-228.10440581247065
X4	0.0	-117.33	-56.54416666666666	57.04235566787934	114.58290033697136	-227.67123367030467
X6	0.0	-117.9	-56.72555555555556	57.231107489509085	114.96776691297168	-228.4188780240828
X9	0.0	-117.66	-56.67402777777778	57.174815239168225	114.8504179397269	-228.19847349528246
Z12	0.0	-116.85	-56.44555555555556	56.93338496550747	114.35459934096687	-227.245710452078
Z14	0.0	-117.52	-56.61972222222222	57.1191079982286	114.73760177246358	-227.97704621690804
Z15	0.0	-116.77	-18.796990740740743	42.170170761629954	107.71352154414913	-145.3075030256306
Z4	0.0	-117.81	-56.721805555555555	57.22521081684265	114.95382689497237	-228.3974380060835
Z9	0.0	-116.85	-56.427638888888886	56.91711244180289	114.3236984365198	-227.17897621429756

Grouped by the x axis expressions



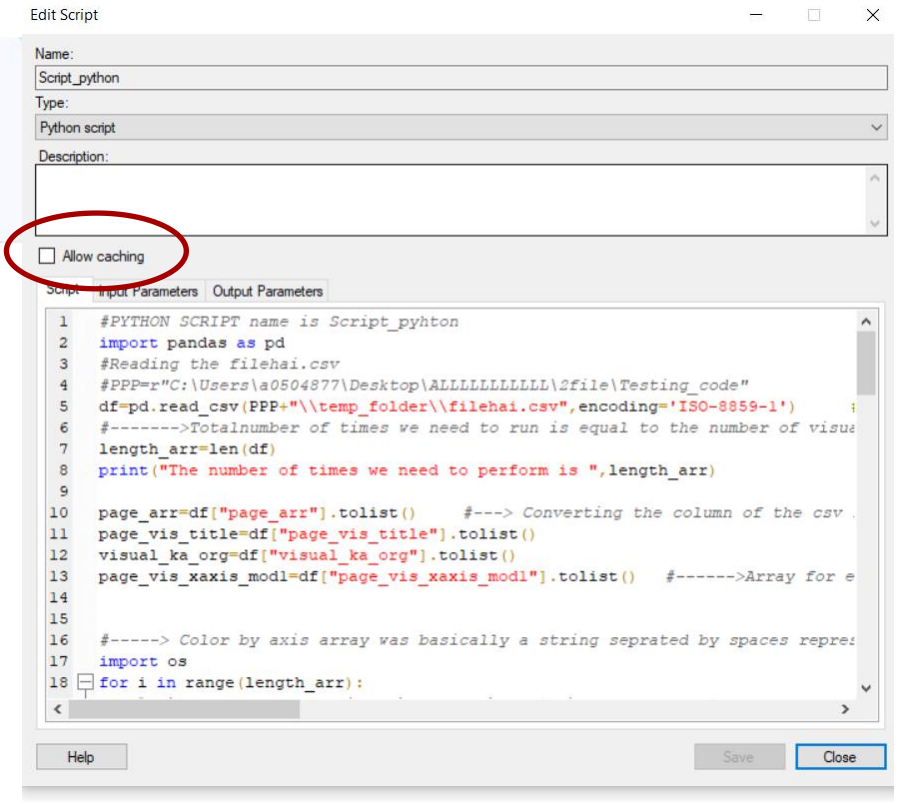
Script_Array	VBAT_Array	DVDD(V)				
			max	min	mean	st
TAS2781_PG1p0_Power_Mode_1_Scriptfix-LSFB-I-Inc_VTCharScript_LSRMode.txt	3.8	18.0	1.23	1.23	1.23	
TAS2781_PG1p0_Power_Mode_1_Scriptfix-LSFB-I-Inc_VTCharScript_LSRMode.txt	5.0	18.0	1.23	1.23	1.23	
TAS2781_PG1p0_Power_Mode_1_Scriptfix-LSFB-I-Inc_VTCharScript_LSRMode_NGDis.txt	3.8	18.0	30.17	30.17	30.17	
TAS2781_PG1p0_Power_Mode_1_Scriptfix-LSFB-I-Inc_VTCharScript_LSRMode_NGDis.txt	5.0	18.0	30.36	30.36	30.36	

Output PPT formed by pressing “Go”

