# Lecture 1: Introduction

**Stages**

1. Decomposition: Breaking down the problem into sub-components.
2. Pattern Recognition: Identify patterns that appear in the domain.
3. Pattern Generalisation: Applying identified patterns to a wider range of scenarios.
4. Algorithm Development: Step by step process to achieve a result.
5. Testing: Learning from the outcome to modify the process or even the understanding of the process.

**Search Techniques:**

* Random search sometimes known as visual inspection
* Linear search which systematically eliminates items
* Binary search which requires ordered/sorted data
  + Data needs to be sorted first
  + The equation is carried out