Even/odd function

```
function [xe, xo, m] = evenodd(x,n)
% Real signal decomposition into even and odd parts
% ------------------------------------------------
% [xe, xo, m] = evenodd(x,n)
%
if any(imag(x) ~= 0)
error('x is not a real sequence')
end

m = -fliplr(n);
m1 = min([m,n]); m2 = max([m,n]); m = m1:m2;
nm = n(1)-m(1); n1 = 1:length(n);
x1 = zeros(1,length(m)); x1(n1+nm) = x; x = x1;
xe = 0.5*(x + fliplr(x)); xo = 0.5*(x - fliplr(x));
```

Tasks: Generation and decomposing of signal onto Even and Odd components

1. Write a MATLAB script to **generate** and **plot** the following signals:

$$(a)\ x(n) = 3\delta(n+2) + 2\,\delta(n+1) - \delta(n-3) + 5\delta(n-7),\ -7 \le n \le 20$$

$$(b)\ x(n) = 10\,u(n) - 5\,u(n+5) - 10\,u(n-10) + 5\,u(n-15)u(n)$$

$$(c)\ x(n) = \sum_{i=-5}^{5} e^{-|i|}\delta(n-2i), \qquad -10 \le n \le 15$$

2. Decompose the following sequences into their **even** and odd components and plot these components.

$$(a)\ x(n) = \{1, 0, 1, 2, 3, 4, 5, 6\}$$

$$(b)\ x(n) = e^{0.1n}[u(n+5) - u(n-10)]$$

$$(c)\ x(n) = \cos\left(0.2\pi n + \frac{\pi}{4}\right), \qquad -20 \le n \le 20$$

Structure of lab report

a) Title of the experiment → "Creation a document using MS office"

b) Your name → XYZ, Roll-no: 1234

c) About the experiments →

d) Content of the experiment (diagram/programme source code/flowchart) →

e) Your observation/what you learned →

After complementation of the LAB, document has to be uploaded in Google classroom
filename: StudentName_rollNo

Thank you!