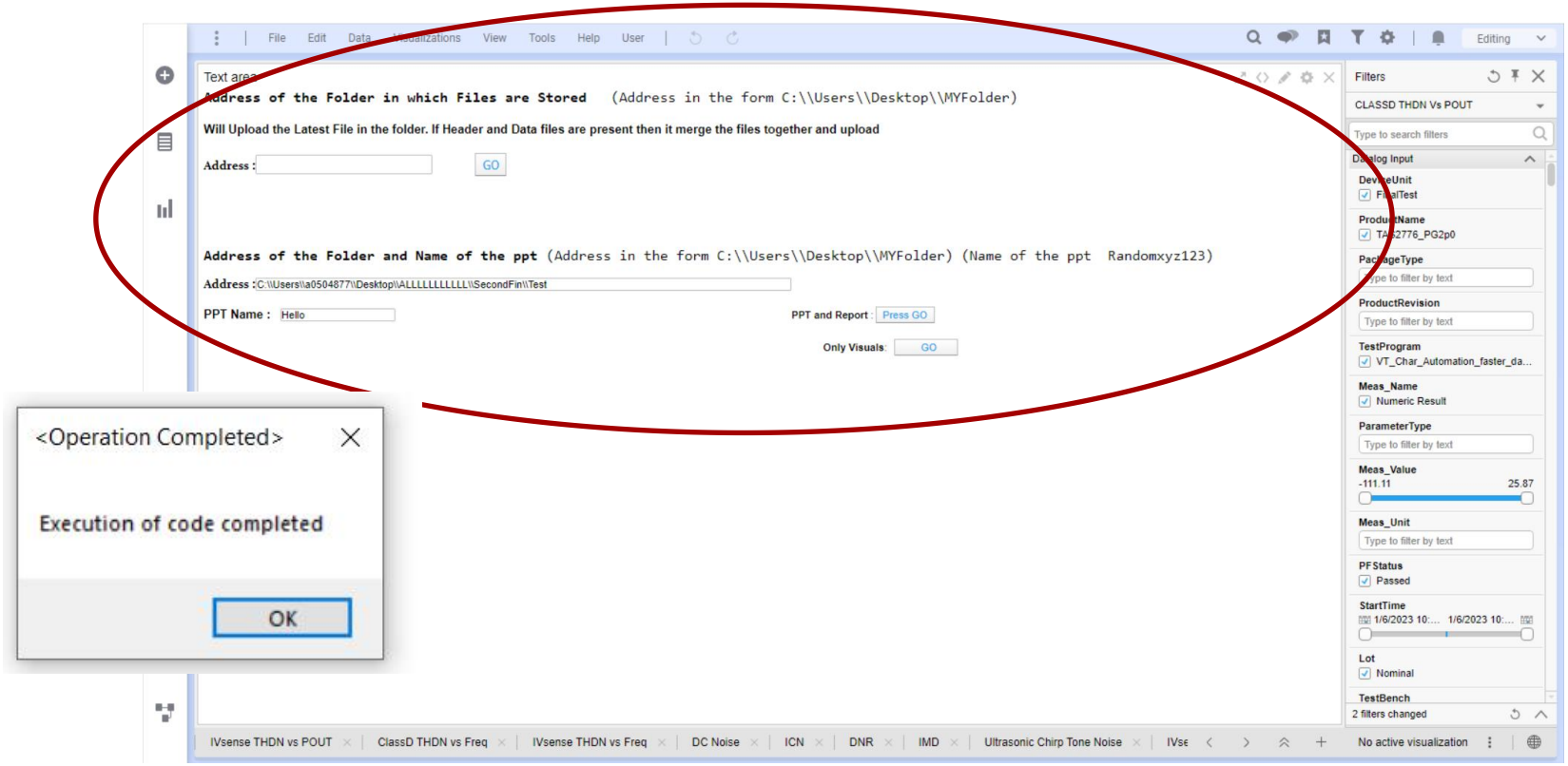


Error Handling

If this error is encountered then uncheck Allow Caching



Combining Both into a single Text Page



Problem statement 2:

Creating a GUI Based Analysis tool for ATE Data logfiles

Outline

Aim – To Automate the generation of various Data analysis reports/summary needed for ATE

1. In **engineering development**, this tool can be continuously fed log files as and when any data is collected and continue to have an idea of marginalities or instabilities or data distributions during development.
2. In **production data** analysis, the tool can be used specifically to understand the yield losses, site – site skews or lot –lot skews seen, understand the data distributions for high volumes, Cpks.
3. The tool gives a summary on the
    1. type of distribution/skews
    2. Generates the histogram plots for visual analysis
    3. Data statistics / Cpk
    4. Site wise Mean / Sigma drifts
    5. Site wise distributions & statistics
    6. Lot wise Mean / Sigma drifts

Input File: Engineering File

Parameters

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	Name	SBIN	HBIN	DIE_X	DIE_Y	SITE	TIME	TOTAL_TE	FAIL_TEST	OUTLIER_	LOT_ID	WAFER_ID	PRE_CONTI:avdd_ncon[1]	PRE_CONTI:iovdd_ncon[1]	PRE_CONTI:vbat_ncon[1]	PRE_CONTI:bst_ncon[1]	PRE_CONT	PRE_CONT	PRE_C
2	TEST_ID												100101002	100101003	100101004	100101005	1E+08	1E+08	1E+
3	UNIT						ms						V	V	V	V	V	V	V
4	LOW_LIMIT												-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	0
5	HIGH_LIMIT												-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	
6	1	13	7			1	4448	71	0	0	0		-0.58	-0.642	-0.609	-0.636	-0.529	-0.512	0
7	2	13	7			2	4448	71	0	0	0		-0.58	-0.643	-0.609	-0.635	-0.529	-0.511	0.6
8	3	13	7			3	4448	71	0	0	0		-0.579	-0.641	-0.609	-0.636	-0.529	-0.514	0.6
9	4	13	7			4	4448	71	0	0	0		-0.58	-0.642	-0.61	-0.636	-0.529	-0.513	0
10	5	34	14			5	4448	71	1	0	0		-0.579	-0.642	-0.609	-0.635	-2	-0.513	0
11	6	13	7			6	4448	71	0	0	0		-0.58	-0.643	-0.609	-0.635	-0.529	-0.511	0.6
12	7	13	7			7	4448	71	0	0	0		-0.582	-0.645	-0.61	-0.635	-0.53	-0.512	0.6
13	8	13	7			8	4448	71	0	0	0		-0.579	-0.641	-0.609	-0.635	-0.528	-0.515	0.6
14	9	13	7			9	4448	71	0	0	0		-0.581	-0.644	-0.61	-0.636	-0.529	-0.512	0
15	10	13	7			10	4448	71	0	0	0		-0.579	-0.641	-0.609	-0.635	-0.528	-0.514	0.6
16	11	13	7			11	4448	71	0	0	0		-0.581	-0.645	-0.609	-0.635	-0.53	-0.511	0
17	12	13	7			12	4448	71	0	0	0		-0.582	-0.646	-0.61	-0.636	-0.53	-0.508	0.6
18	13	13	7			13	4448	71	0	0	0		-0.582	-0.646	-0.61	-0.637	-0.53	-0.506	0.6
19	14	13	7			14	4448	71	0	0	0		-0.58	-0.642	-0.609	-0.636	-0.529	-0.512	0
20	15	13	7			15	4448	71	0	0	0		-0.583	-0.646	-0.61	-0.636	-0.53	-0.505	0.6
21	16	13	7			16	4448	71	0	0	0		-0.58	-0.644	-0.609	-0.636	-0.529	-0.511	0
22	17	13	7			17	4448	71	0	0	0		-0.579	-0.641	-0.609	-0.635	-0.529	-0.515	0.6
23	18	13	7			18	4448	71	0	0	0		-0.579	-0.642	-0.609	-0.636	-0.529	-0.514	0.6
24	19	13	7			19	4448	71	0	0	0		-0.578	-0.64	-0.609	-0.635	-0.528	-0.514	0.6
25	20	13	7			20	4448	71	0	0	0		-0.574	-0.641	-0.608	-0.635	-0.496	-0.513	0.6
26	21	13	7			21	4448	71	0	0	0		-0.579	-0.642	-0.609	-0.635	-0.528	-0.512	0
27	64	42	22			1	36305	134	1	0	0		-0.58	-0.642	-0.609	-0.635	-0.528	-0.512	0.6
28	65	42	22			2	36305	134	1	0	0		-0.58	-0.643	-0.609	-0.635	-0.529	-0.511	0

- File has information related to Parameters which are tested for the device along with its specified Low_Limit and High_Limit values ,Site in which the device was tested etc

