

Tania Edith García Velasco 362184

David García Olivares 362118

## **Assignment 4**

1. Compare and contrast the use of (Java) event listeners to standard callbacks in C.

When a callback is executed it calls a function that works in a sense of “If receive a click then perform a task”. A listener event on the other hand is executed when an event happens and instead of calling a function it returns an event type *e*, with this event the programmer associates a handler and it is this handler who performs the task related to that event. So when for example a click is performed, it works in a sense of “If receive a click, return the data regarding the click (position and other data relevant to the event), and then programmer then should/associate a routine to handle this event and given data”.

### **The Toolkit**

Regarding last assignment we made corrections on the code regarding the separation of tasks between WS and WM. No more inheritance from WS in WM. Also updated dragging so that it takes the position of the click as a reference and not the upper left corner. For the toolkit we followed the hierarchy suggested: *RATwidget* > *RATlabel* > *RATbutton*, with the last one implementing *RATmouseListener*. No layout management is used the programmer is the one that does it manually.

### **HelloWorldGraphical Revisited and Expert Task (Calculator)**

In both tasks, we create an object either of type *HelloWorldGraphical* or *Calculator* and from there we create a simple window that is added to our desktop and our *windowSystem*.