```matlab
clc; close all; clear all
%...Input data:
% Moon:
m1 = 5.974e24*4903/398600;              %moon %5.974e24 - earth;
R =1737 ;                       %6378.137%1737;
m2 = 1000;
v0 = [-0.4260    1.2551    0.3806] ;
r0 = 1.0e+03 *[2.4468    0.6688    0.5209];
t0 = 0;
tf = 250*60;                    %200*hours;
%...End input data

orbit(m1,m2,R,r0,v0,t0,tf)
```

 Earth Orbit
 30-Jan-2017 21:30:56

 The initial position is [2446.8, 668.8, 520.9] (km).
 Magnitude = 2589.49 km

 The initial velocity is [-0.426, 1.2551, 0.3806] (km/s).
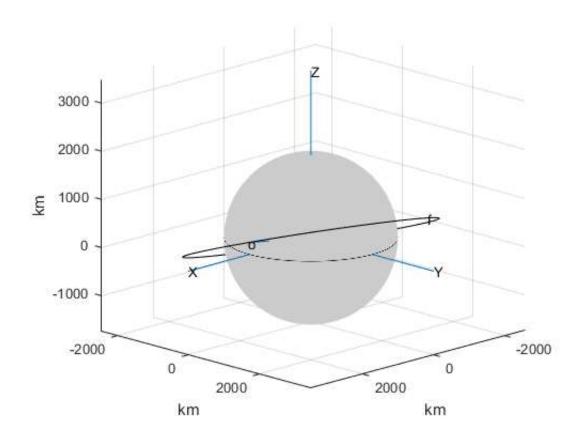 Magnitude = 1.37899 km/s

 Initial time = 0 h.
 Final time = 4.16667 h.

 The minimum altitude is 851.957 km at time = 3.48498 h.
 The speed at that point is 1.37927 km/s.

 The maximum altitude is 873.97 km at time = 1.83926 h.
 The speed at that point is 1.36764 km/s