**Water Bolivia Case Study**

**Answer the following questions?**

**Scenario 1:** You are a data scientist working on behalf of the social good of the Cochabamba people. After reading the Water Bolivia case study, what is your definition of the problem as a data scientist? As an individual, not as a data scientist, do you agree with that definition?  What ethical dilemmas could you be facing?

As a data scientist working for the social good in Cochabamba, the main problem is ensuring equitable and sustainable access towards water for the people in Cochabamba, considering the socio-economic constraints and the essentiality of water requirement to everyone. Personally, I might agree with this definition, understanding water as a human right but also acknowledging the complexities involved in water supplying and infrastructure maintenance. Ethical dilemmas might include balancing immediate needs with long-term sustainability and navigating the conflict between commercial interests and public good.

**Scenario 2:**You are a data scientist for the Company Bechtel.  Bechtel is interested in increasing their profits, so their data scientist is in direct conflict with the Scenario 1 data scientist.  What definition of the problem might Bechtel want you to have as a data scientist for the Cochabamba water system?  What data collection, analysis, and reporting ethical dilemmas could you be facing?

As a data scientist for Bechtel, the problem definition may focus on optimizing operations for making high profit while maintaining regulatory compliance and public relations. This perspective could involve prioritizing the efficient management and potential expansion of the water system to maximize profitability. Ethical dilemmas could arise from the potential to prioritize profit over people's rights to water, and the challenge of adhering to ethical practices while striving to meet corporate profit goals is very difficult but should be considered as priority.

**Select one of the following roles?**A data scientist for the Cochabamba water system.

**Using your chosen role, identify your desired outcome?**As a data scientist for the Cochabamba water system, my desired outcome would be to develop a sustainable model that ensures the availability and affordability of water for all people lives in Cochabamba also ensuring the Cochabamba community has access to water without compromising the water system's quality and maintenance.

**Using your chosen role, review questions 2 and 3 on page 5 of the case study. If you were to provide responses to these questions as a data scientist, explain how you could represent and misrepresent the data in response to these questions?**To ethically represent the data  
Accurately calculate and present the percent increase in water costs using actual bills.  
Analyze and report on the proportion of average income spent on water, ensuring data accuracy and context.

To unethically represent the data  
Selectively use data points that show a lesser impact on the community or ignore broader trends that demonstrate significant financial strain.  
Manipulate statistical methods to minimize the perceived increase in water costs or to exaggerate income levels, thereby making the expenses appear more manageable than they actually are.

**Using your chosen role, describe what data is needed?**As a data scientist for the Cochabamba water system. The data needed would include detailed billing information, usage statistics, maintenance costs, and household income data of past decade, and Insight files which can help for our analysis, various attributes which may help us in addressing statistical solution view ahead, data which can show water usage patterns, infrastructure capabilities, payment and subsidy structures, Also mainly we should consider Ethical issues could arise around the privacy and security of residents' financial data and the potential manipulation of data to influence public opinion or policy decisions. It's crucial to handle the data with integrity, respect privacy laws, and provide unbiased, transparent analysis.

**Describe ethical issues you might face relating to each of the answers you provided for your responses to questions 4 through 6 above?**

1.Ensuring data privacy and security, especially personal income data.  
2. Maintaining objectivity in data analysis without succumbing to external pressures from stakeholders with conflicting interests.  
3. Ensuring data accuracy and integrity, avoiding manipulation of data that could misrepresent the impact on the community, and ensuring transparency in how the water rates affect the local population's livelihood.

**Reference: (Water Bolivia Case Study Paper)**https://worldclass.regis.edu/d2l/le/content/329151/viewContent/4696335/View

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