SaT Innovation & Analytics

Data Challenge - 2024

EY
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Data Challenge

The SAT Innovation and Analytics team is pleased to announce that you have been selected to continue the recruiting process for the position in our firm. Congratulations! The next step of the process consists in concluding a **Data Challenge**.

In the following slides we describe in detail the tasks you need to accomplish, as well as the data sources needed and the evaluation criteria.

Please feel free to reach out to HR or any member of the SAT Innovation Team with any questions you may have. We will try our best to clarify them in a timely manner.

Without further ado, good luck with the test, the clock is ticking!

Yours sincerely,

SaT Innovation and Analytics team

Evaluation criteria

The delivery method for your answer is entirely up to you. Feel free to submit your answer in any format or medium you choose. Keep in mind, though, that you will be required to answer specific business questions using specific data sources. We encourage you to deliver your answer in such a way that we can evaluate the following:

▸**General Conclusions** - The "so what" of your analysis. We will assess your capacity to synthesize. This can be through methods such as a PowerPoint presentation, explanatory data analysis, Power BI/Jupyter Notebook/Plotly dashboard, etc. **Ensure it is straightforward and your conclusions are clearly presented!**

▸**Data Pre-processing** - The complete data cleansing process. We will evaluate your ability to automate and efficiently process data, check plausible errors, and fluently use programming languages, tools, and techniques for the cleansing. **Remember, performing quality checks is fundamental!**

▸**Exploratory Data Analysis** - The "how did you get to your insights" portion of your analysis. We will assess your ability to analyze and explore data efficiently and insightfully. It is crucial to explain the thought process that led you to your conclusions. **Be highly visual!**

▸**Your Personal Touch** - Impress us! Add your personal touch to the analysis. We want to gauge how you add value to your analysis without additional instructions.

Business problem

A Private Equity (PE) fund is planning the purchase of an education asset in Mexico. The fund has received a confidential information memo outlining an opportunity to purchase the [Instituto Tecnológico y de Estudios Siuperiores de Occidente](#) (ITESO), a higher education institution based in Guadalajara, Mexico. The proposal includes purchasing the entirety of ITESO, including its Graduate and Undergraduate Schools, and Highschool divisions.

To inform their decision, the PE firm wants to evaluate several critical aspects of the Mexican education industry and the asset itself.

(1) ITESO´s Profile: What are the institution's key characteristics? Kindly provide a snapshot view of the institution. This should include, but not be limited to, number of enrolled students by academic level (High School, Graduate, Undergraduate) and by modality (on-site vs. online)*, most significant academic degrees or faculties, cost of attendance (tuition and enrollment fees). Feel free to include any other variables you consider relevant for the analysis.

(2) ITESO´s Performance: What is ITESO's historical annual growth rate, and what is the expected annual growth rate for the next year? How has COVID impacted ITESO, and to what extent? Has ITESO's pricing point been affected or changed due to COVID?

(3) ITESO´s Competitive Landscape: Who are ITESO's primary competitors, and why? What is ITESO's competitive advantage over its main competitors? How does ITESO's performance contrast with its primary competitors (is it among the top performers)? Who are the high performers in this industry and why?

* Refers to "escolarizada" and "no escolarizada". You will also find hybrid education.

Important notes

▸ Remember, the goal of the PE firm is to evaluate whether the opportunity is attractive enough to pursue. Therefore, based on your analysis, you must conclude whether the asset represents a good investment from a commercial point of view.

▸ The process and the "so what" of your analysis are significant to us.

▸ Also, consider that the questions the PE firm has requested are not exclusive. If you believe that there are additional questions or analyses relevant to the main purpose of the study, feel free to present them for discussion.

▸ If any of the PE's questions cannot be answered, please be prepared to justified why not.

Instructions

Scope of the analysis

Academic cycles 2019-2020, 2020-2021, 2021-2022, and 2022-2023.

Source

The databases are provided by the Mexican Ministry of Public Education (SEP), encompassing information about approximately 5M high school students, 4.5M undergraduate students, and 4K graduate students.

Main datasets (inputs)

You will be provided with two types of Excel files (CSV and XLSX):

(1) Datasets KI911A.csv and KI911B.csv contain information about Graduate Schools and Universities in Mexico. All data points are separated by "|"

(2) Datasets F9117G.csv contain information about High School (general) in Mexico. All data points are separated by "|"

(3) Datasets KI911A.xlsx, KI911B.xlsx, and F9117G.xlsx contain information about the column names in each corresponding .csv file

Support documentation

You will also be provided with PDF examples of the surveys conducted by SEP. hese files are not intended for information processing, but rather serve solely as a reference.

Instructions

Deliverables

▸ Please provide all the R scripts, Python scripts, Excel files, or any other source used for the analysis. It is not necessary to include the raw data (inputs) used in the analysis

▸ Feel free to present your answers in any format you prefer, such as a PPT presentation, Jupyter notebook, PDF file, etc.. Just ensure it is professional, clean, and easy to understand

▸ You may email your results, post them on GitHub, use Dropbox, etc. – feel free as long as they are submitted by the due date

Note: Your answers must be in English

Q&A session

Be prepared to answer questions about the process, insights and visualizations during a Q&A session.

Deadline

March 10th, 2024, at Noon.