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QBA

**Unit tests documentation**

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# Version history

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Version #** | **Implemented**  **By** | **Revision**  **Date** | **Approved**  **By** | **Approval**  **Date** | **Reason** |
| 1.0 | Dima Bazylev | 9/3/2014 |  |  | Test documentation |
|  |  |  |  |  |  |

# Overview

## Common information

Unit tests are written by Microsoft unit testing framework ([http://msdn.microsoft.com/en-us/library/ms243147(v=vs.80)](http://msdn.microsoft.com/en-us/library/ms243147(v=vs.80)%20)) and NSubstitute (<http://nsubstitute.github.io/>). Unit tests don't use database and/or any other external sources/services.

## Naming conventions and style guidelines for Unit Tests

* All tests are placed in PXQBA\Tests.
* For each new project which needs to be tested, new test project should be created. Test project should have name: [ProjectName].Tests (without braces).
* For each new class which needs to be tested, new test class should be created. Test class should have name: [ClassName]Test (without braces)
* Tests should have name: MethodName\_StateUnderTest\_ExpectedBehavior. For example: Sum\_NegativeNumberAs1stParam\_ExceptionThrown()

# Code coverage

## Coverage overview

Main business logic of the application is contained in the Macmillan.PXQBA.Business.Services, Macmillan.PXQBA.Business.QuestionParserModule and Macmillan.PXQBA.Business.Commands. These assemblies are covered by tests as much as possible.

The short version of the code coverage report which contains core modules with business applications logics.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Hierarchy | Not Covered (Blocks) | Not Covered  (% Blocks) | Covered (Blocks) | Covered  (% Blocks) |
| macmillan.pxqba.business.questionparsermodule.dll | 98 | 8.96% | 996 | 91.04% |
| macmillan.pxqba.business.commands.dll | 33 | 0.99% | 3298 | 99.01% |
| macmillan.pxqba.business.services.dll | 129 | 3.41% | 3649 | 96.59% |

