## **Continuous integration tool that supports the process by an optimal test suite selection –**

## **thesis plan.**

# Introduction

## 1.1. Problem statement – the most common constraints for an efficient process of high-quality software development.

## 1.2. Role of software testing and configuration management in the software development process.

## 1.3. Motivation for taking the thesis subject up

# Content of the thesis

## 2.1. Goal and scope of the thesis

## 2.2. Overview of the main points

# Software development process

## 3.1. Phases of software development

## 3.2. Waterfall model

## 3.3. V-model

## 3.4. Agile methods

# Software quality assurance

## 4.1. Software testing overview

## 4.2. Types of software testing

## 4.3. Regression testing

## 4.4. Configuration management

## 4.4. CI and CD

# Test suite selection

## 5.1. How to write a good test?

## 5.2. How to setup a robust test environment?

## 5.3. How to run the right tests?

## 5.4. Algorithms for test suite optimizing

## 5.5. Review of existing research on optimal test suite selection

# Tools used in the thesis

## 6.1. Java

## 6.2. Eclipse IDE

## 6.3. Maven

## 6.4. jUnit

## 6.5. Mockito

## 6.6. Jenkins

## 6.7. Python

## 6.8. Git

# Unit under test development

## 7.1. Application abstract

## 7.2. Capturing requirements for the application

## 7.3. Code refactoring to make it testable

## 7.4. TDD in application development by using test setup and CI tools

# Test setup development

## 8.1. Test setup abstract

## 8.2. Capturing requirements for the tests cases

## 8.3. Sample test cases

# CI tool development

## 9.1. CI tool abstract

## 9.2. Capturing requirements for the CI tool

## 9.3. Traceability analysis between requirements

## 9.4. Idea behind selecting an optimal test suite – python script

# Conclusion and discussion

## 10.1. Results analysis

## 10.2. Quantitative assessment of the proposed solution

## 10.3. Limitations and shortfalls analysis

## 10.4. Future development plans

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