

Bluefruit[®]
Embedded Software Specialists



Illumination
Software Quality Assessment



Who is Illumination for?

- Is your existing software starting to develop quality or resource issues?
- Is your company buying/acquiring another company or project?
- Are you looking to extend your existing software by adding features, and want to make sure it can cope with the new complexity?
- Does your company value high quality and integrity in every aspect of its projects?
- Is it important that your product is brand-aligned?

If you answered 'Yes' to any of the above, our Illumination service is something you might want to consider.

What is Illumination & What do I get?

Illumination is a Software Quality Assessment. Put simply, it provides a gap analysis for what needs to happen before new features can be added to the software.

We will analyse different elements of your software using our accurate automated process, and one of our senior developers will conduct a Code Review on the source code to ensure it has been thoroughly evaluated.

Once the assessment is complete, the details will be processed into a simple report.

<<project>> Project Analysis

Quantitative Results

We have analysed the <<project>> source code and it scores poorly on some of the above metrics. Please see the table below for details:

Metric	Target	<<project>> Project
Maximum file size	<1000 lines	610
Average statements/function	5-48	34
Maximum statements/function	100	85
Average complexity	<5	3.54
Maximum complexity	<20	38
Average depth	<2.6	1.53
Maximum depth	4-8	7
Commenting	10-30	27.0
Magic numbers	Low usage	High usage
Unit tests	>80% coverage	0%

Qualitative Results

- There is a lack of documentation for the code. However the code is source controlled using Git which aids with working out how the code was developed.
- There is no sign of any unit tests. This questions the reliability of the code, but also adds to the lack of documentation.

- The code has not been structured with testability in mind.
- There is no sign of a test script, so it difficult to evaluate the state of completion.

Recommended Actions

- Restructure the code for testability and introduce unit tests.
- Create a full regression test plan and measure the current state of the project.
- Refactor the overly complex areas of the code.
- Remove magic numbers.
- Refactor functions with large complexity into smaller functions.

Fig. 1: Screenshot of a sample report



The report will also include details of why each element will have been given this score, and recommended actions on how to improve it.

To download a sample report, go to: <http://www.bluefruit.co.uk/illumination/>

If you'd like to understand more about our definition of 'Quality', and how we set goals to achieve it, please take a look at our 'What is Quality?' blog post:

<http://www.bluefruit.co.uk/processes/what-is-quality-and-how-do-you-get-there-part-1/>

What are the Benefits?

- You will be able to fully understand the value of your software
Sometimes companies assume that their software is a valuable asset, but depending on the quality, it can often be a liability instead. The report from this assessment will clearly show which elements are valuable and positive, and which are currently at a lower than optimal standard.
- You will be able to see whether your code is habitable and scalable
As mentioned above, software can sometimes be a liability. This can happen when the software is difficult to scale up and add new features, or if it has poor habitability.
- You may discover opportunities for improvement in the various elements of your software.
There may be elements within your software that will require work before extra features can be added, and elements that need to be worked on to ensure the software is habitable for the future.

What Happens Next?

Once you have received and read your assessment report, you will have a variety of options. You could retire the project/software and choose to start again from scratch, feel



satisfied with our report and continue with your project, or take our recommendations on how to improve the software to bring it up to a higher standard.

Should you choose us to help you with the next stages of your project, we can help you to overcome any issues that may have been identified in the assessment, and then re-assess to measure improvements and get your software to the required standard.

At the end of this process, you can be confident in the robustness of your software. This will give you a strong foundation on which to build the next stages of your project. We use the Illumination assessment on our own projects and software, to ensure we are always meeting the standard we are promoting to others.

If you'd like more information, or if you have any questions, please don't hesitate to get in touch with us at info@bluefruit.co.uk or 03335777111.