The University of the West Indies St. Augustine
Department of Computing and Information Technology
COMP3613 Software Engineering II
Assignment 1

Introduction

This assignment focuses on providing student with the opportunity to engage in some of the theoretical components of software engineering that might be useful in helping them to complete their capstone project for this course and in their software engineering careers going forward.

Theory – Software Process

1. Describe the following Software Performance Metrics (SPM):
   i. Apdex Score
   ii. Average Response Time
   iii. Error Rates

2. Describe with the use of illustrations the Goal-Question-Metric Paradigm

3. Describe with illustrations the five stages in the process change process:
   i. Improvement identification
   ii. Improvement prioritization
   iii. Process change introduction
   iv. Process training
   v. Change tuning

4. Provide a description, advantage and disadvantage of the following Process Improvement Models (PIMs):
   i. CMM
   ii. CMMI
   iii. CQI
   iv. Plan-Do-Check-Act
   v. ISO9000

Theory – SE/Tools and Requirements

1. Describe Software Configuration Management (SCM). Highlight (through illustration) how different SE tools are part of the SCM.

2. Provide one advantage and one disadvantage of using a SaaS for continuous integration (like Circle C.I.) compared to a self-hosted (Jenkins) solution.

3. What is requirements tracing? Highlight the differences between forward and backward tracing. Is there a situation in which one is more appropriate than the other?

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Theory – Software Design and Construction

1. Describe (with appropriate code examples if necessary) the following:
   a. Defensive coding practices
   b. Secure coding practices
   c. Robust/fault tolerant programs

Submission

- The assignment is a group assignment; groups may comprise no more than 5 people.
- Due on 21st November 2018.
- Responses to the sections should focus on the ease of interpreting the complex information presented.
- Images and in-text citations are done
- Submissions should be made either as PDF Files. Submissions should not exceed 10 pages (excluding reference, and Table of contents)
- Submission will be a single zip file with all of the required files.