Languages with & without garbage collection

Many modern and popular programming languages use garbage collection as a feature or a option, such as :

* **Java**: Uses an automatic garbage collector to manage memory.
* **C#**: .NET framework includes a garbage collector.
* **Python**: Uses reference counting and garbage collection to manage memory.
* **JavaScript**: Browsers and Node.js handle memory management with garbage collection.
* **Ruby**: Includes a garbage collector to manage memory automatically.
* **Go**: Has built-in garbage collection.
* **PHP**: Uses a reference-counting garbage collection mechanism.
* **Swift**: Uses Automatic Reference Counting (ARC), which is a form of garbage collection.
* **Objective-C**: Uses ARC for garbage collection.
* **Kotlin**: Runs on the JVM and uses its garbage collection.

These languages offer different levels of control and customization over the garbage collection process, such as setting the parameters, choosing the algorithm, or triggering the collection manually.

Some languages, such as:

* **C**: Requires manual memory management.
* **C++**: Requires manual memory management, though smart pointers and RAII can help.
* **Rust**: Uses a unique ownership model with borrowing and lifetimes to manage memory safely without garbage collection.
* **Assembly Language**: No garbage collection, manual memory management is required.

do not have built-in garbage collection, but allow the programmers to use external libraries or tools to implement it.