**Main Concepts:**

1. **Abstraction:**

Abstraction is concerned with hiding the implementation or details of a class from the user or programmer (Lecturecasts, 2023).

Abstraction provides several benefits:

* It encourages developers to follow good Object-Oriented Programming (OOP) style by using invocation (i.e. calling published methods) rather than inspection (analysing the class and trying to access or modify private methods).
* It makes it easier to implement changes to the class (if required) without affecting calling classes.
* It provides the ability for third parties to supply ‘closed-source’ solutions that other developers can access without needing to know proprietary information.

1. **Encapsulation:**

Encapsulation is a way to restrict the direct access to some components of an object, so users cannot access state values for all of the variables of a particular object. Encapsulation can be used to hide both data members and data functions or methods associated with an instantiated class or object (Sumo logic, n.d.).

1. **Garbage Collection:**

Garbage collection is a method of memory management. In earlier programming languages such as C, memory could be dynamically requested from and released back to the operating system using the commands malloc, calloc and free. The memory was usually taken from an area known as the heap that is reserved by the operating system for such uses. However, the use of these commands could lead to various issues including memory leaks and even program crashes on occasion. It could also be used to create or exploit system vulnerabilities (Lecturecasts, 2023).

1. **Pointers:**

Pointers are a language construct that hail from older system languages such as C. In such lower level languages pointers were used for fast copying of data and direct access to RAM. They were also the cause of many application issues such as memory leaks, crashes and security incidents (Lecturecasts, 2023).

1. **Polymorphism:**

Polymorphism In its most basic form allows child classes to have methods with the same name as their parent classes. First main concept is method overriding. This means, that the output will be determined at runtime and is dependent on the object call. Unlike the previous concept, the method overloading determines the method used during compile time (Lecturecasts, 2023).

References:

Sumo logic. (n.d.). DevOps and Security Glossary Terms. Available from: <https://www.sumologic.com/glossary/encapsulation/> [Accessed 30 May 2023]

University of Essex Online. (2023). Lecturecasts [Accessed 30 May 2023]