**Research plan**

Docker & Unit Testing

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# Introduction

This research is focused on learning about Code Testing in C# (Unit testing, System testing, end-to-end testing) and working with Docker. The main driver to conduct this research is that I want to gather knowledge on these topics I have never worked on before to be able to use this information to improve future projects. By learning how to test, I can verify and validate my work of its functionalities. Furthermore, Docker has a lot of benefits, and a lot of people work with the tool nowadays. By getting the acquired experience from this research of working with docker, I can as well take this skill and use it for future projects.

# Research Questions

This research plan is based on a main research question broken down into sub research questions. By answering these sub questions can the main question be answered.

## Main Question

How can I create a mineable viable product during the first half of the current software semester that uses Docker and code testing which includes unit, system and end-to-end testing in C# to learn how to improve the quality of future projects?

## Sub Questions

* What is Docker?
* What is Unit Testing?
* What is System Testing?
* What is End-to-End Testing?
* What materials and sources benefitted fellow pierce in learning how to use Docker and Code testing for their projects?
* What minimal viable product can be made using Docker and Code Testing?

# Dot Framework

### What is Docker?

|  |  |  |  |
| --- | --- | --- | --- |
| **Method** | **Strategy** | **approach** | **expectation** |
| **Library** | Literature study | Finding general information online with relevant keywords to the question. | Information to answer the research question which also gives understanding to the topic. |
| **Field** | Problem Analysis | Making sure the problem is clear to what I would like to find out from answering this research question. | By making sure the question is clear to what problem I want to solve, I can make sure that I don’t lose track in the research I am doing. |

### What is Unit Testing?

|  |  |  |  |
| --- | --- | --- | --- |
| **Method** | **Strategy** | **approach** | **expectation** |
| **Library** | Literature study | Finding general information online with relevant keywords to the question. | Information to answer the research question which also gives understanding to the topic. |
| **Field** | Problem Analysis | Making sure the problem is clear to what I would like to find out from answering this research question. | By making sure the question is clear to what problem I want to solve, I can make sure that I don’t lose track in the research I am doing. |

### What is System Testing?

|  |  |  |  |
| --- | --- | --- | --- |
| **Method** | **Strategy** | **approach** | **expectation** |
| **Library** | Literature study | Finding general information online with relevant keywords to the question. | Information to answer the research question which also gives understanding to the topic. |
| **Field** | Problem Analysis | Making sure the problem is clear to what I would like to find out from answering this research question. | By making sure the question is clear to what problem I want to solve, I can make sure that I don’t lose track in the research I am doing. |

### What is End-to-End Testing?

|  |  |  |  |
| --- | --- | --- | --- |
| **Method** | **Strategy** | **approach** | **expectation** |
| **Library** | Literature study | Finding general information online with relevant keywords to the question. | Information to answer the research question which also gives understanding to the topic. |
| **Field** | Problem Analysis | Making sure the problem is clear to what I would like to find out from answering this research question. | By making sure the question is clear to what problem I want to solve, I can make sure that I don’t lose track in the research I am doing. |

### What materials and sources benefitted fellow pierce in learning how to use Docker and Code testing for their projects and how it can aid me?

|  |  |  |  |
| --- | --- | --- | --- |
| **Method** | **Strategy** | **approach** | **expectation** |
| **Library** | Community Research | Searching up what other people online used by using for instance Stack Overflow. | Sources recommended by the online community that worked for them. |
| **Library** | Expert Interview | Asking Software teachers at Fontys for advice on the best sources to use. | To receive materials used from previous semesters for teaching students to work with docker and unit testing. |
| **Field** | Document Analysis | Asking for materials and sources that fellow pierce have used. | To receive helpful sources that can help me learn to use Docker and create unit tests. |
| **Field** | Interview | By asking fellow pierce questions based on sources that can help me. | To receive advice and source that I can use from their experience that have worked for them. |

### What minimal viable product can be made using Docker and Code Testing?

|  |  |  |  |
| --- | --- | --- | --- |
| **Method** | **Strategy** | **approach** | **expectation** |
| **Library** | Literature study | Finding general information online with relevant keywords to the question. | By looking at online sources to other projects will it give me ideas to how the minimal viable product will be made. |
| **Library** | Expert Interview | Asking my teachers at Fontys for advice on the minimal viable product I will be making for feedback. | With the advice and feedback from my teachers, it will help me give a clear picture that the to be made product is obtainable. |
| **Workshop** | Prototyping | By determining what kind of prototype suits my needs best. | A clear view of what I would like to learn from my prototype. |
| **Showroom** | Peer Review | Organizing time for my teachers to look at my prototype during and at the end of creation for feedback. | To make sure I am on the right track with creating the prototype. |

# What is Docker?

**Context**

Reason to this question

**Methods and strategies**

Methods and strategies used

**Outcome**

What was the outcome of the methods and strategies

**Reflection/conclusion**

What happened?, what would you do differently?