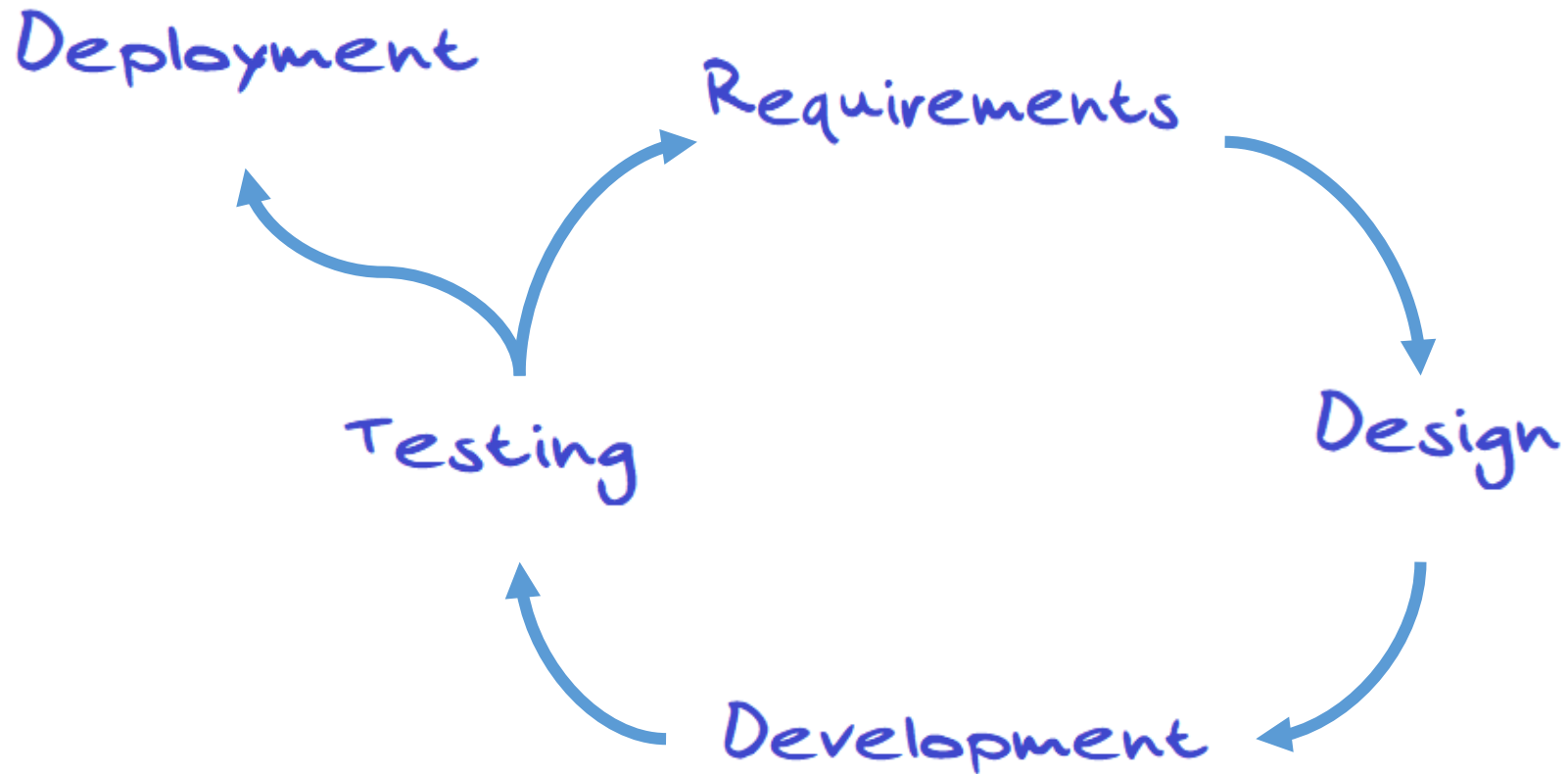


Software Development Life- Cycle and Requirements Analysis

Software Development

- The process of creating software
 - Complex process
 - Many parties involved
 - Not only the implementation of code

Basic Software Development Life-Cycle



Project Conception

- Where the project is roughly theorised
- Vague ideas and concepts proposed
- Fielding of ideas

Requirements Gathering

- Gathering of features and functions for the project
 - Unstructured Interviews
 - Formal Interviews
 - Lists
 - Accidents
- Arguably the most important stage

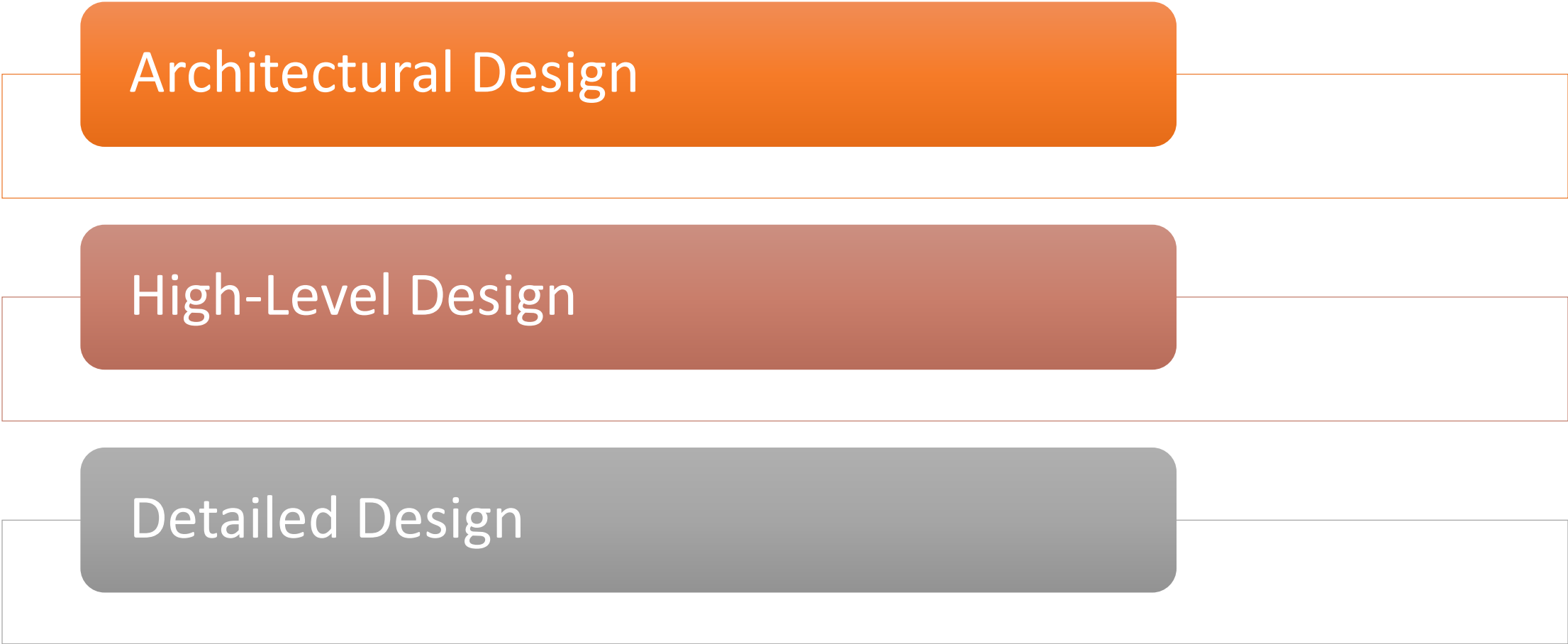
Requirements Analysis

- Flesh out the requirements
- Categorisation of the requirements
- Delegation of responsibility
- Priority Attribution

Software Requirements Specification

- Project document outlining findings from the requirements gathering and analysis stage
- Includes constraints and considerations
- Should include documentation relating to the responsibilities of each party within the project

Software Design



Architectural Design

High-Level Design

Detailed Design

Architectural Design

- Largely abstracted
 - Shows the system from the conceptual perspective, largely moulded on the requirements
 - Not concerned with technical granular details
 - Roughly identifies the different areas of the system
 - Highlights some of the issues with the gathered requirements

High-Level Design

- Devolves the system as a whole into sub systems
- Allows for modularisation and delegation to occur
- Highlights relational issues between modules if not specified within the requirements documentation

Detailed Design

- Consideration of implications of technology
- Context of interfaces
- Design changes of such impacting interfaces

Implementation Process

- Where the software is actually constructed based upon the prior planning stages
- The choice of language and technologies may have been stipulated before this stage if specific technologies are specified.

Project Testing Process

- The process of testing the software
 - Unit Testing
 - Collaboration Testing
 - Module Testing
 - GUI Testing
- Bug reports

Documentation and Accountability

- Record of responsibility
- Agreement between the client and yourselves
- Legal requirement for government projects

What is AGILE ?

- A seemingly lengthy document
 - Specification of a less tedious mundane way of developing software
 - There is a manifesto (Not necessarily a political one)
- http://scholar.google.co.uk/scholar_url?url=https://moodle2016-17.ua.es/moodle/pluginfile.php/80324/mod_resource/content/2/agile-manifesto.pdf&hl=en&sa=X&scisig=AAGBfm0MIFnsajwZLlnGKtolPxdVoy-LhA&nossl=1&oi=scholar

Agile Development Ethos

- Concerned with Individuals and Interactions
 - The people performing tasks with the software
- Completion of working software elements
 - Limited documentation initially
- Collaboration between client and development team
 - Limitation of contract negotiation
- Adaptation
 - Response to changing requirements

Agile main goals

- Focused on customer satisfaction
- Fluid requirements
- Frequent delivery of working software
- Collaborative efforts
- Support and motivation for projects
- Face-to-face interaction
- Working software is the measure of progress
- Sustainable Development

Iterative or Incremental ?

- Iterative –
 - Repetitive process, same steps are repeated continually to achieve goal
- Incremental –
 - Additive process, goal is achieved by completion of stages
- What type of process is the traditional approach to software development ?
 - Incremental
- What type of process does the Agile approach adopt ?
 - Both

Contrasts

- Requirements gathering is performed by collecting “user stories”
- Design, development and testing is a continuous process
- Smaller development cycles, focusing upon completing a working software artefact upon culmination