Webinar 10A – Intro to Polymorphism

# Learning Objectives

* Become familiar with the concept of Polymorphism
* Realise the benefits of Polymorphism and how it can be used to simplify our programs

# Preparation

We’ll use **Processing** for this webinar and then go over to **IntelliJ** in the lab to get different perspectives on using **Polymorphism** in our programs. The lecture will provide a detailed overview of Polymorphism and the benefits it can provide us. This webinar will be a gentle introduction to the topic

# Part 1 – Polymorphism Demo

I’ll begin by giving a visual demonstration of what Polymorphism is, using animated shapes in PowerPoint.

Inheritance and Polymorphism are closely related topics. Polymorphism is all about **treating objects of different types (classes) as if they are the same type** – provided those objects are of classes that share a common superclass.

# Part 2 – Shapes Inheritance Hierarchy

If you completed exercise 3 of the lab last week, you will be familiar with the Shapes inheritance hierarchy we defined (depicted in Figure 1). One thing you may have noticed in this exercise is the amount of duplication we have. Although you used inheritance to reduce the code duplication across the different classes, there is still quite a bit of duplication in the main tab, where we are going through the same steps of creating the different objects, and then having multiple loops to iterate over the different arrays.

**Download InheritanceShapes.zip** and be ready to code along with me. We’ll be refactoring the existing code to make use of Polymorphism.

Diagram

Description automatically generated

Figure Shapes Inheritance Hierarchy