```
alpha = 4;

beta = 1;

gamma = 3;

V = [alpha; beta; gamma];

I = eye(3);

S = I - 2 / (V' * V) * (V * V');

vectors = [1 0 0; 0 1 0; 0 0 1; 1 1 0; 1 0 1]';

figure;

hold on;

for i = 1:size(vectors, 2)

   quiver3(0, 0, 0, vectors(1, i), vectors(2, i), vectors(3, i), 'b',
'LineWidth', 1.5, 'MaxHeadSize', 0.5);

end

transformed_vectors = S * vectors;

for i = 1:size(vectors, 2)

   quiver3(0, 0, 0, transformed_vectors(1, i), transformed_vectors(2, i),
transformed_vectors(3, i), 'g', 'LineWidth', 1.5, 'MaxHeadSize', 0.5);

end

[eigenvectors, ~] = eig(S);

for i = 1:size(eigenvectors, 2)

   quiver3(0, 0, 0, eigenvectors(1, i), eigenvectors(2, i), eigenvectors(3,
i), 'r', 'LineWidth', 2, 'MaxHeadSize', 0.5);

end

xlabel('X');

ylabel('Y');

zlabel('Z');
```

```
title('Original Vectors, Transformed Vectors, and Eigenvectors');

grid on;

axis equal;

legend('Original Vectors', 'Transformed Vectors', 'Eigenvectors');

hold off;
```