



Development Essentials

22.12.2006

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Landor Systems

Team Meeting

- Past: Lessons learned
 - Writing unit tests
- Present
 - Continuous Integration
 - Developer's Environment
- Future
 - Personal Development and Career

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Lessons learned: Writing unit tests

- Code style and formatting
- Efficient unit tests
- Code coverage is not enough

Unit Test Code Metrics

- Methods per Class
- Calls per Method
- Statements per Method
- Average Depth
- Average Complexity

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Continuous Integration

- Why?
- What?
- How?

Integration Server

.NET Development
Continuous Integration Server

version : 1.1.0.2498

Dashboard

[Farm Report](#)
[Download CCTray](#)

Servers
[idocuments](#)
[Russia](#)

[Refresh status](#)

Server	Project Name	Last Build Status	Last Build Time	Last Build Label	CCNet Status	Activity	Messages	Admin
idocuments	Converter Server	Success	2006-12-18 01:35:34	4	Running	Sleeping		Secure
Russia	IDM1	Success	2006-12-21 22:41:07	2006.12.21.2	Running	Sleeping		Secure
idocuments	IDM1	Success	2006-12-21 16:42:12	443	Running	Sleeping		Secure

CCTray

File View

Project	Activity	Detail	Last Build Label	Last Build Time
IDM1	Sleeping	Next build check: 3:33:41	2006.12.21.2	21.12.2006 22:41...

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Developer's Environment

- Requirements
- Tools

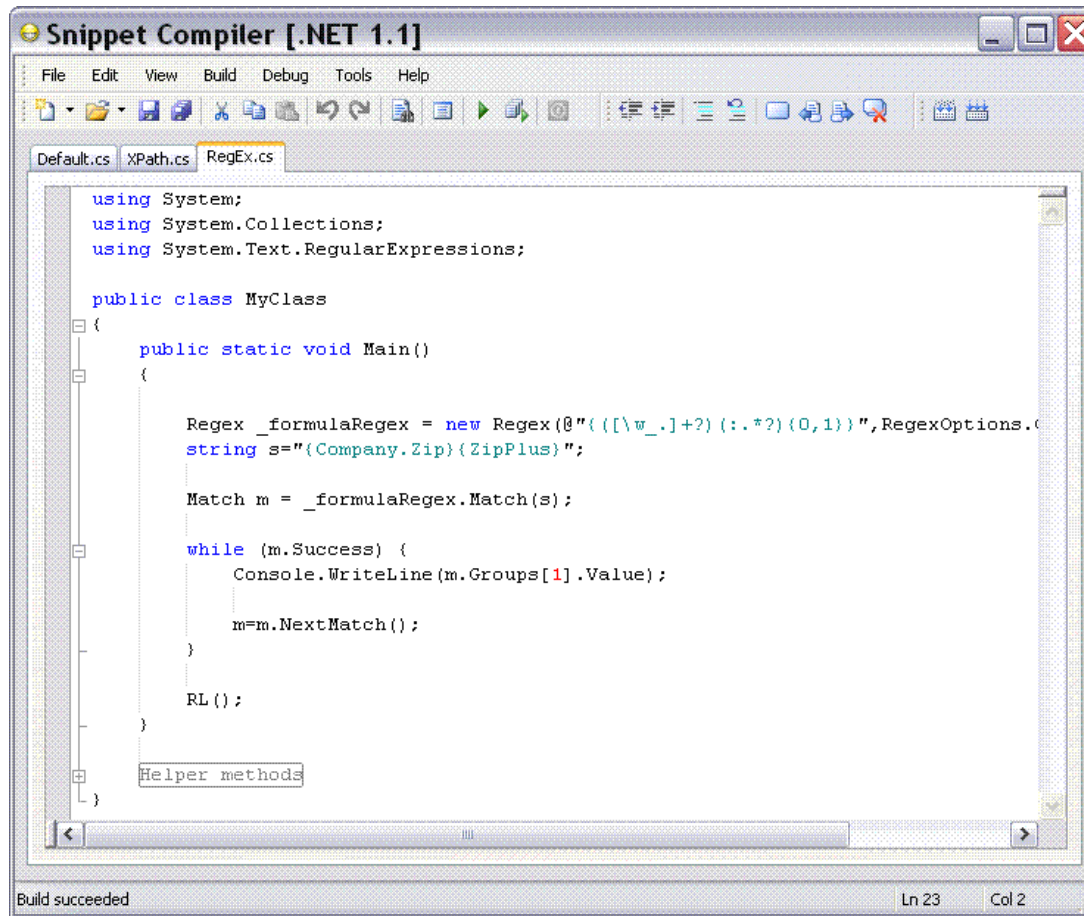
Environment Requirements

- Efficient
 - Shortcuts
 - Error-prone
- Pleasing
- Fast
 - 3.0+ MHz Pentium
 - 1+ Gb

Developer's Tools

- The Bat!/MS Outlook
- Snippet Compiler
- Notepad+/UltraEdit32
- NAnt
- NUnit
- NCoverExplorer
- TortoiseSVN
- SQL Server tools
- VisualLogParser

