

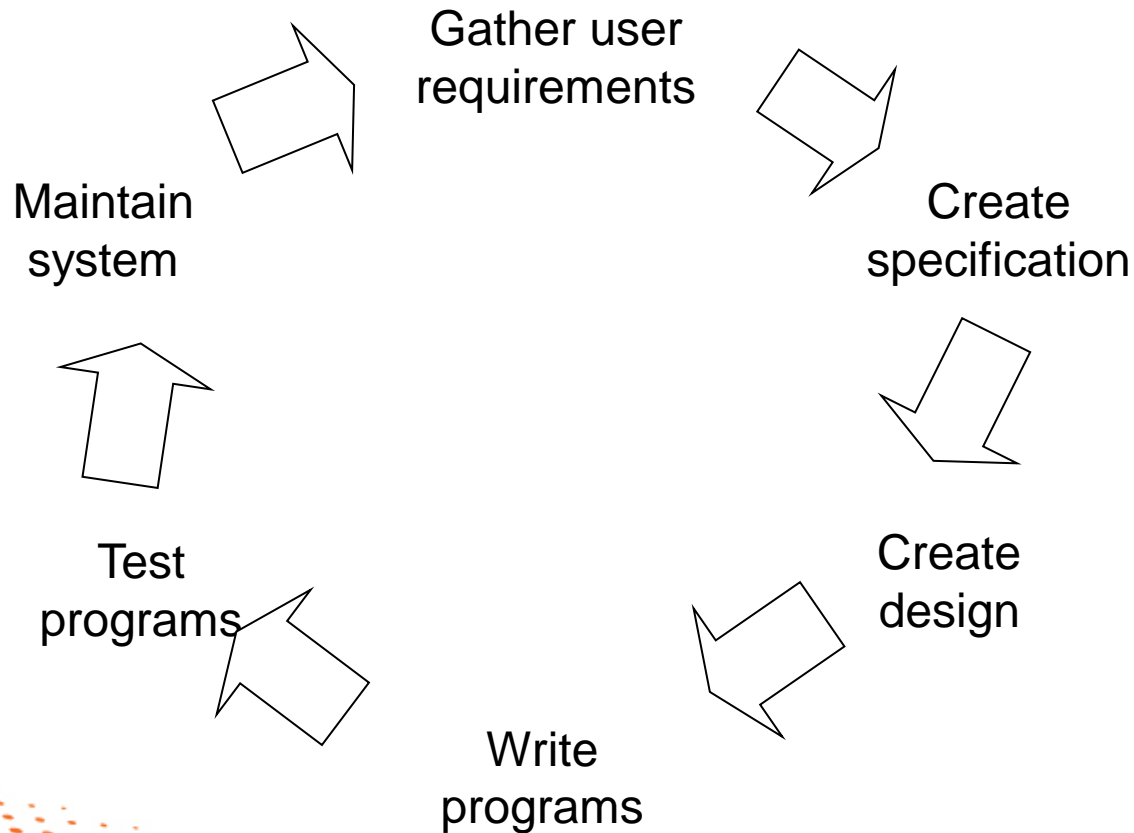
Unit 6 Software design and development

Software development lifecycle

Software development

- Like many complex tasks, software development can be broken down into a number of stages.
- Known as a life **cycle** because the development of new versions of software often starts soon after the completion of the current version.
- Therefore software development can be a continuous cyclical process.

Software development lifecycle



Gathering user requirements

- What is the scope of the system, what will it do and what won't it do?
- What are the aims of the system? What problems will it solve?
- How does the current system that will be replaced work?
- What other systems will it interface with?

Create specification

- This document will formalise the user requirements.
- It lists in detail what the program will do.
- The specification is agreed by the users or the people who will pay for the software to be developed.

Design

- The design defines in technical terms how the program will work.
- It may use a number of graphical design tools to define how the program will be split up into modules or procedures and how these will interact.
- The design defines the user interface, processing and data requirements.

Write programs

- Using the design created at the previous stage, the programs or procedures are now written.
- Writing programs is sometimes called coding.
- On a large development project a team of programmers may be involved.
- Each programmer works on a different procedure or module within the system.

Testing

- As the programs or modules are completed they are tested to ensure that they work correctly.
- At first individual modules are tested, then the modules are put together to form a larger part of the system and **integration testing** is done.
- The users may require certain tests to be passed before they accept the completed system. These are called **acceptance tests**.

Maintain

Once the system is complete and has been accepted by the users it enters the maintenance phase.

This involves:

- correcting any bugs that come to light once the system is in use
- making minor changes or updates that may be required.

The new version

- Once the system is in use, enhancements, additions and improvements will often be identified.
- These form the basis of a new version of the software.
- With a new version of the system the software development lifecycle stages start over again.