22028827
BOLUWATIFE AJIBADE-AJIBOSIN
DISTRIBUTED INTELLIGENT SYSTEMS
Coursework Part 2: Java-based simulation of agent behaviour and transactions.

This Java code simulates the behaviour of agents and their interactions using the Contract-Net Protocol. Using an ecommerce system as a guide, the interactions between customers and sellers and the ultimate decision of buying from one seller is explored.
There are 5 classes defined in this code:

1. The Product Class:
   The product class contains information about the product. This class contains the ProductID, the product name, the product price and the product description.

2. The Order Class:
   The Order class contains the properties and constraints of an order. It has the product name, order price, quantity, and delivery options. These properties specify each order that the buyer agent makes on behalf of the customer.

3. The Buyer Agent:
   These agents are buying products on behalf of the customers. They are responsible for starting the buying process by specifying the order that the customer wants hence they have an instance of the Order class.
   The buyer agents also have ID, Name as its properties.

4. The Seller Agent:
   The seller agents are selling products on behalf of retailers. These agents have ID, Name and a list of products as their properties. In this class, the agents have functions to check its product list if it has a product matching a customer's (buyer agent) order and if it does, makes an offer returning the product and the price of the product.

5. The Broker Agent:
   The broker agent acts as a middleman between the buyer and seller agents. They have access to the seller agents' profiles and the product database. This Agent has functions that receives Orders from the buyer agents then it broadcasts this order to available seller agents. If the seller agents have the products that are requested for in the order, they return the product and the prices of the product. The broker agent then evaluates the offers from the seller agents and recommends the best offer.
   The customer then picks the best offer based on the seller with the lowest price for the product.