

the dark side of .NET

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the dark side of .NET

- The problem(s) with R
- I'm deeply in love ~~with Excel~~
- I'm deeply in love ~~with COM~~
- XLL
 - flirting



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- R concentrates on data modelling and has a vast array of statistical functions that allow analysis and manipulation of data.
- R is less appropriate where the process of managing the data (for examples, interrupts, exception handling) is more difficult.
- R developers occasionally try to develop systems in R and it is particularly ill suited to this work.
- R is a vector-centric language and doesn't have the structures and interfaces needed for development of a complete system.



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- RdotNet
 - <http://rdotnet.codeplex.com>
- ExcelDNA
 - <http://exceldna.codeplex.com>
- FinAnSu
 - <http://code.google.com/p/finansu>
- Mock Quant
 - <http://mockquant.blogspot.com>



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- The DNA file:

```
<DnaLibrary RuntimeVersion="v4.0"  
  Name="R4Excel" Language="CS">  
  <ExternalLibrary Path="R4Excel.dll"  
    Pack="true" />  
  <ExternalLibrary Path="FinAnSu.dll"  
    Pack="true" />  
</DnaLibrary>
```



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It can all be in this:

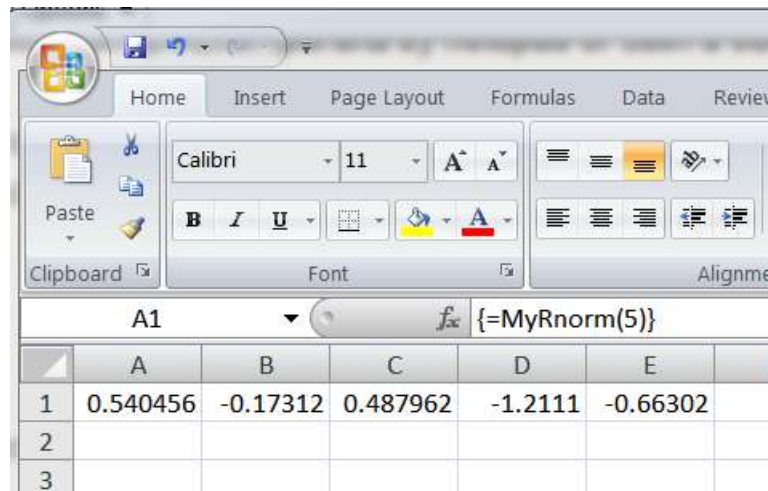
- `<DnaLibrary RuntimeVersion="v4.0" Name="My First XLL" Language="CS">`
- `<ExternalLibrary Path="R.NET.dll" />`
- `<Reference Name="R.NET" />`
- `<![CDATA[`
- `using System;`
- `using System.Collections.Generic;`
- `using System.Linq;`
- `using System.Text;`
- `using ExcelDna.Integration;`
- `using RDotNet;`
- `namespace CSLib`
- `{`
- `public class CSLib`
- `{`

- `static REngine engine = null;`
- `static CSLib()`
- `{`
- `// Set the folder in which R.dll locates.`
- `REngine.SetDllDirectory(@"C:\Program Files\R\R-2.13.0\bin\x386");`
- `engine = REngine.CreateInstance("RDotNet", new[] { "-q" });`
- `}`
- `[ExcelFunction(Description = "get random numbers obey to normal distribution")]`
- `public static double [] MyRnorm(int number)`
- `{`
- `return (engine.EagerEvaluate("rnorm(" + number + ")").AsNumeric().ToArray<double>());`
- `}`
- `}`
- `}`
- `]>`
- `</DnaLibrary>`



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- Demo 1



	A	B	C	D	E
1	0.540456	-0.17312	0.487962	-1.2111	-0.66302
2					
3					



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- This can be much richer –

LondonR.xlsx - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Developer Team FinAnSu

