To: Quality Assurance Department

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Subject: Improving Unit Testing Methods

Abstract

This proposal suggests new methods to improve the current unit testing methods that are in place. Unit testing is a type of software analysis that breaks down the software element by element and tests each component. Our current method in place requires the project developers to create test code after they have implemented their code. This effort is too time-consuming. If we were able to speed up this process it would significantly cut down production rates. To speed up this process a separate Quality Analysis (QA) team should be assembled and should simultaneously work alongside the project developers to test the software. This would split up the workload, but at what cost?

Introduction

Unit tests create a checkpoint to evaluate code and catch bugs early in the development cycle. This is done by examining isolated software components through independently written code. Good unit tests are fast, isolated, repeatable, self-checking, and timely. Fast; it should only take milliseconds to complete any number of unit tests. Isolated; unit tests should be stand-alone and have no dependencies on any outside factors. Repeatable; unit tests must be consistent and always return the same result if no changes were made. Self-Checking; pass or fail should be automatically indicated without any human interaction. Timely; the amount of time taken to write a specific unit test should be proportional to the code being tested. Currently our unit tests are written by the same people who develop the software. This creates redundancy and monotony amongst the developers causing them to bypass mistakes in their own work. By adding a secondary QA team to independently evaluate the software we are efficiently cross-crossing our own work.

Project Description

For this project, several developers will comprise of a QA team.. Their job is to work in unison with the project developers to write unit testing code.. As the final checkpoint, their work is the last checkpoint. The following criterion will be the basis for the QA team's evaluation of the developing software; fast, isolated, repeatable, self-checking, and timely. As previously mentioned, unit tests detect any bugs and defects in the software. So, if any bugs are found by the QA team, they will create tickets to inform the project developers of the errors. These tickets are created and resolved within our ticketing software which tracks the life of each ticket. Thus, everyone working on the project will be able to see when tickets are created and resolved. This system is universal within our company any will keep everyone on the same page.

Rationale

Adding this QA team will increase efficiency and reduce inconsistencies in our programs. If done properly, we will be catching all and any bugs earlier in the chain of production than we have before. By a rough estimate we will improve efficiency by 15% which enables our developers to utilize their time better.

Moving Forward

- A team of developers will be formed into the QA team. These developers will be re-assigned project developers as well as new hires.
- The QA team will be briefed on the objectives on guidelines of this project to ensure clear objectives and communication.
- The QA team will share all results with the project developers through the ticketing system.

Conclusions

Our current method of unit testing requires a heavy workload for the project developers. These practices have caused software deficiencies and resulted in a lackluster product. The Quality

Assurance team will be assembled to solve this issue by working in unison with the project developers to simultaneously check the work they are producing. This additional element of teamwork will reduce our production costs and improve efficiency by 15%. The addition of the QA team will signify our company's continued commitment to producing state of the art software.