**CT303 – Digital Communication**

**Lab Exercise 4**

Priya Tank – 202101463

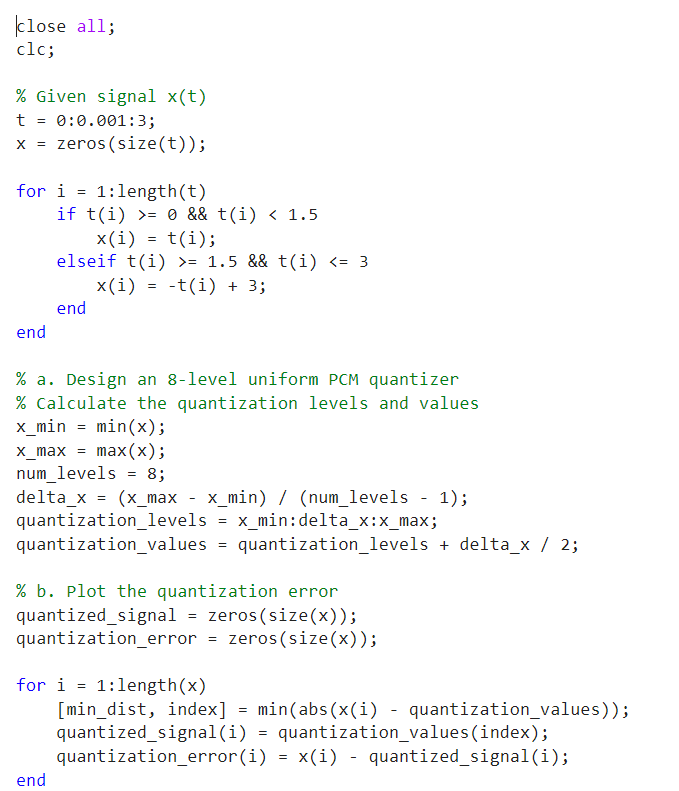
18th October, 2023

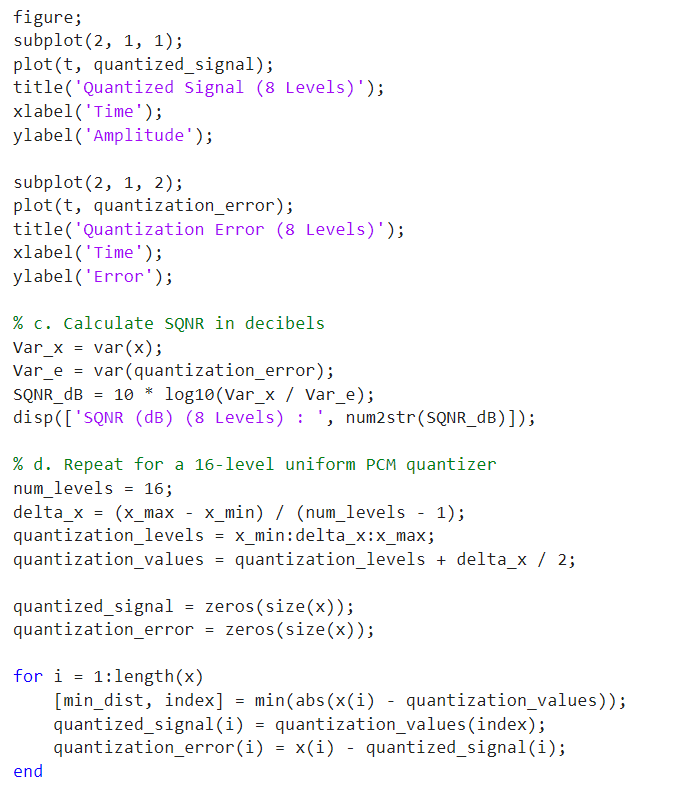
Group 5

