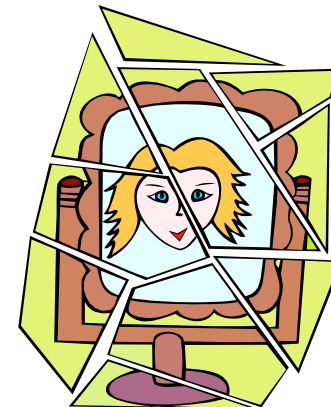


# Taking efficiency one step further – F#

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# Who's that Oliver Sturm guy, anyway?



I am

Interested in programming languages,  
databases and a whole bunch of other things

Microsoft MVP for C#

I do

Work for Developer Express as a Technical Evangelist  
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# Agenda



- What is F# and why is it interesting?
- Introduction – F# language elements
  - Values / mutability
  - Special data types: tuples and options
  - Functions and lambdas
  - Partial application and composition
  - List comprehensions
  - Match expressions
- OO and .NET compatibility

# What is F#?

- A .NET language with Visual Studio integration
- A hybrid language, supporting functional as well as imperative and OO paradigms
- Type safe
- Widely cross-compilable with Ocaml
- Scriptable
- F# is being “productized” for the next version of Visual Studio

# Why is F# interesting?

- Testbed for features we see in C# later
  - Past: Generics were introduced to .NET at the initiative of Don Syme
  - Past: LINQ has its roots in standard map/reduce/filter approaches
- Optimized syntax for FP allows easier combination of approaches
- Things that go beyond C# - metaprogramming, type inference, ...

# For whom is F# interesting?

- FP in general is good at calculating things – academics, financial sector, ...
- MS wants to drive VS adoption in technical computing markets and gain academic mindshare
- Big banks have been working on F# projects for a long time, some were waiting for the productization commitment
- Systems like Erlang show benefits of concurrency strategies that FP promotes
- F# as a multi-paradigm language can be interesting to everybody. In many ways it's simply a new more flexible alternative to other .NET languages.

# Introduction – F# language elements

Demo

# OO and .NET compatibility

- F# is a .NET programming language
- In some ways OO is more advanced than in C#, in others maybe less
  - Object Expressions, Object Interface Types, Partially Implemented Types, ...
  - Composition strategies for implementation hierarchies
  - Favors composition over inheritance
  - Of course “standard” OO mechanisms like implementation inheritance are also available



# OO and .NET compatibility

Demo

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# Summary



- F# is a great new language that combines paradigms to provide more choice
- Functional Programming is a strong focus
- Compatibility with the .NET Framework is also important
- Most important resources:
  - <http://research.microsoft.com/fsharp/>
  - <http://hubfs.com>
  - Foundations of F# by Robert Pickering (Apress)
  - Expert F# by Don Syme, Adam Granicz, Antonio Cisternino (Apress)

# Thank you



Please feel free to contact me about the  
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