

TAGE

Hierarchical Systems

(solar system)

```

@Override
public void buildObjects()
{ Matrix4f initialTranslation, initialRotation, initialScale;

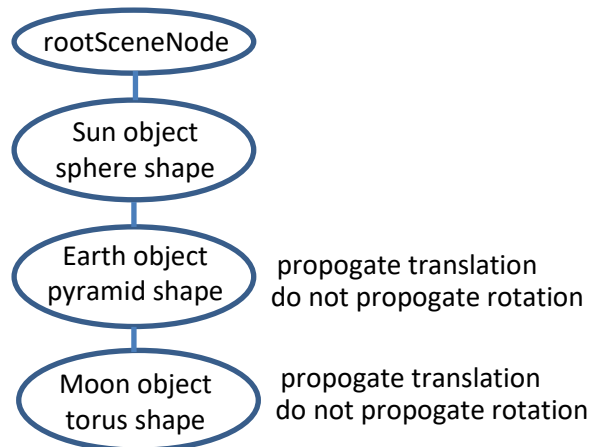
    // ----- adding a Sphere -----
    sun = new GameObject(GameObject.root(), sphS, stex);
    initialTranslation = (new Matrix4f()).translation(0,0,0);
    initialScale = (new Matrix4f()).scaling(0.5f);
    sun.setLocalTranslation(initialTranslation);
    sun.setLocalScale(initialScale);

    // ----- adding the pyramid -----
    earth = new GameObject(GameObject.root(), pyrS);
    initialTranslation = (new Matrix4f()).translation(-1,0,0);
    earth.setLocalTranslation(initialTranslation);
    earth.setParent(sun);
    earth.propagateTranslation(true);
    earth.propagateRotation(false);

    // ----- adding a Torus -----
    moon = new GameObject(GameObject.root(), torS, brick);
    initialTranslation = (new Matrix4f()).translation(0,1,0);
    moon.setLocalTranslation(initialTranslation);
    moon.setParent(earth);
    moon.propagateTranslation(true);
    moon.propagateRotation(false);
    moon.getRenderStates().setTiling(1);
}

...
@Override
public void update()
{ ...
    // revolve earth around sun
    Matrix4f currentTranslation = earth.getLocalTranslation();
    currentTranslation.translation((float)Math.sin(amtt)*2.0f,
                                0.0f, (float)Math.cos(amtt)*2.0f);
    earth.setLocalTranslation(currentTranslation);
    ...
}

```



Hierarchical Objects

(earth with objects resting on it)

```

@Override
public void buildObjects()
{ Matrix4f initialTranslation, initialRotation, initialScale;

    // ----- adding a Sphere -----
    sun = new GameObject(GameObject.root(), sphS, stex);
    initialTranslation = (new Matrix4f()).translation(0,0,0);
    initialScale = (new Matrix4f()).scaling(0.1f);
    sun.setLocalTranslation(initialTranslation);
    sun.setLocalScale(initialScale);

    // ----- adding the pyramid -----
    earth = new GameObject(GameObject.root(), pyrS);
    initialTranslation = (new Matrix4f()).translation(-1,0,0);
    earth.setLocalTranslation(initialTranslation);
    earth.setParent(sun);
    earth.propagateTranslation(true);
    earth.propagateRotation(false);

    // ----- adding a torus -----
    donut = new GameObject(GameObject.root(), torS);
    ...
    donut.setParent(earth);
    donut.propagateTranslation(true);
    donut.propagateRotation(true);
    donut.propagateScale(true);
    donut.applyParentRotationToPosition(true);
    donut.getRenderStates().setTiling(1);

    // ----- adding a dolphin -----
    dol = new GameObject(GameObject.root(), dolS, doltx);
    ...
    dol.setParent(earth);
    dol.propagateTranslation(true);
    dol.propagateRotation(true);
    dol.propagateScale(true);
    dol.applyParentRotationToPosition(true);
}

```

