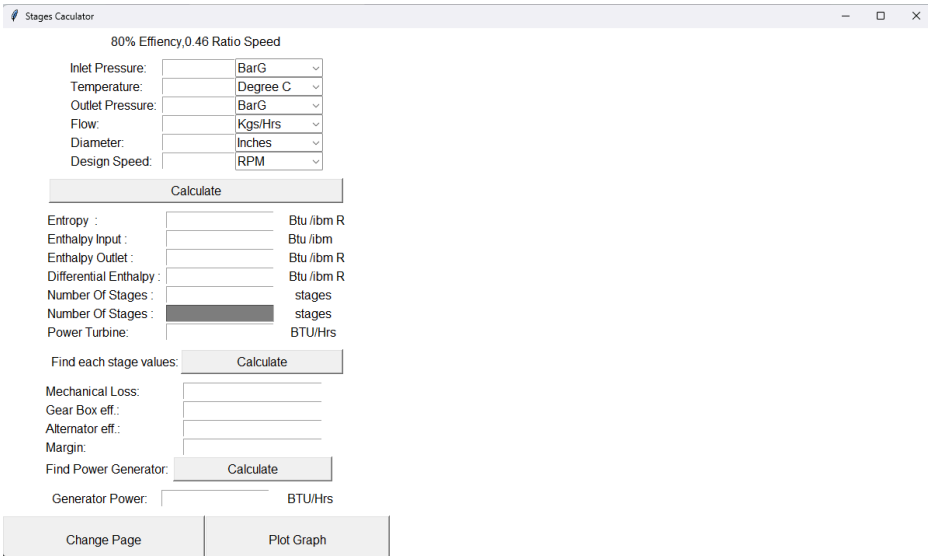
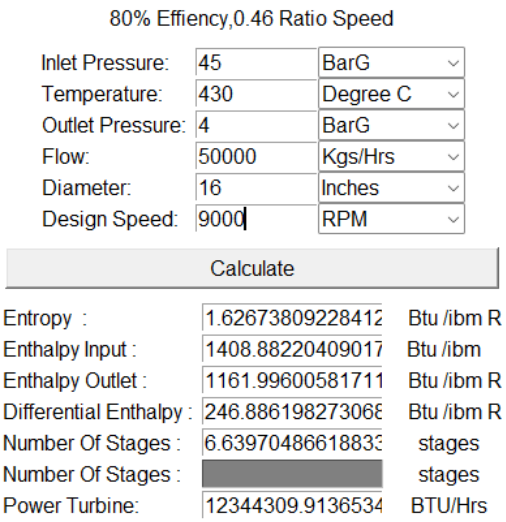
In This section, I will discuss The program that I built with a combination of mechanical engineering and Python. There are 2 pages: 1. setting 80% efficient and 2. including find efficiency and blade ratio.

This program provides power, entropy, and enthalpy in each stage to help engineers find variables in requirements more easily. The UI is Tinker library which provides a graphical interface for programming. For steam properties also XSteam provides the function to access the steam table easily and the last one is matplot which helps developers create charts. Next step is to use the program.

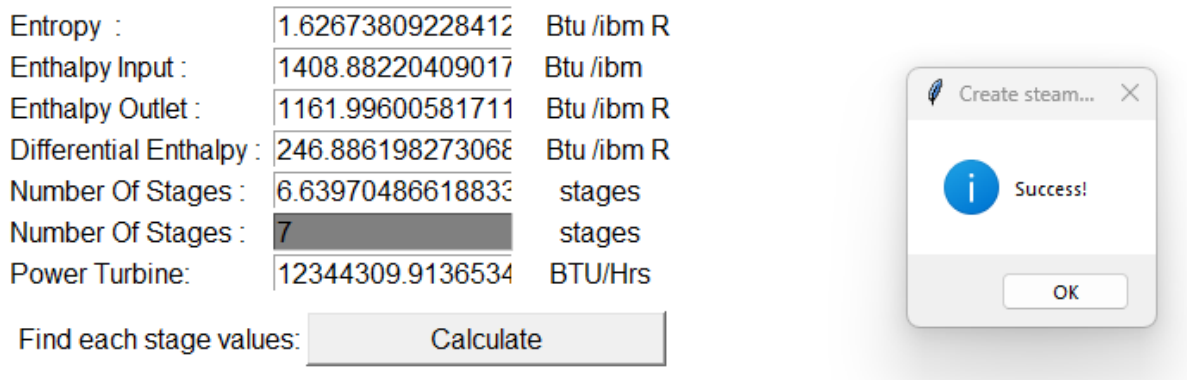


This is the program screen that contains 6 inputs.Inlet Pressure,Temperature,Outlet Pressure,Flow and Design Speed also the program can convert the unit in all dimensions.After the blanks pages of 6 inputs already filled and click calculation. Entropy, Enthalpy Input, Enthalpy Output, Difference Enthalpy, Number Of Stages and Power Turbine.