Snippet Compiler



The screenshot shows the Snippet Compiler [.NET 1.1] application window. The title bar includes the application name and standard window controls. The menu bar contains File, Edit, View, Build, Debug, Tools, and Help. The toolbar has various icons for file operations and execution. The main editor area shows a C# code snippet with the following content:

```
using System;
using System.Collections;
using System.Text.RegularExpressions;

public class MyClass
{
    public static void Main()
    {
        Regex _formulaRegex = new Regex(@"([\w_]+?) (:.*)?(0,1)", RegexOptions.C
        string s="(Company.Zip){ ZipPlus}";

        Match m = _formulaRegex.Match(s);

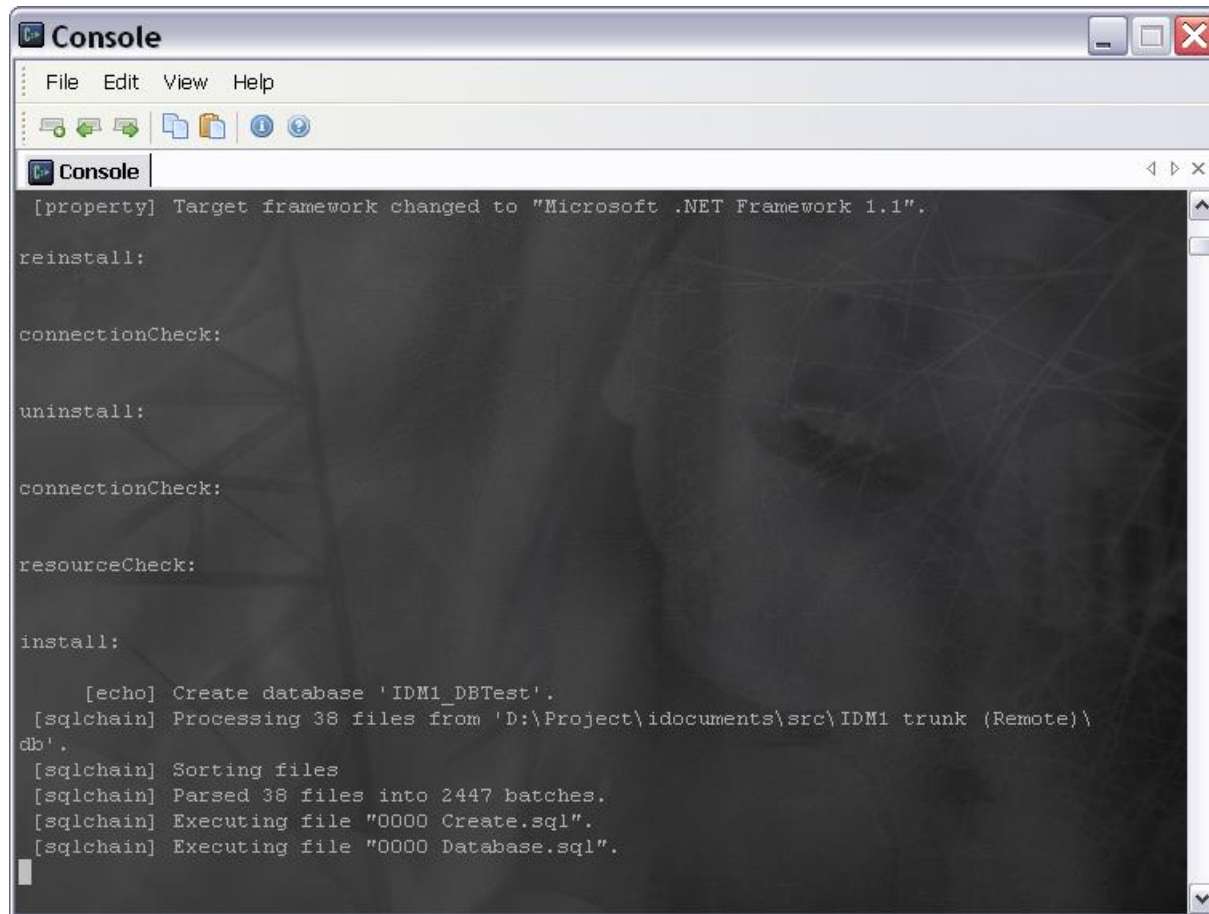
        while (m.Success) {
            Console.WriteLine(m.Groups[1].Value);
            m=m.NextMatch();
        }

        RL();
    }
}

Helper methods
```

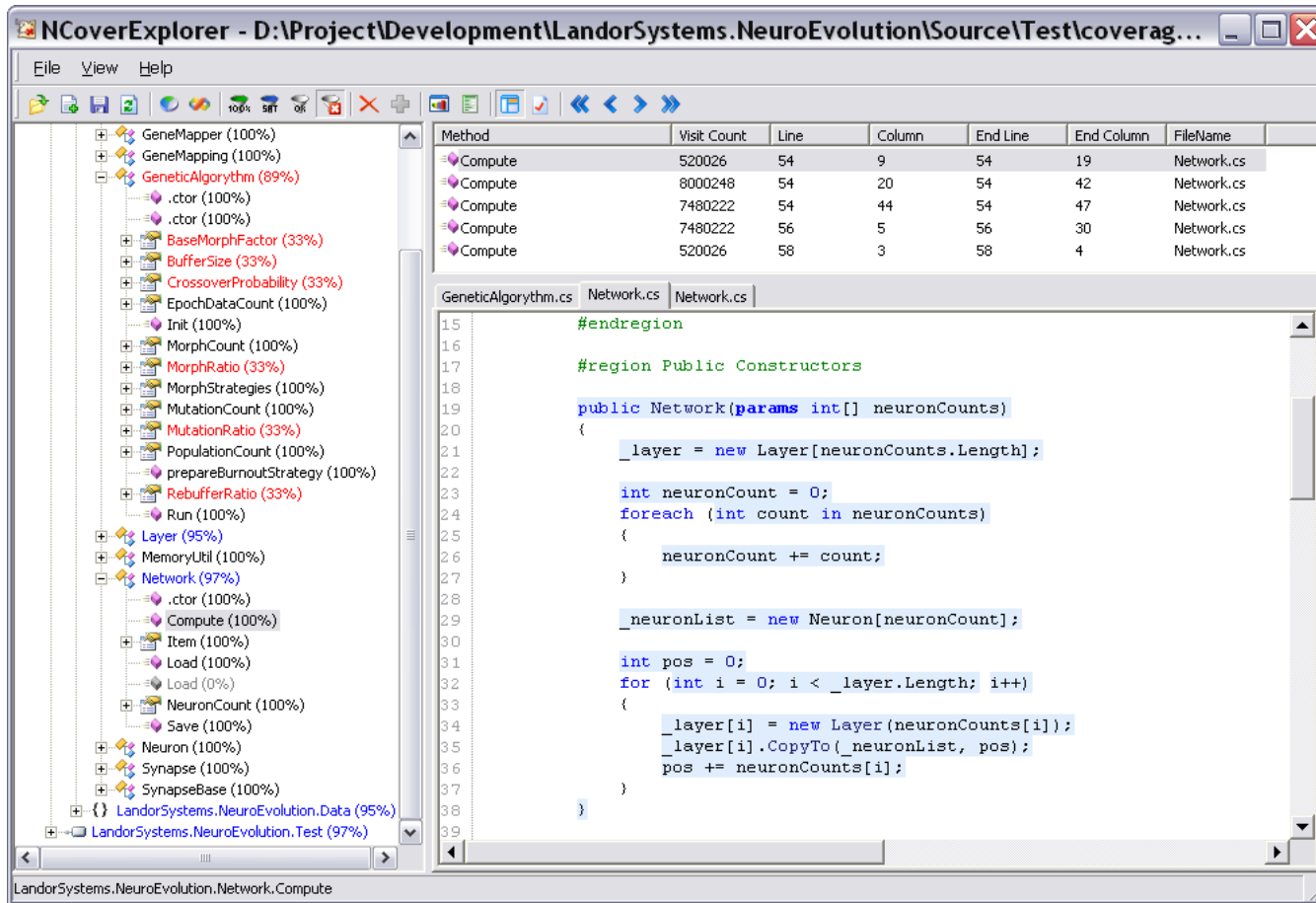
The status bar at the bottom indicates "Build succeeded" on the left and "Ln 23 Col 2" on the right.

