PROBLEM STATEMENTS

IMPORTANT NOTE : **Students can also work on their own problem statements but those problem statements should fall under any of the following themes.**

THEME 1 : HEALTH CARE

1) Over the last few weeks, India has reported 0.3 to 0.4 million COVID cases and 4 thousand deaths every day. We're all badly hit by this second wave, and it's not just numbers we are keeping an eye on. Every statistic has names and faces attached to it - of our loved ones, of the ones they loved. Running around the city to arrange for resources in times of scarcity and distress is unimaginable. Build a real-time tracker for the availability of vaccines, oxygen concentrators or cylinders, ICU or non-ICU beds in hospitals, recovery drugs, plasma/blood donors, and the likes in your city with map integration.

2) Bed management optimization is critical for the efficient functioning of hospitals especially for larger tertiary and quaternary care hospitals. Poor bed management can lead to a myriad of problems like increased waiting time for patients, underutilized operation theatres, overcrowded ERs. The need for automated bed management is the need of the hour.

THEME 2 : ED-TECH

1) Due to online classes the discipline which students had is diminishing and students are becoming more and more aggressive knowing the fact that the administration can`t punish them for this.

Develop a referral process platform that helps teachers to raise and escalate major behaviour issues in the classroom in real-time.

The platform would work like a classroom management tool that will help teachers to share real-time information on their student's classroom behaviours with students, other teachers, parents, and administrators.

The system should record all assessments made by the teachers for future reference and annual evaluations.

2) Due to an unforeseen shift to online education that most educational institutions were just not prepared for, there has been a lapse in providing a uniform experience to students. Additionally, numerous challenges such as outdated mode of delivery of lectures, non-interactive classes, and the like - have only caused more hindrance to the entire process. Build an Augmented Reality/Virtual Reality-based platform that provides a classroom experience to students online at home that are trying to learn.

THEME 3 : FINANCE

1) Investment in the share market helps generate more profit than the other financial instruments but has the threat of market risk that might lead to a high loss. This risk factor refrains many potential investors from investing in the share market directly. Build a Portfolio Management System that avoids the risk of investment on individual/few stocks by investing in multiple stocks belonging to different business sectors. It is required to increase the return over a longer period but minimizing the risks.

2) The non-profit sector today is worth an estimated $2 trillion worldwide, yet headlines in recent times have seen the sector stumble between corruption scandals, gross inefficiencies, false expenses, and misuse of funds. Donor's trust in charities has been declining steadily. Develop a solution that uses distributed ledgers to track transactions, cryptocurrencies to transfer funds and smart contracts to ensure donations are spent correctly, to make the non-profit sector more transparent, efficient and cost-effective.

THEME 4 : CYBER SECURITY

1) The pandemic-induced lockdown and movement curbs marked an inflection point for e-commerce in India, pushing demand to record highs, nudging new buyers as well as sellers onto digital platforms. As the popularity of online shopping grows, so does the opportunity for cybercriminals and unscrupulous consumers to scam online businesses. The current Fraud Detection System (FDS) running at credit card issuing banks is ineffective as it reports positive transactions as malicious although they are genuine.

Develop a system which has capability to restrict and block the transaction performed by an attacker from genuine user's credit card details with the help of User spending patterns and geographical location. If any unusual pattern is detected, the system should alarm the bank authorities and require re-verification from the user.

2) Fake news (also referred to as hoax news) occupies a large sphere of cyberspace today worldwide. Publicity through such fake news on cyberspace has been adopted by States, institutions as well as individuals for various reasons and in varied forms. The problem is to identify the authenticity of the news and online content. Equally important problem is to identify the bots involved in spreading false news.