**QTW-Week 2 Presession Submission-Regularization**

**This week was all about regularization**

**Overfitting**

Overfitting refers to the model performance which in the model created does not perform well when a new dataset is given to it.

**Regularization**

* Penalizing the coefficients or slopes of a linear regression model is considered as regularization.
* In regularization, we penalize the value regardless of the positive or negative symbols present in it.
* Regularization penalty is represented by lambda () which is strength of penalty.

**L1-Lasso Regularization-**

* This regularization tends to make the less important variable coefficient to be 0. This method of reducing the variable coefficients to 0 is called **sparsity.**
* Consider it as 1st order regularization.
* Lambda ()=absolute value of coefficients
* Full form of LASSO is Least absolute shrinkage and selection operator.
* Used mainly for feature selection.
* It mainly applies to the slope.

**L2-Ridge Regularization-**

* This regularization also makes the variable selection but does not make the less important variable coefficient to be 0.
* Considered as 2nd order regularization.
* Lambda ()=square of coefficients.
* Used in many of the algorithms by default which prevents overfitting.
* L2 method removes sparsity (do not make variable coefficients to be 0)
* It is really like a common method which involves more coefficients.

The videos were informative and explained the difference between the tools of regularization well.

**Question:**

Is it sufficient to implement L1 and L2 and draw inference from it or we need to use L1 and L2 methods just for variable selection and then implement other models building methods?