## Full code coverage report

Full code coverage report for QBA solution. Generated with Visual Studio.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Hierarchy | Not Covered (Blocks) | Not Covered  (% Blocks) | Covered (Blocks) | Covered  (% Blocks) |
| **PXQBA** | **54945** | **74.88%** | **18434** | **25.12%** |
| bfw.agilix.commands.dll | 5299 | 95.67% | 240 | 4.33% |
| Bfw.Agilix.Commands | 5299 | 95.67% | 240 | 4.33% |
| bfw.agilix.datacontracts.dll | 7356 | 94.07% | 464 | 5.93% |
| Bfw.Agilix.DataContracts | 7356 | 94.07% | 464 | 5.93% |
| bfw.agilix.dlap.dll | 1036 | 93.33% | 74 | 6.67% |
| Bfw.Agilix.Dlap | 591 | 88.87% | 74 | 11.13% |
| Bfw.Agilix.Dlap.Configuration | 120 | 100.00% | 0 | 0.00% |
| Bfw.Agilix.Dlap.Session | 325 | 100.00% | 0 | 0.00% |
| bfw.common.dll | 7266 | 98.34% | 123 | 1.66% |
| Bfw.Common | 1141 | 96.21% | 45 | 3.79% |
| Bfw.Common.Caching | 275 | 100.00% | 0 | 0.00% |
| Bfw.Common.Captcha | 88 | 100.00% | 0 | 0.00% |
| Bfw.Common.Collections | 149 | 88.69% | 19 | 11.31% |
| Bfw.Common.Custom | 2 | 100.00% | 0 | 0.00% |
| Bfw.Common.Database | 338 | 95.48% | 16 | 4.52% |
| Bfw.Common.DynamicExtention | 427 | 100.00% | 0 | 0.00% |
| Bfw.Common.Exceptions | 18 | 100.00% | 0 | 0.00% |
| Bfw.Common.JqGridHelper | 61 | 58.65% | 43 | 41.35% |
| Bfw.Common.Logging | 59 | 100.00% | 0 | 0.00% |
| Bfw.Common.OAuth | 521 | 100.00% | 0 | 0.00% |
| Bfw.Common.Pagination | 315 | 100.00% | 0 | 0.00% |
| Bfw.Common.Web | 330 | 100.00% | 0 | 0.00% |
| Bfw.HtsConversion | 617 | 100.00% | 0 | 0.00% |
| Mono.Options | 949 | 100.00% | 0 | 0.00% |
| System.Linq.Dynamic | 1976 | 100.00% | 0 | 0.00% |
| bfw.px.biz.datacontracts.dll | 1642 | 99.33% | 11 | 0.67% |
| Bfw.PX.Biz.DataContracts | 1642 | 99.33% | 11 | 0.67% |
| bfw.px.biz.direct.services.dll | 23381 | 99.90% | 23 | 0.10% |
| Bfw.PX.Biz.Direct.Services | 23080 | 99.90% | 23 | 0.10% |
| Bfw.PX.Biz.Direct.Services.Helper | 35 | 100.00% | 0 | 0.00% |
| Bfw.PX.Biz.Direct.Services.Properties | 5 | 100.00% | 0 | 0.00% |
| Bfw.PX.Biz.Direct.Services.RA.CheckUsername | 77 | 100.00% | 0 | 0.00% |
| Bfw.PX.Biz.Direct.Services.RA.EnterActivationCode | 77 | 100.00% | 0 | 0.00% |
| Bfw.PX.Biz.Direct.Services.RA.StudentRegistration | 107 | 100.00% | 0 | 0.00% |
| bfw.px.biz.services.mappers.dll | 7619 | 99.04% | 74 | 0.96% |
| Bfw.PX.Biz.Services.Mappers | 7619 | 99.04% | 74 | 0.96% |
| macmillan.pxqba.business.commands.dll | 33 | 0.99% | 3298 | 99.01% |
| Macmillan.PXQBA.Business.Commands.DataContracts | 0 | 0.00% | 4 | 100.00% |
| Macmillan.PXQBA.Business.Commands.Helpers | 3 | 0.55% | 545 | 99.45% |
| Macmillan.PXQBA.Business.Commands.Services.DLAP | 26 | 1.26% | 2043 | 98.74% |
| Macmillan.PXQBA.Business.Commands.Services.SQLOperations | 4 | 0.56% | 706 | 99.44% |
| macmillan.pxqba.business.commands.tests.dll | 82 | 1.86% | 4334 | 98.14% |
| Macmillan.PXQBA.Business.Commands.Tests | 82 | 1.86% | 4334 | 98.14% |
| macmillan.pxqba.business.dll | 154 | 100.00% | 0 | 0.00% |
| Macmillan.PXQBA.Business | 154 | 100.00% | 0 | 0.00% |
| macmillan.pxqba.business.models.dll | 81 | 12.48% | 568 | 87.52% |
| Macmillan.PXQBA.Business.Models | 81 | 12.48% | 568 | 87.52% |
| macmillan.pxqba.business.questionparsermodule.dll | 98 | 8.96% | 996 | 91.04% |
| Macmillan.PXQBA.Business.QuestionParserModule | 2 | 4.00% | 48 | 96.00% |
| Macmillan.PXQBA.Business.QuestionParserModule.DataContracts | 5 | 6.49% | 72 | 93.51% |
| Macmillan.PXQBA.Business.QuestionParserModule.QML | 29 | 15.51% | 158 | 84.49% |
| Macmillan.PXQBA.Business.QuestionParserModule.QTI | 44 | 10.40% | 379 | 89.60% |
| Macmillan.PXQBA.Business.QuestionParserModule.Respondus | 18 | 5.04% | 339 | 94.96% |
| macmillan.pxqba.business.questionparsermodule.tests.dll | 0 | 0.00% | 246 | 100.00% |
| Macmillan.PXQBA.Business.QuestionParserModule.Tests | 0 | 0.00% | 246 | 100.00% |
| macmillan.pxqba.business.services.dll | 129 | 3.41% | 3649 | 96.59% |
| Macmillan.PXQBA.Business.Services | 38 | 2.07% | 1798 | 97.93% |
| Macmillan.PXQBA.Business.Services.Automapper | 91 | 4.69% | 1851 | 95.31% |
| macmillan.pxqba.business.services.tests.dll | 39 | 0.97% | 3978 | 99.03% |
| Macmillan.PXQBA.Business.Services.Tests | 39 | 0.97% | 3978 | 99.03% |
| macmillan.pxqba.common.helpers.tests.dll | 0 | 0.00% | 31 | 100.00% |
| Macmillan.PXQBA.Common.Helpers.Tests | 0 | 0.00% | 31 | 100.00% |
| macmillan.pxqba.common.logging.dll | 74 | 73.27% | 27 | 26.73% |
| Macmillan.PXQBA.Common.Logging | 74 | 73.27% | 27 | 26.73% |
| macmillan.pxqba.common.utilities.dll | 601 | 70.13% | 256 | 29.87% |
| Macmillan.PXQBA.Common.Helpers | 601 | 70.21% | 255 | 29.79% |
| Macmillan.PXQBA.Common.Helpers.Constants | 0 | 0.00% | 1 | 100.00% |
| macmillan.pxqba.web.viewmodels.dll | 55 | 56.70% | 42 | 43.30% |
| Macmillan.PXQBA.Web.ViewModels | 23 | 65.71% | 12 | 34.29% |
| Macmillan.PXQBA.Web.ViewModels.Editor | 18 | 100.00% | 0 | 0.00% |
| Macmillan.PXQBA.Web.ViewModels.MetadataConfig | 2 | 7.69% | 24 | 92.31% |
| Macmillan.PXQBA.Web.ViewModels.TiteList | 12 | 100.00% | 0 | 0.00% |
| Macmillan.PXQBA.Web.ViewModels.User | 0 | 0.00% | 6 | 100.00% |

# Test execution

Unit tests don't use database and/or any other external sources/services, therefore tests start trivially. Visual Studio or any continuous integration software could be used for a tests execution. Some unit tests (parsing tests) using files. All files added to the project and the project configured to copy files when the test is executed (by using DeploymentItem attribute). No special actions for any tests execution are required.