



LABWORK 6

Write a MATLAB function **SlottedAloha** that takes as input the number of expected packets per unit time and finds the probabilities of 0 packet, 1 packet, 2 or more packets using a simulation of slotted Aloha protocol.

SlottedAloha

```
function [k0 k1 k2] = SlottedAloha( G )
%written by Emre Sermutlu on 21.04.2015
% A simulation that gives probabilities of
% 0 packet,1 packet, 2 or more packets
% using slotted Aloha protocol

N=1000;
p=G/N;
% G is the expected number of packets arriving at the system per unit time
% N is the number of users. p is the expected number of packets by one user

runs=10000;
k0=0;
k1=0;
k2=0;

for j=1:runs
    cnt = 0;
    for i = 1:N
        if rand() < p
            cnt = cnt+1;
        end
    end
    if cnt == 0
        k0 = k0 + 1;
    elseif cnt == 1
        k1 = k1 + 1;
    else
        k2 = k2 + 1;
    end
end
k0=k0/runs;
k1=k1/runs;
k2=k2/runs;
end
```