

Scripting Languages G22.3033-002 Summer 2008 quiz1

Thursday 6/5/2008. 30 points.

<http://www.cs.nyu.edu/courses/summer08/G22.3033-002/>

Quiz 1 problems.

quiz1-1 Gradual typing

(10 points) Add explicit type annotations to the following VBA module.

```
Function geometricMean(arr())
    geometricMean = 1
    For i = LBound(arr) To UBound(arr)
        geometricMean = geometricMean * arr(i)
    Next i
    n = 1 + UBound(arr) - LBound(arr)
    geometricMean = geometricMean ^ (1.0 / n)
End Function
Sub main()
    Dim A(1)
    A(0) = 1: A(1) = 2
    Debug.Print geometricMean(A)
End Sub
```

quiz1-2 Precedence and associativity

(10 points) Consider the following excerpt of Perl's operator table.

Operator	Arity	Associativity	Description
**	2	right	exponentiation
*	2	left	multiplication
=	2	right	assignment

Fully parenthesize the following expression: $x = y = 3 ** 3 ** 3 * 2$.

quiz1-3 Call-backs

(4+3+3 = 10 points)

- How are call-backs supported in VBA user forms?
- Give an advantage for this language design choice.
- Give a disadvantage for this language design choice.