DAVIS & SHIRTLIFF HACKATHON PROBLEM STATEMENTS

1. **Develop a mobile application similar to Uber that connects customers with skilled technicians to enhance service delivery speed and efficiency.**

Problem Statement:

In Kenya, there is a growing need for a convenient and reliable solution to connect customers with skilled technicians who can address various household and technical needs. Many Kenyan residents face the following challenges when seeking the services of technicians:

1. **Difficulty in Finding Reliable Technicians**: Customers often struggle to find skilled and trustworthy technicians for various repair and maintenance services. This leads to a lack of transparency and trust in the service provider, causing anxiety and frustration.
2. **Service Provider Profiles:** Detailed profiles of technicians, including their skills, certifications, ratings, and reviews from previous customers, helping users make informed decisions.
3. **Lack of Transparency**: There is a lack of transparency in the pricing and quality of services offered by technicians. Customers often face uncertainty about the cost of services and the expertise of technicians, leading to disputes and unexpected expenses.
4. **Safety Concerns**: Customers may have concerns about the safety and security of their homes when inviting unknown technicians into their premises. This issue can be particularly distressing for vulnerable individuals, such as elderly or single households.
5. **Inefficiency in Technician Location**: Technicians also face challenges in marketing their services effectively, leading to underutilization of their skills and inefficiencies in serving the community. They may struggle to reach a broad customer base, resulting in income instability.
6. **Secure Payment:** Integrated payment gateways for seamless and secure transactions. Users can pay for services directly through the app.

Considering these challenges, there is a pressing need for an innovative and user-friendly mobile/web application like 'Uber Technician' that can efficiently match customers with qualified technicians, ensure transparency in pricing and service quality, and ultimately enhance the convenience and trustworthiness of technical services in Kenya. Such an app has the potential to transform the way customers access technical expertise and the way technicians reach their clientele, significantly improving the overall service experience.

2. **Develop a mobile application to address the need for providing financing options to stockists.**

Problem Statement:

Davis & Shirtliff's stockists face significant cash flow constraints, resulting in inconsistent stock levels and competitive disadvantages compared to rivals offering credit facilities. This hampers stockist retention and working capital, while increasing credit risk. To tackle these challenges, a mobile app is needed to provide financing solutions, reducing cash flow constraints and credit risk, and enhancing stockist relationships, loyalty, and market competitiveness.

The application aimed at providing financing solutions to service providers and stockists can offer several advantages, including:

1. **Improved Cash Flow**: The application can offer flexible financing options, allowing service providers and stockists to maintain healthier cash flows. This enables them to purchase inventory, meet operational expenses, and invest in growth without severe cash constraints.
2. **Competitive Edge**: By providing financing options, the company can level the playing field with competitors who already offer credit facilities. This can attract and retain stockists who might have chosen competitors due to better purchasing terms, enhancing the company's competitive advantage.
3. **Stockist Retention and Attraction**: The availability of credit facilities can help retain existing stockists and attract new ones. Stockists are more likely to partner with a company that offers flexible financing, contributing to business growth and market expansion.
4. **Enhanced Working Capital**: As stockists have access to credit options, it reduces the working capital strain on the company. This allows D&S to allocate capital to product development, marketing, and other strategic initiatives, fostering overall business growth.
5. **Credit Risk Mitigation**: The structured credit facilities offered through the application can help mitigate credit risk for the company. Stockists are more likely to adhere to predictable credit terms, reducing the risk of default and unpredictable credit behaviours.

In summary, the application can bring substantial benefits, not only by addressing current challenges but also by creating a more attractive and competitive environment for service providers and stockists, which can ultimately contribute to the company's growth and success.

3. **Develop an application that facilitates foreign currency exchange management for D&S in its interactions with customers.**

Problem Statement:

There is an imperative need to devise a strategic solution for D&S's currency exchange requirements, aiming to overcome the challenge of securing more cost-effective currency rates compared to conventional bank transactions.

The application is meant to offer D&S competitive advantages including:-

1. **Currency Risk Management**: Managing the impact of global currency fluctuations on profits.
2. **Access to Competitive Rates**: Obtaining favourable exchange rates amidst unpredictable global currency fluctuations.
3. **Operational Efficiency:** Streamlining administrative tasks related to volatile exchange rates.
4. **Enhanced Trade Competitiveness:** Ensuring D&S remains competitive by offering stable pricing to customers, avoiding currency-related uncertainties.
5. **Diversified Revenue Streams**: Generating additional income by engaging in currency buying and selling with a markup.

In essence, the currency exchange platform will equip D&S with the necessary tools to effectively navigate and mitigate the challenges posed by erratic currency fluctuations, ultimately fostering financial stability and expansion.

