1. Explain the spark architecture.

It follows master and slave architecture. Driver controls each worker node and worker node is a actual block which do the work assigned by the driver program.

Cluster manager allocates and manages the resources which are required to run a job.

When spark program is submitted master node initializes spark context and it replaces the connection with rdd data structure. After initialising rdd it converts core transformation program into DAG. Once DAG is created it divides into rdd partiion for execution.

1. Explain Activation function.

It processes based on inputs, crucial component of neural network.

It is an non linear. It comes in hidden and it takes input as X and W.

Input -> hidden layed -> processing -> prediction

1. Expain the different types of activation function with their formula

Sigmoid function

X = 1(1/1+e^-x)

Range = 0 to 1

Tanh function

F(x) = tanh(x) = (2/ 1+e^2x) – 1

Range = -1 to 1

1. Explain hybrid inheritance with code

Creating a new class from an existing class, it is also known as parent or suoer class that inherits as sub or child class

**Single Level Interferance**

It has one parent and one child class

class Person:

    def \_\_init\_\_(self,name,age):

        self.name=name

        self.age=age

    def display(self):

        print("Name :",self.name)

        print("Age :",self.age)

class student(Person):

    def \_\_init\_\_(self,roll\_no,name,age,per):

        self.roll\_no=roll\_no

        Person.\_\_init\_\_(self,name,age)

        self.per=per

    def display(self)    :

        print("Rollno :",self.roll\_no)

        Person.display(self)

        print("Percentage :",self.per)

s1=student(100,"Sri",22,75)

print("Detais :")

s1.display()

Detais :

Rollno : 100

Name : Sri

Age : 22

Percentage : 75

**Multiple Level Inheritance**

It has more than one class like grandparent(sub class), parent(super class) and child class(sun class)

class Parent:

   def \_\_init\_\_(self,name):

     self.name = name

   def getName(self):

     return self.name

class Child(Parent):

   def \_\_init\_\_(self,name,age):

     Parent.\_\_init\_\_(self,name)

     self.age = age

   def getAge(self):

     return self.age

class Grandchild(Child):

   def \_\_init\_\_(self,name,age,location):

     Child.\_\_init\_\_(self,name,age)

     self.location=location

   def getLocation(self):

     return self.location

gc = Grandchild("Srikanta",24,"Banglore")

print(gc.getName(), gc.getAge(), gc.getLocation())

Srikanta 24 Banglore

1. Explain neural network

Neural Networks are computational models that mimic the complex functions of the human brain. The neural networks consist of interconnected nodes or neurons that process and learn from data, enabling tasks such as pattern recognition and decision making in machine learning. The article explores more about neural networks, their working, architecture and more

Neural network extract identifying features from data, lacking pre-programmed understanding. Network components include neurons, connections, weights, biases, propagation functions, and a learning rule. Neurons receive inputs, governed by thresholds and activation functions. Connections involve weights and biases regulating information transfer. Learning, adjusting weights and biases, occurs in three stages: input computation, output generation, and iterative refinement enhancing the network’s proficiency in diverse tasks.

The neural network is simulated by a new environment.

Then the free parameters of the neural network are changed as a result of this simulation.. The neural network then responds in a new way to the environment because of the changes in its free parameters.