1 Theory

a) We can interact with a program through the console if we want the program to ask what actions should be taken and the user answers, through a graphic interface if we want the user to decide which actions should be taken or through a multimodal interface if the input comes from multimedia agents.

b) In the GUI the user can chose in which order the actions should happen while in a CLI the programs decide the sequence of event and waits each time for the user's answer.

c) java.awt, javax.swing, javafx. The best one is javax.swing because it's the most versatile and works better with every major OS.

d) Since the Model, View, Controllers parts are separated, it is easier to work on each one separately or even in a group with a person on each part.

e) JFrame, JMenu, JLabeL, JTextField, JList

f) JButton, JSlider, JCheckBox

g) EventListener is a method which must be associated with the interactive components in order to react in a certain way when an event happens(mouse clicked, key released etc.)

h) We must add an ActionListener with the method addActionListener which takes a listener object as argument, which in turn should have a method that dictates what should happen.

i) It's a class declared within another class. It can be static, in which case it is linked to the class instead of an object.

j) An anonymous class is a class which is declared only in an other's class method that uses it. They are practical when implementing an EventListener.

3 Debugging

b) This program is not conformed to the Swing specifications. It is not assured that the AWT initialization will be done in time due to the multi-thread architecture of AWT/Swing.

d) The ActionListener is directly define in the argument of addActionListener.
The arrow is udes to define a lambda function. It is a function defined inside a paramter.
The parameter is one the left side and the body of the function is on the right side.