using System;

using System.Linq;

public class Product

{

public int ProductId;

public string ProductName;

public string Category;

public Product(int productId, string productName, string category)

{

ProductId = productId;

ProductName = productName;

Category = category;

}

}

public class SearchDemo

{

public static int LinearSearch(Product[] products, string name)

{

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

{

if (string.Equals(products[i].ProductName, name, StringComparison.OrdinalIgnoreCase))

{

return i;

}

}

return -1;

}

public static int BinarySearch(Product[] products, string name)

{

int left = 0;

int right = products.Length - 1;

while (left <= right)

{

int mid = (left + right) / 2;

int cmp = string.Compare(products[mid].ProductName, name, StringComparison.OrdinalIgnoreCase);

if (cmp == 0)

return mid;

else if (cmp < 0)

left = mid + 1;

else

right = mid - 1;

}

return -1;

}

public static void Main(string[] args)

{

Product[] products = {

new Product(1, "Laptop", "Electronics"),

new Product(2, "Shoes", "Fashion"),

new Product(3, "Phone", "Electronics"),

new Product(4, "Bag", "Accessories")

};

int indexLinear = LinearSearch(products, "Phone");

products = products

.OrderBy(p => p.ProductName.ToLower())

.ToArray();

int indexBinary = BinarySearch(products, "Phone");

Console.WriteLine("Linear Search Index: " + indexLinear);

Console.WriteLine("Binary Search Index (sorted): " + indexBinary);

}

}





