**Objective:** Gradient Descent, Concept of underfitting and overfitting, need for optimization

Gradient Descent:

1. Introduction: <https://towardsdatascience.com/gradient-descent-algorithm-a-deep-dive-cf04e8115f21>
2. Working of GD: <https://medium.com/geekculture/mathematics-behind-gradient-descent-f2a49a0b714f>

Underfitting and Overfitting:

1. Concept and reasons: <https://www.javatpoint.com/overfitting-and-underfitting-in-machine-learning>
2. Avoiding Overfitting: <https://www.v7labs.com/blog/overfitting#h4>
3. Avoiding Underfitting: <https://www.ibm.com/topics/underfitting>

Need for optimization techniques:

1. <https://machinelearningmastery.com/why-optimization-is-important-in-machine-learning/> (Before Optimization in a Machine Learning Project)
2. <https://towardsdatascience.com/optimization-theory-7c8cdbf1714d#:~:text=The%20goal%20of%20optimization%20is,the%20objective%20function%20is%20defined>.

**Additional Material:**

1. Types of Gradient descent algorithms: <https://www.analyticsvidhya.com/blog/2022/07/gradient-descent-and-its-types/>
2. Data Augmentation: <https://www.datacamp.com/tutorial/complete-guide-data-augmentation>