Data Science Workshop
Session 4

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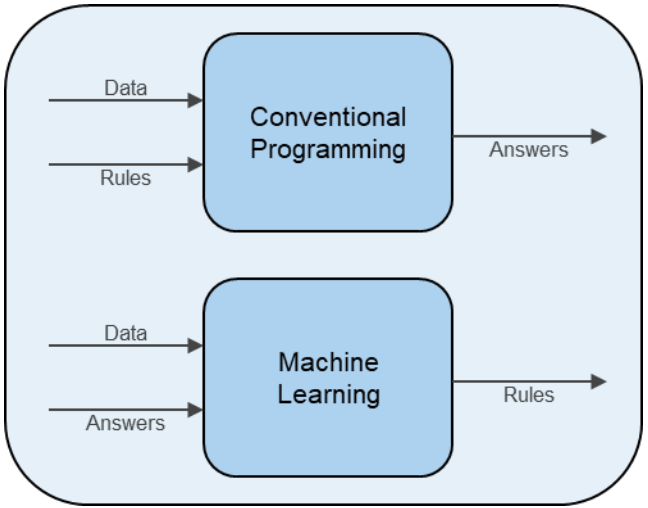
Objectives

1. Recap – When to Use Machine Learning
2. Supervised vs Unsupervised Learning
3. Two Common Supervised Learning Problems – Regression & Classification
4. Demos (Classification and Regression)

When to Use Machine Learning



Input 1	Input 2	Output
0	0	0
0	1	1
1	0	1
1	1	1

Quant.	Verbal	Writing	Admitted
750	570	3.0	No
780	600	5.0	Yes
800	590	3.5	No
720	630	4.5	No
780	620	5.0	Yes
780	580	6.5	No

Machine Learning is useful when

- "Rules" are not obvious OR too difficult to code

A problem is a good candidate for Machine Learning if

- A reasonable amount of data exists
- A pattern exists in the data
- The pattern is difficult to figure out

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Supervised vs Unsupervised Learning

Supervised Learning:

If an ML task involves a dataset that contains both the input variables and output variables, then that task is a *Supervised Learning* task.

One can train a model to correctly map the inputs to the outputs.

Unsupervised Learning:

If, on the other hand, an ML task involves a dataset that contains only the input variables, then that task is an *Unsupervised Learning* task.

One can try to discover the underlying patterns in which the data is organized.

Regression vs Classification

Regression:

If a task involves predicting a continuous quantity, then it is a *regression* problem

***Example**: How much can I sell my car for ? – (e.g. ₦302,000)*

Classification:

If the task involves predicting a category or type, then it is a *classification* problem

***Example**: Will my students be adimitted into the Masters degree program ? - (e.g. Yes/No)*

THANK YOU!
Any Questions

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