NAnt



```
Console
File Edit View Help
Console
[property] Target framework changed to "Microsoft .NET Framework 1.1".
reinstall:
connectionCheck:
uninstall:
connectionCheck:
resourceCheck:
install:
    [echo] Create database 'IDM1_DBTest'.
    [sqlchain] Processing 38 files from 'D:\Project\idocuments\src\IDM1 trunk (Remote)\
db'.
    [sqlchain] Sorting files
    [sqlchain] Parsed 38 files into 2447 batches.
    [sqlchain] Executing file "0000 Create.sql".
    [sqlchain] Executing file "0000 Database.sql".
```

NCoverExplorer



The screenshot displays the NCoverExplorer application interface. On the left, a tree view shows the project structure with coverage percentages for various classes and methods. The right pane shows a code editor with the implementation of the Compute method in Network.cs.

Method	Visit Count	Line	Column	End Line	End Column	FileName
Compute	520026	54	9	54	19	Network.cs
Compute	8000248	54	20	54	42	Network.cs
Compute	7480222	54	44	54	47	Network.cs
Compute	7480222	56	5	56	30	Network.cs
Compute	520026	58	3	58	4	Network.cs

```
15 #endregion
16
17 #region Public Constructors
18
19 public Network(params int[] neuronCounts)
20 {
21     _layer = new Layer[neuronCounts.Length];
22
23     int neuronCount = 0;
24     foreach (int count in neuronCounts)
25     {
26         neuronCount += count;
27     }
28
29     _neuronList = new Neuron[neuronCount];
30
31     int pos = 0;
32     for (int i = 0; i < _layer.Length; i++)
33     {
34         _layer[i] = new Layer(neuronCounts[i]);
35         _layer[i].CopyTo(_neuronList, pos);
36         pos += neuronCounts[i];
37     }
38 }
39
```

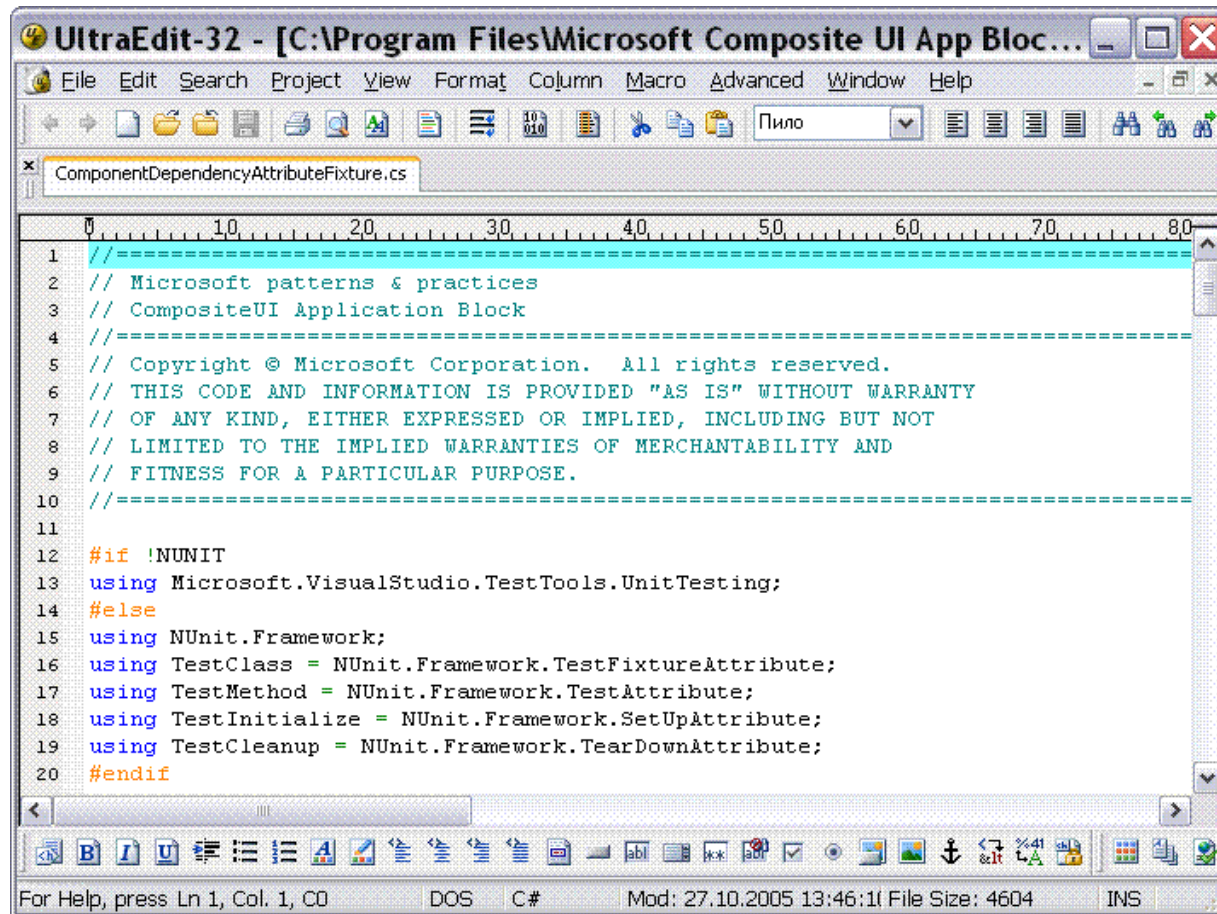
TortoiseSVN

The screenshot displays the TortoiseSVN interface with two windows open over a file explorer. The 'Log Messages' window shows a list of revisions from 3097 to 3105. The 'Statistics' window shows a line graph titled 'Commits by date' with the following data points:

Author	50/06	51/06	52/06
aklimantov	11	15	18
bpietroiu	2	8	13
oieck	1	1	4
palashev	0	0	3
rabdulin	0	0	14

The interface also includes a file explorer on the left showing a directory structure for 'src' and a menu bar with options like 'Файл', 'Правка', 'Вид', 'Избранное', 'Сервис', and 'Справка'.

