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## Project and Professionalism (6CS007)

### Project Report

#### On-Demand Queue Service App

#### [Professionalism Report]

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## **1. INTRODUCTION**

On-Demand Queue Management System or “QueueEase” is a mobile app that allows users to book individuals or “Agents” who are willing to stand in queues and in exchange for their service receive appropriate payment. In Nepal, citizens are fed up with it comes to government tasks, so nowadays the masses rely on others but this spike of reliance has skyrocketed cases of fraud. For that reason, this app was envisioned with the aims to facilitate the unorganized service provided by solo individuals and convert it to a supervised service so that both parties i.e., the user and the agent feel safe and satisfied.

In short, how the app works is that the user selects a government office, then the app provides users with agents located near that office. The users can then select the desired agent. Once the agent is booked, they go to the designated office and queue up. When it's the user's turn, the agent will call them and guide them through the process until the service is completed.

We now delve into the professionalism aspects of the app. The section contains the social impact, ethical issues, legal implications, and security aspects associated with the development and deployment of the application.

## 2. PROFESSIONALISM SECTION

### 2.1. SOCIAL IMPACT

The social impact of the app “QueueEase” are like two faces of a coin. There are both beneficial and detrimental qualities to it which effects the Nepalese society. As the application allows users to book agents to stand in queues on their behalf, it has potentially positive impact including:

- **Time-saving:** “Long queues start forming outside the department even before the break of dawn. Mismanagement adds to the frustration of long hours of wait, say service seekers.” (Dhakal, 2022) The headline of Kathmandu Post, which is a common issue in this country. This service can save users their valuable time which could be utilized elsewhere such as work, family or leisure.
- **Accessibility:** Nepal Census 2078 says 2.2% of the Nepali Population have some form of disability. (Admin, 2023) That was two years ago, meaning the percentage has naturally only gone up. Hence, individuals with disabilities can benefit from this service both by standing in queue as agents and booking agents on their behalf as users.
- **Employment Opportunities:** According to the World Bank Nepal’s unemployment rate for 2022 was 10.9%. (Bank, 2024) In a country like Nepal this app can provide employment opportunities for agents who offer their queuing services serving as a main source of income for many individuals.
- **Reduce Stress and Improved Well-Being:** Offices being jam packed especially in the context of Nepal due to inefficiency and lack of work ethics leads to frustration. By eliminating long wait times, QueueEase can reduce the stress level and improve mental well-being of the citizens.
- **Increased Community Engagement:** The convenience provided by the app could encourage people to participate in activities related to government. People will be more willing to engage in government process if they find out that they can avoid lengthy queues.

However, there are also potential negative impacts to consider:

- **Social-Inequality:** The richest 10% of Nepali have more than 26 times the wealth of the poorest 40%. (Pradhan, 2024) The app may enforce the existing inequalities in the society favoring those who can afford to pay for the service.
- **Corruption:** Nepal is ranked in 108th position out of 180 countries and territories in the Corruption Perceptions Index. (TKP, 2024) The app could worsen the position as there is a chance of agents jumping the queues or using other unethical practices for financial incentive.
- **Quality of Life:** We humans are social animals; we interact, bond and grow. Queuing is one such event where we get to mingle. This app could potentially shut-down community interactions. Furthermore, it can also reduce the tolerance of the citizens being dependent on the app when it comes to other forms of waiting.
- **Technology Dilemma:** Nepal has many areas which are rural and underdeveloped. The app's reliance on smartphone and wifi access to work could widen the technological gap in Nepal.
- **Potential Job Displacement:** If the app becomes extremely popular, it has a high chance of displacing individuals who currently earn a livelihood by informally assisting people in queues. This could worsen the condition of unemployment in Nepal.

## 2.2. ETHICAL ISSUES

Ethics in Software Development involves the making decisions that respect user privacy, promote fairness and benefit society. During software development it is natural to face ethical dilemmas but one should understand the impact of unethical practices. (PDH-Pro, 2024) Several ethical considerations arise in the development and deployment of QueueEase:

