```
    1: #include <iostream>
    2: #include <cstdlib>
    3: #include <vector>
    4:
    5: #include <SFML/Graphics.hpp>
    6: #include <SFML/Window.hpp>
    7: #include <SFML/System.hpp>
    8:
    9:
   10: #include "CelestialBody.hpp"
   11:
   12: using namespace std;
   13:
   14: int main(int argc, char* argv[]){
   15:
   16:     int cbodies;
   17:
   18:     double dt;
   19:     double radius;
   20:     double T;
   21:     double time;
   22:
   23:     string filename;
   24:
   25:     sf::Clock clock;
   26:
   27:
   28:     if (argc != 3){
   29:
   30:         cout << "\nThere are not enough arguments, exiting!" << endl;
   31:         return -1;
   32:     }
   33:
   34:     time = 0; // start time
   35:
   36:     filename = argv[0];
   37:     T = strtod(argv[1], NULL);
   38:     dt = strtod(argv[2], NULL);
   39:
   40:     cin >> cbodies;
   41:     cin >> radius;
   42:
   43:
   44:     Universe cb(radius, 500, cbodies, cin);
   45:
   46:     sf::RenderWindow window(sf::VideoMode(600, 600), "A Small Glimps of T
he Cosmos:");
   47:
   48:     while (window.isOpen()){
   49:
   50:         sf::Event event;
   51:
   52:         while (window.pollEvent(event)){ if (event.type == sf::Event::Clo
sed) window.close(); }
   53:
   54:         window.clear();
   55:
   56:         if (time < T){ // as long as time hasn't run out
   57:
   58:             sf::Time elapsed = clock.getElapsedTime();
   59:
   60:             cout << "\nElapsed time: " << elapsed.asSeconds( ) << " secon
ds." << endl;
   61:
   62:             cb.step(dt);
```

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    63:
    64:             time += dt;
    65:         }
    66:
    67:         window.draw(cb);
    68:         window.display();
    69:     }
    70:
    71:         return 0;
    72: }
```