UltraEdit



```
UltraEdit-32 - [C:\Program Files\Microsoft Composite UI App Bloc...
File Edit Search Project View Format Column Macro Advanced Window Help
ComponentDependencyAttributeFixture.cs
0 10 20 30 40 50 60 70 80
1 //-----
2 // Microsoft patterns & practices
3 // CompositeUI Application Block
4 //-----
5 // Copyright © Microsoft Corporation. All rights reserved.
6 // THIS CODE AND INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY
7 // OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT
8 // LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND
9 // FITNESS FOR A PARTICULAR PURPOSE.
10 //-----
11
12 #if !NUNIT
13 using Microsoft.VisualStudio.TestTools.UnitTesting;
14 #else
15 using NUnit.Framework;
16 using TestClass = NUnit.Framework.TestFixtureAttribute;
17 using TestMethod = NUnit.Framework.TestAttribute;
18 using TestInitialize = NUnit.Framework.SetUpAttribute;
19 using TestCleanup = NUnit.Framework.TearDownAttribute;
20 #endif
For Help, press Ln 1, Col. 1, CD DOS C# Mod: 27.10.2005 13:46:11 File Size: 4604 INS
```

NUnit

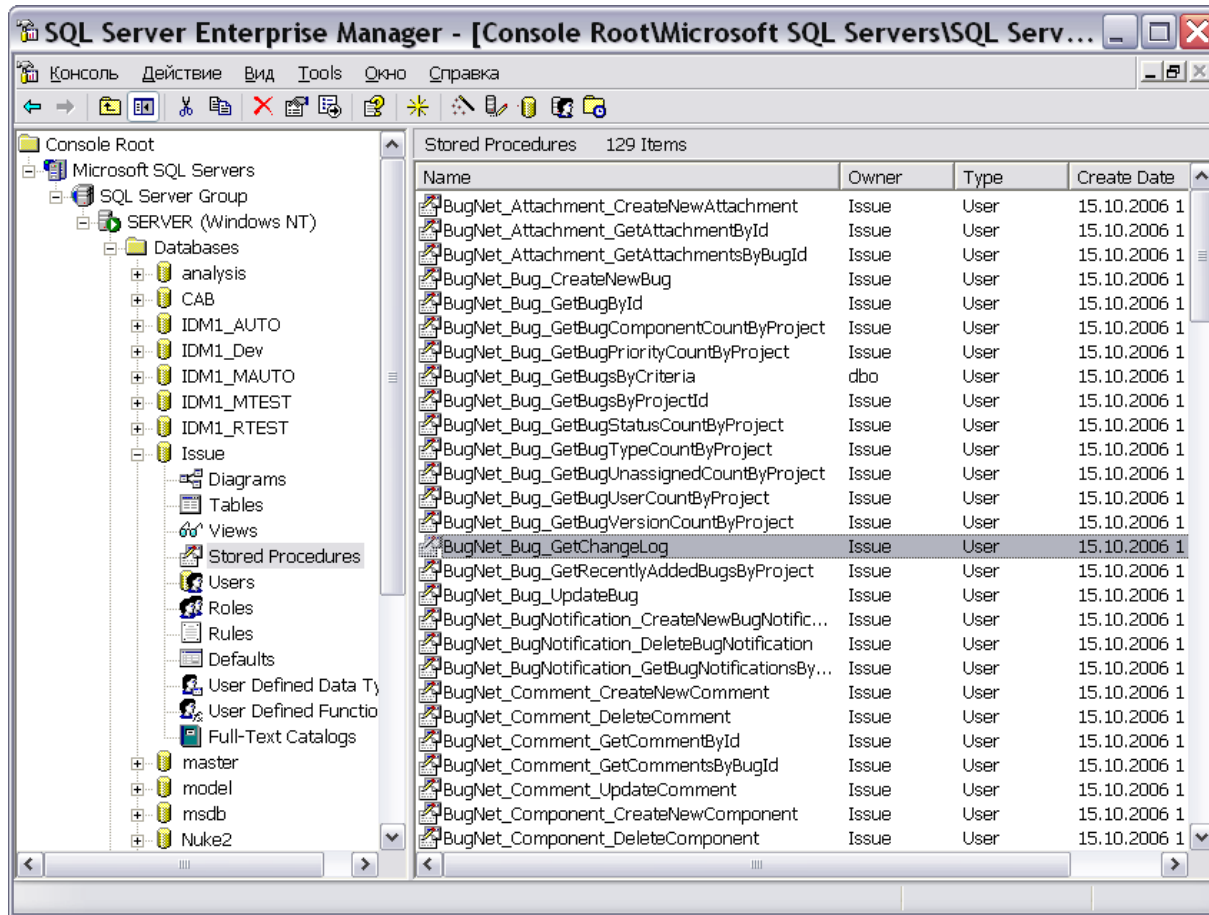
The screenshot shows the NUnit GUI with the following components:

- Test Tree:** A tree view under 'E:_Projects\Development\RinatAb' containing a 'UnitTest' category with sub-items like 'GaploidPopulationTest', 'GeneMapperTest', 'GeneticAlgorithmTest', 'MemoryTest', 'NetworkTest', 'NeuralConceptTest', 'NeuroTest', and 'Neuron'.
- Run/Stop Buttons:** Located at the top right, with the path 'E:_Projects\Development\RinatAbdullin.NeuroEvolution\RinatAbdullin.NeuroEvolution.Tests\bin\Debug\RinatAb' displayed next to them.
- Progress Bar:** A yellow progress bar below the Run/Stop buttons.
- Console Output:** A window showing the following text:

