Arm Simulation with Matlab

According these link parameters, we can use Matlab to simulate the mechanical arm:

i	a$_{i-1}$ (cm)	α$_{i-1}$	d$_i$ (cm)	θ$_i$
1	0.00	0	0	0
2	1.25	pi/2	0	pi/2
3	10.5	0	0	pi/2
4	0.00	pi/2	13.0	-pi
5	0.00	pi/2	0	pi
6	0.00	pi/2	10.0	-pi

```matlab
%Final version of robotic arm
clear;
clc;
L1 = Link('d', 0, 'a', 0, 'alpha', 0, 'modified');
L2 = Link('d', 0, 'a', 1.25, 'alpha', pi/2, 'modified');
L3 = Link('d', 0, 'a', 10.5, 'alpha',0, 'modified');
L4 = Link('d', 13, 'a', 0, 'alpha',pi/2, 'modified');
L5 = Link('d', 0, 'a', 0, 'alpha', pi/2, 'modified');
L6 = Link('d', 10, 'a', 0, 'alpha',pi/2, 'modified');
b=isrevolute(L1);  %Link
robot=SerialLink([L1,L2,L3,L4,L5,L6]);   %SerialLink
robot.name='6 DOF robotic arm';
robot.comment='test 1';
robot.display();  %Link
theta=[0 pi/2 pi/2 -pi pi 0];
robot.plot(theta);   %SerialLink
robot.teach();
```

We can get results like:

```
robot =
6 DOF robotic arm:: 6 axis, RRRRRR, modDH, slowRNE
 - test 1:
+---+-----------+-----------+-----------+-----------+-----------+
| j |    theta  |        d  |        a  |    alpha  |   offset  |
+---+-----------+-----------+-----------+-----------+-----------+
|  1|        q1|         0|         0|         0|         0|
|  2|        q2|         0|      1.25|    1.5708|         0|
|  3|        q3|         0|      10.5|         0|         0|
|  4|        q4|        13|         0|    1.5708|         0|
|  5|        q5|         0|         0|    1.5708|         0|
|  6|        q6|        10|         0|    1.5708|         0|
+---+-----------+-----------+-----------+-----------+-----------+
```

We also got an arm simulation figure: