

Discovering .NET codebases using code coverage



© Tore Nestenius Datakonsult AB. All Rights Reserved.

<https://www.tn-data.se>

1

About Your Instructor

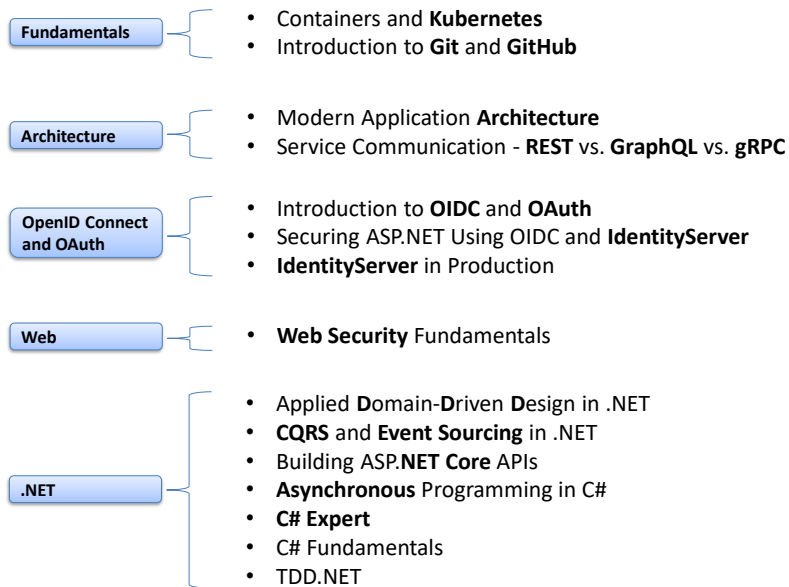
- Name: Tore Nestenius
- Programming for over 40 years
- **1996, www.programmersheaven.com**
A popular website for programmers with over 750,000 monthly visitors.
- **2010, Cofounded of Edument AB**
A consulting and training company.
- **2020, Stack Overflow**
Started to help others!



<https://www.tn-data.se>

2

My training courses



<https://www.tn-data.se>

4

Important Notes!

- **Interrupt me!**
- **Discuss!**
- **Ask questions!**

<https://www.tn-data.se>

5




Discovering .NET codebases using code coverage

<https://www.tn-data.se>

6



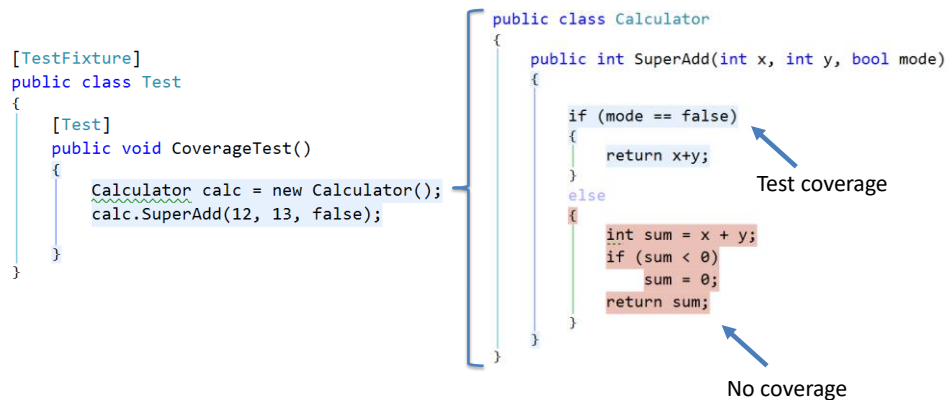
What is code coverage? 


<https://www.tn-data.se>

7

Code Coverage

It is a measure of the percentage of code executed during tests



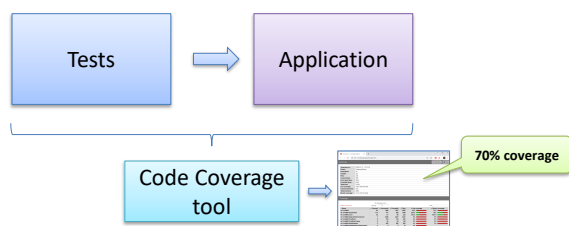
How do you calculate it? 


<https://www.tn-data.se>

8

Code Coverage

We use a tool to calculate the coverage



How can the coverage be presented? 

<https://www.tn-data.se>

9

Code Coverage

Some tools shows code coverage in the editor:

20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
--

```
foreach (var c:char in content)
{
    if (c == '\n')
        continue;

    if (Char.IsLetterOrDigit(c))
    {
        letterCount++;
    }
    else if (letterCount > 0)
    {
        letterCount = 0;
        wordCount++;
    }
}

if (letterCount > 0)
    wordCount++;
```

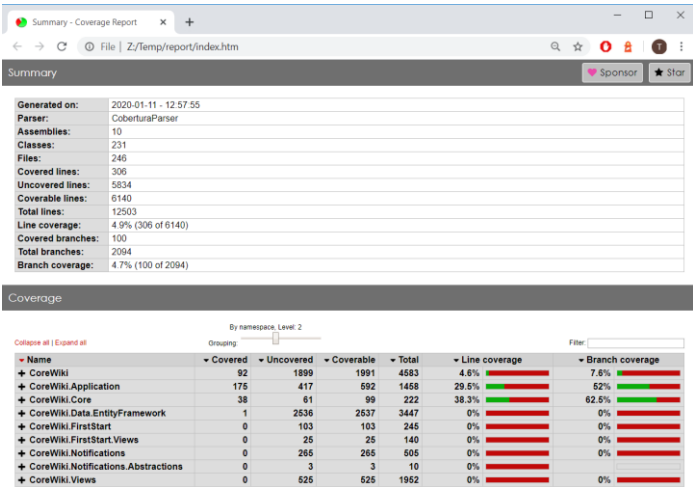
Test coverage
No coverage

<https://www.tn-data.se>

10

Code Coverage

Other tools generate reports:



<https://www.tn-data.se>

11



Code Coverage Tools

<https://www.tn-data.se>

12

Code Coverage tools

There are many tools available for calculating code coverage

Name	Description
Visual Studio	Enterprise edition includes a code coverage tool
Ncover	Popular commercial tool https://www.ncover.com
altcover	Open-source tool https://github.com/SteveGilham/altcover
dotCover	Commercial and free tool from JetBrains https://www.jetbrains.com/dotcover/
NCrunch	Continuous testing tool https://www.ncrunch.net/
NDepend	Code analysing tool that can import coverage data from the tools above. https://www.ndepend.com
Coveralls	Code coverage as a service, for your build pipeline https://coveralls.io/
Coverlet	Cross platform code coverage for .NET https://github.com/tonerdo/coverlet

Included in the .NET test projects

13



Coverlet

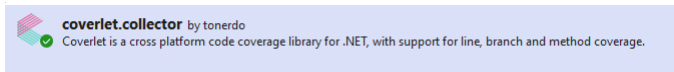
<https://www.tn-data.se>

14



Coverlet

It is an open-source **NuGet** package



It is included in the **.NET Test projects**

```
ÍtyêñGsôuĩ
RăçlăgêRêgêsênçê  ÍnçLudê  çôwêslêť çôlLêçťôş  Lêşşîoñ  ` . , , , ,
RăçlăgêRêgêsênçê  ÍnçLudê  Nîçsôşôğť NET Têşť Şdl  Lêşşîoñ  , , , ,
RăçlăgêRêgêsênçê  ÍnçLudê  yuñitť  Lêşşîoñ
RăçlăgêRêgêsênçê  ÍnçLudê  yuñitť sũñgês  wîşũăłšťťũđîđ  Lêşşîoñ  , " ,
ÍtyêñGsôuĩ
```

How do you use it?


<https://www.tn-data.se>

15

Coverlet

To calculate the code coverage:

```
dotnet test --collect:"XPlat Code Coverage"
```


What is the output? 

<https://www.tn-data.se>

16


Coverlet

It will create a **coverage.cobertura.xml** file:


`\TestResults\0c5e2919-482b-4fdf-bdde-729856b464f6\coverage.cobertura.xml`

What is **cobertura**? 

It is a standard file format for code coverage

What can we do with this file? 

<https://www.tn-data.se>

17

Coverlet

We can install a report generator tool:

```
dotnet tool install -g dotnet-reportgenerator-globaltool
```

And then run it in the report folder:

```
reportgenerator -reports:coverage.cobertura.xml -targetdir:coveragereport
```

ReportGenerator - Powerful code coverage visualization
<https://reportgenerator.io/>

<https://www.tn-data.se>

18

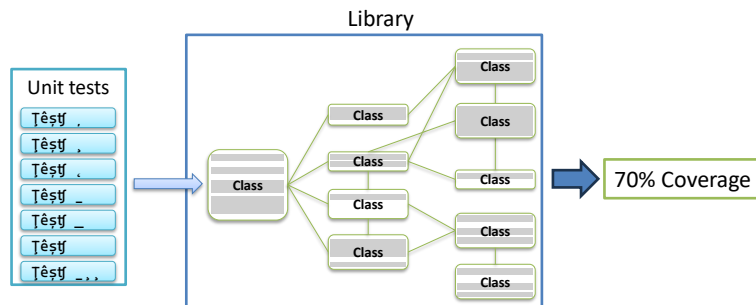
Summary

<https://www.tn-data.se>

19

Code Coverage Summary

We typically have many tests



That's great!, but....

<https://www.tn-data.se>

20



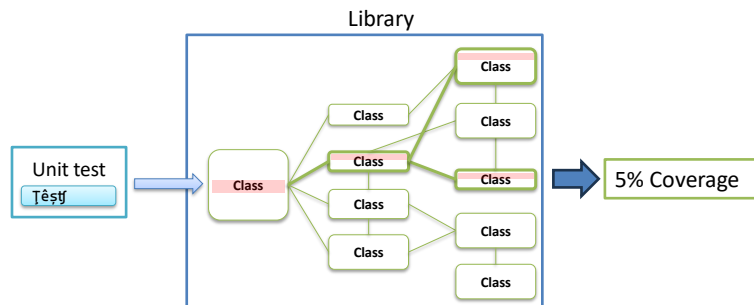
What happens if we only have a single test? ?


<https://www.tn-data.se>

21

Code Coverage Summary

With only one test, we get a trace through the system



How can we make any use of this? 

<https://www.tn-data.se>

22

QUESTIONS?



Blog post: <https://nstenius.se>



Discovering .NET codebases using
code coverage and NCrunch



Contact:

Email: tore@tn-data.se

Web: <https://tn-data.se>

Blog: <https://nstenius.se>

<https://www.tn-data.se>

23