HARITH YERRAGOLAM

CS23I1027

ASSIGNMENT 2

EXERCISE 2.1

Areas of Interest:

- Air and Water Pollution
- Lack of access to Quality Education
- Fresh Water Availability
- Access to Healthcare
- Language Barrier in Local Transportation

Dimensions:

1) Air and Water Pollution
   - A lot of industries produce chemicals as waste and either burn them, increasing air pollution OR discharge in water bodies, increasing water pollution. Hence, some way has to be found in which the harmful chemicals can be neutralized and passed on as usual, keeping check of measure of pollution reduced.
   - Vehicles emit a lot of smoke and dust, which also helps increase air pollution. Some way has to be found that is cost-effective (Hence electric vehicle is not the solution to this problem, adding some additional component needs to be thought about)
   - Construction sites also produce a lot of dust. Reducing air pollution requires treating dust with some other substance which makes dust less harmful to the environment.
   - Untreated sewage also gets mixed with water bodies, which causes the death of many marine animals.
   - Water contamination is also a common problem, a chemical needs to be thought about for treating water and then producing it on a large scale and treating large water bodies.

2) Lack of access to Quality Education:
- Many institutes still teach outdated curriculum, without helping the students learn industry-readiness. Students don't get job market demands due to this.
- The cost of education is increasing year by year. Education has become very expensive and has almost become a business instead of a service. Hence drop-out rates are also increasing which affects our future generation.
- Language barrier is a common issue in local schools and colleges.
- Online learning is a better improvement but ease of access should also be worked upon, i.e. on the Internet and electronic gadgets.
- Some institutes, colleges and schools don't have fully built infrastructure, and lack a lot of facilities.

3) Freshwater availability:
- Groundwater is being depleted very quickly. Bores are being used which has an effect all over India, giving out salt water instead of fresh water.
- Because of Global warming, Glaciers are melting down, Climate is being affected in a negative way, these factors lead to the reduction of the availability of fresh water.
- Due to the large population of India, over-demand for freshwater exists. A better water system needs to be implemented.
- Deforestation increases soil erosion, which also affects the level of groundwater, Cutting down trees needs to be reduced but industrialization keeps growing, Hence more trees need to be planted elsewhere, or some other solution involving artificial trees might be thought of.

4) Access to Healthcare:
   - Shortage of Good quality Clinics and Hospitals makes it difficult for people to visit when in need.
   - Sterilisation should be properly done and checked
   - Sometimes outdated equipment is still used in many hospitals, equipments with the latest technology should be implemented
   - Insufficient qualified medical professionals or even variably distributed lead to large crowds and lot of time wastage.
   - Improper waste management and poor sanitation gives more problems to patients who already have some disease.
   - Most hospitals are very expensive which makes some people not visit even if they have a serious issue. Surgeries and other operations cost lakhs.

5) Language Barrier in Local Transportation
   - Implementing a system of signboards functional in multiple languages.
   - A voice-powered announcement system can be implemented just like in metros in atleast 3 languages, i.e. English, Hindi and the local language.
   - Bus conductors should be taught at least 1 non-local language, i.e. either Hindi or English (Preferably both) for smooth communication. Or hiring multilingual conductors would also be a solution but it might be difficult.
   - An app can be developed, keeping track of stops and live location, correspondingly ticket machine can print a respective number instead of stop name.
   - Can also implement color coding without purely relying on voice-based indicators.

EXERCISE 2.2

Whenever I see a problem, given details of the problem indicate the head and tail of the elephant. But while analysing the problem, the dots should start being visible, i.e. go to the root of the problem, and start linking why the problem at each step has arrived. Hence now the dots start appearing.

Now, it's the time to start connecting the dots. As I start connecting the dots, I might connect the wrong dots indicating Fuzzy Front-End. After a number of attempts, I end up with one of the correct solutions. This process seems like seeing the birds-eye view of the problem.

Maybe the end result might not end up looking like an elephant, but it might also be a correct solution. There is no one perfect solution for any problem, there exist many. It's important to look at the problem from different angles.

Concluding, whenever a problem is given, it is vital to look at the larger picture by inspecting either by Literature survey or rather than focusing only on the things one knows.