

# HCI & GUI Programming Introduction

Alex Cronin

[alex.cronin@griffith.ie](mailto:alex.cronin@griffith.ie)

# HCI & GUI Programming

- What is this module about?
  - Two separate topics
  - First:
    - What is a GUI?
    - How do they work?
    - How do we program them to interact with users?
  - Second:
    - What is HCI?
    - Why is it closely linked to GUIs?
    - How it affects the design of GUIs?

# Definitions of GUI and HCI

- HCI – Human Computer Interaction
  - “a discipline concerned with the design, evaluation, and implementation of interactive computing systems for human use, and with the study of major phenomena surrounding them” - ACM
- GUI – Graphical User Interface
  - “A software interface designed to standardize and simplify the use of computer programs, as by using a mouse to manipulate text and images on a display screen featuring icons, windows, and menus”

# What I intend to do and cover in this course.

- In this course I will cover three main topics
  - The general theory and design of GUI programs and libraries (lectures)
  - The programming of GUI applications (labs)
  - Some HCI principles and related psychological work (lectures)

# GUIs

- The entire purpose of a GUI is to simplify the life of a user.
- As such all good GUIs possess a common set of traits.
- What are they?

# GUIs

- Responsive: react almost immediately
- Intuitive: don't need a manual to use it
- Clear: there is no ambiguity about what the application will do.
- Informative: the application will tell you what it is doing.
- Forgiving: if you make a mistake the GUI will help you recover from it

# GUIs

- To a user and a developer a GUI consists of a single window and a selection of different controls
  - The GUI will only perform an action when the state of one of those controls has been altered by a user.
  - A GUI can therefore run indefinitely until either the host crashes or the user asks for it to be terminated.

# GUIs

- From a programming perspective GUI's are entirely different to what you have programmed so far.
  - You are used to a model of programming where you start a main method in a program and that main method will run until it reaches the end of its code
  - At which point it will terminate and return control to the operating system.



# GUIs

- This does not work for a GUI as it must run indefinitely.
  - Instead of the model you as used to programming in we will use something called the event driven model instead.
  - Will be covered in the next lecture.