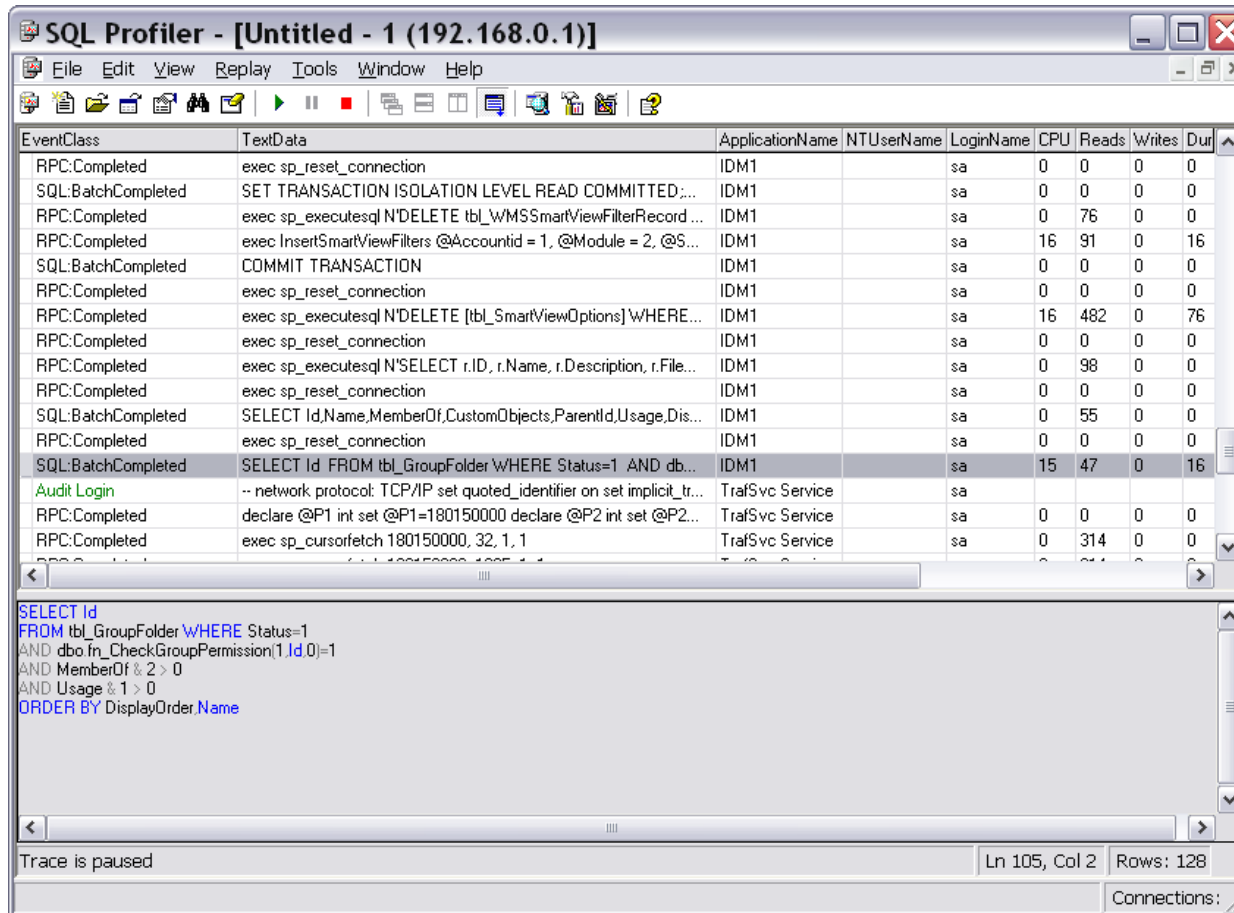
```
***** UnitTest.GeneticAlgorithmTest.QuadroRasstrigin
MorphCount = 0,8
MutationCount = 1,28
PopulationCount = 200
BufferSize = 10
PopulationEpochLimit = 200
RebufferRatio = 0,1
CrossoverProbability = 0,7
MorphStrategies = Burnout
BaseMorphFactor = 0,5
MorphRatio = 0,1
MutationRatio = 0,04

Epoch 200; Suitability 2,52525014232674E-07
0000,098ms
***** UnitTest.MemoryTest.MergeTest
***** UnitTest.NetworkTest.Build
***** UnitTest.NetworkTest.Compute
***** UnitTest.NeuralConceptTest.ArrayTest
***** UnitTest.NeuralConceptTest.InterfaceTest
***** UnitTest.NeuroTest.Neuron
***** UnitTest.NeuroTest.Synapse
```
- Status Bar:** At the bottom, showing 'Completed', 'Test Cases : 19', 'Tests Run : 13', 'Failures : 0', and 'Time : 0,921875'.

SQL Server Enterprise Manager



SQL Profiler



The screenshot displays the SQL Profiler interface for an instance named '192.168.0.1'. The main window shows a table of events with the following columns: EventClass, TextData, ApplicationName, NTUserName, LoginName, CPU, Reads, Writes, and Dur. The events include various SQL batches and RPCs, with the most significant activity being a query that reads 47 pages and writes 0 pages, taking 15 seconds to execute. The query text is shown in the bottom pane.

EventClass	TextData	ApplicationName	NTUserName	LoginName	CPU	Reads	Writes	Dur
RPC:Completed	exec sp_reset_connection	IDM1		sa	0	0	0	0
SQL:BatchCompleted	SET TRANSACTION ISOLATION LEVEL READ COMMITTED;...	IDM1		sa	0	0	0	0
RPC:Completed	exec sp_executesql N'DELETE tbl_WMSSmartViewFilterRecord...	IDM1		sa	0	76	0	0
RPC:Completed	exec InsertSmartViewFilters @Accountid = 1, @Module = 2, @S...	IDM1		sa	16	91	0	16
SQL:BatchCompleted	COMMIT TRANSACTION	IDM1		sa	0	0	0	0
RPC:Completed	exec sp_reset_connection	IDM1		sa	0	0	0	0
RPC:Completed	exec sp_executesql N'DELETE [tbl_SmartViewOptions] WHERE...	IDM1		sa	16	482	0	76
RPC:Completed	exec sp_reset_connection	IDM1		sa	0	0	0	0
RPC:Completed	exec sp_executesql N'SELECT r.ID, r.Name, r.Description, r.File...	IDM1		sa	0	98	0	0
RPC:Completed	exec sp_reset_connection	IDM1		sa	0	0	0	0
SQL:BatchCompleted	SELECT Id,Name,MemberOf,CustomObjects,ParentId,Usage,Dis...	IDM1		sa	0	55	0	0
RPC:Completed	exec sp_reset_connection	IDM1		sa	0	0	0	0
SQL:BatchCompleted	SELECT Id FROM tbl_GroupFolder WHERE Status=1 AND db...	IDM1		sa	15	47	0	16
Audit Login	-- network protocol: TCP/IP set quoted_identifier on set implicit_tr...	TrafSvc Service		sa				
RPC:Completed	declare @P1 int set @P1=180150000 declare @P2 int set @P2...	TrafSvc Service		sa	0	0	0	0
RPC:Completed	exec sp_cursorfetch 180150000, 32, 1, 1	TrafSvc Service		sa	0	314	0	0

```
SELECT Id
FROM tbl_GroupFolder WHERE Status=1
AND dbo.fn_CheckGroupPermission(1.Id,0)=1
AND MemberOf & 2 > 0
AND Usage & 1 > 0
ORDER BY DisplayOrder.Name
```

Trace is paused | Ln 105, Col 2 | Rows: 128 | Connections:

Developer's Tools

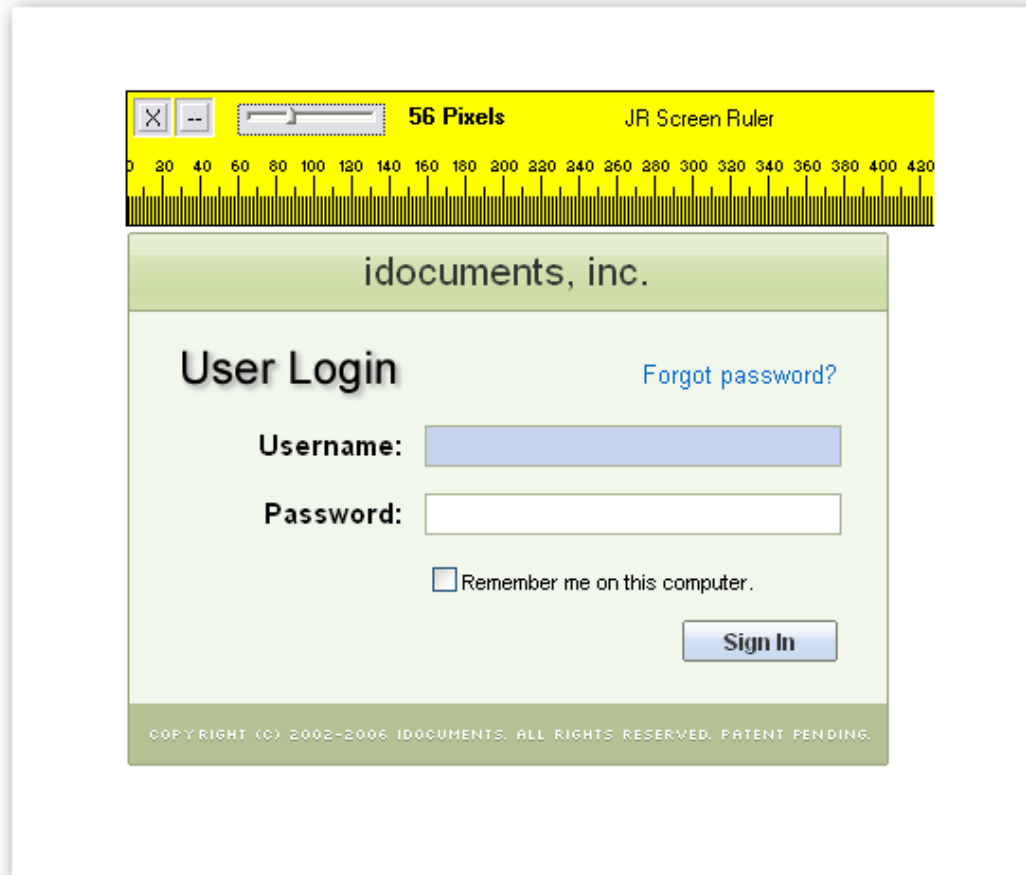
■ Visual Studio Addins

- Resharper
- Regions
- GhostDoc
- Windows

■ ASP.NET

- JR Screen Ruler
- WinSnap
- ZZoom
- PaintDotNet
- HttpWatch

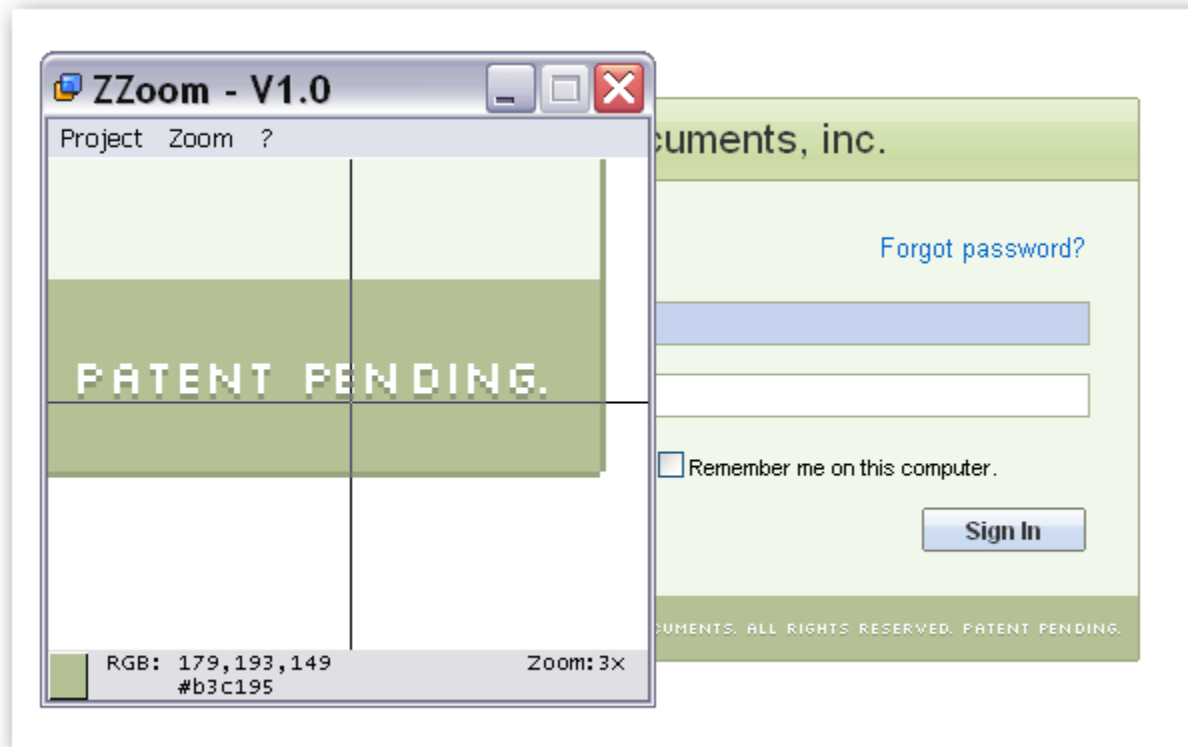
JR Screen Ruler



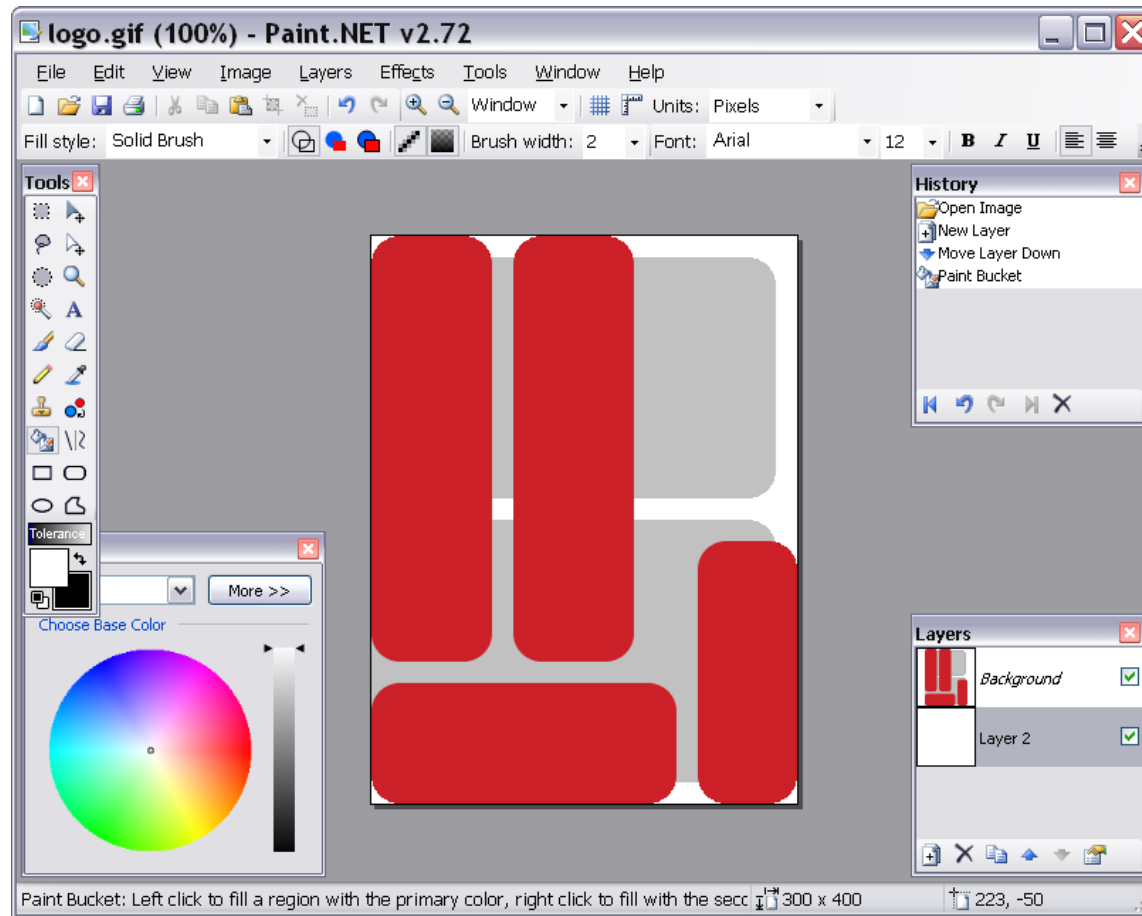
WinSnap



ZZoom



PaintDotNet



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QuickBooks Integration

Sample Larry's Landscaping & Garden Supply - QuickBooks Premier: Retail Edition 20... Type a help question Ask How Do I?

File Edit View Lists Retail Company Customers Vendors Employees Banking Reports Window Help

Home Customer Center Vendor Center Employee Center Report Center Invoice Item MemTx Check Bill Reg Acct Rmnc

Vendors

Purchase Orders → Receive Inventory → Enter Bills Against Inventory → Pay Sales Tax

Enter Bills & Vendor Credits → Pay Bills

Customers

Sales Orders → Invoices → Enter Daily Sales → Receive Payments → Refunds & Credits

Statement Charges → Finance Charges → Statements

Employees

Payroll Center → Pay Employees → Pay Liabilities → Process Payroll Forms

Company

Chart of Accounts Build Assemblies

Items & Services Adjust Quantity On Hand

Banking

Record Deposits Reconcile

Write Checks Check Register

Online Banking

You are using a sample company file

Start your new company file now

Account Balances

Name	Balance
Barter Account	0,00
CalOil Card	1 403,99
Cash Expen...	225,23
Checking	102 118,52
QuickBooks ...	70,00
QBCC Field ...	45,00
QBCC Home...	25,00
QBCC Sales ...	0,00
Savings	5 987,50

Customize

Customize Home page and set preferences.