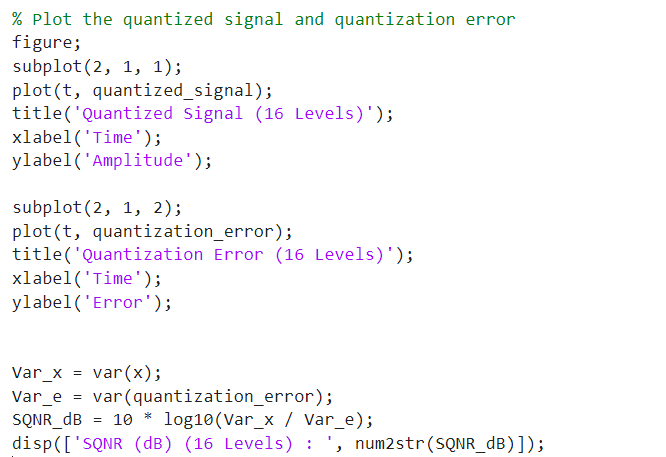
Question1:

(a) Problem 4.17 and 4.24

Code for problem 4.17:



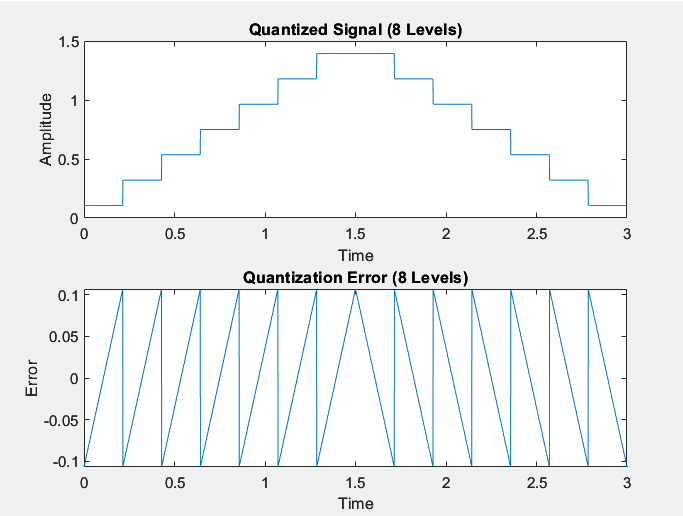




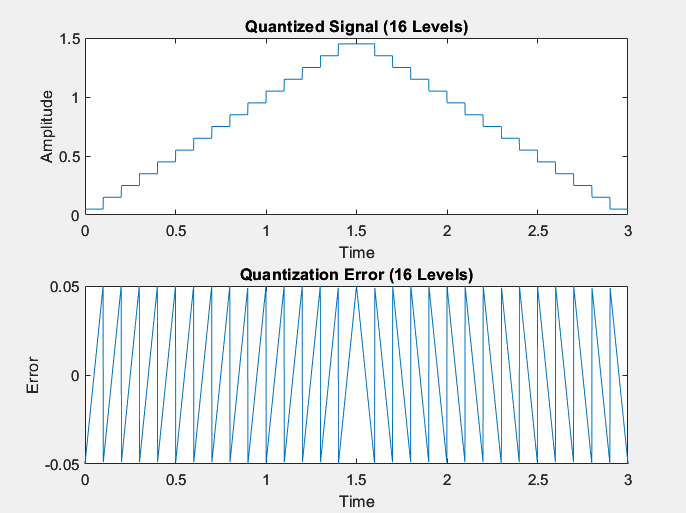
Graph:



