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**Department of Informatics**

**University of Leicester**

**CO7201 Individual Project**

**Interim Report**

**Developing Platform-independent Reusable Functional Components**

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**[July 25, 2023]**

**DECLARATION**

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Date:[June 25, 2023]

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# **Overview**

So far the progress of the whole project is normal, but some of the small goals have not been realised which I will make a details explanation of afterwards. also, during the development time, I encounter some bugs and didn’t find a straightforward solution on the internet, so I have to dive into the source code of the SpringCloud authentication server which lead to lag for a few days, but after a period of hard work, I caught up with my schedule. However, after roughly one month of development, I think some of my schedule and target should be adjusted slightly.

# **Modification of My Target**

To meet performance requirements, the user and photo components are better implemented by using Spring web flux which is a reactive programming framework. So this adds more burden on my tight timetable. but I still decided to learn this kind of knowledge in week 6. This probably will lead to a delay on week 7.

# **Completed Tasks**

|  |  |  |  |
| --- | --- | --- | --- |
| Week 0(12 – 16 June) | Research | Project Description | Progress |
| Week 1(19 – 23 June) | Build base architecture and Integrate OAuth 2.0 |  | Done |
| Week 2(26 – 30 June) | Integrate Spring Security, PostgreSQL, Redis and Hibernate | Preliminary Report | Done |
| Week 3(3 – 7 July) | Integrate Docker and K8S, deploy all components to AWS EC2 as docker image | 50% finished  Deployed to AWS waits for the front-end parts to finish | Partially  Done |
| Week 4(10 – 14 July) | Develop a Role-based permission function and Build CI/CD pipeline environment(Jenkins) | 50% finished  CI/CD pipeline waits for the front-end parts to finish | Partially  Done |
| Week 5(17 – 21 July) | Build log collection platform and ElasticSearch, Learnning Scrum |  | Done |

According to my timetable, most things have been finished, I also add some more features which is out of my original plan, like leveraging SpringCloud Config to implement central config control. What's more, I developed a role-based dynamic permission control. Others like Zipkin for tracing and analysing performance bottlenecks. Swagger for simplifying generating API documents, which are not included in my initial plan. But unfortunately, I also failed to realise some of my goals, CI/CD pipeline is deeply related to the environment, so far I still working on my local laptop and not deploy all my components to the cloud environment, so this part put off to the end of my project. Which are the same with docker and Kubernets.

# **Ongoing Tasks**

|  |  |  |  |
| --- | --- | --- | --- |
| Week 6(24 – 28 July) | Build Monitor System and Develop collect metrics from Reusable Component and Write Interim Report Learning Reactive Programming and Stream Fucntion | Interim Report | Partially  Done |

Reactive and Stream programming can improve code readability and performance. In order to improve the whole system performance, it is necessary to introduce them into my project.

# **Pending Tasks**

|  |  |  |
| --- | --- | --- |
| Week 7(31 – 4 Aug) | Learn ReactJs and Develop Front UI Slides and Demonstration of System | Mock Pre |
| Week 8(7 – 11 Aug) | Learn ReactJs and Develop Front UI |  |
| Week 9(14 – 18 Aug) | Learn ReactJs and Develop Front UI and Final Report Template | Final Report Template |
| Week 10(21 – 25 Aug) | Develop Photo-Sharing System |  |
| Week 11(28 – 1 Sep) | Develop Photo-Sharing System |  |
| Week 12(4 – 8 Sep) | Develop Photo-Sharing System and write Final Report | Final Report and Code |
| Week 13(11 – 15 Sep) |  | Viva |

In the next a few weeks, front-end UI will be the priority of my work, but before I start to learn and develop front end component, I plan to deploy my backend system to cloud environment which my take me like two or three days depends on how things going. Also during this time, I will try to implement CI/CD pipeline.

# **Risk**

The reality is that there will always be unexpected situations, and I don’t know what caused them, and bugs are tricky and difficult to rule out, which result in my whole progress delay. And in the next part of my project is all about front-end, this part is not my forte.