

```

52 namespace MainData
53 {
54     public enum CustomerType { TrungThanh, TiemNang, CanQuanTam, KhachHangKhac}
55     public class Customer
56     {
57         private string CustomerID;
58         private string CustomerAddress;
59         private string CustomerPhone;
60         private CustomerType CustomerType;
61
62         public Customer(string CustomerID = "Not assigned", string CustomerAddress = "Not assigned",
63             string CustomerPhone = "0000000000", CustomerType CustomerType = CustomerType.KhachHangKhac)
64         {
65             this.CustomerID = CustomerID;
66             this.CustomerAddress = CustomerAddress;
67             this.CustomerPhone = CustomerPhone;
68             this.CustomerType = CustomerType;
69         }
70
71         public void CustomerInfo()
72         {
73             if (CustomerID != "Not assigned")
74             {
75                 string CustomerTypeString = Enum.GetName(typeof(CustomerType), CustomerType);
76                 Console.WriteLine("Displaying Customer Info .....");
77                 Console.WriteLine("Customer ID: {0}", CustomerID);
78                 Console.WriteLine("Customer Address: {0}", CustomerAddress);
79                 Console.WriteLine("Customer Phone: {0}", CustomerPhone);
80                 Console.WriteLine("Customer Type: {0}", CustomerTypeString);
81             }
82         }
83
84         public string ValCustomerID
85         {
86             get { return CustomerID; }
87             set { CustomerID = value; }
88         }
89         public string ValCustomerAddress
90         {
91             get { return CustomerAddress; }
92             set { CustomerAddress = value; }
93         }
94         public string ValCustomerPhone
95         {
96             get { return CustomerPhone; }
97             set { CustomerPhone = value; }
98         }
99         public CustomerType ValCustomerType
100         {
101             get { return CustomerType; }
102             set { CustomerType = value; }
103         }
104     }

```

```

105 public class Company
106 {
107     public List<Customer> Customers { get; set; }
108     private string Name;
109     Dictionary<CustomerType, string> CustomerTypeInfo = new Dictionary<CustomerType, string>();
110     public delegate void CompanyHandler(Company company);
111     public event CompanyHandler CompanyAddOrRemoveEvent;
112     int NumberOfCustomers = 0;
113
114     public Company(string Name = "Not assigned")
115     {
116         this.Name = Name;
117         Customers = new List<Customer>();
118         CustomerTypeInfo.Add(CustomerType.TrungThanh, "Khac hang TrungThanh la khach hang TrungThanh");
119         CustomerTypeInfo.Add(CustomerType.TiemNang, "Khac hang TiemNang la khach hang TiemNang");
120         CustomerTypeInfo.Add(CustomerType.CanQuanTam, "Khac hang CanQuanTam la khach hang CanQuanTam");
121         CustomerTypeInfo.Add(CustomerType.KhachHangKhac, "Khac hang KhachHangKhac la khach hang KhachHangKhac");
122     }
123
124     public void CompanyInfo()
125     {
126         Console.WriteLine("Displaying Company Info .....\\n-----");
127         Console.WriteLine("Company Name: {0}", Name);
128         Console.WriteLine("Number of Customers: {0}, including:\\n", NumberOfCustomers);
129         foreach (Customer customer in Customers)
130         {
131             KeyValuePair<CustomerType, string> info = CustomerTypeInfo.FirstOrDefault(o => o.Key == customer.ValCustomerTy
132             customer.CustomerInfo();
133             Console.WriteLine("---{0}---", info.Value);
134             Console.WriteLine("-----");
135         }
136         Console.WriteLine();
137     }
138
139     public Customer SearchCustomer<T>(T search)
140     {
141         Customer r = new Customer();
142         if (typeof(T) == typeof(string))
143         {
144             r = Customers.FirstOrDefault(o => o.ValCustomerID == search.ToString());
145             if (r != null) { return r; }
146         }
147         else if (typeof(T) == typeof(int))
148         {
149             if (Convert.ToInt32(search) < Customers.Count)
150             {
151                 return Customers[Convert.ToInt32(search)];
152             }
153         }
154         Console.WriteLine("404 Not Found");
155         return new Customer();
156     }

