**Undergraduate Final Year Project Proposal**

**Rental Motorbike Management System by Spring Boot**

**and React JS**

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**1. Overview**

One of the most used vehicles in Vietnam is a motorbike. We see them on the road all the time. They help us move smoothly and easily to other places. However, we do not always have a motorcycle with us, especially when traveling. Regardless of whether they are domestic or foreign guests, most of them like to ride motorbikes to explore tourist attractions in Vietnam. There are currently many motorcycle rental services in operation as a result of this demand. However, because this business model is not large, most of the motorcycle rental services in the locality are usually managed roughly by hand. Because this type of business is mainly done by households in tourist destinations and not by a large company. Because most of them are local families, they lack the knowledge to apply modern technology to the management of motorbike rentals. Therefore, we need a motorcycle rental management system to not only help these households manage their rentals accurately but also save them a lot of time.

I started to develop a motorcycle rental management system for the aforementioned reason. To allow users to manage data efficiently and accurately, this system will help to maintain all information stored on the system. In order to create a website that users can use on both computers and mobile devices, I will mostly use Spring Boot and ReactJS in this project.

The Spring Framework ecosystem's open-source Spring Boot Java toolkit is used to create the application's back end. It assists programmers in making programming simpler so that we can devote more time to creating the application's functional parts. It may be claimed that Spring Boot is currently the most well-known framework utilized in Java projects. Also, Spring Boot has a sizable and active community on social media that allows us to exchange solutions for practically any programming issue. From there, I decided to use Spring Boot to create the system's back end for managing motorcycle rentals.

A JavaScript library called ReactJS was created to assist programmers in creating user interfaces. Facebook, one of the top social networking sites in the world, developed ReactJS. ReactJS's goal is to make it possible for users to create web applications rapidly and effectively by code optimization. The goal of ReactJS is to create web pages that are slick, quick, incredibly scalable, and simple to use. The largest community of open-source front-end frameworks at the moment is ReactJS. This demonstrates the significant impact ReactJS is having on the market right now. I decided to develop the Front-end part of the project using this library.

I'll start learning how to build front-end interfaces using ReactJS and back-end clients with Spring Boot in this project. Then, I'll move on to creating a website application based on my research once I've mastered these techniques. Finally, I'll compose a report and present my completed product.

**2. Aim**

I made the decision to go through with the development of this project for two reasons: One is that I can learn more about well-known frameworks and libraries, such Spring Boot and ReactJS, and gain new knowledge about them. Second, I may use my project to benefit families owning motorbike rental businesses in popular tourist areas in Vietnam.

**3. Objective**

* Studying how to create a web application system.

**Activities:**

* Learn how to develop a web application.
* Get to understand the fundamental components of a management system.
* Collect the client's project requirements.
* Conduct an analysis and establish the project's product backlog in accordance with MoSCoW standards.
* Create a Gantt chart to display the work's progress.

**Deliverables:**

* The backlog for the project lists all requirements and priorities.
* A completed Grantt Chart that displays job progress.
* The relevant information pertaining to renting motorcycles.
* Studying the Spring Boot framework's use.

**Activities:**

* Acquaint yourself with Spring Boot's features.
* Get to understand Spring Boot, which is used to create server-side applications.
* Discover how to use Spring Boot in data processing and decentralize applications in a project.

**Deliverables:**

* Understand Spring Boot to build a server from the back-end
* Recognize the structure of a Spring project as well as the workings of Spring Boot.
* Studying the ReactJS library.

**Activities:**

* Recognize the fundamentals of ReactJS.
* Learn how it functions and how to develop a rapid interface with ReactJS.
* Become familiar with ReactJS's processing of information received from the server side.
* Look for more sublibraries that help ReactJS with data processing.

**Deliverables:**

* Expertise with basic ReactJS website usage
* Understand the database processing procedure.
* Learn about various support libraries for interface design.
* Design and develop a motorcycle rental management system.

**Activities:**

* Create a database using entities in accordance with the project backlog.
* Decentralize server-side apps with Spring Boot.
* Using ReactJS, create a website interface.
* Execute the tasks in the project backlog in the order they are listed.
* Use APIs to implement data processing between the front end and back end.
* Test and correct issues that appear during the design process.

**Deliverables:**

* An entire system with fundamental features.
* The system can operate faultlessly and without major mistakes.
* Compose a report and deliver the finished product.

**Activities:**

* Compose a report on the item and the lessons I learnt from working on it.
* Create reports and presentations for supervisors using appropriate documentation.
* Consider the product's prospective expansion as well as its overall completeness.

**Deliverables:**

* A comprehensive report with all the project's information.
* Deliver presentations to stakeholders and supervisors

**4. Legal, Social, Ethical and Professional**

**4.1. Legal**

* The project takes use of the free and open-source Spring Boot and ReactJS.
* All data relating to the process of renting motorcycles from clients will be kept completely private and will not be used for financial purposes.
* No plagiarism; references are obvious.
* I and Greenwich University Vietnam are the sole owners of this project.

**4.2. Social**

* The project won't have a negative impact on people
* No illegal purpose for any individual or company will be served by the initiative.

**4.3. Ethical**

* There is no deception in the project construction or report writing processes.
* The project was created entirely by me.
* The technology and techniques utilized are legal and have been approved by the supervisor.

**4.4. Professional**

* Except for the University of Greenwich Vietnam or an authorized government agency, all project data will be kept private and will not be shared with anyone else.
* I always listen to and receive feedback from project managers and clients.
* The project is carried out with the intention of learning new information and producing useful goods for the community.

**5. Planning (see appendix A)**

The project needs to have a specific plan to be able to control the project implementation process. One of the simplest ways to design a plan is to convert the time estimates above into a Gantt chart. The tool used to support the creation of Gantt charts that is Microsoft Excel.

**6. Initial References**

**APPENDIX A - SCHEDULE OF WORK**

