**PRO Assignment.**

Pricing and Revenue Optimization (PRO) focuses on how a firm should set and update pricing and product availability decisions across its various selling channels in order to maximize its profitability. A familiar example comes from the airline industry, where tickets for the same flight may be sold at many different fares, the availability of which is changing as a function of purchase restrictions, the forecasted future demand and the number of unsold seats. The adoption of such systems has transformed the transportation and hospitality industries, and is increasingly important in retail, telecommunications, entertainment, financial services, health care and manufacturing. In parallel, pricing and revenue management has become a rapidly expanding practice in consulting services, and a growing area of software and IT development.

Through a combination of lecture, games, and case studies, the course will review the main methodologies that are used in each of these areas, and survey current practices in different industries. The ultimate goal is for students to learn to identify and exploit opportunities for revenue management in different business contexts. As the ensuing course outline reveals, most of the topics covered in the course are either directly or indirectly related to pricing issues faced by firms that operate in environments where they enjoy some degree of market power. Within the broader area of pricing theory, the course places particular emphasis on *tactical optimization of pricing and capacity allocation decisions*, tackled using *quantitative models* of consumer behaviour (e.g., captured via appropriate price-response relations), demand forecasts and market uncertainty, and the tools of *constrained optimization* - the two main building blocks of revenue optimization systems.

**PRO Opportunity Project**

Your project should study a specific pricing and revenue optimization (PRO) opportunity faced by either a real organization or a startup company your team would like to build. You are free to choose a topic of your interest. The end goal is to demonstrate the use of pricing and revenue optimization techniques learned in class in a real setting.

Here are some broad guidelines for the projects:

* If your team choose to work on an opportunity faced by a real organization, you should put yourselves in the shoes of a consulting team trying to help their client to analyze a particular issue that they face.
* If your team choose to work on an opportunity faced by a startup company, you should put yourselves in the shoes of the founders who need to decide what are the products to offer, what is the best pricing mechanism, and what prices to charge for those products.

Your study should hopefully culminate with an assessment of the magnitude of the associated PRO opportunity and a blueprint of how to move forward with developing a PRO solution. This could roughly follow the following outline:

1. Understand and describe application setting: industry overview, PRO question, what's currently done, etc.
2. Describe what is the PRO opportunity and why.
3. Try to make a quantitative assessment of the potential value of applying a PRO solution to your proposed setting by utilizing data.

In attempting to address the above questions, it is useful to think of a model that one would want to use in practice: What data do you need, what are the optimization decisions, how will they be implemented, etc. This model will be useful in demonstrating the potential quantifiable benefits of your proposal.

Access to real data would be nice for the project, but this may or may not be easy to have depending on the company involved. If real data is not available (which is going to be the case if you choose to study a startup), it is completely fine. You should think about what kind of data the company would need in order to build the PRO solution you have in mind, and then generate *synthetic data* based on *realistic assumptions*. The assumptions should further be based on either documented evidence or deep understanding of the industry. From there, synthetic data will be treated in the same way as real data in the analysis.

*Deliverables:*

* 1. Project report. Written report should be approximately 8-10 pages (single line spacing) plus appendices as necessary. It should be treated as a detailed technical documentation of your work. It should describe the application setting including: Industry overview, the PRO question you are answering, what is currently done, etc. It should describe the opportunity, data collection methods, the model, results and an assessment of the potential value of applying your solution in the appropriate setting.
  2. Presentation. This should be 15 minutes, and highlights your findings. It should be geared towards an audience appropriate to your problem. Ideally to a senior executive or a less technical manager who has limited knowledge of quantitative models. Think of how you would “pitch” the idea. If you choose to work on an opportunity faced by a startup, think of this presentation as a pitch to the potential investors
  3. Your classmates will grade the presentations. All the presentations will be submitted online. You will be required to watch the other presentations. You need to rank the quality of the presentation from high to low. When judging the presentation, think about yourself as a potential investor and evaluate whether the presentation is providing good motivations, enough analytical justifications, and convincing enough so that you would want to invest in the proposed solution. The rankings may be made public to all teams in the interest of being transparent with the process. I expect you to be professional in assessing their classmate’s work using integrity and good judgement.

The grade of the project = 60% report + 40% presentation. Deliverables are due by the end of the dates listed as follows:

**October 26th** – A one to two-page project outline (problem description, goals, and proposed project plan) is due. I will then meet with each Team to discuss the proposed topic **on October 27th**. The outline will *not* be graded. It is just a checkpoint to make sure that everyone starts working on the project in time and is on the right track.

**December 4th** – Presentations Due

**December 7th** – Final Report and Presentation Rankings Due