MACHINE LEARNING ASSIGNMENT

1. A
2. A
3. C
4. B
5. C
6. B
7. D
8. D
9. C
10. B
11.
12. A,B,C
13. Regularization is a technique used to reduce the errors by fitting the function appropriately on the given training set and avoid overfitting.
14. L2 and L1 are the most common types of regularization. Regularization works on the premise that smaller weights lead to simpler models which in results helps in avoiding overfitting. So to obtain a smaller weight matrix, these techniques add a 'regularization term' along with the loss to obtain the cost function.

    In L2, we depict cost function as

$$Cost\ function\ =\ Loss\ +\frac{\lambda}{2m}\ *\ \sum\|w\|^2$$

Here, lambda is the regularization parameter which is the sum of squares of all feature weights. L2 technique forces the weight to reduce but never makes them zero. Also referred to as ridge regularization, this technique performs best when all the input features influence the output, and all the weights are of almost equal size.

In the L1 regularization technique,

$$Cost\ function\ =\ Loss\ +\frac{\lambda}{2m}\ *\ \sum\|w\|$$

Unlike in the case of L2 regularization, where weights are never reduced to zero, in L1 the absolute value of the weights are penalised. This technique is useful when the aim is to compress the model. Also called Lasso regularization, in this technique, insignificant input features are assigned zero weight and useful features with non-zero.

15. Within a linear regression model, the error term is the difference between the predicted value and the price that was actually value.