

Introduction to Java 3D

Objectives

To teach the basics of Java 3D, a high-level API for building interactive 3D applications and applets.

Background

Background information is on the Powerpoint slides "Introduction to Java 3D (1)". We will call this 'Part 1'.

Learning Stages

1. Install Java and Java 3D on your Windows machine.
2. Load and test existing Java 3D code.
3. Modify/extend the code.

Required Software

1. Java and Java 3D.
2. A copy of the HelloUniverse.java, from
<http://fivedots.coe.psu.ac.th/Software.coe/LAB/Java3D/>
3. A copy of the Checkers3D example Java 3D code.

Task 1. Install Java and Java 3D

The necessary steps are explained in Part 1 in section 9, slides 39-44.

Install Java first, then Java 3D. (But, you may already have Java on your machine.)

Task 2. Test the Java 3D Installation

See slide 41 in Part 1. Run HelloUniverse.java.

Task 3. Install my Java 3D Example Code

Go to <http://fivedots.coe.psu.ac.th/~ad/jg/ch8/>, and download the zipped source code for ch.15 (6.7 KB). Extract, compile, and run:

```
C> cd Checkers3D
C> javac *.java
    // ignore any warnings about 'unchecked' operations
C> java Checkers3D
```

Exercise 1

Replace the sphere in Checkers3D by a *sausage*, consisting of a cylinder, with spheres at each end.

Hint: look at the Sphere and Cylinder classes in the Java 3D documentation.

The sausage should be lying on the floor, and be a brownish colour.

Include a small screen shot of the application showing the sausage in your report.

Explain in words what you have done.

Exercise 2

Explain in words what keys and/or mouse operations cause the user's viewpoint to change. (*Hint:* look at the OrbitBehavior class in the Java 3D documentation.) Do **not** include any code in your answer.

Write using your **own** words; do not just copy and paste the documentation. I do not deduct marks for poor English, but I do deduct marks for copying.

Notes

1. Hand in a **hard copy** of your report. Do **not** submit an electronic version to the Virtual Classroom.
2. Illustrate your answers to each exercise with *small* screen shots, where possible.
3. Do **not** copy the entire Checkers3D program into your exercise answers. Only include the methods and other code which you have *changed*.
4. Properly indent (tab) your code. Use two spaces to indent, not the tab key.
5. Document your code.
6. Do **not** write out the lab sheet text or Exercise questions (I know those already). I only want your answers.