PCH Graph Plotter (Tkinter + Python)

This project is a simple desktop application built using Python and Tkinter that allows users to upload a .PCH file and directly plot the graph contained inside it. The tool reads OptiStruct/Nastran-type PCH files (such as SOL111 FRF outputs) and extracts XY data to generate a graph using Matplotlib. This helps CAE engineers quickly visualize results without opening HyperView or META.

Features

- Upload .PCH file
- Automatic parsing of data
- Frequency Response (FRF) or XY curve plotting
- Tkinter-based clean UI
- Fast and lightweight Python application
- Useful for NVH and Durability engineers

Project Structure

Your project contains a single Python file that includes:

- Tkinter GUI
- File upload function
- PCH parser
- Graph plotting function

Dependencies

Before running, install the required Python packages:

- matplotlib
- numpy

Note: Tkinter usually comes pre-installed with Python.

How to Run

1. Open a terminal or command prompt
2. Navigate to your project folder
3. Run the application using:
   python FRF_SOL.py
4. Click “Upload PCH File”
5. Select your .PCH file
6. The graph will automatically appear

Supported PCH Content

This tool supports typical solver-generated .PCH data such as:

- Frequency response curves (SOL111)
- XY tabular data
- Node-based response results

Sample Data

A sample PCH file (FRF_SOL111.pch) can be added to the repository to test the tool.