**Лабораторна робота №4 : Інкапсуляція, наслідування, інтерфейси №2**

**Минко Ярослав**

using System;

using System.Collections.Generic;

using System.Linq;

interface ISearchable

{

List<Tovar> SearchByPrice(double maxPrice);

List<Tovar> SearchByCategory(string category);

}

class Tovar

{

public string Name { get; set; }

public double Price { get; set; }

public string Description { get; set; }

public string Category { get; set; }

}

class User

{

public string Login { get; set; }

public string Password { get; set; }

public List<Zamovlennya> PurchaseHistory { get; set; } = new List<Zamovlennya>();

}

class Zamovlennya

{

public List<Tovar> Products { get; set; }

public List<int> Quantities { get; set; }

public double TotalPrice { get; set; }

public string Status { get; set; }

}

class Magazin : ISearchable

{

public List<Tovar> Products { get; set; } = new List<Tovar>();

public List<User> Users { get; set; } = new List<User>();

public List<Zamovlennya> Orders { get; set; } = new List<Zamovlennya>();

public List<Tovar> SearchByPrice(double maxPrice)

{

return Products.Where(p => p.Price <= maxPrice).ToList();

}

public List<Tovar> SearchByCategory(string category)

{

return Products.Where(p => p.Category.ToLower() == category.ToLower()).ToList();

}

public void AddUser(User user)

{

Users.Add(user);

}

public void AddProduct(Tovar product)

{

Products.Add(product);

}

public void PlaceOrder(User user, List<Tovar> products, List<int> quantities)

{

var order = new Zamovlennya

{

Products = products,

Quantities = quantities,

TotalPrice = CalculateTotalPrice(products, quantities),

Status = "Pending"

};

user.PurchaseHistory.Add(order);

Orders.Add(order);

}

private double CalculateTotalPrice(List<Tovar> products, List<int> quantities)

{

double totalPrice = 0;

for (int i = 0; i < products.Count; i++)

{

totalPrice += products[i].Price \* quantities[i];

}

return totalPrice;

}

}

class Program

{

static void Main()

{

Console.WriteLine("Минко Ярослав");

var store = new Magazin();

var user1 = new User { Login = "user1", Password = "password1" };

var user2 = new User { Login = "user2", Password = "password2" };

store.AddUser(user1);

store.AddUser(user2);

var product1 = new Tovar { Name = "Product 1", Price = 10, Category = "Electronics" };

var product2 = new Tovar { Name = "Product 2", Price = 30, Category = "Clothing" };

store.AddProduct(product1);

store.AddProduct(product2);

var orderProducts = new List<Tovar> { product1, product2 };

var orderQuantities = new List<int> { 2, 3 };

store.PlaceOrder(user1, orderProducts, orderQuantities);

Console.WriteLine(user1.Login + " " + user1.Password);

Console.WriteLine(user2.Login + " " + user2.Password);

Console.WriteLine(product1.Name + " " + product1.Price + " " + product1.Category);

Console.WriteLine(product2.Name + " " + product2.Price + " " + product2.Category);

}

}