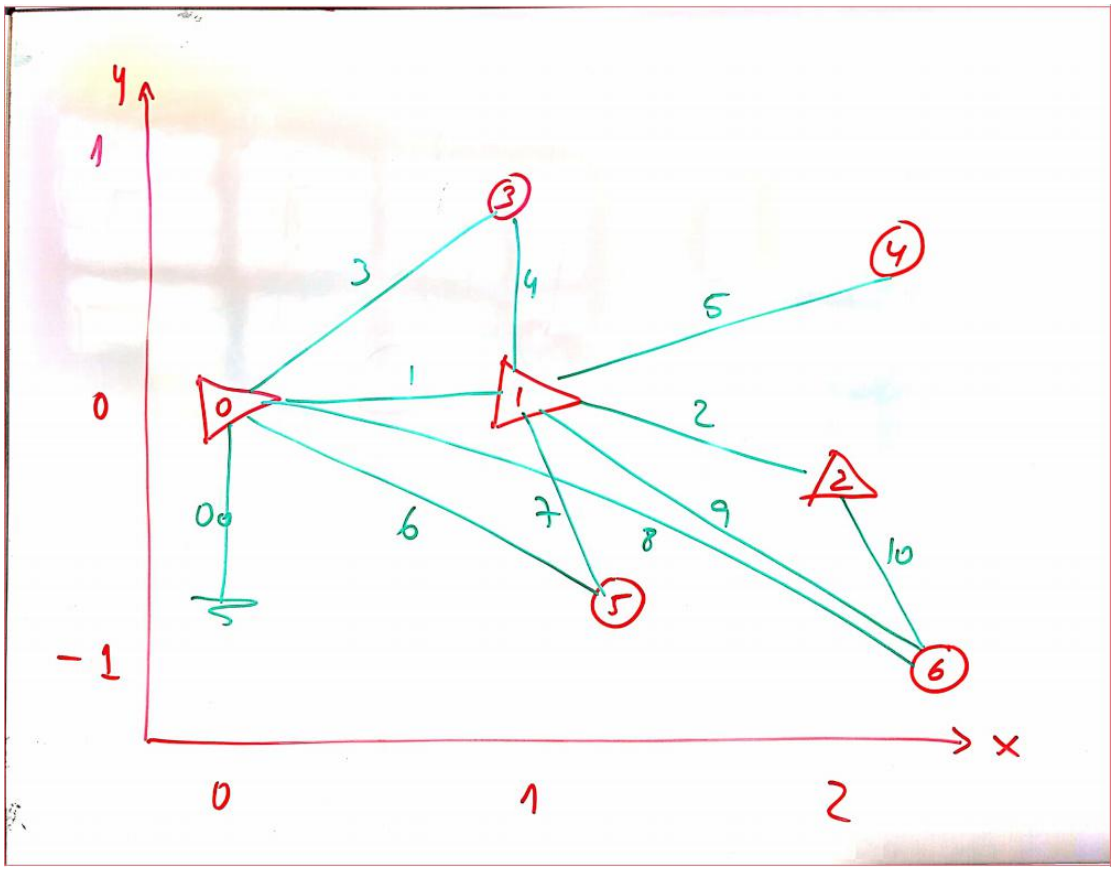
Exercici SLAM en Matlab

Imatge de l'exercici proposat:



