```
% Grahm-Schmidt Orthogonalization-4
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% Course: Advanced Communication Laboratory
%--------------------------------------------------
clc;
clear global;
close all;
%--------------------------------------------------

u1=[3,-2,-1]%inital basis vectors
u2=[-2,-1,3]%inital basis vectors
u=[u1;u2];
phi=[];%new basis vectors
phi(1,:)=u1/calc_norm(u1,u1);
f_tilda=u2-(innerProduct(phi(1,:),u2).*phi(1,:));
phi(2,:)=f_tilda/calc_norm(f_tilda,f_tilda);

w1=phi(1,:)
w2=phi(2,:)

%user defined function for calculating norm
function norm=calc_norm(s1,s2)
    % v=s1.*s2
    norm=sqrt(innerProduct(s1,s2));
end
%user defined function for calculating innerproduct of two signals
function inner_prod=innerProduct(v,u)
    inner_prod=2*((v(1)*u(1))+(v(2)*u(2))+(v(3)*u(3))) + (v(1)*u(2))+(v(2)*u(1))+(v(2)*u(3)) + (v(3)*u(2))+(v(3)*u(1))+(v(1)*u(3));
    % inner_prod
end
```

```
u1 =

     3    -2    -1


u2 =

    -2    -1     3


w1 =

    0.8018   -0.5345   -0.2673


w2 =

   -0.1543   -0.6172    0.7715
```

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