Week 8 – Visual/GUI
- Using a very simple system, look at some of the ideas involved in using Graphical User Interfaces
- Basis of this will be a simplified Java approach

Problem
- To produce a kilometre to miles converter

Analysis
- Input
  - The number of kilometres
  - Question: What form of numbers do we need here
    - Floating point numbers
    - Integers

- Output
  - Miles
- Calculation
  - Miles=kilometres/1.6

Do we need anything else?
- Yes, we need a button that when it is pressed the conversion happens.
During development when a particular button or box is clicked we go to the specific part of the program to deal with the item.

**Difficulties**
- For our simplified system there is no box for reading in from the keyboard or displaying floating point numbers on the screen.
- They only have box’s for text.
- What do you do?

The system includes commands to convert text into numbers and vice-versa
- ConTextFloat – Text to Floating point.
- ConFloatText – Floating point to Text

Instruction to read-in text in specific text box
- Textbox1.getText()

Instructions to display text in a specific
- Textbox2.setText()

How do we make it do something?
- We know which is our input box (e.g. textbox2)
- We know which is our output box (e.g. textbox1)

It is the button convert that when pressed that leads to the conversion being carried out so we need to put our code in the part of the program that deals with what happens when the button is pressed.
Button_pressed
Kilo_text=textbox2.getText();
kilo=ConTextFloat( Kilo_text);
miles=kilo/1.6;
result=ConFloatText(miles);
textbox1.setText(result);

Part of a Java program
private void
jButton1ActionPerformed(java.awt.event.ActionEvent 
evt)
{
    double kilo, miles, rate;
    String result;
    rate=1.6;
    kilo=Double.parseDouble(jTextField2.getText());
    miles=kilo/rate;
    result=String.valueOf(miles);
    jTextField1.setText(result);
}

Test data
- Enter 16 kilometres should get 10 miles
- Entered the letter a program did not carry out a conversion.

Example

Problem 7.1
- Do a similar routine for converting Fahrenheit into centigrade.

Summary
- We can follow the same methodology we have met so far to solve problem using graphical interfaces.