MACHINE LEARNING WORKSHEET-3

ANS.NO.1= (D)

ANS.NO.2= (A)

ANS.NO.3= (D)

ANS.NO.4= (B)

ANS.NO.5= (C)

ANS.NO.6= (B)

ANS.NO.7= (B)

ANS.NO.8= (A)

ANS.NO.9= (B), (D)

ANS.NO.10= (A),(B),(D)

ANS.NO.11= (A), (B), (D)

ANS.NO.12= (A),(C),(D)

ANS.NO.13= (A), (B), (D)

SUBJECTIVE QUESTIONS.

QUESTION NO.14

ANSWER NO.14

LINEAR REGRESSION…

1) Linear Regression is a data analysis technique that predicts the value.
2) It mathematically models.

3) The unknown dependent variable and the know independent variable as a linear equation.
4) Linear Regression is one if the easiest and most popular machine learning algorithms.
5) Linear Regression makes predictions for continuous /real numeric variable such as age, salary, product price.
6) Linear Regression algorithm show a linear relationship between a dependent (Y) and one more independent (X) variable.
7) The linear relationship means it find how the value of the dependent variable changing according to the value of the independent.
8) Mathematically represented a linear Regression.

$$Y= a_0+a_1x+ \varepsilon$$

Y=dependent variable.

X=independent variable.

a0=intercept of the line.

a1=linear regression coefficient.

ε= random error.

Assumption of Linear Regression.

1. Linearity
2. Normality
3. Homoscedasticity

4. Independent
5. Normal distributed
6. No autocorrelation

1) Linearity: = it states that the dependent variable Y should be linearly related to independent variable.
2) Normality: = The X or Y variable should be normally distributed.
3) Homoscedasticity: = The variance of the error terms should be constant. The spread of residuals should be constant for all values of X.
4) Independent; = The variable should be independent of each other.
5) Normal distributed: = plot and histogram can be used to check the distribution error terms.
6) No autocorrelation; = autocorrelation can be tested using in Durbin Watson test. The null hypothesis assumes that there is no autocorrelation.

TYPES OF LINEAR REGRESSION.

Linear Regression can be divided into two type.

1) Simple Linear Regression
2) Multiple Linear Regression

SIMPLE LINEAR REGRESSION.

If a single independent variable is used to predict the Value of a numerical dependent variable then such a Linear Regression algorithm is called Simple Linear Regression.

MULTIPLE LINEAR REGRESSION.

If more than one independent variable is used to predict the value of a numerical dependent variable then such a linear Regression algorithm is called Multiple Linear Regression.

QUESTION NO.15

ANS.No.15

DIFFRENCE BETWEEN SIMPLE LINEAR AND MULTIPLE REGRESSION.

SIMPLE LINEAR REGRESSION: =

1) Simple linear regression establishes the relationship between two variable using a straight line.
2) Its attempts to draw a line that comes closest to the data by finding the slope and intercept which define the line and minimize regression error.
3) In linear regression every dependent value has a single corresponding independent variable that drives its value
4) The Y- intercept of a linear regression relationship represent the value of one variable when the value of the others is 0.
5) Linear and nonlinear regression are similar in that both track a particular response from a set of variables.

MULTIPLE LINEAR REGRESSION.

1) The relationship might be explained by more than one variable. In this case an analyst uses multiple regression

which attempts to explain a dependent variable using more than one independent variable.

2) Multiple regression assumes there is not a strong relationship between each independent variable.
3) It also assumes there is a correlation between each independent variable and the single dependent variable.
4) The dependent value by adding a unique regression coefficient to each independent variable.
5) It has one Y and two or more X variables or one dependent variables and two or more independent variable.