

## ASSIGNMENT 6 – Machine Learning

Q1- A

Q2- C

Q3- C

Q4- A

Q5- A

Q6- A , D

Q7- A, D

Q8- A, C

Q9- D

Q10- The adjusted R-squared compensates for the addition of variables and **only increases if the new predictor enhances the model above what would be obtained by probability**. Conversely, it will decrease when a predictor improves the model less than what is predicted by chance.

Q11- Similar to the lasso regression, ridge regression puts a similar constraint on the coefficients by introducing a penalty factor. However, **while lasso regression takes the magnitude of the coefficients, ridge regression takes the square**. Ridge regression is also referred to as L2 Regularization.

Q12- A variance inflation factor(VIF) detects multicollinearity in regression analysis. Multicollinearity is when there's correlation between predictors (i.e. independent variables) in a model; it's presence can adversely affect your regression results. The VIF estimates how much the variance of a regression coefficient is inflated due to multicollinearity in the model.

Q13- **To ensure that the gradient descent moves smoothly towards the minima and that the steps for gradient descent are updated at the same rate for all the features**, we scale the data before feeding it to the model.

Q14- There are three error metrics that are commonly used for evaluating and reporting the performance of a regression model; they are: **Mean Squared Error (MSE). Root Mean Squared Error (RMSE). Mean Absolute Error (MAE).**

Q15-