4. **Develop a mobile application to oversee logistics operations, providing real-time tracking of shipments, proof of delivery, delivery confirmation, and managing returns.**

Problem Statement:

A pressing need exists to develop a mobile application that can efficiently manage our logistics operations. The application should facilitate real-time tracking of goods, provide proof of delivery, streamline the confirmation process, and effectively handle the management of returns.

The challenges of coordinating complex delivery networks, managing inventory, and ensuring timely shipments are ever-present. To overcome these hurdles and elevate the efficiency of delivery systems, innovative solutions are imperative.

The application should be able to manage the following functionalities:-

1. **Real-time Tracking**: Provide users with real-time visibility into their shipments. Enable precise tracking functionalities, allowing customers and businesses to monitor the location, estimated time of arrival of their deliveries, and send automated alerts to customers when their delivery is within a specified radius.
2. **Delivery Confirmation**: Facilitate proof of delivery functionality within the app. Enable digital signatures, photos, or QR code confirmations upon delivery completion, ensuring transparency and building trust between businesses and customers.
3. **Returns Management**: Develop a user-friendly returns management system. Enable customers to initiate return requests through the app, guiding them through the process and ensuring timely pickups, replacements, or refunds.
4. **Customer Support Integration**: Incorporate customer support features within the app, such as live chat, chatbots, or AI-driven support. Provide instant assistance to customers regarding their shipments, enhancing overall customer satisfaction.
5. **Cost Optimization and Scalability**: Implement cost optimization algorithms to analyze delivery routes, transportation costs, and operational expenses. Ensure the logistics system is scalable, capable of handling increased demand without compromising efficiency.
6. **Monetization Strategy**: Explore viable monetization models, such as subscription plans, tiered service offerings, or transaction-based fees for businesses that are looking to use D&S delivery systems for their goods. Tailor the pricing strategy to cater to varying business sizes, ensuring affordability and value for money.

5. **Build an application that offers D&S's extensive and valuable data assets to our service providers using a subscription-based monetization model.**

Problem Statement:

Service providers, stockists, and other customers in the water and energy supply industry often grapple with inefficiencies in resource allocation and difficulties in optimizing water and energy infrastructure. The challenges faced include the inefficient use of water pumps, suboptimal placement of solar panels among other problems being faced which D&S has vast experience on.

Unlocking the potential of Davis & Shirtliff's extensive data assets, which include water supply, equipment performance, market trends and specialized apps related to pump sizing and borehole information, presents a unique opportunity. The solution lies in developing a subscription-based data service that offers actionable insights to address the inefficiencies and challenges faced by service providers, stockists, and other customers in the water and energy supply industry.

We would like to encourage creativity in finding innovative ways to address these real world challenges.

The key objectives of the application would be but not limited to:

1. **Data Aggregation and Accessibility**: Create a solution that aggregates, organizes, and packages data.
2. **Monetization Strategy**: Design and implement a clear and compelling monetization strategy that directly addresses the challenges faced by service providers, stockists, and other customers in the water supply industry.
3. **Market Differentiation**: Find a unique and compelling way to position the solution so that it addresses the specific challenges and needs of the target audience while standing out in a crowded marketplace.
4. **Compliance and Quality**: Adhere to data privacy regulations and industry standards while maintaining data quality and accuracy to meet the demands of our clients in solving these pressing issues.

6. **Create an online marketplace platform where stockists and traders can sell items that are not stocked by Davis & Shirtliff.**

Problem Statement:

Stockists and traders frequently provide products that are not typically carried by D&S, commonly referred to as Cat3 Items. In the spirit of innovation, D&S aims to facilitate connections between stockists and their customers. This involves establishing an online platform where stockists can showcase their products to a broader customer base, thereby expanding their sales reach.

The key objectives of the application would be but not limited to:

1. **Platform for Stockists**: Develop a user-friendly platform where stockists can create accounts, log in, and easily upload their Cat3 products. This includes creating profiles for stockists, managing product listings, and setting prices.
2. **Product Review and Approval Module**: Create a module that allows D&S to review the products submitted by stockists before approving them for publication on the platform. This ensures the quality and relevance of the listed Cat3 items.
3. **Customer Purchase Module**: Develop a module that enables customers and the public to browse, search, and purchase items from the platform. This includes creating user accounts, searching for products, viewing product details, adding items to the cart, and making secure payments.
4. **Real-time Remittance and Commission Module**: Implement a system that enables real-time remittance of funds to stockists upon successful transactions. A percentage of the transaction amount is retained by D&S as a commission or service fee. This module will need to track and record sales, calculate commissions, and facilitate payment processing.

The main objective is to model the platform after successful online marketplaces like **Amazon**, **Masoko**, and **Jiji** in terms of user interface, product discovery, and transaction flow. Incorporate best practices and features that make these platforms popular.