Communication Engineering
Project
Due date/time: January 15, 2024 23:59

Consider the message signal $m(t) = -\cos(250\pi t) + \sin(70\pi t)$. Use MATLAB, Python, or C to complete the following tasks:

Task 1: Pulse Code Modulation (*5 points*) Consider the message signal $m(t)$ for the time interval (0,2) seconds. Obtain the pulse code modulated binary sequence if the signal is sampled at 50% higher than the Nyquist sample rate and $L = 64$ quantization levels are used. You can start labeling the quantization labels from the top. The first sample is taken at $t = 0$. Your code should display the binary representation of the first 10 samples on the screen, in the format "0110011-1010010-...".

Task 2: Delta Modulation (*5 points*) Consider the message signal $m(t)$ for the time interval (0,2) seconds. Obtain the delta modulated binary sequence if the signal is sampled at six times the Nyquist sample rate. The first sample is taken at $t = 0$. Your code should display the binary representation of the first 20 samples on the screen.

Note: You should submit your project as a single source file (.m, .py, or .c).