

```
function [y_hat,z] = projection(y,u)

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Name: Samantha Bennett %
% UF ID: ####-#### %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% This function determinesthe orthogonal projection of vector y
% onto vector u and the component of y orthogonal to u
% Input arguments: two vectors y and u
% Output argument: two vectors, projection of y onto u and component of y
% orthogonal to u
%

c = dot(y, u)/dot(u, u);

y_hat = c*u;
z = y-y_hat;
end
```