Parameter Tuning

Following approaches in ML:

* Grid Search
* Random Search
* Bayesian Optimization

# Grid Search Algorithm

* Try all the possible combinations of the values for each parameter.
* Computationally very exhaustive
* Takes the most amount of time
* But gives us the best results

Diagram

Description automatically generated

# Random Search Algorithm

* Very Fast
* Random Values are taken
* Computation time depends upon the number of iterations decided

Diagram

Description automatically generated

# Bayesian Optimization

* P (score | hyperparameters)
* Objective Function, Surrogate Function, Decision Function
* **Objective Function** 🡪 We want to minimize based on different parameters
* **Surrogate Function** 🡪 Resurface of Objective Function
* **Decision Function** 🡪 Helps us decide on the best parameter by generalizing Surrogate Function to Objective Function
* **Hypopt** 🡪 Python Package