```
using System;
using System.Collections.Generic;
using System.Linq;
using Gtk;
using Cairo;
using Structures;
using System.Threading;
using System.Threading.Tasks;
using static Program.Constants;
namespace Graphics {
        class Camera {
                public Vector3 position {get; protected set;}
                public Vector3 angle {get; protected set;}
                protected double focalLength;// {get; protected set;} = 50*AU;
                public Camera(double distance, Vector3 angle) {
                        // the camera always "points" to the origin
                        this.angle = angle;
                        position = Matrix3.IntrinsicZYXRotation(angle)*new Vector3(0,0,-distance);
                        focalLength = distance;
                }
                public Vector3 Transform(Vector3 position) {
                        return Matrix3.ExtrinsicZYXRotation(this.angle)*(position);// - this.position);

                }
                public Vector3 TransformProjection(Vector3 T) {
                        var z = T.z + focalLength;
                        return (focalLength/z)*T;
                }
                public double TransformProjectionRadius(Vector3 T, double r) {
                        return r*Math.Atan(r/(T.z+focalLength))/Math.Atan(r/focalLength);
                }
        }
}
```