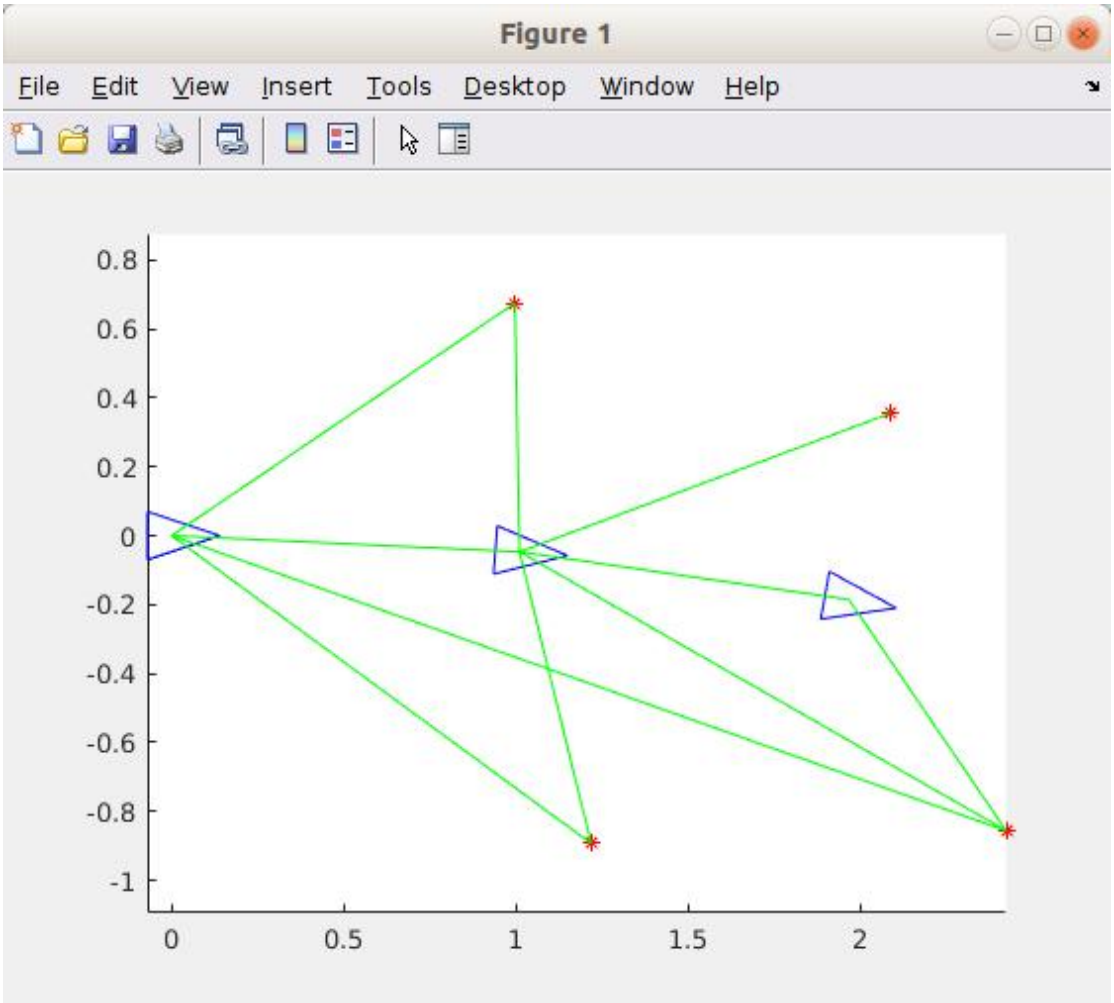
Al completar el codi, queda de la següent manera:

```
% Factors
factor{1+ 0 }= struct(...
    'type', 'pose', ...
    'measurement', [0;0;0], ...
    'covariance', 1e-3*eye(3,3), ...
    'index', 0);

factor{1+ 1 }= struct(...
    'type', 'motion', ...
    'measurement', [1.0;0.0;-5*torad], ...
    'covariance', diag([1e-2, 1e-2, (5*torad)^2]), ...
    'index', [0,1]);

factor{1+ 2 }= struct(...
    'type', 'motion', ...
```

```
    'measurement', [1.05;-0.25;-3*pi/180], ...
    'covariance', diag([1e-2, 1e-2, (5*torad)^2]), ...
    'index', [1,2]);

factor{1+ 3 }= struct(...
    'type', 'lmk', ...
    'measurement', [1.2;40*torad], ...
    'covariance', diag([1e-2, (10*torad)^2]), ...
    'index', [0,3]);

factor{1+ 4 }= struct(...
    'type', 'lmk', ...
    'measurement', [0.65; 95*torad], ...
    'covariance', diag([1e-2, (5*torad)^2]), ...
    'index', [1, 3]);

factor{1+ 5} = struct(...
    'type' , 'lmk',...
    'measurement', [1.5; 30*torad],...
    'covariance', diag([1e-2,(10*torad)^2]),...
    'index', [1,4]);

factor{1+ 6} = struct(...
    'type' , 'lmk',...
    'measurement', [1.6; -35*torad],...
    'covariance', diag([1e-2,(15*torad)^2]),...
    'index', [0,5]);

factor{1+ 7} = struct(...
    'type' , 'lmk',...
    'measurement', [0.9; -75*torad],...
    'covariance', diag([1e-2,(10*torad)^2]),...
    'index', [1,5]);

factor{1+ 8} = struct(...
    'type' , 'lmk',...
    'measurement', [2.8; -30*torad],...
    'covariance', diag([4e-2,(7*torad)^2]),...
    'index', [0,6]);
```

```
factor{1+ 9} = struct(...
    'type' , 'lmk',...
    'measurement', [1.8; -35*torad],...
    'covariance', diag([3e-2,(10*torad)^2]),...
    'index', [1,6]);

factor{1+ 10} = struct(...
    'type' , 'lmk',...
    'measurement', [0.7; -40*torad],...
    'covariance', diag([2e-2,(10*torad)^2]),...
    'index', [2,6]);
```

