

# Machine Learning Business Metrics

**Mostafa S. Ibrahim**

*Teaching, Training and Coaching for more than a decade!*

*Artificial Intelligence & Computer Vision Researcher*

*PhD from Simon Fraser University - Canada*

*Bachelor / MSc from Cairo University - Egypt*

*Ex-(Software Engineer / ICPC World Finalist)*



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# Metrics so far

- We learned so many metrics
- It is clear that you **SHOULDN'T** count on a single metric
- You better report several ones
  - The performance of each metric can give you an idea about the model performance and areas of improvements
- Think about your problem and what is relevant for it

# Training and Metrics

- You may notice our training is guided by something like logloss
- Then we keep reporting several metrics
- However, why don't we train the model directly against these metrics?
- Mainly many metrics are **not differentiable** hence we can't use with gradient descent

# Business Metrics

- We learned ML metrics that we can monitor
- However, in addition to that we can monitor business metrics
  - *I used chat-gpt to generate these examples :)*
- Tip: put time to understand the business domain and the problem
- **Revenue and Profit Metrics** (e.g. total revenue generated or cost savings)
- **Customer Metrics**: measure the impact on customer behavior and engagement such as customer acquisition rate / [retention rate](#), lifetime value, satisfaction scores, or churn reduction.
- **Conversion Metrics**: assess the model's ability to influence desired actions. This could be conversion rates, [click-through rates](#), lead generation rates, or other metrics related to specific business objectives, such as the completion of a purchase, signing up for a newsletter, or subscribing to a service

# Business Metrics

- **User Engagement Metrics** such as [time spent on the application](#), number of interactions, frequency of use, or user satisfaction scores
- **Efficiency Metrics** such as computation time, memory usage, or the reduction in [manual effort](#) required for a particular task.
- **Operational Metrics** in a real-time production environment such as response time, system uptime, error rates in live deployments, or the number of requests processed per unit of time
- *Tip: Model performance is important, but it's not the only metric. In production, other metrics can often be more critical.*

*“Acquire knowledge and impart it to the people.”*

*“Seek knowledge from the Cradle to the Grave.”*