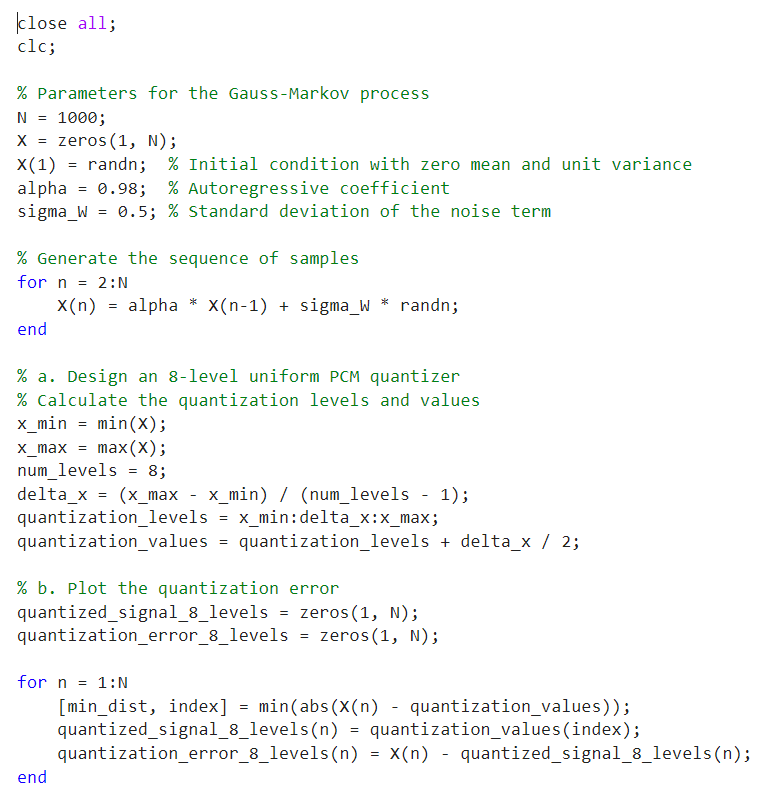
For 8 levels:

