```
    1: #ifndef CELESTIALBODY_H
    2: #define CELESTIALBODY_H
    3:
    4: #include <SFML/Graphics.hpp>
    5: #include <SFML/System.hpp>
    6: #include <SFML/Window.hpp>
    7: #include <SFML/Audio.hpp>
    8: #include <fstream>
    9: #include <iostream>
   10: #include <iomanip>
   11: #include <math.h>
   12: #include <string>
   13: #include <vector>
   14:
   15: using namespace std;
   16:
   17: const int winWidth = 1000;
   18: const int winHeight = 1000;
   19: const double gravity = 6.67e-11;
   20:
   21: class CelestialBody : public sf::Drawable {
   22: public:
   23:   CelestialBody();
   24:   CelestialBody(double x, double y, double xv, double yv, double m, double r
ad,
   25:                 std::string name);
   26:
   27:   void setRadius(double rad);
   28:   void setPosition();
   29:   void setVelocity(double x, double y);
   30:
   31:   void setForces(double x, double y);
   32:
   33:   void step(double seconds);
   34:
   35:   friend istream &operator>>(istream &input, CelestialBody &bod);
   36:   friend ostream &operator<<(ostream &output, CelestialBody &bod);
   37:
   38:   double xPos, yPos;
   39:   double mass;
   40:
   41: private:
   42:   void virtual draw(sf::RenderTarget &target, sf::RenderStates states) const
;
   43:   double xVel, yVel;
   44:   double radius;
   45:   double xForce, yForce;
   46:   double xAccel, yAccel;
   47:
   48:   string filename;
   49:
   50:   sf::Image img;
   51:   sf::Sprite spr;
   52:   sf::Texture tex;
   53: };
   54:
   55: double getForceX(CelestialBody &bod1, CelestialBody &bod2);
   56: double getForceY(CelestialBody &bod1, CelestialBody &bod2);
   57:
   58: #endif
```