Programming Language: MatLab

1st Semester 2015

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W05, 12th Oct

Example for HW02

Another simple solution

Efficient way

```
N = [50, 500,5000];              % Number of particle
Sty = ['k--';' ro';' g*'];       % Line style, black dash line, red circle & green *
Dur = 10;                        % Simulation duration
dt = 0.1;                        % Delta t
D = 2;                           % Diffusion coefficient
N_step = ceil(Dur/dt);           % Number of steps
T = zeros(N_step,1);             % Time
AveX = zeros(N_step,1);          % Average X
AveX2 = zeros(N_step,1);         % Average X^2

for r = 1:3                      % Loop for different number of particles
    X = zeros(N(r),1);
    for t = 2:N_step             % Loop for time
        T(t) = (t-1)*dt;
        X = X + D*randn(N(r),1);  % Random noise
        AveX(t) = mean(X);       % Taking average
        AveX2(t) = mean(X.^2);
    end
    hold on
    subplot(2,1,1);plot(T,AveX,Sty(r,:))    % Showing the results
    hold on
    subplot(2,1,2);plot(T,AveX2,Sty(r,:))
end
```

Homework

Consider two difference integers "**a**" and "**b**"
a) Using the combination of "if" and "for" to calculate their HCF (Highest Common Factor)
b) Using the combination of "if" and "for" to calculate their LCM (Lowest Common Multiple)

Cation:

1) Please naming the file name of you home work as "HW03_G##_XXX_XXX.ppt", where ## and XXX are the group number and the last three digits of your student ID, respectively.
   (do not use any Chinese on the file name)

2) Please submit your homework on time (before Friday noon)

3) Please specify your group, name and contribution in the first page

4) Please do not copy your HW from your classmate, but you can discuss

If, Else If, Else

Description:

Justification for executing action(s) or not

Syntax:

```
if Condition 1
        Action(s)    % Whatever action you wanted
elseif Condition 2
        Action(s)
else
        Action(s)
end
```

Example:

```
if A > 0
    disp('A is positive')
elseif A < 0
    disp('A is negative')
else
    disp('A is zero')
end
```

Relational Operators

Syntax 1	Syntax 2 Abbreviation	Condition
A == B	eq(A,B)	A equal to B
A < B	lt(A,B)	A less than
A <= B	le(A,B)	A less than or equal to B
A > B	gt(A,B)	A greater than B
A >= B	ge(A,B)	A greater than or equal to B
A ~= B	ne	A not equal to B