**Data structures and Algorithms**

**Exercise 1**: Inventory Management System

**Product.java**

package com.inventory.example;

public class Product {

int productId;

String productName;

double quantity;

double price;

public Product(int productId,String productName,double quantity,double price)

{

this.productId=productId;

this.productName=productName;

this.quantity=quantity;

this.price=price;

}

@Override

public String toString()

{

return "ID : "+productId+" Name: "+productName+" Quantity: "+quantity+" Price: "+price;

}

}

**Inventorymanagement.java**

package com.inventory.example;

import java.util.HashMap;

public class InventoryManagement {

private HashMap<Integer, Product> pro;

public InventoryManagement()

{

pro=new HashMap<>();

}

public void addProduct(Product product)

{

if(pro.containsKey(product.productId))

{

System.*out*.println("Already exists");

}

else

{

pro.put(product.productId, product);

System.*out*.println("Product added");

}

}

public void update(int productId,String productName,double quantity,double price)

{

if(pro.containsKey(productId))

{

Product p=pro.get(productId);

p.productName=productName;

p.quantity=quantity;

p.price=price;

System.*out*.println("Product updated");

}

else

{

System.*out*.println("Product not found");

}

}

public void display()

{

for(Product p:pro.values())

{

System.*out*.println(p);

}

}

}

**Main.java**

package com.inventory.example;

public class Main {

public static void main(String[] args) {

InventoryManagement im=new InventoryManagement();

Product p1=new Product(1,"product1",20.5,30.00);

Product p2=new Product(2,"product2",40.75,60.50);

im.addProduct(p2);

im.addProduct(p1);

im.display();

im.update(1, "product\_1", 40, 55.75);

im.display();

}

}

**OUTPUT**

Product added

Product added

ID : 1 Name: product1 Quantity: 20.5 Price: 30.0

ID : 2 Name: product2 Quantity: 40.75 Price: 60.5

Product updated

ID : 1 Name: product\_1 Quantity: 40.0 Price: 55.75

ID : 2 Name: product2 Quantity: 40.75 Price: 60.5