Add Services to QuickBooks.

QuickBooks Integration

Sample Larry's Landscaping & Garden Supply - QuickBooks Premier: Retail Edition 2006 Type a help question Ask Adam How Do I?

File Edit View Lists Retail Company Customers Vendors Employees Banking Reports Window Help

Home Customer Center Vendor Center Employee Center Report Center Invoice Item MemTx Check Bill Reg Acct Rmnc

New Customer & Job New Transactions Print Excel Word

Customers & Jobs Transactions

View Active Customers

Name	Balance Total
Adam's Candy Shop	40,00
Andres, Cristina	0,00
Balak, Mike	180,00
330 Main St	180,00
Residential	0,00
Blackwell, Edward	1 125,00
Chapman, Natalie	0,00
Chekris, Benjamin	0,00
Corcoran, Carol	0,00
Crenshaw, Bob	1 591,03
Crider, Craig	0,00
DJ's Computers	0,00
Ecker Design	3 170,96
Golliday Sporting Goods	2 704,19
155 Wilks Blvd.	300,00
75 Sunset Rd.	2 404,19

Customer Information Edit Customer...

Customer Name Adam's Candy Shop Contact Adam Bradley
 Customer Type Phone 707 555 5734
 Company Name Adam's Candy Shop Alt Phone
 Billing Address Adam's Candy Shop Fax
 Adam Bradley Email
 1528 Kitty Bang Bank Terms
 Fudge, CA 94555 Price Level

Notes | Edit Notes...

Reports for this Customer
 QuickReport
 Open Balance

Show All Transactions Filter By All Date This Fiscal Year 01.10

Type	Num	Date	Account	Amount
Payment		15.12.2007	Undeposited Funds	40,00
Invoice	141	18.11.2007	Accounts Receivable	40,00
Invoice	138	18.10.2007	Accounts Receivable	40,00

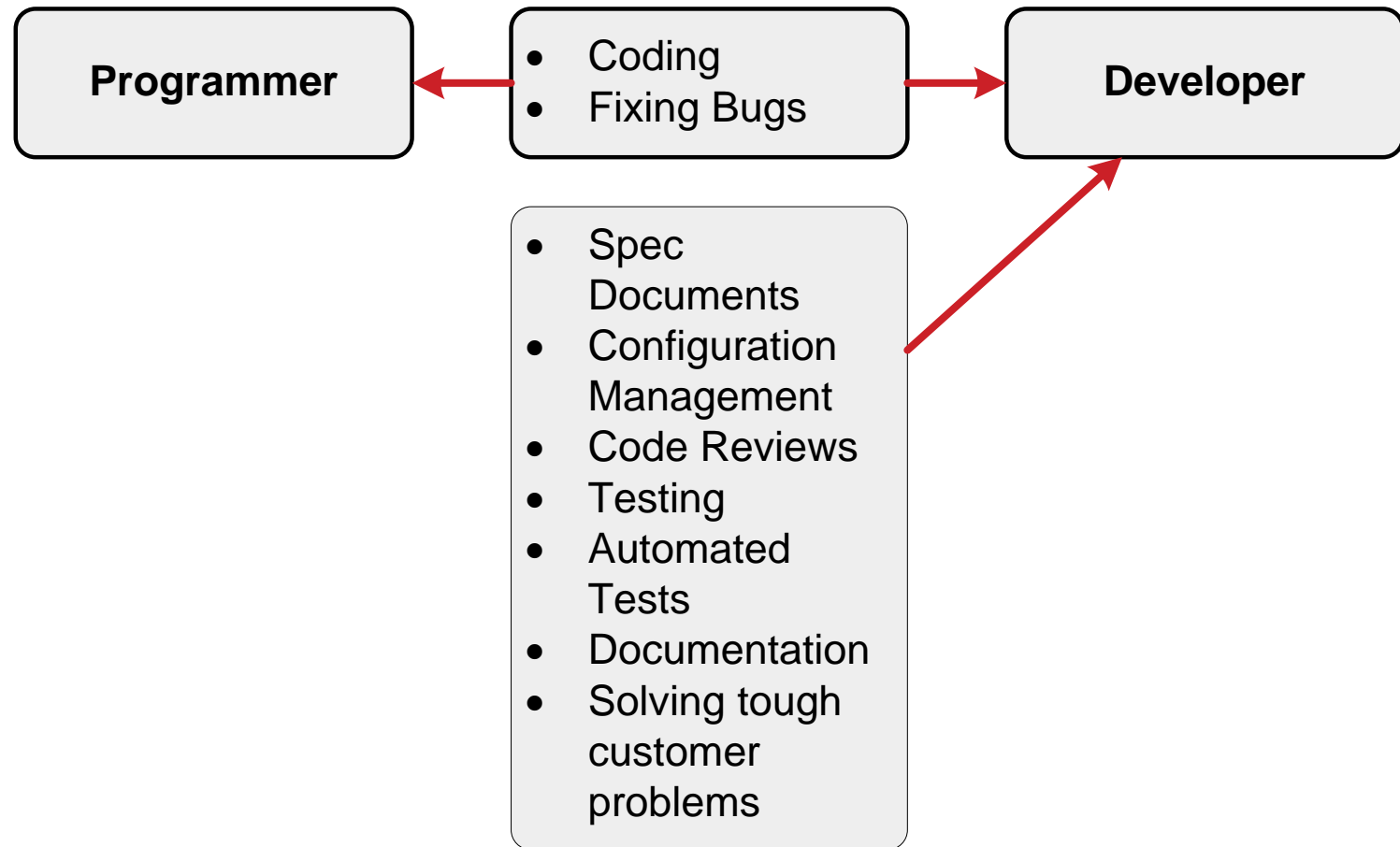
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Development and Career

