CA4004 - Software Engineering (PPM) – Assignment 1

Continuous Assessment value: **10%** of overall module mark.

Purpose of Assignment:

To demonstrate an understanding of the potential impacts of software failures and to evaluate the role of the software development process in attempting to avoid failure instances.

Note: Where discussion is requested as part of this assignment, it is expected that **background reading** will be required, and any arguments presented will be supported by **reference** to existing published materials in this space. Citation and referencing should adopt the DCU Harvard style, for which further information is available here: http://www.dcu.ie/sites/default/files/library/LibraryGuides/Citing%26Ref-printedversion2015.pdf

Part 1: Identify and evaluate three distinct software failures cases (Guide content 75%; i.e. 25% per failure case)

Document three separate instances of software failures in the past 10 years that have had a significant negative impact on a large number of people. Include the following:

- A description of the software failure;
- The exact cause of the issue (i.e. not just "software was the cause" but an issue caused by incomplete or inaccurate requirements, a failure to fully test all external interfaces, an inadequate design, a lack of testing at the system level, etc.);
- Key details related to the impact of the issue (e.g. date, duration, impact on end-users or clients (i.e. who was affected and in what way?), impact on the company that produced the software, quantifiable impacts e.g. financial cost, human cost);
- How a more robust software development process may have helped to avoid the issue (**discuss specific details);

Part 2: Compare and contrast the three cases identified in Part 1 (Guide content: 25%)

Examine the commonalities and differences in the three failure cases identified in Part 1, including specific reference to:

- The role of the software development process in potentially avoiding the failures – would different types of process improvement be required for the different types of failure avoidance?
- Introduce a final section that examines the cost of robust software development processes versus the cost of inadequate development processes and discuss any difficulty that in your opinion, might arise in striking a balance between these two concerns.

Cover Page Mandatory Inclusions: (failure to include mandatory info may result in a 0% mark)

1. Identify **all three student names** and **IDs** on your submission.
2. Include the **total word count** for your submission (including all words in the cover page and reference listing, note that this **should not exceed 2500 words**).

Both Part 1 and Part 2 must be completed (failure to do so may result in a 0% mark).

Research

You will need to conduct research beyond what you will find in our course materials. You should conduct a search of work related to the assignment that is being published in current journals and conferences, and on-line. The DCU Library has excellent on-line resources to help in your research. The best databases to search are: **ACM Digital Library** the **IEEE Xplore Digital Library** and **Science Direct**. The best research papers are often found in top ranked journals such as: Journal of Systems and Software, Information and Software Technology, Journal of Software Evolution and Process, IEEE Transactions on Software Engineering, IEEE Software and ACM Transactions on Software Engineering and Methodology.

Assessment Criteria

Marks will be awarded for quality of information, analysis, discussion, background research as well as for the basic quality of written materials according to the following general scheme:

- Quality of essay-style written English: 15%
- Extent and correctness of citation and referencing: 15%
- Technical correctness: 40%
- Informed and Appropriate Argumentation: 30%

Plagiarism

See both the School statement and University statement on plagiarism. All cases or suspected cases of plagiarism will be referred to the Disciplinary Committee. You are required to work on your own project and produce your own work. Submissions may be subject to **a turn-it-in score/analysis**.

ALL projects must contain the following statement (along with ALL signatures) on the cover page:
We the undersigned declare that the project material, which we now submit, is our own work. Any assistance received by way of borrowing from the work of others has been cited and acknowledged within the work. We make this declaration in the knowledge that a breach of the rules pertaining to project submission may carry serious consequences.

Strict Deadline for submission: **Monday 20th February 2017**

** Individuals who are unable to team up with two other students should contact the lecturer immediately in order to identify partners for the project.

All assignments must be submitted to the class lecturer in print out form at the lecture on Monday 20th February 2017, with an exact electronic copy in MS Word format also being submitted by Loop in advance of our class on Monday 20th February 2017.