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**ASSIGNMENT COVER SHEET**

**SECTION A: GENERAL DETAILS**

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| **Program of study** | BACHELOR OF INFORMATION COMMUNICATION TECHNOLOGY |
| **Module** | MOBILE APPLICATION DEVELOPMENT 2 |
| **Year** | 2024 |
| **Semester number** | 2 |
| **Assignment Title** | ANDROID FULL STACK DEVELOPER |
| **Student number** |  |
| **Tutor** | MPHAMBA |
| **Due date** | 3/ 02/ 2024 |
| **Signature** | SILIKA |

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| **TOTAL SCORES** |  |
| **General Comments** |  |

**Android full stack developer**

A full stack developer is a software developer who specializes in designing and developing applications for the Android operating system. They are responsible for creating scalable software, writing clean and functional code on the front-end and back-end, testing and fixing bugs, and improving application performance.

They must have a strong foundation in Android development, interactivity, UI, navigation, testing, databases, notifications, security, APIs, Git version control system, and deployment of applications. For instance, an Android full stack developer must be able to design and develop advanced applications for the Android platform, unit-test code for robustness, including edge cases, usability, and general reliability, and fix bugs and improve application performance.

They must also be familiar with Firebase on Android, which is a mobile and web application development platform that provides developers with a variety of tools and services to help them build high-quality apps.

**Prototype**

Prototyping is an essential part of mobile app development as it allows developers to create a working model of the app before investing time and resources into coding. It not only helps identify design flaws and usability issues but also gives users a chance to provide feedback and suggestions.

Prototyping enables developers and designers to transform abstract concepts into tangible visuals. By creating a visual representation of the app's interface and features, teams can better understand the flow and structure of the application. This visual representation helps in identifying potential flaws, refining design elements, and ensuring a seamless user experience. Prototypes serve as a valuable tool for conducting user testing and gathering feedback. By presenting a prototype to potential users, developers can observe how they interact with the interface and identify areas for improvement. This early user feedback allows for iterative design changes, resulting in a more intuitive and user-friendly final product.

In summary, prototyping helps save time and resources by identifying design flaws and usability issues early in the development process. By catching these issues in the prototyping phase, developers can make necessary adjustments without incurring significant costs or delays. This iterative approach ensures that the final product meets user expectations and minimizes the need for major revisions down the line.

**Version Control**

Version control is a system that records changes to a file or set of files over time so that you can recall specific versions later. **Git** is a popular version control system that is widely used in software development. It allows developers to keep track of changes made to a codebase over time, providing a centralized repository for collaboration and maintaining a history of revisions.

Version control is crucial in collaborative software development because it ensures accuracy, collaboration, and efficiency. By utilizing version control, developers can easily track and manage changes, ensuring that the most up-to-date and accurate version of the code is being used. This not only improves the overall accuracy of the software but also promotes seamless collaboration among team members, as they can easily review, comment, and merge changes.

Key concepts in Git include **commits**, which are snapshots of the codebase at a particular point in time, **branches**, which are separate lines of development that allow developers to work on different features or bug fixes concurrently, and **merging**, which is the process of combining two or more branches into a single branch. By using these concepts, developers can work on different features or bug fixes without conflicts, reducing the chances of code duplication or errors.

**FuelDrop**

This is a mobile application that allows users to order fuel online and get it delivered to their location by a service provider. The app is designed for people who need fuel for their vehicles but don't have time or access to a gas station. The app provides users with the price, availability, and quality of the fuel, making it easier for them to make informed decisions.

The app's purpose is to provide a convenient and efficient way for users to get fuel delivered to their location without having to go to a gas station. The target audience for this app includes busy professionals, people who live in remote areas, and anyone who needs fuel but doesn't have access to a gas station.

By using this app, users can save time and effort by getting fuel delivered to their location, making it easier for them to focus on their daily activities. The app also helps reduce traffic congestion and air pollution by reducing the number of cars on the road.

**Core Functionalities and features**

The FuelDrop is a mobile application that allows users to order fuel online and get it delivered to their location by a service provider. The app's core functions include detecting the user's location, allowing them to order the fuel type of their choice, refueling their vehicle, and providing real-time updates on the status of their order. The app's main features and functionalities include:

1. User Panel: This panel allows users to register, log in, and place orders for fuel delivery. Users can also view their order history, track the status of their current order, and rate the service provider.

2. Delivery Agent Panel: This panel is designed for delivery agents who are responsible for delivering fuel to the users. It allows them to view and accept orders, update the status of the order, and communicate with the user.

3. Admin Panel: This panel is designed for the app's administrators. It allows them to manage users, delivery agents, and fuel suppliers. They can also view and analyze data related to orders, payments, and user feedback.

4. Real-time Updates: The app provides real-time updates on the status of the order, including the estimated delivery time. This helps users plan their day and ensures that they are available to receive the fuel delivery.

5. Multiple Payment Options: The app offers multiple payment options, including cash on delivery, credit/debit card, and mobile wallets, to cater to different user preferences.

6. Safety Protocols: The app prioritizes safety and ensures that the fuel is delivered safely and efficiently. This can be achieved by hiring professional drivers, regularly checking the safety of the fleet, and implementing spill prevention measures.

7. Emergency Situations: The app is equipped to handle emergency situations, such as running out of fuel or a delay in delivery, and provides users with prompt and efficient solutions.

By offering these features and functionalities, the Online Fuel Delivery App provides a convenient and efficient way for users to get fuel delivered to their location without having to go to a gas station. The app's target audience includes busy professionals, people who live in remote areas, and anyone who needs fuel but doesn't have access to a gas station.

<https://www.figma.com/file/O4IbaVuL01dRskHWSXDBen/FuelDrop?type=design&node-id=0%3A1&mode=design&t=ybPTcNFeTeI1q3PI-1>