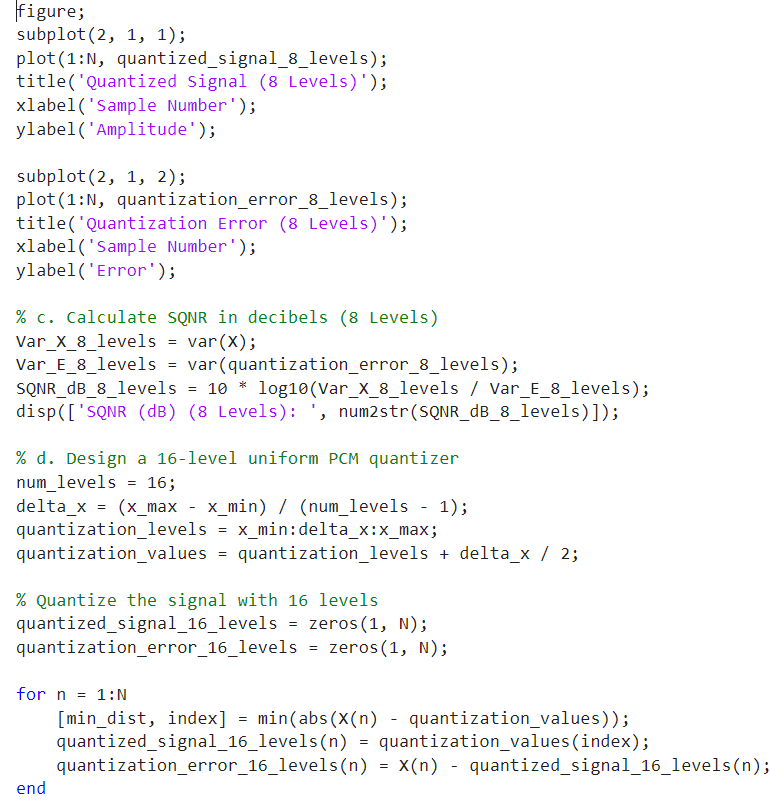


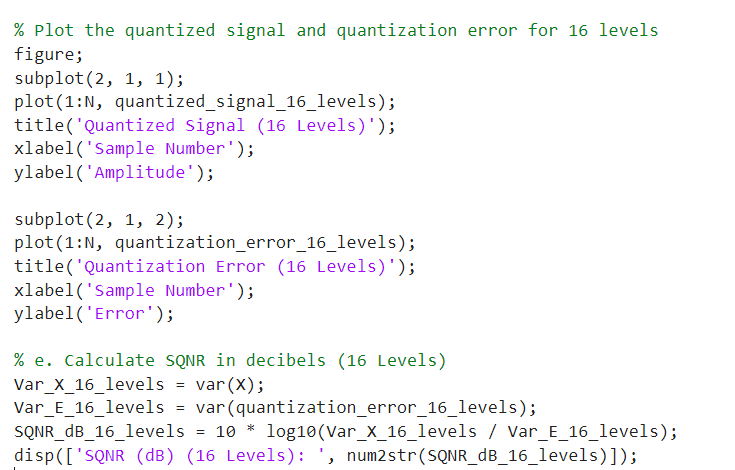
For 16 levels:



Code for problem 4.24:



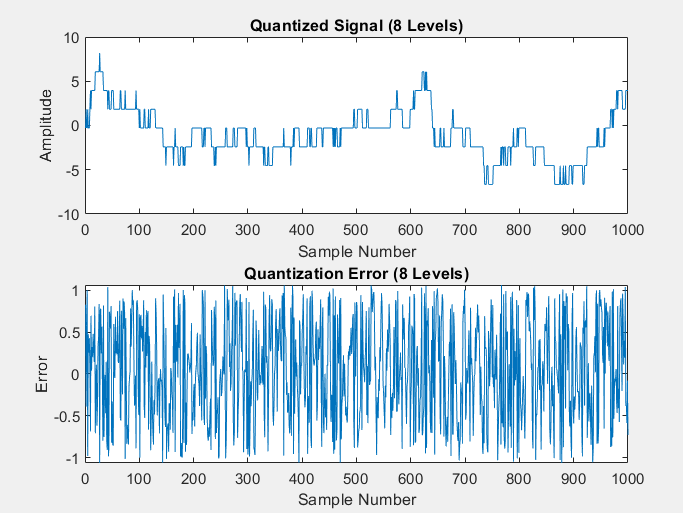




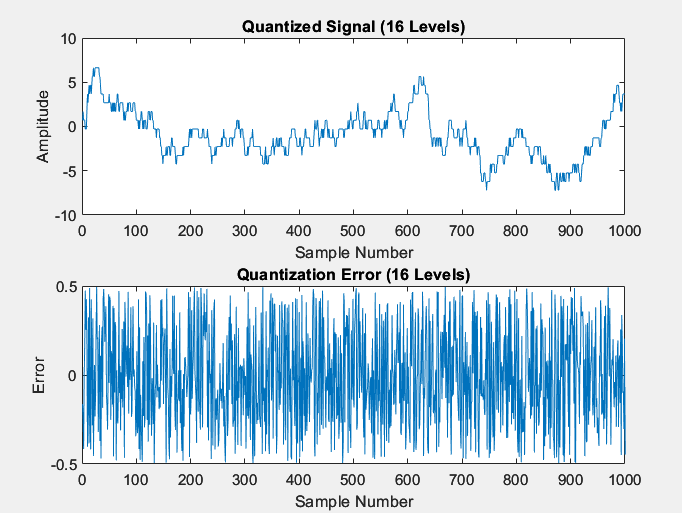
Graph:



For 8 levels:

