

Software Workshop – Exercises

3 November 2015

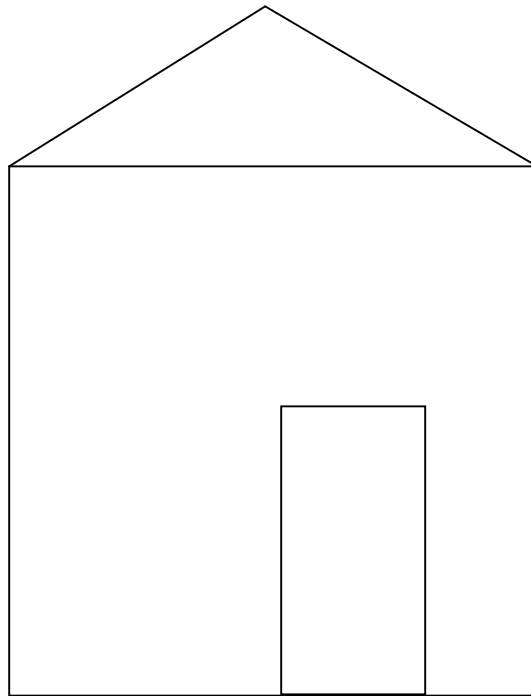
Submissions must be made using Canvas, in the following format.

SUBMISSIONS NOT COMPLYING WITH THESE GUIDELINES WILL HAVE 2 MARKS DEDUCTED.

Uploaded file must be: studentid.zip
in the zip format. Rar or tar.gz will not be accepted.

Archive must contain: House.java, HouseComponent.java, StreetComponent.java and HouseTest.java

All submissions must be made by midnight Sunday. Submissions after this time **WILL NOT BE MARKED** and will receive **ZERO**.



Question 1 [8 marks]

Create a class **House** to represent a drawing of a house. It should use a square to represent the building, two lines to give a roof and a rectangle for a door (see picture). You can add other things if you want. The house should have a location (given by x and y coordinates) and a size (the width of the house). Write a **draw** method that will draw the house onto a **Graphics2D** object.

- (a) Writing the constructor [4 marks]
- (b) Writing the **draw** method [4 marks]

Challenge Add windows, chimney, doorknob etc.

Question 2 [8 marks]

Create a class **HouseComponent** that has a **House** object as a data field. The constructor should create this house at a particular place, with a particular width. The **paintComponent** method should draw the house. Write a class **HouseTest** which creates a **JFrame** and places the **HouseComponent** on it.

- (a) Writing **HouseComponent** [4 marks]
- (b) Writing **HouseTest** [4 marks]

Question 3 [8 marks]

Create a class **StreetComponent** that contains an array of **House** objects, appropriately spaced apart. The number of houses can be given as a parameter to the constructor. Write the **paintComponent** method to display all the houses. Test this in **HouseTest**.

- (a) Constructor and data fields [4 marks]
- (b) **paintComponent** method [4 marks]

Challenge Give each house a number which should be marked on the door.