Quote Quote Web
History History Web
Web Import

Simple Complex
Options Options
Financial Instruments

Yield Curves
FRAs

Currencies Layout
Formatting

Colors
Other

Version Help About
Info

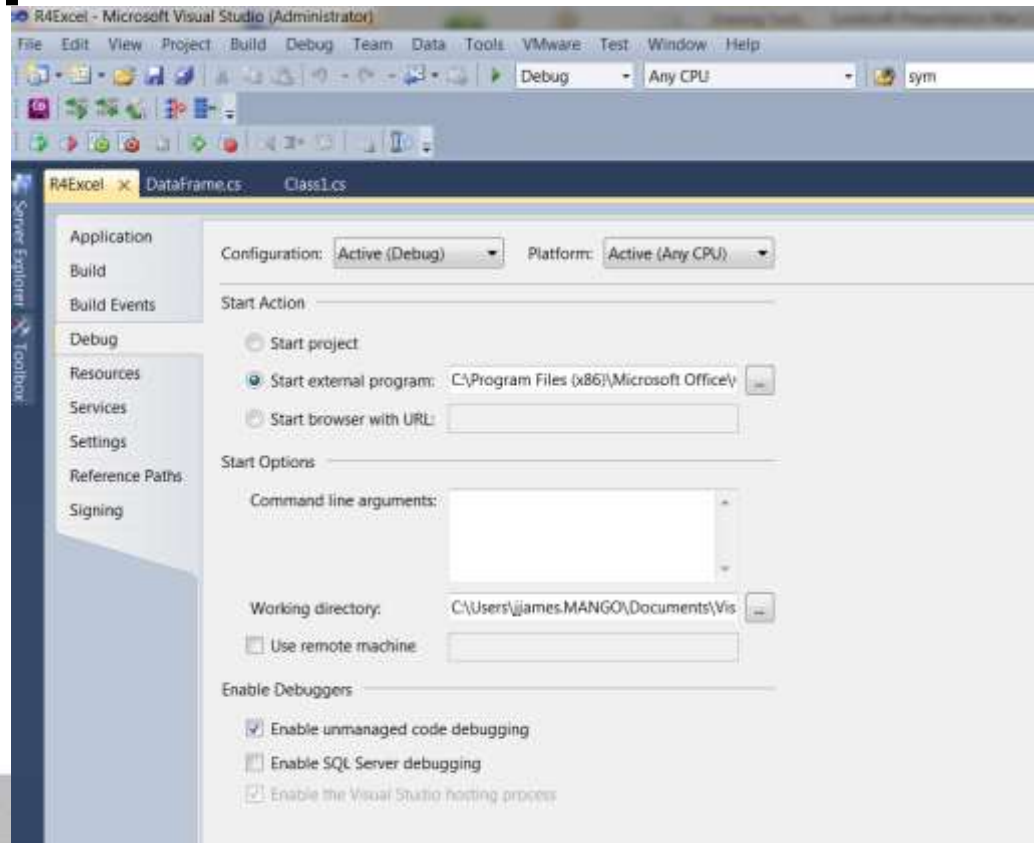
FIN AN SU
About

A6 {=QuoteHistory(\$A\$2, \$C\$2, \$D\$3, \$E\$3, \$G\$2, \$H\$2, TRUE, TRUE)}

	A	B	C	D	E	F	G	H	I	J	K
1	Romney Seeks Breakout Super Tuesday										
2	MSFT	31.58	g	1	9	2011	d	dohlcva		WFC	
3				01/09/2011	06/03/2012			dohlcva		MSFT	
4	Date										
5	Date	Open	High	Low	Close	Volume					
6	01/09/2011	26.46	26.86	26.21	26.21	60511548					
7	02/09/2011	25.78	26	25.66	25.8	43897065					
8	06/09/2011	25.2	25.59	25.11	25.51	54931986					
9	07/09/2011	25.69	26	25.57	26	41960917					
10	08/09/2011	26	26.66	25.95	26.22	65818212					
11	09/09/2011	26	26.18	25.5	25.74	64531339					
12	12/09/2011	25.44	25.93	25.27	25.89	55047244					
13	13/09/2011	25.92	26.18	25.81	26.04	48794446					

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- RdotNet Exposed



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- RdotNet Used...

The screenshot shows the Microsoft Excel interface. The ribbon is set to 'Home' and the 'Font' group is visible. The formula bar shows 'F9' and the formula cell contains '#N/A'. The spreadsheet shows a table with columns A-E and rows 1-10. Row 1: A=x<-1:5, B=5. Row 2: A=y<-x*x, B=25. Row 3: B=1. Row 4: B=4. Row 5: B=9. Row 6: B=16. Row 7: B=25. Row 8: B=#N/A. Row 9: B=#N/A. Row 10: B=#N/A.

	A	B	C	D	E
1	x<-1:5	5			
2	y<-x*x	25			
3		1			
4		4			
5		9			
6		16			
7		25			
8		#N/A			
9		#N/A			
10		#N/A			

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- Putting it together...