The output will come out after filling the

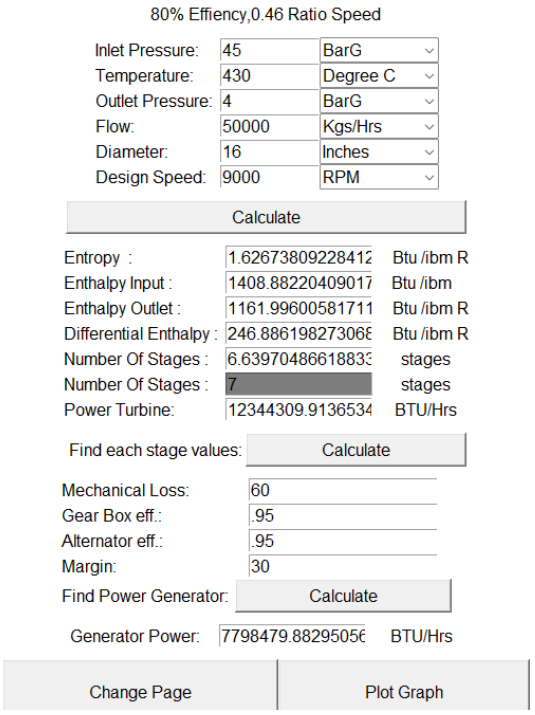
first 6 boxes and there are two boxes with Number Of Stages so the first will come out after filling the inputs The user can choose the stage of the steam turbine which rounds up all down and fill in the grey box.

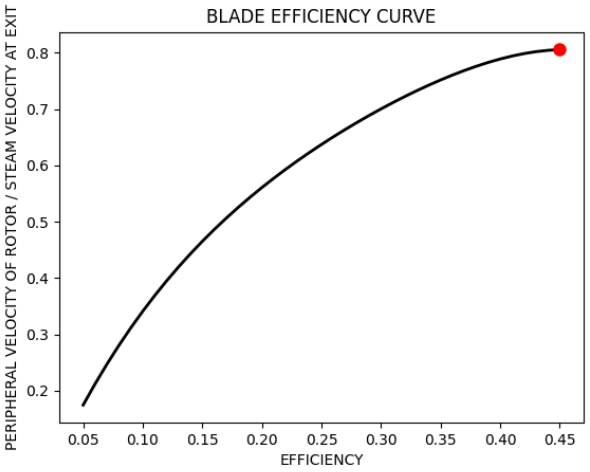


After the user fills the Number Of Stages and clicks calculation on Find each stage values the message will pop up for making the table. All stages in the steam turbine will be saved in 80%_eff.xlxs

	A	B	C	D	E	F	G	H
1		**Stage 1**	**Stage 2**	**Stage 3**	**Stage 4**	**Stage 5**	**Stage 6**	**Stage 7**
2	**Pressure Inlet(psiG)**	652.671	495.8684381	370.1124161	270.6513231	193.2572343	134.1611169	90.04835241
3	**Pressure At Stage(psiG)**	495.8684381	370.1124161	270.6513231	193.2572343	134.1611169	90.04835241	58.01299101
4	**Temperature Inlet(Degree F)**	806	741.8927191	677.0309086	611.3162999	544.6668423	476.9778273	408.1340078
5	**Temperature At The Stage(Degree F)**	741.8927191	677.0309086	611.3162999	544.6668423	476.9778273	408.1340078	338.0265338
6	**Enthalpy Inlet(Btu /ibm)**	1408.882204	1380.666638	1352.100931	1323.15143	1293.774837	1263.920024	1233.532896
7	**Ideal Heat Drop(Btu /ibm)**	1373.612747	1344.959504	1315.914055	1286.430689	1256.456321	1225.936114	1194.802164
8	**Actual Heat Drop(Btu /ibm)**	1380.666638	1352.100931	1323.15143	1293.774837	1263.920024	1233.532896	1202.548311
9	**Entropy Inlet(Btu /ibm R)**	1.626738092	1.632640499	1.638962663	1.645763651	1.653125458	1.661154637	1.669981798
10	**Entropy At The Stage(Btu /ibm R)**	1.632640499	1.638962663	1.645763651	1.653125458	1.661154637	1.669981798	1.679780804
11	**Specific Volume Inlet(in^3/ibm)**	11.61744179	1.374345131	1.748623291	2.261398813	2.980558173	4.01753884	5.562684492
12	**Specific Volume Outlet(in^3/ibm)**	1.374345131	1.748623291	2.261398813	2.980558173	4.01753884	5.562684492	7.957951869
13	**Blade Diameter(feet)**	1.185647428	1.192981409	1.200968802	1.209795303	1.219602662	1.230427455	1.242464603
14	**Pressure Outlet(psiG)**	58.0152	58.0152	58.0152	58.0152	58.0152	58.0152	58.0152
15	**Enthalpy Outlet(Btu /ibm)**	1161.996006	1166.423832	1171.166549	1176.268467	1181.819287	1187.952203	1194.802164
16	**Enthalpy Difference (Btu /ibm)**	35.269457	35.70713438	36.18687642	36.7207408	37.31851668	37.98391035	38.73073116
17	**Power (BTU/Hrs)**	1763472.85	1785356.719	1809343.821	1836037.04	1865925.834	1899195.518	1936536.558

As well as the power generated after calculation power the program provides a loss factor. The user has to put all lost factors and it will calculate the power output for the user after clicking the plot graph the blade efficiency curve will generate.





When you click to change the pages it directs the user to the page and all functions are similar but it provides Efficiency and ratio speed.