Introducing the D programming language to Insurance

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What is D?
A Brief Overview

1. Static compiled language created in 2001 (D1)
   - Modernised more productive C/C++ style language
   - Created by Walter Bright
   - Joined by Andrei Alexandrescu in 2007
   - D2 released in 2007
2. Characteristic language features
   - Powerful template, compile-time, & metaprogramming features
   - Moto: "write fast, read fast, run fast"
   - Multi-paradigm non-prescriptive language
3. Tooling
   - Compilers: DMD (reference), LDC2 (LLVM), GDC (GCC)
   - Full C and good C++ compatibility, support for Fortran
   - Easy to use package manager (Dub)

Simple Example
Let's take a peek

```
1   enum isFloatingPoint(T) = is(T == float) || is(T == double) || is(T == real);

3   auto dot(T)(T[] x, T[] y)
    if(isFloatingPoint!T)
5   {
        import std.range: iota;
7       import std.parallelism: parallel, taskPool;

9       immutable n = x.length;
        auto sums = taskPool.workerLocalStorage(0.0L);
11      foreach(i; parallel(iota(n)))
        {
13          sums.get += x[i]*y[i];
        }
15      T result = 0;
        foreach(threadResult; sums.toRange)
17      {
            result += threadResult;
19      }
        return result;
21  }

23  unittest {
        double[] x = [1, 2, 3, 4, 5];
25      double[] y = [6, 7, 8, 9, 10];
        assert(dot(x, y) == 130);
27  }
```

1 More features

- Support for functional programming including @pure functions
- Support for @safe functions
- Memory safety
- Compiler & library support for SIMD

2 Resources

- Great book (free): "Programming in D" by Ali Çehreli
  http://ddili.org/ders/d.en/index.html
- D conference website http://dconf.org/
- Website https://www.dlang.org
- D Language forums https://forum.dlang.org/

Thank You