Input Files:Production

Parameters

	AT	AU	AV	AW	AX	AY	AZ	BA	BB
1	PRR_TEST	PRR_NUM	P100001_NCON_PRE_	P100002_NCON_PRE_M1I	P100003_NCON_PRE_M1MA_VBAT	P100004_NCON_PRE_M1MA_DREG	P100005_I	P100006_I	P100007_I
2	19629	511	1	-0.482102148	-0.57918179	-0.542890032	-0.58861	-0.6685	-0.65022
3	19629	511	1	-0.475877762	-0.57915318	-0.540232241	-0.59158	-0.66895	-0.64933
4	19629	511	1	-0.480917186	-0.579145193	-0.542391598	-0.58935	-0.66849	-0.65018
5	19629	511	1	-0.481231362	-0.579436004	-0.542364001	-0.58992	-0.66871	-0.65035
6	19629	511	1	-0.474864811	-0.579627216	-0.539803028	-0.58926	-0.66898	-0.65132
7	19629	511	1	-0.475352854	-0.579448283	-0.53949362	-0.59061	-0.669	-0.65013
8	19629	511	1	-0.480600357	-0.579694092	-0.542490542	-0.5899	-0.66876	-0.65513
9	19629	511	1	-0.480635285	-0.579975963	-0.542461753	-0.59163	-0.66873	-0.65681
10	19629	511	1	-0.474720597	-0.579920948	-0.53990221	-0.58919	-0.66924	-0.65128
11	19629	511	1	-0.474367082	-0.580115795	-0.539986074	-0.59293	-0.66918	-0.65448
12	19629	511	1	-0.481796294	-0.57984066	-0.542626441	-0.58934	-0.66876	-0.65386
13	19629	511	1	-0.481773704	-0.580002785	-0.542889237	-0.59199	-0.66858	-0.657
14	19629	511	1	-0.474634111	-0.580891669	-0.539982855	-0.59042	-0.66931	-0.65254
15	19629	511	1	-0.474532932	-0.580914199	-0.539821148	-0.59435	-0.66931	-0.65709
16	19270	511	1	-0.474633574	-0.580780447	-0.539895177	-0.5924	-0.66908	-0.65129
17	19270	511	1	-0.474450767	-0.580901802	-0.540066719	-0.59531	-0.66921	-0.65265
18	19270	511	1	-0.473809272	-0.580769181	-0.539668441	-0.59233	-0.66937	-0.65162
19	19270	511	1	-0.483317167	-0.580154061	-0.542982221	-0.5914	-0.6686	-0.6533
20	19270	511	1	-0.474536896	-0.580707729	-0.539756179	-0.59148	-0.66965	-0.65486

(Testing File)

	TestNo	SubTestNo.	Tests	LTL	UTL
2	1	1	ncon_pre_allopen_na	1	1
3	1	2	ncon_pre_m1ma_avdd	-0.7	-0.4
4	1	3	ncon_pre_m1ma_vbat	-0.7	-0.4
5	1	4	ncon_pre_m1ma_dreg	-0.7	-0.4
6	1	5	ncon_pre_m1ma_iovdd	-0.7	-0.4
7	1	6	ncon_pre_m1ma_pvdd	-0.9	-0.4
8	1	7	ncon_pre_m1ma_icc	-0.9	-0.4
9	1	8	pcon_pre_1ma_icc	1.8	2.1
10	1	9	ncon_pre_m1ma_sdout	-0.9	-0.4
11	1	10	pcon_pre_1ma_sdout	1.8	2.1
12	1	11	ncon_pre_m1ma_fsync	-0.9	-0.4
13	1	12	pcon_pre_1ma_fsync	1.8	2.1
14	1	13	ncon_pre_m1ma_scl	-0.9	-0.5
15	1	14	pcon_pre_1ma_scl	1.8	2.1
16	1	15	ncon_pre_m1ma_sdz	-0.9	-0.4
17	1	16	pcon_pre_1ma_sdz	1.8	2.1
18	1	17	ncon_pre_m1ma_sdin	-0.9	-0.4
19	1	18	pcon_pre_1ma_sdin	1.8	2.1
20	1	19	ncon_pre_m1ma_sbclk	-0.9	-0.4
21	1	20	pcon_pre_1ma_sbclk	1.8	2.1
22	1	21	ncon_pre_m1ma_sda	-0.9	-0.4
23	1	22	pcon_pre_1ma_sda	1.8	2.1
24	1	23	ncon_pre_m1ma_bstp	-0.9	-0.4
25	1	24	ncon_pre_m1ma_bstn	-0.9	-0.4

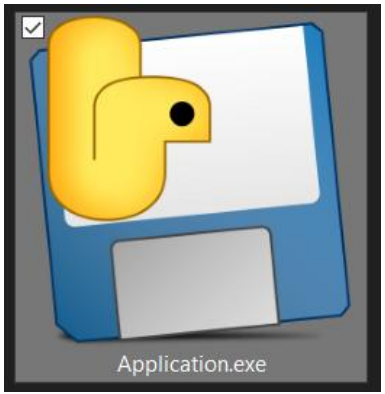
(Limit File)

- For the Production File Analysis we give two Input files .The Limits are mapped automatically to the parameter with the help of code

Creation of the .exe file

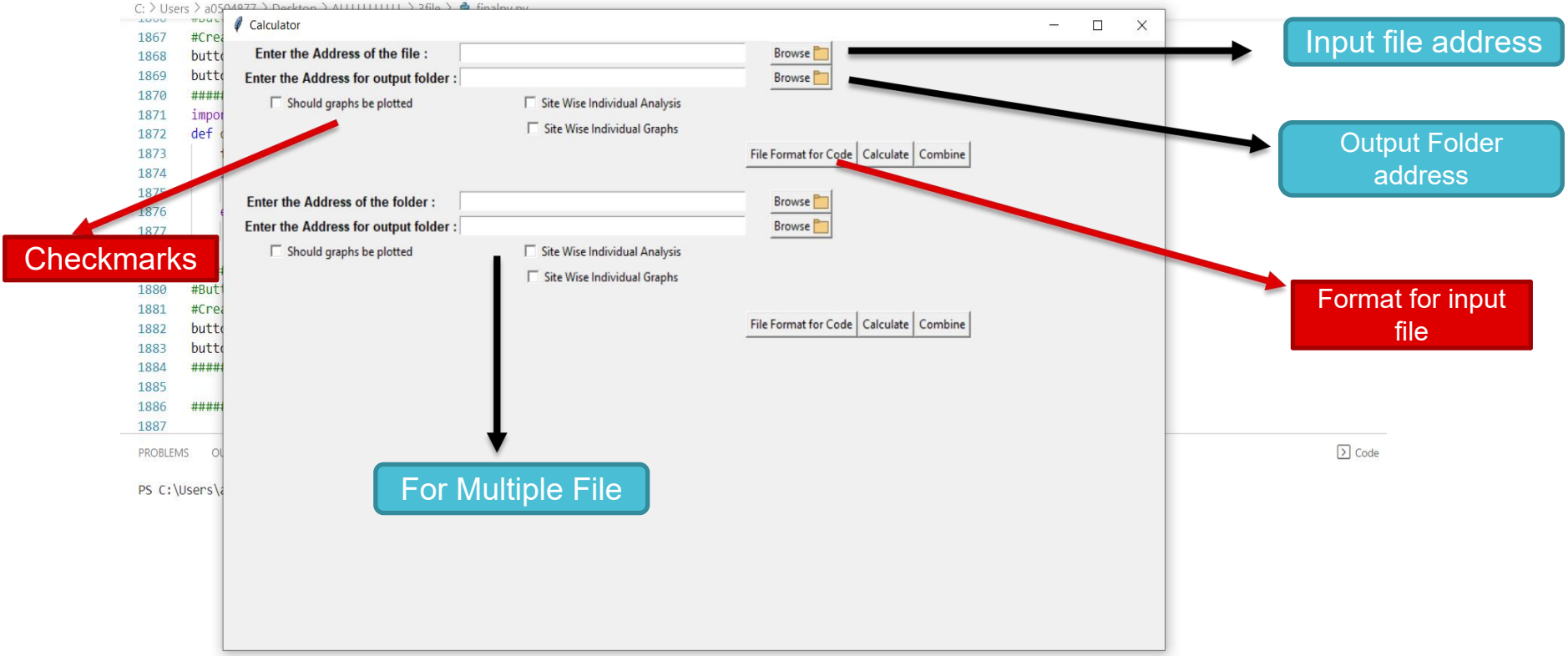
Exe file is created that can be easily shared and will work on every system even if Python and the necessary libraries are not installed

