Visual Basic Summary
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CS 430 Programming Languages

Visual Basic is a programming language that was developed and introduced in 1991 by a man named Alan Cooper and was further developed under contract to Microsoft. Its original purpose was to connect a programming language into a user interface. Over the course of 15 years, Visual Basic evolved through 6 different versions, and eventually followed the .NET framework from Microsoft to create VB.NET. It is generally considered a good language for beginner programmers because it is easy to learn and implement; however, it can create any complex program that can be written in C or C++. It was intentionally made easy to implement by Microsoft for programmers to develop windows software. Visual basic is also often used to create computer games. Since Visual basic was created by Microsoft it has very well written and documented API's.

Visual Basic's syntax is intended for new programmers and is as close to spoken English as possible. The language is not case sensitive, the lines do not end with a semi-colon, and inline comments start with an apostrophe. Visual Basic both interprets and compiles code. First, the code is interpreted in the background by Microsoft Access. In order for an output to be generated, Microsoft Access must compile the interpreted code into what Microsoft calls pseudo-code. This process results in the code being run significantly faster than a normal interpreted language, but still has all the advantages of an interpreted language. This is very similar to how java runs its code.

Visual Basic has most of the common data types. These data types include: byte, integer, long, double, string, object, collection, date, and variant. To specify a data type, the programmer must use the "As" clause after the variable name, followed by the data type. The keyword "Dim" proceeds the variable name and it is required to allocate space for the variable. In updated versions of Visual Basic, almost all of its data types are bound at run time. Almost every data source can be bound to any data consumer. Both a data source and a data consumer are objects, either native to the language or user created. This means a user can convert nearly any data type. For this reason Visual basic has a strong type checking that can be turned off in the user prefers.

There are four major types of scope in Visual Basic. The first is block scope which refers to variables in a block of code, such as a loop, try/catch block or something along those lines. Next is procedure scope and it bounds variables to the procedure it is created in, such as a struct or sub. There is also module scope, which binds code to the class it was created in and is defaulted to private. Finally, there is namespace scope used with the keyword "friend" or "public". This binds code to its namespace. If a variable or method is labeled public, it can be referenced by anything. However, if it is labeled "friend" it can only be referenced by code that has that "friend" modifier.

Visual Basic's uses subprograms called subs that are very similar to functions in C. Subs begin "Sub" and end with a return statement, an "Exit Sub" statement, or an "End Sub" statement. Sub default to public and can be placed in any class or struct. Users can also pass parameters into sub. Visual Basic provides the user with the option to pass an argument to a procedure by value using the "ByVal" keyword or by reference using the "ByRef" keyword in the procedure call. The procedure being passed the variable cannot change the variable or any of its members when passed by value. In a pass by reference, the procedure can change the variable and its members.

In summary, Visual Basic is easy to learn for new programmers. Being owned by Microsoft, the programming language has a large amount of documentation. As a programming language, Visual Basic often is seen as being too simplistic and users may have difficulty transferring programs from Windows to other operating systems. However, its simplicity allows for increased software development for the Windows OS.