UVSim Quality Control

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Here at IED, we hold the quality of the products we produce to the highest standards. It is our firm belief that the product we have developed for Utah Valley University “UVSim” matches the requested and expected qualifications and standards that were set forth.

There are many reasons that we believe this to be the case, none of which are more important than the careful planning and high level of testing that we have rigorously undertaken at every stage of development. We have run extensive tests and simulations at every milestone reached, before presenting each successive build to UVU.

The testing we run is quite thorough. We start by testing each individual function with a variety of test cases to ensure that the system is performing normally, and is able to gracefully handle various forms of invalid data. We push the function with every unique possible input scenario to ensure that each individual function is free of bugs and fully operational.

We then run various chained commands looking for any irregularity in a predetermined ‘expected output’. These tests are designed to stress how the individual components interact with one another. We try every possible combination of functions running sequentially.

All of the tests that we run are unique. We do this in order to avoid redundant code and wasted time. Our team of engineers has varied the tests extensively in an attempt to push the limits of UVSim to ensure that the system is fully operational.

If at any point we encounter unexpected output, UVSim crashes, or is otherwise unable to perform as expected. The program halts, and we are able to step through the code using a debugger to identify the source of the error and correct it. All bugs encountered are documented by the engineer.

It is only after we complete the milestone requirements, and the product has passed this testing that we arrange a meeting with our client. We hold these face-to-face meetings at the end of each milestone, which for this project has corresponded to one meeting per week. In these recurring meetings we have demonstrated the working product to our client UVU.

After we demonstrate the UVSim product, UVU then reviews the program. Addressing both its level of functionality as well as its polish. UVU holds the program to the requirements that they requested, and how efficiently it is able to accomplish their needs. If there are any issues or concerns, UVU is to bring them up during the meeting. In reciprocation, we at IED have always documented the issues or concerns UVU has brought up thoroughly to ensure they are properly addressed for the next milestone.

During several of these meetings Utah Valley University has changed the requirements of the project or added to them as we fine tuned the product to their evolving specification. By the end of these meetings UVU has always left IED with a sufficient level of feedback to push us forward to the next milestone.

After the meeting as adjourned IED lays out the new or revised requirements for the UVSim product and begins modifying the UVSim design to implement the changes. If there are any changes necessary to the baseline of the product, Change-requests are filed and documented.

As stated previously, IED is focused on quality. We do not only hold ourselves to the level of quality requested by our clients, but in addition we hold ourselves to additional standards set forth by our own company.

An example of this can be seen in the principles of coupling and cohesion. Ideally a product would be made with low coupling with simultaneous high cohesion. We at IED have kept this goal in mind throughout the development process.

IED addressed low coupling in the design by working to build each individual piece of the program to run efficiently and smoothly on its own. That is one of the reasons our first batch of testing always focuses on the individual components. We make sure that individual functions are bug free to help compartmentalize bugs if they should occur.

IED addressed high cohesion from the very beginning of the design. All functions, objects, etc. are classed together and organized well. The code is not only efficient in its operation, but is clear and concise as you read through it. For example, in the abstraction, each function is called in sequential order. And in that abstraction, each individual function that is called works efficiently and is bug free as per our high testing standards.

Finally, our code is well commented and very clean. IED has very strict standards for comment formatting and indentation practices so that all coding done within the company is uniform. We have minimized the number of modules needed and kept every part of the code concise, but effective.

When looking at the finished product and comparing it to earlier prototypes and builds, the polish is apparent. Though the level of functionality has increased from each milestone to the next, the programs stability has not. Throughout the development process our but testing, compartmentalization, and efficiency guidelines have shaped the product to not only meet, but exceed the required specifications set forth by our client UVU.

In conclusion, the product UVSim has been thoroughly tested. Our engineers have stressed the software in every variation and conceivable situation. Now this by no means guarantees that an error will never occur, but we can stand proud knowing that we here at IED have taken every precaution and measure to ensure that our product is not only up to the standards requested by our client, but up to our own standards of quality. We are satisfied with our work and are certain that we have created the product that UVU needs