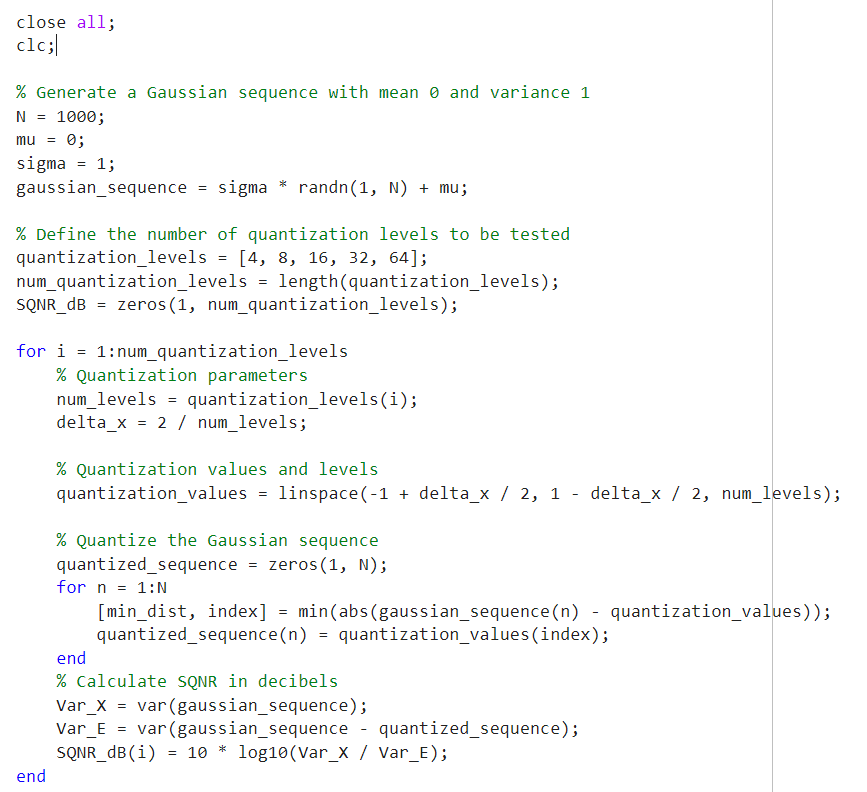


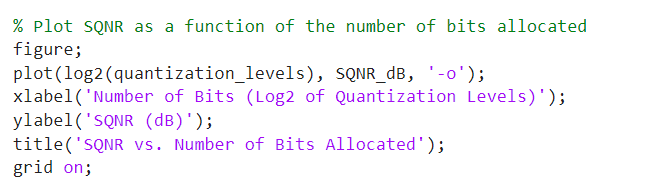
For 16 levels:



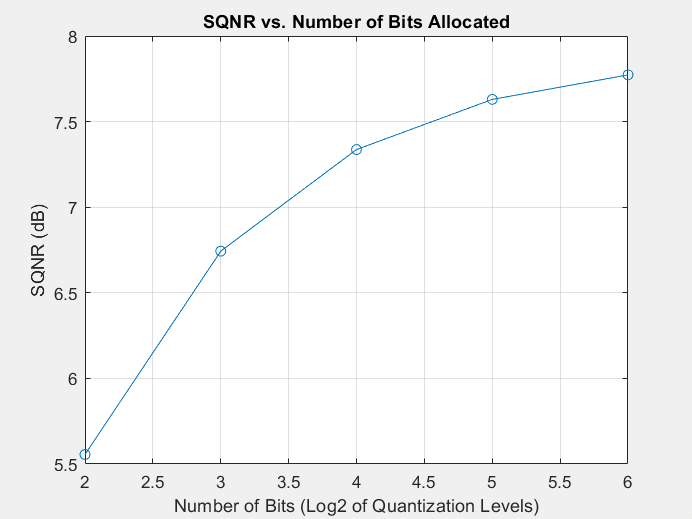
(b) Problem 4.18 and 4.21

Code for problem 4.18:

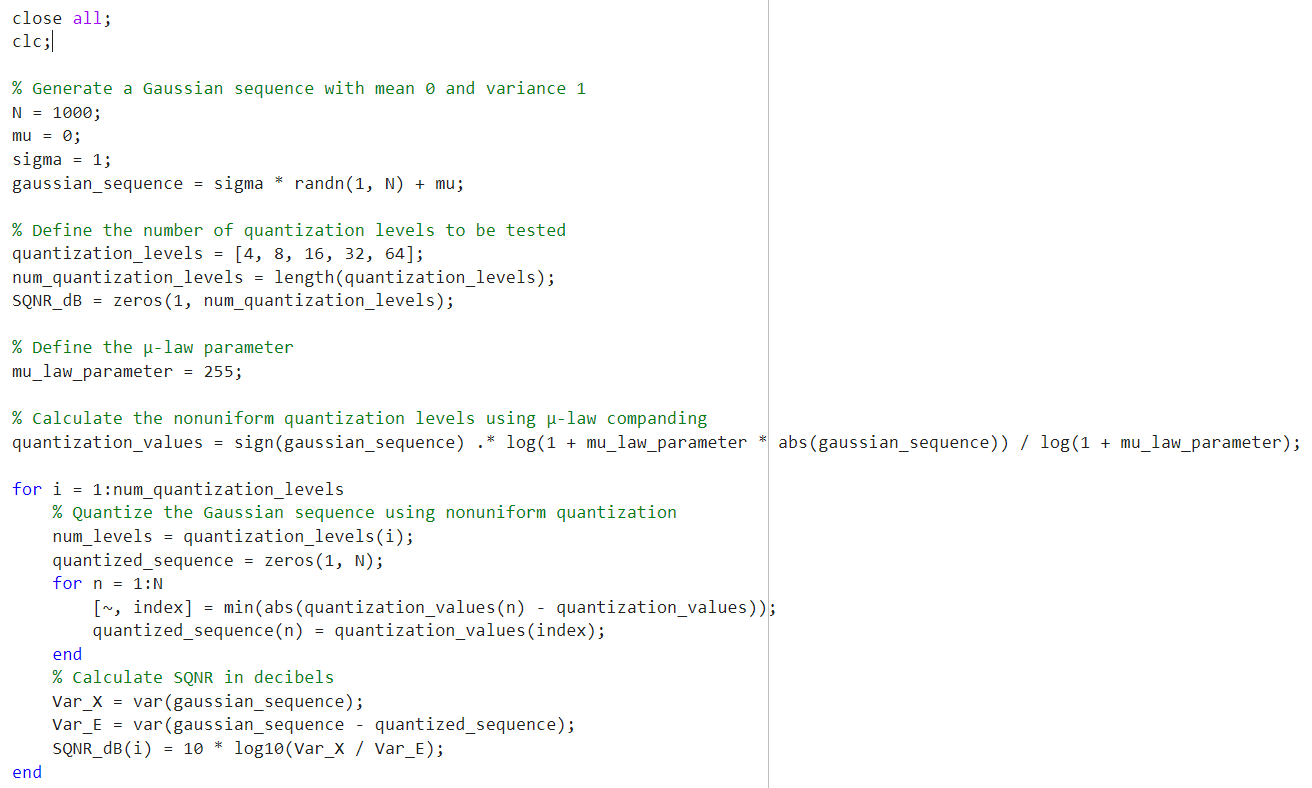


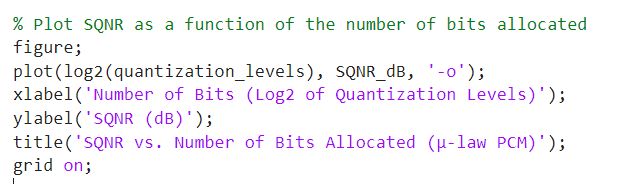


Graph:

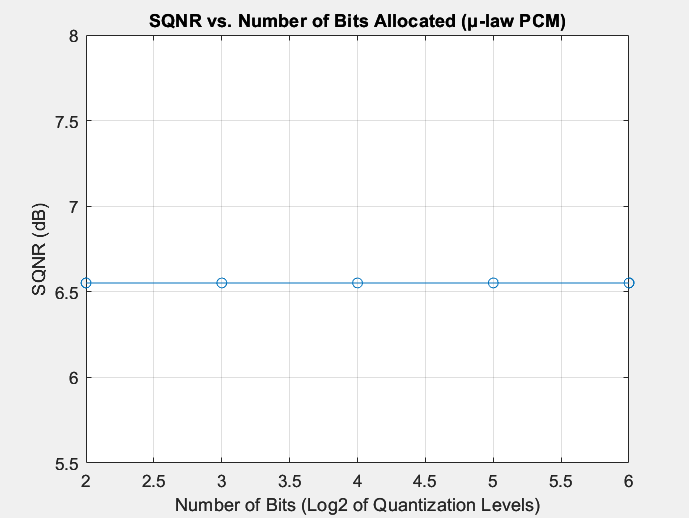


Code for problem 4.21:



