**Postmortem Document**

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**1. Postmortem Results**

**1.1 Things That Went Well**

Working with our sponsor, negotiating requirements, and our weekly meetings with our sponsor went very well, and were a good experience. Our team was cohesive and worked well together.cmd

**1.2 Things That Did Not Go Well**

Windows compatibility. We had the Mac and Linux versions working quite early, but the Windows compatibility turned out to be a huge headache. We ended up spending a ton of time researching why it wasn't working, and were never able to resolve the issue. Also, we were perhaps a little too confident in the beginning about the amount of requirements we were going to be able to complete by the end of the semester.

**1.3 Lessons Learned While Doing The Project**

We learned that low level network and socket programming is more much difficult than anticipated. It was presented to us as a much simpler problem than it turned out to be. We learned some network programming and C++. We also learned how to use some applications like WireShark and Virtual Box, and became more familiar with Git and Github.

**1.4 What We Would Have Done Differently**

We would have conducted more research early on into things like raw sockets and unix. Also, our team members had various levels of experience using Git, and we probably could have saved a lot of time if we'd all been more familiar from the start.

**1.5 Recommendations for Future Projects**

Regular weekly meetings are very important. Even skipping a single week can set you back much further than you might anticipate. It's also very important to stay in contact and maintain a good relationship with your sponsor, as they and the people they work with can offer advice and solutions when you're having problems.

**2. Project Size and Effort Estimates**

**2.1 Size Estimate**

|  |  |  |
| --- | --- | --- |
| **Metric** | **Estimate** | **Actual Size** |
| SLOC | 1200 Lines | 856 Lines |
| Classes | N/a | N/a |
| Modules | N/a | N/a |
| Help Document | 5 Pages |  |
|  |  |  |

Our estimates were high, because we didn't have a lot of prior knowledge related to what we were doing and instead used previous implementations of ping to judge our size estimates.

**2.2 Effort Estimates**

|  |  |  |
| --- | --- | --- |
| **Task** | **Estimate** | **Actual Size** |
| Coding | 400 hours | 600 hours |
| Testing | 30 hours | 50 hours |
| Documentation | 15 hours | 20 hours |
| Total | 445 hours | 670 hours |

Our estimate was low, probably because low level network programming in C++ turned out to be much more difficult than we had initially anticipated.

**2.3 Project Effort Breakdown**

|  |  |
| --- | --- |
| **Project Area** | **% Effort** |
| Training | 13% |
| Requirements | 5% |
| Design | 5% |
| Coding | 60% |
| Testing | 10% |
| Mid-term and Final Reports | 7% |