Shiv Nadar University
Department of Electrical Engineering-(SoE)

EED305: Digital Signal Processing　　　　　**Lab-4** (Correlation functions)
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Lab Instructors: Prof. Vijay Kumar Chakka & **Dr.** Ravi Kant Saini--**Topic:** Correlation

I. Cross-Correlation Example :

1. Compute the cross-correlation between the given two sequences $x[n]$ and $y[n]$, using matrix method, where $x[n] = \{1_\uparrow, 2, 3, 4\}$ and $y[n] = \{4_\uparrow, 3, 2, 1\}$.

2. Verify the above result by writing a MATLAB code and make it as function (**Hint:** use linear convolution code written in Lab 2).

II.　　Period Estimation:

3. Consider the given noise added periodic signal '$noiseData.mat$' then find out the period of the signal using Auto-Correlation technique

   Details about '$noiseData.mat$': $Acos(2\pi Fn) + w(n)$, where $F = \frac{f}{f_s}$. Here $f = 50Hz$, $f_s = 500Hz$ and $w(n)$ is white Gaussian noise with mean -1 and variance 2.