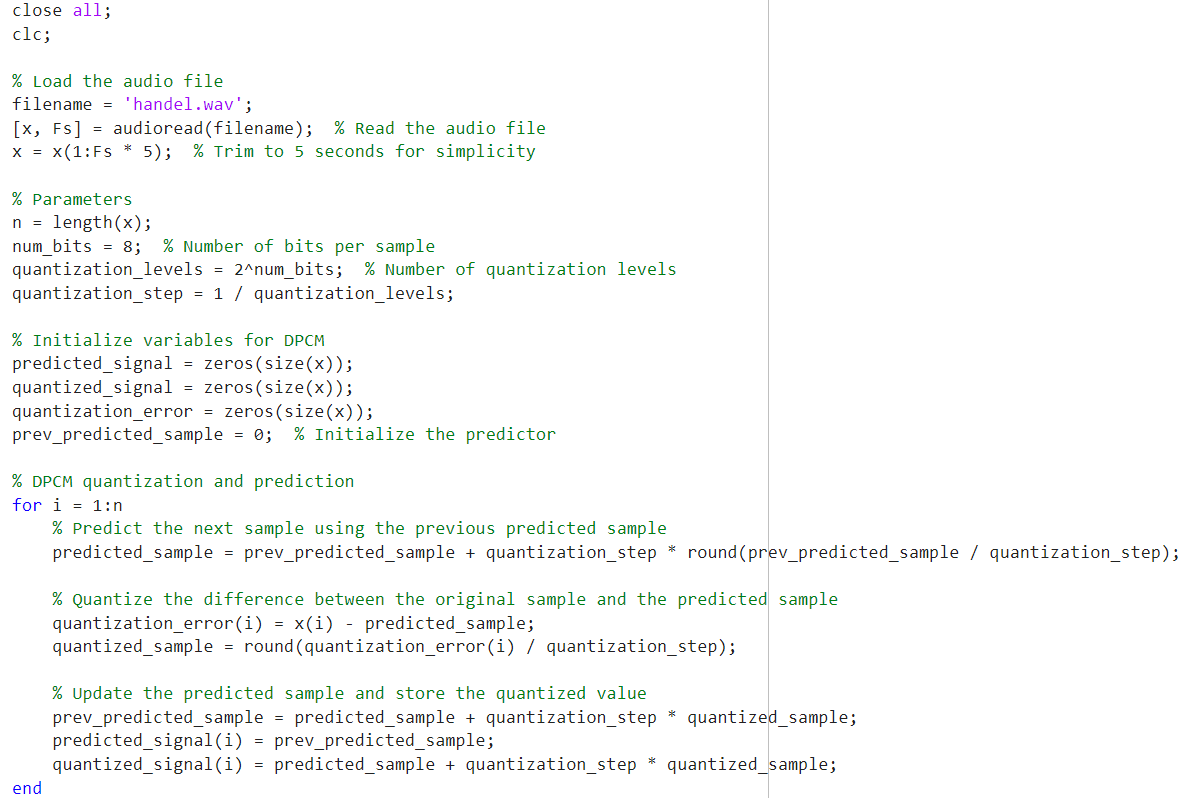


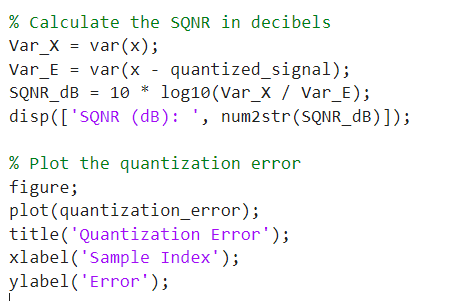
Graph:



Question2: Plot the quantization error and determine the corresponding SQNR. For the predictor, you can use the normalized LMS algorithm defined by the three consecutive equations in problem 3.40.

Code:





Graph:



