Week 3, Lab B – Polymorphism

# Lab Intro & Prep

This part of the lab will involve further refactoring of our code by creating a polymorphic array of *shapes*, which is capable of storing references to different *types* of shapes (e.g. **Star**, **Circle**, or **Square**)

## Learning Objectives

1. Develop extensible programs that exhibit polymorphism

# Exercise 1 – Refactoring for Polymorphism

We will now refactor our code to realise the benefits of polymorphism.

1. Remove the arrays of **circles, stars**, and **squares** at the top of the code and replace them with an array of shapes:

Shape[] shapes = new Shape[150];

1. Remove the three loops within the setup procedure that populated the different arrays. You can replace this with one loop to iterate through the shapes array and populate this array with *any* shape (circle, star, square).
2. Generate a random number (e.g. 1-3) and set the current array element to be a **star** object if the random number is 1, a **circle** if the number is 2, or a **square** if the number is 3
3. In the draw procedure, remove the loops that previously iterated through the three arrays, and replace with one loop that iterates through the shapes array, calling the current shape’s update method