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In programming, a paradigm is a way to classify different programming languages based on their features. A language can then be further classified into multiple paradigms. Each paradigm consists of certain structures, features and syntax styles that distinguish them from other high-level programming languages. For this final project, I've decided to compare different programming paradigms between C++ and Python. I will explore the details of parameter passing, recursion and garbage collection.

In C++, call by value can be defined as making a change to a parameter and these changes are not returned back to the initial caller. Any changes to the parameter variable inside a method will only impact the separate storage location and will not be reflected on the actual parameter we are calling. Python does not support pass by value or pass by reference. Instead, python's argument passing is passed by object reference. All data types in Python are objects,so when you are passing parameters, new and existing variables will point to the same object.

Recursion is a very important feature in any high-level programming language. For the most part, recursion and recursive functions are very similar in C++ and Python. There are minor syntax differences between them, but the outcome is the same.

In C++, memory management is manual. C++ does not support automatic garbage collection of memory. The programmer must be mindful of how memory is stored, accessed and handled to avoid memory leaks. Python, however, has an automatic feature of garbage collection and its memory management is system-controlled.