- **Fairness:** The app should provide fair access of its services to all citizens, avoiding discrimination based on economic condition or other factors. To do that, the rate of service should be nominal satisfying both user and agent.
- **Transparency:** It is of utmost importance that both users and agents know how their data is being collected, stored and used. The app should also provide clear information about the service and the fees. There should not be any hidden charges. It can be achieved by drafting careful terms and conditions and privacy policies.
- **Privacy:** As the app collects location, user data, ensuring the confidentiality is crucial to prevent misuse. It should ensure the security of personal data and location tracking. Deploying privacy settings that allow users to choose what they want to share with the app is necessary.
- **Agency:** The app must ensure fair compensation and working conditions for agents alongside guarding against exploits or coercion. They should have the freedom to accept or decline the service without any pressure or risk of forceful subjugation. The app must provide agents with details of the service including the user, location and all the relevant details.
- **Honesty:** The app should be honest to both user and agents, avoiding deceptive practices or unethical service providence. App must provide clear and accurate details to both users and agent.
- **Potential for Misuse and Abuse:** Since this app connects two users it could be misused by people. Both users or agents could be shady individuals and hire people to misuse and abuse. The app must provide a proper screening process to make sure it knows the userbase.

### 2.3. LEGAL IMPLICATIONS

Adhering to the law is crucial for ensuring our safety and protecting our rights as citizens. The law applies to everyone whether we're dealing with individuals, organizations or even the government itself. Abiding by the law helps prevent abuses and ensures that everyone is held accountable for their actions. (Centre, 2024) Needless to say, the app should also abide by the law, below are key laws and regulations that must be considered for the development and deployment of QueueEase.

**Data Protection Law:** The app collects and stores personal data from both user and agents. In Nepal, data protection laws such as the Personal Data Protection Act 2075 apply. This law ensures the right to privacy, guarantee proper and secure use of personal information held by public institutions and prevent infringements on personal privacy. In simple terms, it's crucial to seek permission before gathering someone's data. (Dahal, 2023) Since QueueEase operates in a digital environment it should also adhere to international standards such as the General Data Protection Regulation (GDPR). GDPR defines the rights of people in the digital era, it outlines the duties of those who manage data, specifies ways to ensure compliance and sets out punishments for those who violate the rules. (Consillium, 2024) The app should have consent checkboxes, privacy policies during signup process and notifications to adhere to Personal Data Protection Act and GDPR.

**Consumer Protection Law:** This law aims to protect consumers from unfair or deceptive practices in commercial transactions. (Liberto, 2023) Since the app has transaction involved it should adhere to this law. There should be clear and accurate information to users regarding the service, pricing, and terms of use. Any fees or charges associated with booking agents must be transparently disclosed.

**Intellectual Property Law:** Intellectual property rights (IPR) are legal rights granted to inventors and creators to protect their inventions or creations for a specific duration. This includes but not limited to copyrights, trademarks, and patents. (Saha & Bhattacharya, 2011) It is crucial that QueueEase does not infringe upon the intellectual property rights of others without consent or misappropriating trademarks. Thorough research of materials is needed to prevent that from happening.

## 2.4. SECURITY ASPECTS

Trust is a crucial factor contributing to the success rate of an application and for maintained trust in the app security plays a vital role. QueueEase should provide security which both protects the user data and ensures users well-being. Key security aspects include:

- **Data encryption:** The app should implement encryption protocols to prevent unauthorized access to user accounts and protect sensitive data during transmission and storage, like payment details and personal information.
- **Access control:** The app must contain access hierarchy to limit user data control. It should also implement authentication mechanisms to verify user identities.
- **Vulnerability management:** The Admin of the app should monitor suspicious activities, transactions and verify agents to identify and address any vulnerabilities in the app's infrastructure.
- **User safety:** The app must implement emergency contact information and reporting mechanisms to ensure users and agents safety and well-being. Users might be paired with malicious agents or agents could face hostile situations while queuing on behalf of users. The physical and emotional safety of users and agents during the service exchange should be taken by the app.
- **Fraud Prevention:** Secure measures must be installed to prevent fraudulent activities such as fake profiles, identity theft or unauthorized transactions. TO increase the security the app must implement user reporting, chat logs screening and monitoring of the system.



### **3. CONCLUSION**

QueueEase has positive and negative impacts on society. To ensure it maximizes benefits and minimizes negative impacts, it is crucial to address social, ethical, legal and security considerations. The app must be designed to be fair, transparent and respectful of user privacy. It should also abide by relevant laws. Security measures such as data encryption, access control, vulnerability management and user safety features should be implemented which will allow the app to be secure and trusted. By taking into account the above aspects QueueEase can establish itself as a reliable and long-lasting platform that benefits both users and agents.

In conclusion, it is fair to say that the application "QueueEase" has the potential to transform the way queues are managed and services are delivered in Nepal. It has a high chance of becoming a pioneer and a step in the right direction in advancing the services provided technologically in Nepal. However, in order to do that it must address the professional aspects mentioned in this report.

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