The GUI can work for Data log Files from the tester which includes Engineering File and Production File

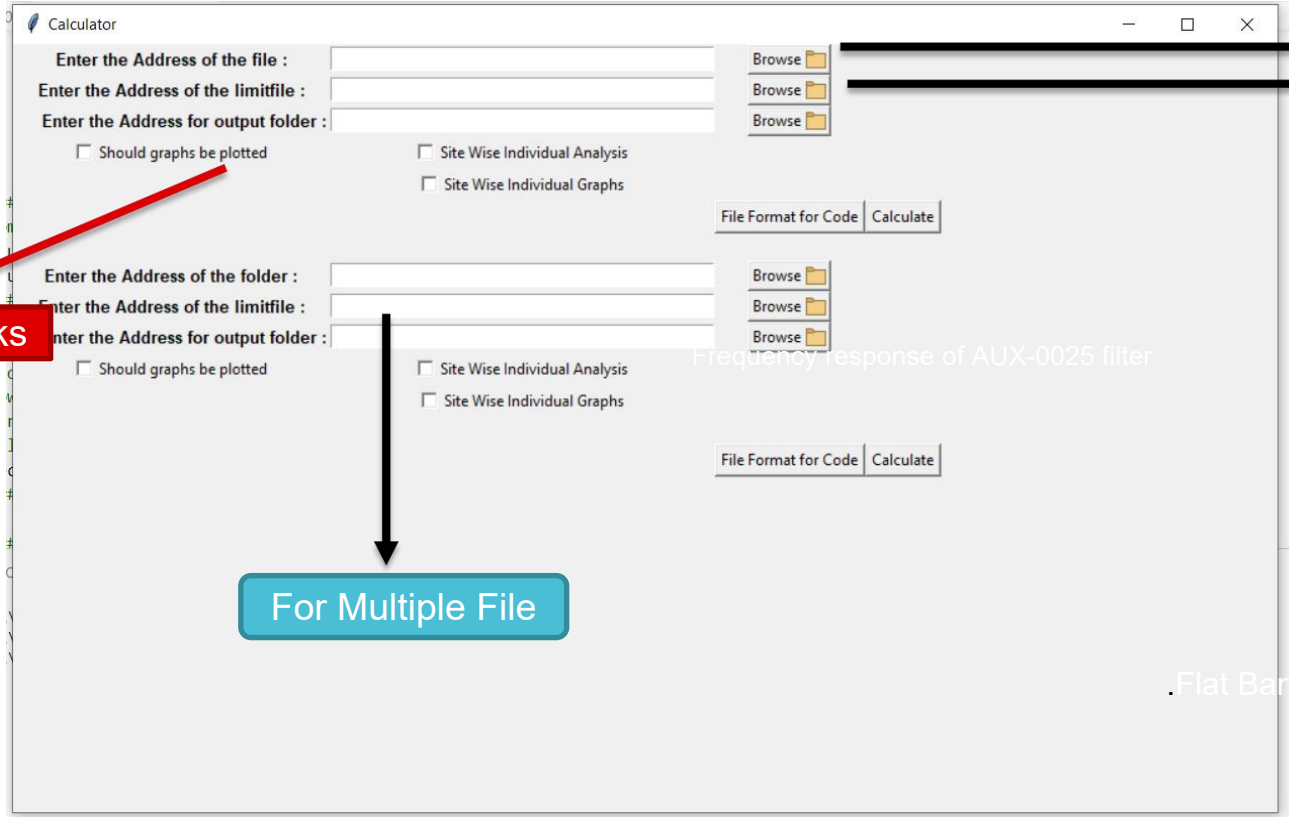


Standalone exe file

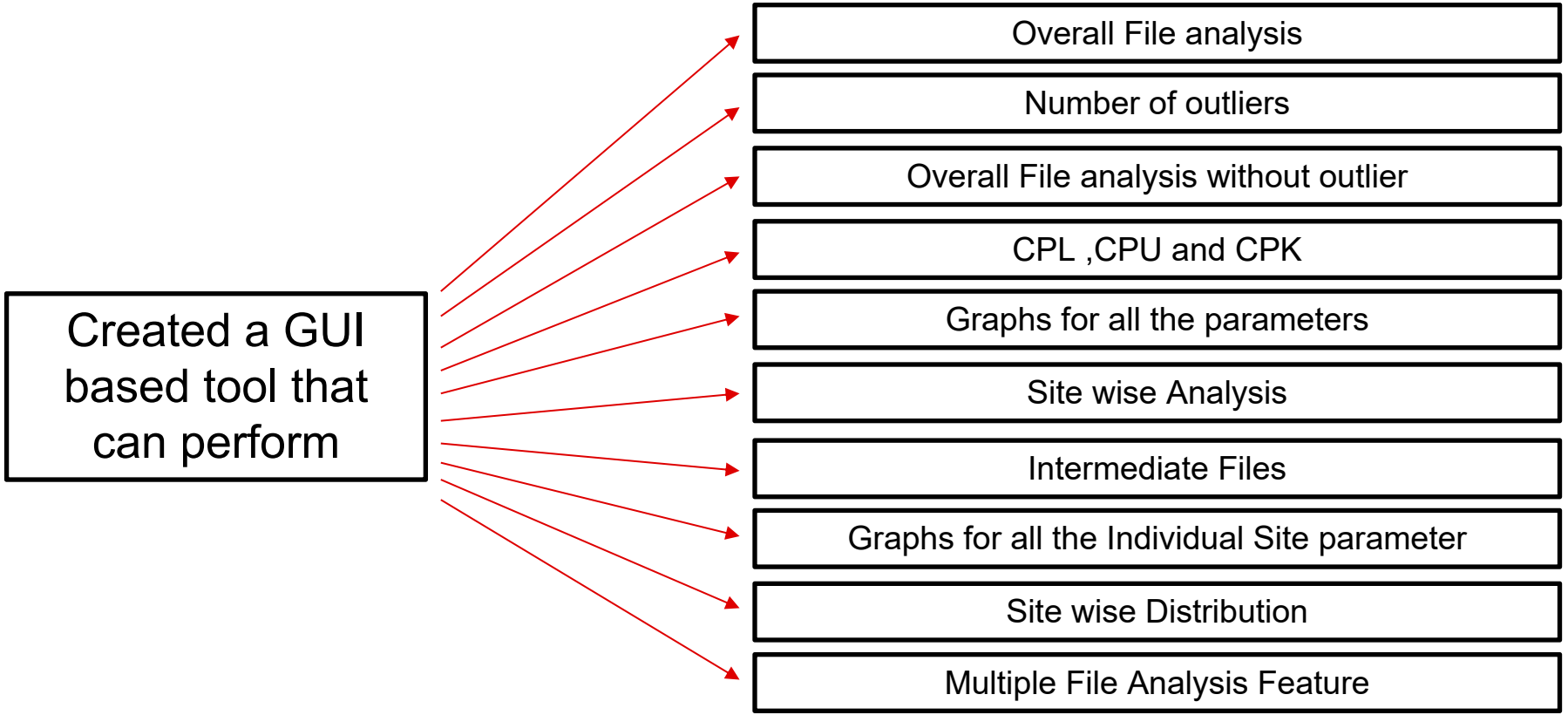
GUI For Engineering File



GUI For Production File



Proposed solution :Engineering File temp



Proposed solution :Engineering File

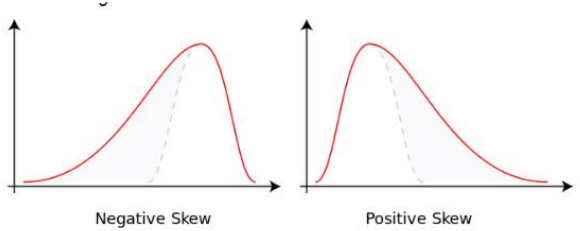
Created a GUI based tool that can perform following operations:

- **Overall File analysis** :Finds Max,Min,Mean,Std for all the parameters.

For every parameter we can get these values which gives us understanding about the overall value of a particular parameter and how much deviation is there

Parameter_Name	Site	Max	Min	Mean	Std	Max_no_out	Min_no_out	Mean_no_out	Std_no_out	Distribution	Skew	Outliers_No
avdd_ncon	1	-0.54	-0.58	-0.577	0.004	-0.565	-0.583	-0.576832536	0.002644969	Moderately Right skewed	0.8498	1
iovdd_ncon	1	-0.64	-0.65	-0.641	0.002	-0.638	-0.646	-0.640528571	0.001944602	Extremely Left Skewed	-1.184	0
vbat_ncon	1	-0.6	-0.61	-0.606	0.002	-0.602	-0.61	-0.606433333	0.001852926	Symmetrial	-0.465	0
bst_ncon	1	-0.63	-0.64	-0.632	0.002	-0.63	-0.637	-0.632442857	0.001929145	Moderately Left Skewed	-0.506	0
dreg_ncon	1	-0.02	-2	-0.587	0.321	-0.0225	-2	-0.586845238	0.320928864	Extremely Left Skewed	-4.038	0
