

Unit 6 Software design and development

Choosing a language

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- When a new program is to be developed one of the decisions that must be made is **which language** to use.
- It is an important decision that must be made at the start of the project.
- It cannot easily be changed at a later date.
- There are a number of issues which will influence that choice.

Organisational policy

Many companies will have a **policy** to use a particular language.

This might be for a number of reasons:

- Consistency
- Existing knowledge in the company
- Relationship with a particular supplier (e.g. Microsoft).

Suitability

Some programming languages are better suited to particular hardware and/or software environments. For example:

- For programming in Windows, languages like Visual Basic are well suited.
- For web based programming, languages like Java are a good choice.

Availability of trained staff

- Choosing a popular programming language will make it much easier to recruit programmers who know that language.
- It maybe that the company already has programmers trained in a particular language from a previous project.

Reliability

- Some programming languages are designed for applications where reliability is very important. For example:
 - military systems
 - industrial control (e.g. a nuclear reactor)
 - aircraft control systems.
- Languages like Ada are well suited to these types of applications.

Development and maintenance costs

- The cost of developing a new software system can be quite high.
- Some languages or software development approaches are designed to allow programmes to be developed more quickly than traditional approaches.
- The ease with which software can be updated and modified once it has been completed is also a consideration.

Expandability

- Some programs may only be used by one user at a time.
- Other programs may need to support hundreds or even thousands of users at the same time (e.g. credit card transaction software).
- Some software systems are better suited to multi-user applications.
- For example, Microsoft Access is a single user data base system. To create a multi-user database system software such as Microsoft SQL server should be used.