

Instructions:

1. Create a Jupyter Notebook file named `<id>.ipynb`.
2. Generate 1000 amplitude values, A_0, A_1, \dots, A_{999} , evenly spaced between 0 and 5 (in increasing order).
3. Generate 1000 frequency values, f_0, f_1, \dots, f_{999} , evenly spaced between 0 and 10 (in increasing order).
4. Construct a composite signal using sine waves:
 $S_0(A_0, f_0), S_1(A_1, f_1), \dots, S_{999}(A_{999}, f_{999})$,
where each S_i represents a sine wave with amplitude A_i and frequency f_i .
5. Plot the **composite signal** in both the **time domain** and **frequency domain**.