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**De La Salle University • College of Computer Studies**

**Synchronization Problems**

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| --- | --- | --- | --- | --- |
|  | **Type Binding** | **Scope** | **Address** | **Lifetime** |
| **C++** | Explicit  Static |  |  |  |
| **C#** | Implicit  Static |  |  |  |
| **Python** | Implicit  Static |  |  |  |
| **Javascript** | Implicit  Dynamic | Static scoping | * Most variables have a static address. * Variables declared in functions have a stack address, unless they share a name with a global variable, then they have static address. * Undeclared variables that are used have static address. | * Function scope variables die when the function dies. * Global variables last until the lifetime of the document. |
| **Scala** | Explicit or Implicit  Static | Static Scoping | * Fields exist inside an object and can be accessed from outside if public. Since objects are dynamic, these fields come from the heap. * Method parameters exist inside the method they are declared in and have stack addressing. * Local variables exist inside the method they are declared and have stack addressing. | * Fields die when the object is collected by the garbage collector. * Method parameters and local variables die after the function is finished executing. |