sw_ncon	1	-0.49	-0.52	-0.505	0.006	-0.488	-0.515	-0.50492381	0.006193368	Symmetrial	0.0985	0

- Skewness is measured with the help of skew(df[col]) which returns a numerical value based the spread of the data with respect to the mean of the data. High value of Skew means data is either left skewed or right skewed



Proposed solution :Engineering File

- Skewness is measured with the help of skew(df[col]) which returns a numerical value based the spread of the data with respect to the mean of the data. High value of Skew means data is either left skewed or right skewed
- By default skew() function is a biased estimator which means it assumes the dataset is a sample from a large dataset
- Skewness is calculated by (1/n)* sigma (Xi-X)^3/(std)^3.Where Xi is the every data point and X is the Mean,Std is the standard deviation and n is the total number of data points

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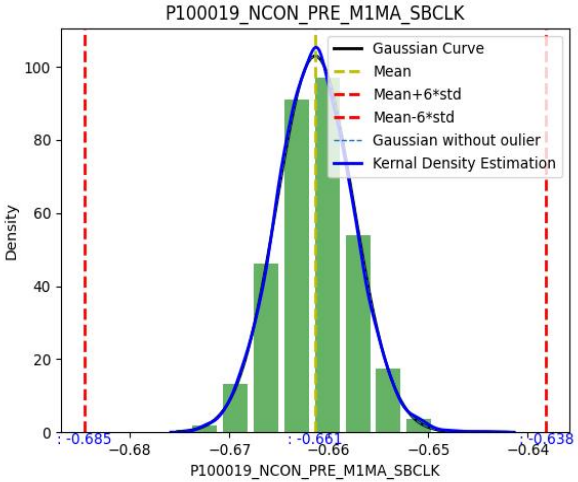
- **Number of outliers**: Number of outliers and Max,Min,Mean,Std values for all the parameters after removing the outliers. Also includes Mean+6 *Std and Mean-6*std before and after removing the outliers for every parameter.

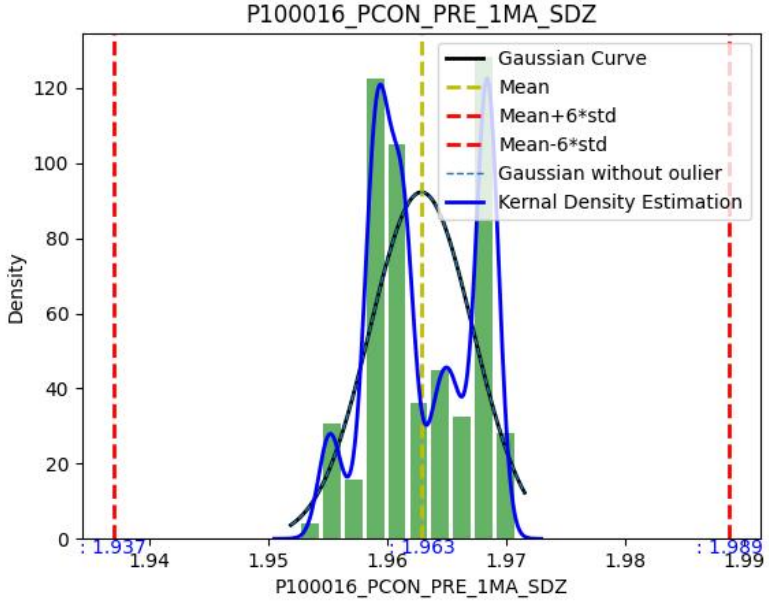
Since outliers can affect the values of the parameters. .All the outliers are removed within the range and corresponding values of Max,Min,Mean etc are calculated

