Introducing the D programming language to Insurance

Dr Chibisi Chima-Okereke, chibisi@active-analytics.com

Active Analytics Ltd.
www.active-analytics.com

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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

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

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

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

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

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More features

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

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