- Attitude for success
- Programmer vs. Developer
- Fields of expertise
- Career Paths
- Developer's motivation

Programmer vs. Developer



Fields of expertise

.NET Development

- .NET 1.1
- .NET 2.0
- Threading
- Networking
- Data Access
- Caching
- Security
- Configuration
- DLinq

Web Development

- ASP.NET
- AJAX/ATLAS
- Javascript
- Web Services
- HTML
- CSS
- ActiveX
- Flash

Smart Client Applications

- Enterprise Library
- Composite Application Block
- Smart Client Software Factory
- SOFA

Database Development

- SQL Server
- MySQL
- Cache
- db4o

System Integration

- MS Word
- MS Outlook
- MS Project
- IExplorer
- Quickbooks
- 1C
- Windows Shell

Server Integration

- Application Servers
- Project Server
- SharePoint
- Exchange
- BizTalk

Application Deployment

- ClickOnce
- MSI
- Updating

Cross-platform Development

- Mono + GTK#
- Pocket PC
- SUSE

Reporting and Templates

- Crystal Reports
- Adobe PDF Forms
- Fast Report

Expertise Focus

.NET Development

- .NET 1.1
- .NET 2.0
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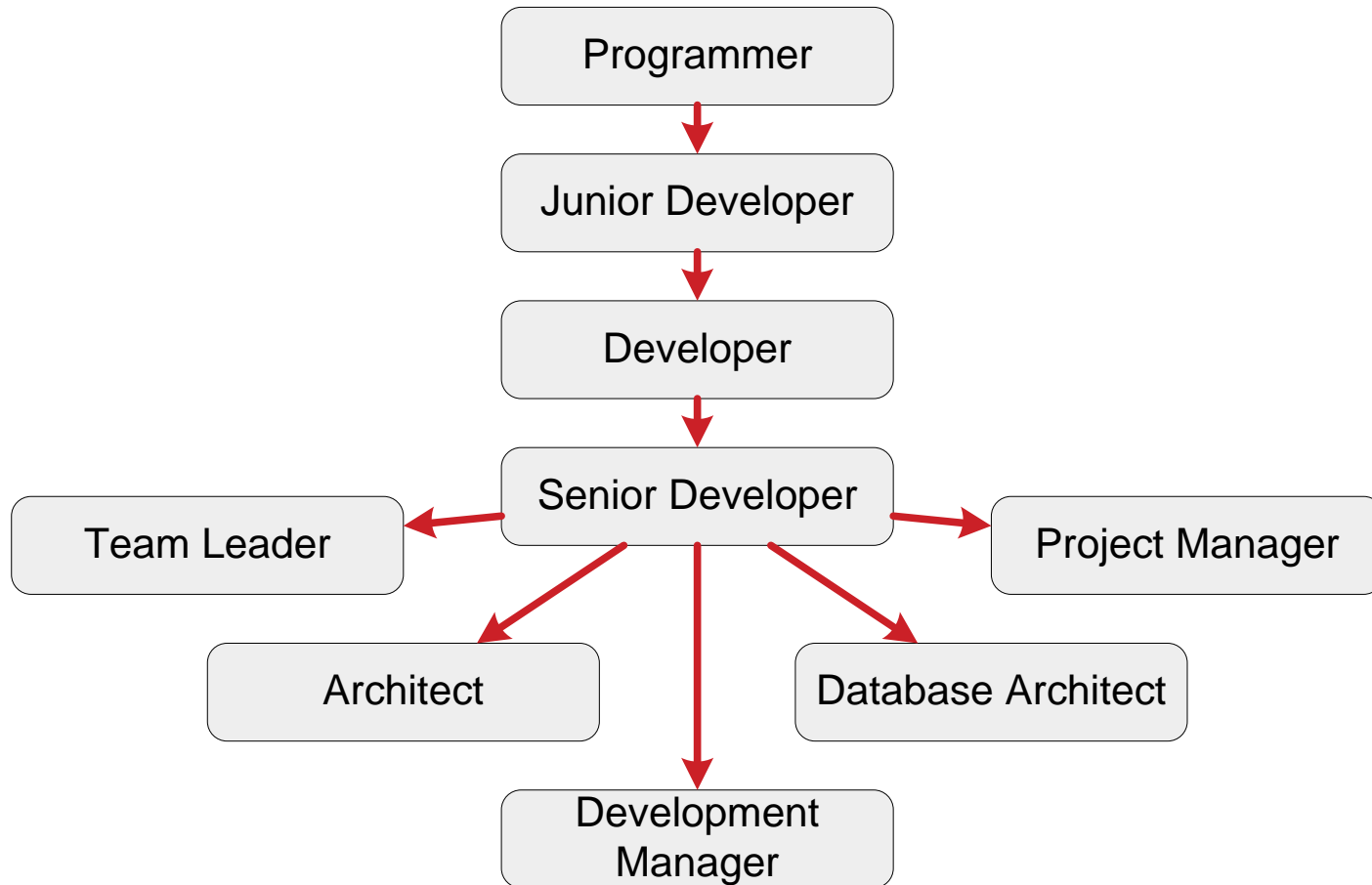
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Career Paths



Developer's motivation

Company acknowledges career and personal achievements and provides proof

Personal interests are considered when selecting tasks

Initiative is rewarded

Challenge and responsibility are rewarded

Consistent quality is rewarded

Information and training is provided