

# ESc101 Laboratory Assignment

## Wednesday of Week of 23/8/04

August 21, 2004

## 1 Mirror Image

### 1.1 Problem

Write a program with 2 classes Image and Director. The aim is to take in the position and orientation of a One-Eyed-Monster (OEM) and find its mirror image due to 4 mirror walls, see the figure.

The mirrors are on lines  $x=200$ ,  $y=200$ ,  $x=400$ ,  $y=400$ , forming a 200X200 square room.

### 1.2 Image Class

It would be used to draw an image of an OEM. The class would have 3 data variables :

*xPosition*, *yPosition* : The co-ordinates of the center of OEM.

*Angle (Alpha)*: Direction in which the image is looking. It is given by the angular bisector of the angle of the eye. Alpha is the angle, in degrees, made by the bisector with the positive x-axis.

The sides of the OEM square should be 20.

The Image class would have 4 methods:

*setX*, *setY*, *setAlpha* :To set the values of the variables.

*draw*: To draw the image using a Graphics object which will be received as an argument.

**Note** See program Clown.java in the "sample programs" in the webpage to learn how to draw shapes using a Graphics object.

### 1.3 Director Class

This class would have only one method, namely, *main*. The function of *main* would be to

- 1) Take the position and orientation of the OEM as input from the user.
- 2) Compute the positions and the orientations of the images.
- 3) Create a Graphics object.
- 4) Instantiate objects of class Image. Draw the 5 images on screen.