El resultat amb el primer codi:

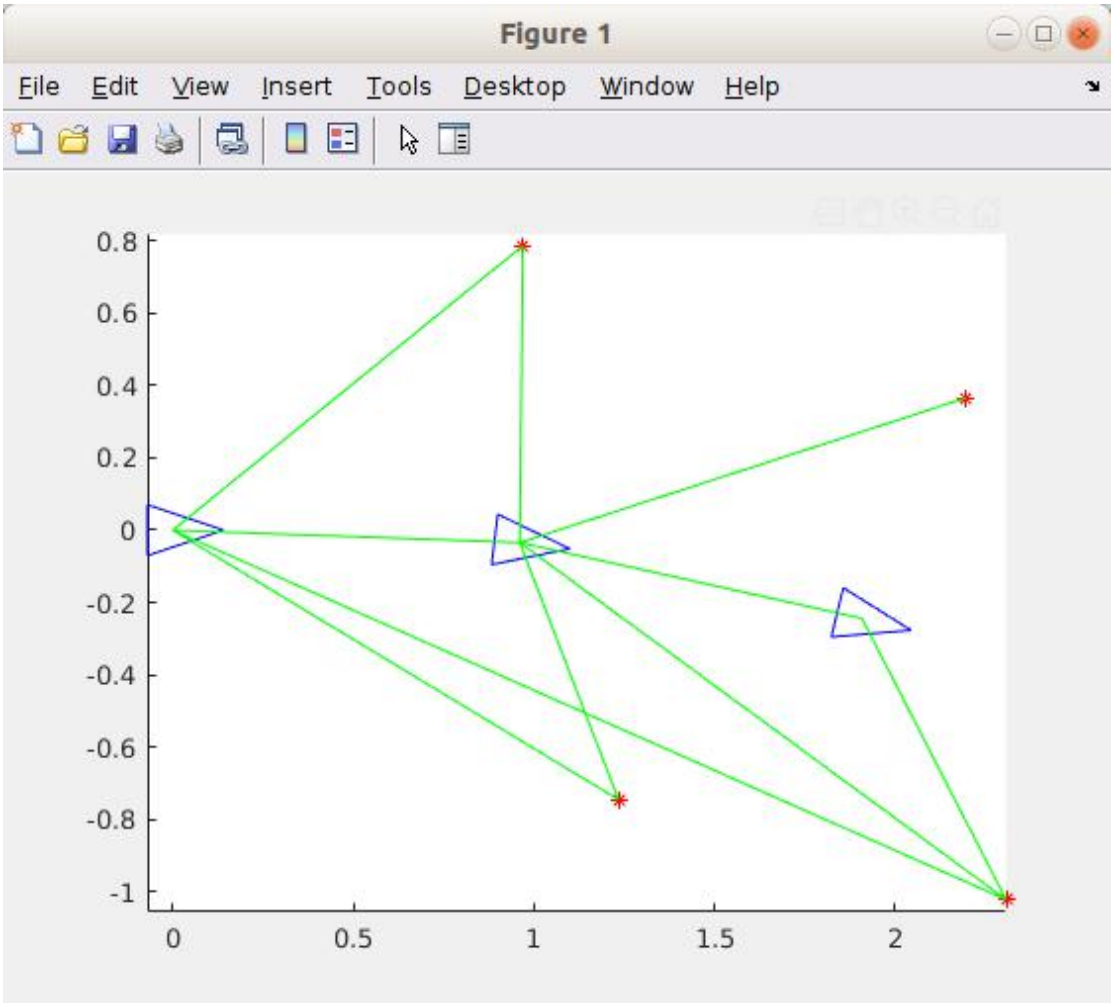


Retocant el codi en els punts marcats amb negreta:

```
% Factors
factor{1+ 0 }= struct(...
    'type', 'pose', ...
    'measurement', [0;0;0], ...
    'covariance', 1e-3*eye(3,3), ...
    'index', 0);

factor{1+ 1 }= struct(...
    'type', 'motion', ...
    'measurement', [1.0;0.0;-5*torad], ...
    'covariance', diag([1e-2, 1e-2, (5*torad)^2]), ...
    'index', [0,1]);

factor{1+ 2 }= struct(...
    'type', 'motion', ...
    'measurement', [1.05;-0.05;-3*pi/180], ...
    'covariance', diag([1e-2, 1e-2, (5*torad)^2]), ...
    'index', [1,2]);

factor{1+ 3 }= struct(...
    'type', 'lmk', ...
    'measurement', [1.2;40*torad], ...
    'covariance', diag([1e-2, (10*torad)^2]), ...
    'index', [0,3]);

factor{1+ 4 }= struct(...
    'type', 'lmk', ...
    'measurement', [0.85; 95*torad], ...
    'covariance', diag([1e-2, (5*torad)^2]), ...
    'index', [1, 3]);

factor{1+ 5} = struct(...
    'type' , 'lmk',...
    'measurement', [1.30; 25*torad],...
    'covariance', diag([1e-2,(10*torad)^2]),...
    'index', [1,4]);

factor{1+ 6} = struct(...
```

```
    'type' , 'lmk',...
    'measurement', [1.45; 40*torad],...
    'covariance', diag([1e-2,(20*torad)^2]),...
    'index', [0,5]);

factor{1+ 7} = struct(...
    'type' , 'lmk',...
    'measurement', [0.8; -70*torad],...
    'covariance', diag([1e-2,(10*torad)^2]),...
    'index', [1,5]);

factor{1+ 8} = struct(...
    'type' , 'lmk',...
    'measurement', [2.5; -40*torad],...
    'covariance', diag([2e-2,(7*torad)^2]),...
    'index', [0,6]);

factor{1+ 9} = struct(...
    'type' , 'lmk',...
    'measurement', [1.5; -30*torad],...
    'covariance', diag([3e-2,(10*torad)^2]),...
    'index', [1,6]);

factor{1+ 10} = struct(...
    'type' , 'lmk',...
    'measurement', [0.9; -35*torad],...
    'covariance', diag([2e-2,(10*torad)^2]),...
    'index', [2,6]);
```

Amb aquests canvis el resultat final:



Recordem el resultat proposat: