
```
% Assignment 2 - Question 1, Forward Kinematics
```

```
clear all;
```

```
%lengths
```

```
l0 = 1;
```

```
l1 = 1;
```

```
l2 = 1;
```

```
%M
```

```
M = [1, 0, 0, 0;  
      0, 1, 0, l1+l2;  
      0, 0, 1, l0;  
      0, 0, 0, 1];
```

```
%Screw Axes
```

```
S1 = [0,0,1,0,0,0];
```

```
S2 = [0,0,1,l1,0,0];
```

```
S3 = [0,0,1,l1+l2,0,0];
```

```
S4 = [0,0,0,0,0,1];
```

```
Slist = [S1', S2', S3', S4'];
```

```
%Body Axes
```

```
B1 = [0,0,1,-(l1+l2),0,0];
```

```
B2 = [0,0,1,-l2,0,0];
```

```
B3 = [0,0,1,0,0,0];
```

```
B4 = [0,0,0,0,0,1];
```

```
Blist = [B1', B2', B3', B4'];
```

```
%thetalist
```

```
thetalist = [0;pi/2;-pi/2;1];
```

```
%Configuration Space frame
```

```
Ts = FKinspace(M,Slist,thetalist);
```

```
%Configuration Body Frame
```

```
Tb = FKinBody(M,Blist,thetalist);
```

```
% OUTPUT
```

```
% Ts =
```

```
%  
%      1      0      0     -1  
%      0      1      0      1  
%      0      0      1      2  
%      0      0      0      1  
%  
%
```

```
% Tb =
```

```
%  
%      1      0      0     -1  
%      0      1      0      1  
%      0      0      1      2  
%      0      0      0      1  
%
```

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