Factors influencing choice of programming language

Organisational Policy

Many companies that produce software are sponsored by a company, such as Microsoft.

Often they will have a contract with their sponsor stating they must use software or hardware provided by their sponsor.

The hardware/software may only support certain programming languages.

For example, a company sponsored by Microsoft may have to use Visual Studio for programming, which doesn't support the Ada programming language – but it does support C#, C++ and Visual Basic.

Suitability

Some programming languages are better suited to certain problems.

For example, the C family of programming languages is fast and runs on a wide range of hardware – but is near useless if you want to create a web page. HTML would be a better choice.

Ada is designed to be very reliable, and is used in auto-pilot and missile guidance systems – but it is not an easy language for beginner programmers to learn.

Python, with its simple syntax and procedural nature make it better suited to teaching programming.

Availability of trained staff

The programmers working for a company may be skilled in one or a few languages, but not be skilled in another language.

Therefore, if no new staff are available, the choice of programming languages will be limited to the ones the programmers know.

Also, it is easier to recruit employees who know a popular language than recruit staff that know a less common one.

Reliability

Some programming languages are more reliable than others.

This is very important for critical software, such as the fly-by-wire software of a Boeing 747, or the software that banks use to handle transactions.

Ada is a very reliable programming language, and is often used by the military for weapons systems.

Development/maintenance costs

Some programs are easier to maintain than others. For example, a simple calculator application written in visual basic should continue working as long as the hardware and operating system it runs on are stable.

However, some larger-scale applications – such as an operating system – need regular updates to fix security issues, add new features and ensure compatibility with new software.

Some programming languages have features that make it easier to update programs written with them.

Expandability

Some applications start small and then get bigger as they become more popular.

A good example of this is Ello – a social networking site launched in march 2014. Prior to launch, it was a private small-scale network, for use between just seven graphic designers. Upon release to the public, it had to scale up to serve thousands of users almost overnight.

Many web services use PHP, which allows new hardware to be added to an existing system easily.

Summary

Things to consider when choosing a programming language are:

- Organisational software – what programming languages are allowed?
- Suitability – is the programming language suitable for the problem?
- Staff – do the employees know the language?
- Reliability – will he resulting program be reliable and stable?
- Maintenance costs – how expensive will it be to develop and update the software?
- Expandability – does the programming language allow the application to be scaled up?