Ex:

Write a Matlab® function called \texttt{fiddle} that accepts as an argument a vertical, one-column array called \texttt{vwave} and does the following:

i) Replaces each value greater than 3 with the value 4.

ii) Replaces values that round off to 0 with 1.

iii) Replaces values that round off to 1 with \(-1\).

iv) Replaces every second value that rounds off to 2 with 0.

v) Otherwise sets the value to \(-3\).

vi) Returns the resulting array in a horizontal, one-row variable called \texttt{yfid}.

For example, \texttt{fiddle([2.1; 0.1; 2.4; 3.1; 1.4; 0.5; 2.1; 3.2; 1.9])} produces the following returned array:

\[
\texttt{ans =}
\begin{array}{cccccccc}
-3 & 1 & 0 & 4 & -1 & -1 & -3 & 4 & 0
\end{array}
\]
function yfid = fiddle(vwave)
% fiddle.m  Modifies a waveform
%   Replaces value > 3 with 4
%   Replaces value that rounds to 0 with 1
%   Replaces value that rounds to 1 with -1
%   Replaces every second value that rounds to 2 with 0
%   Otherwise, sets the value to -3
% yfid = fiddle(vwave)

% The compact approach (but hard to decipher):
yfid = vwave;
yfid(yfid > 3) = 4;
yfid = round(yfid);
yfid(yfid <= -1) = -3; % Other things get set to -1 so do this now.
yfid(yfid == 3) = -3; % Finish all things mapped to -3.
yfid(yfid == 1) = -1; % Do this before step that sets entries to 1.
yfid(yfid == 0) = 1;
twos = find(yfid == 2);
yfid(twos(2:2:end)) = 0; % Set every other 2 to 0
yfid(twos(1:2:end)) = -3; % Set other every other 2 to -3

yfid = yfid';

% The more conventional approach:
yfid = vwave;
second_2 = 0; % Flag that toggles for every other 2 found.
for index = 1:length(vwave)
    if vwave(index) > 3
        yfid(index) = 4;
    else
        switch round(yfid(index))
        case 0
            yfid(index) = 1;
        case 1
            yfid(index) = -1;
        case 2
            if second_2 == 1 % Check flag that changes every other 2.
                yfid(index) = 0;
                second_2 = 0;
            else
                yfid(index) = -3;
                second_2 = 1;
            end
        otherwise
            yfid(index) = -3;
        end
    end
end
yfid = yfid';