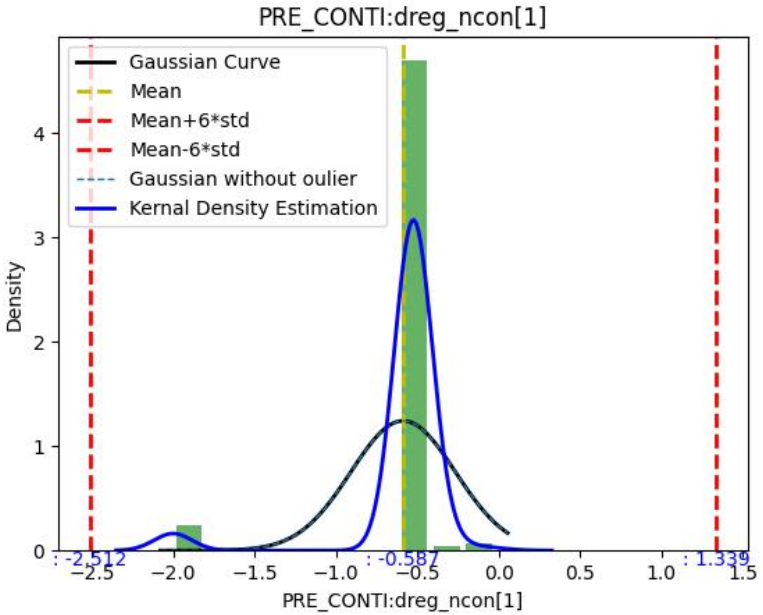
- **CPL ,CPU and CPK** : Finds the CPK,CPU and CPK values for all the parameters before and after removing the outliers
- Marks the bad CPL ,CPU ,CPK values in the output for the user
- Threshold of the value is 1.8 to 30

Mean+6*std	Mean-6*std	UNIT	LOW_LIMIT	HIGH_LIMIT	TEST_ID	CPL	CPU	CPK
-0.55408317	-0.599212068	V	-0.8	-0.25	100101002	19.8	28.95	19.8
-0.62886096	-0.652196183	V	-0.8	-0.25	100101003	27.34	66.94	27.34
-0.59531578	-0.617550887	V	-0.8	-0.25	100101004	34.82	64.12	34.82
-0.620867989	-0.644017726	V	-0.8	-0.25	100101005	28.95	66.08	28.95
1.338727948	-2.512418424	V	-0.8	-0.25	100101006	0.221	0.35	0.221
-0.467763603	-0.542084016	V	-0.8	-0.25	100101008	15.88	13.72	13.72
0.64498719	0.581955667	V	0.25	0.8	100101009	23.07	11.84	11.84
-0.466372101	-0.498713614	V	-0.8	-0.25	100101010	39.26	28.76	28.76

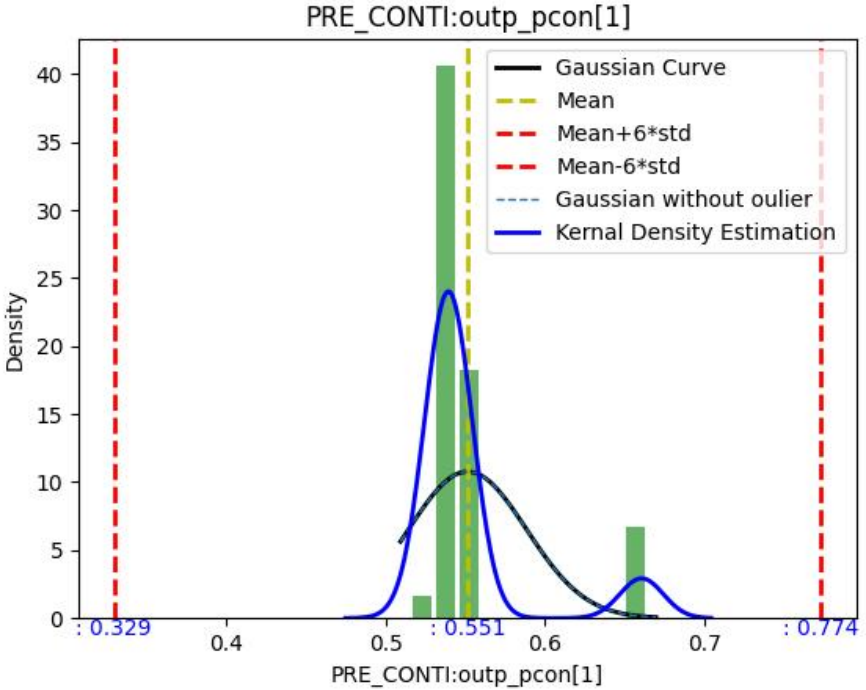
- **Graphs for all the parameters:** Adding a checkmark in GUI that will save the distribution for every parameter in given Folder Location to check how a parameter is performing overall on all the sites which includes Histogram ,Gaussian Curve without outliers, Gaussian Curve with outliers ,Kernel Density plot , vertical lines specifying mean , std





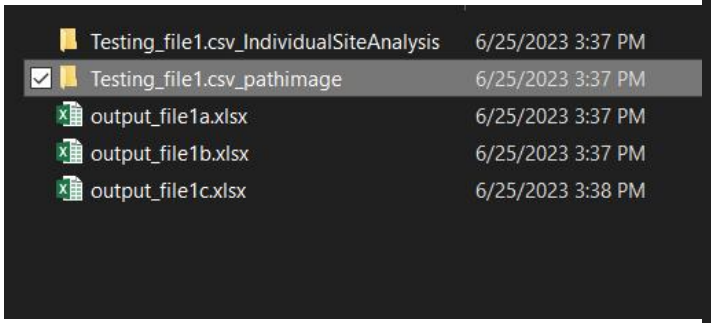


Left Skewed Graph

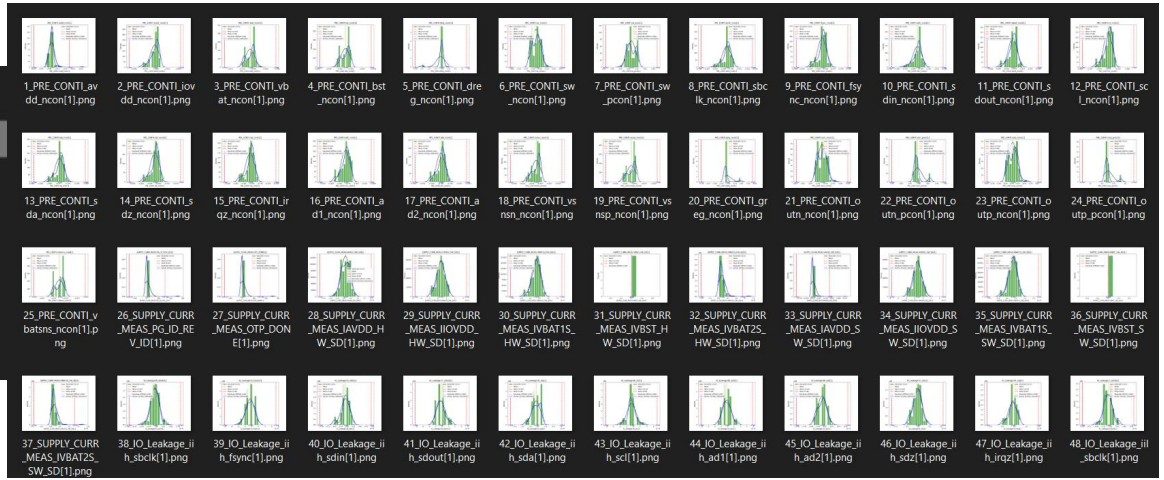


Right Skewed Graph

- If the checkmark is selected then a Folder is automatically created inside the output folder which stores all the individual graphs (pathimage Folder)
- All the graphs are properly named so that for a particular parameter it can be found easily



(Output Folder)



- **Site wise Analysis:** Site wise mean Drift and Site wise std Drift is calculated along individual Site wise Mean,Std

It is also important to know the functioning of every site . Data is filtered for every site and the analysis is done site wise. Drift tells about the deviation in the values of the sites .If any site is not performing as expected we can see a large drift in that site

- Marks the bad Site wise Drifts in the output for the user.

	A	B	C	D	E	F
1	**Parameter**	**Site_mean 1**	**Site_mean 2**	**Site_mean 3**	**Site_mean 4**	**Site_mean 5**
2	PRE_CONTI:avdd_ncon[1]	-0.577	-0.577	-0.577	-0.577	-0.577
3	PRE_CONTI:iovdd_ncon[1]	-0.641	-0.641	-0.64	-0.64	-0.641
4	PRE_CONTI:vbat_ncon[1]	-0.606	-0.606	-0.606	-0.607	-0.606

	A	B	C	D	E	F
1	**Parameter**	**Site_std 1**	**Site_std 2**	**Site_std 3**	**Site_std 4**	**Site_std 5**
2	PRE_CONTI:avdd_ncon[1]	0.002	0.002	0.001	0.002	0.002
3	PRE_CONTI:iovdd_ncon[1]	0.001	0.002	0.001	0.001	0.001
4	PRE_CONTI:vbat_ncon[1]	0.002	0.002	0.002	0.002	0.002

	A	B	C	D	E
1	Parameter	meandrift%S_ 1	meandrift%S_ 2	meandrift%S_ 3	meandrift%S_ 4
2	PRE_CONTI:avdd_ncon[1]	0	-0.02	0.03	0.05
3	PRE_CONTI:iovdd_ncon[1]	0	-0.06	0.06	0.08
4	PRE_CONTI:vbat_ncon[1]	0	0.02	0.02	-0.03

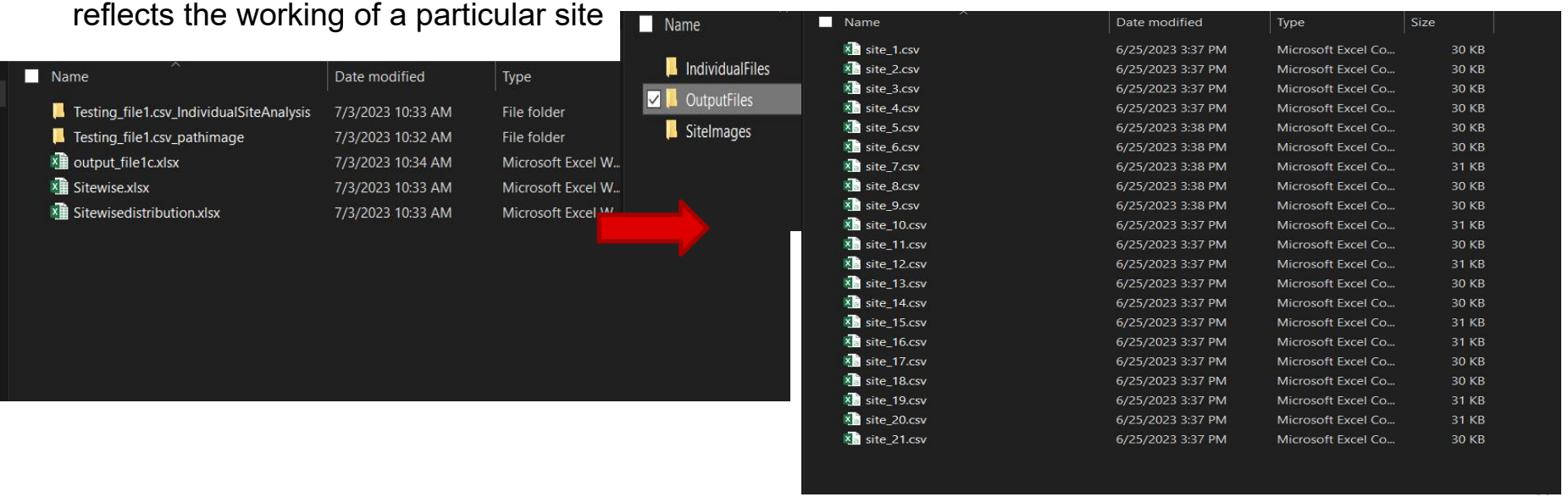
	A	B	C	D	E
1	Parameter	stddrift%S_ 1	stddrift%S_ 2	stddrift%S_ 3	stddrift%S_ 4
2	PRE_CONTI:avdd_ncon[1]	0	-2.38	-27.64	-15.13
3	PRE_CONTI:iovdd_ncon[1]	0	6.29	-4.42	-19.46
4	PRE_CONTI:vbat_ncon[1]	0	2.88	-9.87	2.43

	A	B	C	D	E	F
1	Parameter	meanLNdrift%S_ 1	meanLNdrift%S_ 2	meanLNdrift%S_ 3	meanLNdrift%S_ 4	meanLNdrift%S_ 5
2	PRE_CONTI:avdd_ncon[1]	0	-0.02	0.04	0.05	0.04
3	PRE_CONTI:iovdd_ncon[1]	0	-0.07	0.07	0.09	-0.04
4	PRE_CONTI:vbat_ncon[1]	0	0.02	0.02	-0.04	0
5	PRE_CONTI:bst_ncon[1]	0	0.02	-0.07	0.07	0.07
6	PRE_CONTI:dreg_ncon[1]	0	-0.04	-0.02	0.02	-268.02

	A	B	C	D	E	F	G	H
1	Parameter	stdLNdrift%S_ 1	stdLNdrift%S_ 2	stdLNdrift%S_ 3	stdLNdrift%S_ 4	stdLNdrift%S_ 5	stdLNdrift%S_ 6	stdLNdrift%S_ 7
2	PRE_CONTI:avdd_ncon[1]	0	-0.01	-0.1	-0.06	-0.09	0	1.99
3	PRE_CONTI:iovdd_ncon[1]	0	0.02	-0.01	-0.05	0	0.13	0.25
4	PRE_CONTI:vbat_ncon[1]	0	0.01	-0.03	0.01	-0.02	0.02	0.1
5	PRE_CONTI:bst_ncon[1]	0	0.02	0.01	0.09	0.02	0.02	0.07
6	PRE_CONTI:dreg_ncon[1]	0	0.01	0.02	-0.01	-0.35	0.02	28.64

- **Intermediate Files**: Added a checkmark in GUI to get Filtered Input file for all the Sites is formed, Filtered Output files for all the Site is Formed. If we want to get the data of a particular site it can be obtained or If we want to get the overall analysis for a particular Site it can also be obtained

If we want to obtain the analysis of a particular Site. Individual Site wise analysis files are formed that reflects the working of a particular site

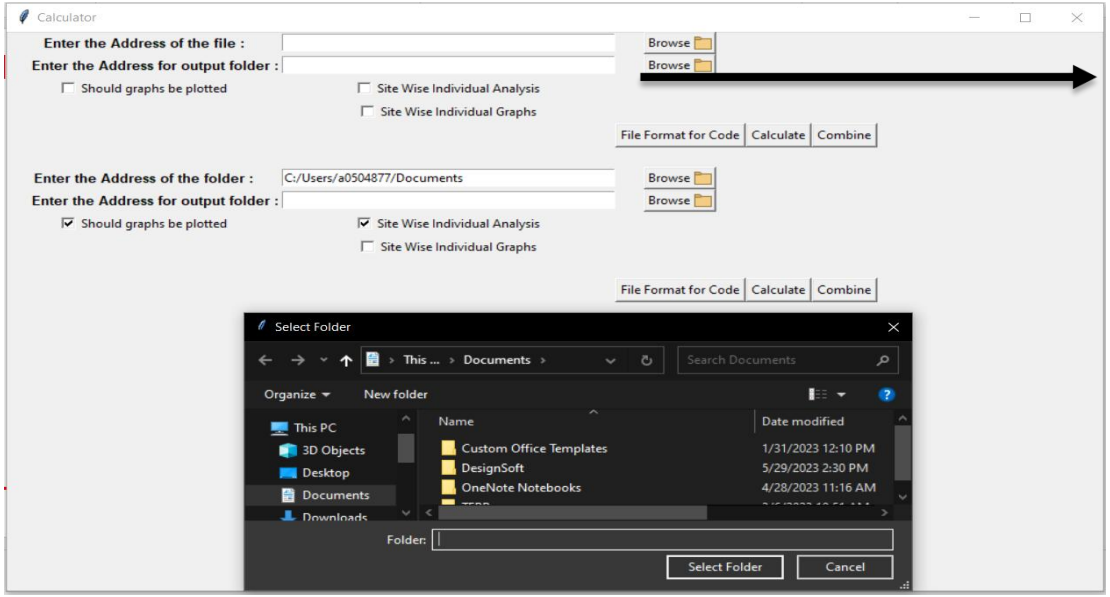


- **Graphs for all the Individual Site parameter: Adding** a checkmark in GUI that saves distribution plot for every site and its every parameter if we want to check for the specific site and specific parameter

- **Site wise Distribution**: Site wise distribution that shows the Distribution of the parameter across every Site
- Marks the bad Sites having bad Distribution

	Parameter	site_1.Distribution_	site_10.Distribution_	site_11.Distribution_	site_12.Distribution_	site_
2	PRE_CONTI:avdd_ncon[1]	Symmetrial	Moderately Left Skewed	Moderately Left Skewed	Moderately Left Skewed	Moderately
3	PRE_CONTI:iovdd_ncon[1]	Symmetrial	Symmetrial	Moderately Left Skewed	Symmetrial	Moderately
4	PRE_CONTI:vbat_ncon[1]	Symmetrial	Symmetrial	Moderately Left Skewed	Moderately Left Skewed	Moderately
5	PRE_CONTI:bst_ncon[1]	Moderately Left Skewed	Symmetrial	Symmetrial	Moderately Left Skewed	Moderately
6	PRE_CONTI:dreg_ncon[1]	Symmetrial	Moderately Left Skewed	Moderately Left Skewed	Moderately Left Skewed	Moderately
7	PRE_CONTI:sw_ncon[1]	Symmetrial	Symmetrial	Symmetrial	Symmetrial	Symmetrial

- **Multiple File Analysis Feature**: Separate Input in the GUI to give Multiple files instead of a single File the code can also ask for the folder location in which multiple files are stored .It will merge it to give the analysis



We can choose location of the folder

Proposed solution :Production File

- The format of the Production File is Different from the Engineering File and a separate limit file is provided
- The Automatically **Maps the Parameter with the limits** and forms a temporary file and does the same analysis as of the Engineering File
- It has only one Additional File that does the Lot wise analysis
- It also works for the Multiple files
- Created a separate GUI for the Production File

Lot Wise Analysis

	A	B	C
1	Parameter	LOT_ID_Mean'2283676	LOT_ID_Std'2283676
2	P100001_NCON_PRE_ALLOPEN_NA	0.937	0.242
3	P100002_NCON_PRE_M1MA_AVDD	-0.474	0.01
4	P100003_NCON_PRE_M1MA_VBAT	-0.575	0.001
5	P100004_NCON_PRE_M1MA_DREG	-0.536	0.01
6	P100005_NCON_PRE_M1MA_IOVDD	-0.587	0.001

Alert Message at the End

- Shows this message at the end when the GUI has executed the whole process
- Minimum Hard-Coded things in the code , Only Slight modification is required to make it work for some different kind of file
- Another column Peaks column which will tell the if the distribution is multimodal ,Unimodal etc. is to be implemeted