

CIS 410/510: User Interface Programming

Programming Exercise #1

Understanding More about Java

Due February 4 2008 2:00pm

Purpose: The goal of this assignment is to understand more about interactive programming software through Java. Chapter 5 of the Olsen book, *Developing User Interfaces*, explains the basics of model-view-controller.

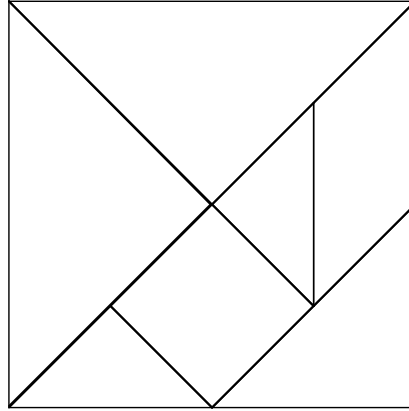
1. Write a Java program that implements a version of the Chinese game of Tangrams for one player. (See attached description.)
2. For your Tangrams program, describe the classes that support the functional model and the view/controller classes. Use the same level of detail as is done in your book--just a brief description of objects, attributes and methods. (See chapter 5 of Olsen.)
3. For one interactive task of your Tangrams program, describe the sequence of events that occurs when the first user input event is activated. See Olsen 5.2.3 (page 138 to 143). Try to choose a somewhat complicated task, if you can. Focus on the events generated by user actions and the object methods that are called on to handle them.
4. Describe the parent notification process that might occur through the Java AWT class structure as the events are processed in question 3 above. See Olsen 4.5.2 (pages 124 to 126) and Olsen 5.3.2 to 5.3.3 (pages 144 to 146).
5. *The Reflective Practitioner.* Write a one-page discussion of what problems you have had learning and working with Java. Try to focus on issues that make interactive programming difficult. For example, has it been easy to find the right widget classes for what you want to do? Has it been especially difficult making the widgets communicate? Why is it difficult to debug an event-driven program?

Turn-in your written answers to Questions 2-5, the path to your Java source program and executables on the CIS computers, and the version of Java you are using. All of your Java code (.java & .class) must be world-readable, and the directory that contains your java code must be world-executable. (You can set this the day you hand

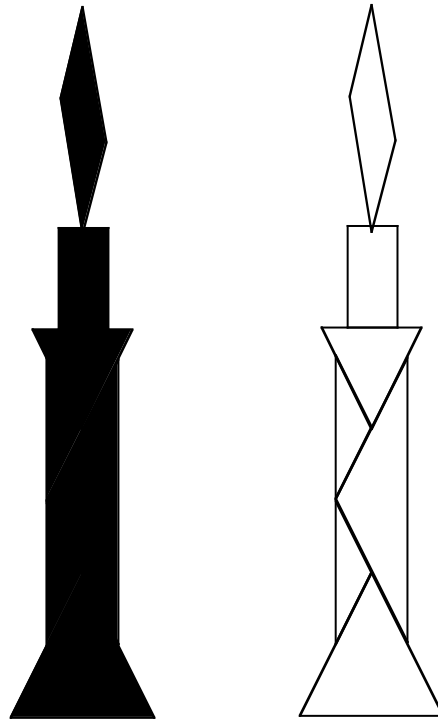
it in to me.) Please be sure your program will run on the CIS system
(Java version 1.5.0_8)

Tangrams

An ancient Chinese puzzle, called a tangram, consists of 7 pieces which are cut from a square. The 7 pieces consist of the following:



These pieces are used to construct many thousands of different pictures of geometric shapes, human figures, animals and everyday common objects. Such as the candle below:



PUZZLE PICTURE

SOLUTION

How to play Tangrams:

- For one, two persons or team play
- One set of 7 puzzle pieces are given to each player or team.
- Choose a picture from the set of pictures.
- Using all 7 puzzle pieces, duplicate EXACTLY the form shown in the puzzle picture. (Note: Some pictures may have more than one solution.)
- The first person or team completing the picture gets a point.
- Players may also play against a set time limit.
- If the puzzle can't be solved, players look at the solution.