```

```

160     public void OnCompanyChanger(Company company)
161     {
162         if (CompanyAddOrRemoveEvent != null)
163         {
164             CompanyAddOrRemoveEvent(this);
165         }
166     }
167     public void AddCustomer(Customer customer)
168     {
169         Customers.Add(customer);
170         OnCompanyChanger(this);
171         Console.WriteLine("{0} has been added", customer.ValCustomerID);
172     }
173     public void RemoveCustomer(Customer customer)
174     {
175         Customers.Remove(customer);
176         OnCompanyChanger(this);
177         Console.WriteLine("{0} has been removed", customer.ValCustomerID);
178     }
179
180     public string ValName
181     {
182         get { return Name; }
183         set { Name = value; }
184     }
185     public int ValNumberOfCustomers
186     {
187         get { return NumberOfCustomers; }
188         set { NumberOfCustomers = value; }
189     }
190 }

```

```

187     public static class MyExtensions
188     {
189         public static string ConvertToString(this Customer customer)
190         {
191             string CustomerTypeString = Enum.GetName(typeof(CustomerType), customer.ValCustomerType);
192
193             if (customer.ValCustomerID != "Not assigned")
194             {
195                 string detail = "";
196                 detail += String.Format("Displaying Customer Info ..... \n");
197                 detail += String.Format("Customer ID: {0} \n", customer.ValCustomerID);
198                 detail += String.Format("Customer Address: {0} \n", customer.ValCustomerAddress);
199                 detail += String.Format("Customer Phone: {0} \n", customer.ValCustomerPhone);
200                 detail += String.Format("Customer Type: {0} \n", CustomerTypeString);
201                 return detail;
202             }
203             else return "";
204         }
205     }
206 }

```

```

1  using System;
2  using System.Collections.Generic;
3  using System.Linq;
4  using System.Text;
5  using System.Threading.Tasks;
6  using MainData;
7
8  namespace Lab03
9  {
10     class Program
11     {
12         static void UpdateNumberOfCustomers(Company company)
13         {
14             company.ValNumberOfCustomers = company.Customers.Count;
15         }
16         static void Main(string[] args)
17         {
18             Company company = new Company("Gangster Company");
19
20             company.CompanyAddOrRemoveEvent += new Company.CompanyHandler(UpdateNumberOfCustomers);
21
22             company.Customers.Add(new Customer("Customer A", "Address A", "111111111", CustomerType.TrungThanh));
23             company.Customers.Add(new Customer("Customer B", "Address B", "222222222", CustomerType.TiemNang));
24             company.Customers.Add(new Customer("Customer C", "Address C", "333333333", CustomerType.CanQuanTam));
25             company.CompanyInfo();

```

Displaying Company Info

Company Name: Gangster Company
Number of Customers: 3, including:

Displaying Customer Info

Customer ID: Customer A
Customer Address: Address A
Customer Phone: 111111111
Customer Type: TrungThanh
---Khac hang TrungThanh la khach hang TrungThanh---

Displaying Customer Info

Customer ID: Customer B
Customer Address: Address B
Customer Phone: 222222222
Customer Type: TiemNang
---Khac hang TiemNang la khach hang TiemNang---

Displaying Customer Info

Customer ID: Customer C
Customer Address: Address C
Customer Phone: 333333333
Customer Type: CanQuanTam
---Khac hang CanQuanTam la khach hang CanQuanTam---

```

27     Console.WriteLine("Customer Searching .....\\n");
28     company.SearchCustomer("Customer A").CustomerInfo();
29     Console.WriteLine("-----");
30     company.SearchCustomer("Customer Z").CustomerInfo();
31     Console.WriteLine("-----");
32     company.SearchCustomer(1).CustomerInfo();
33     Console.WriteLine("-----");
34     company.SearchCustomer(99).CustomerInfo();

```

Customer Searching

Displaying Customer Info

Customer ID: Customer A
Customer Address: Address A
Customer Phone: 111111111
Customer Type: TrungThanh

404 Not Found

Displaying Customer Info

Customer ID: Customer B
Customer Address: Address B
Customer Phone: 222222222
Customer Type: TiemNang

404 Not Found

```
33 Console.WriteLine("Customer Searching .....\\n");
34 Console.WriteLine(company.SearchCustomer("Customer A").ConvertToString());
35 Console.WriteLine(company.SearchCustomer("Customer Z").ConvertToString());
36 Console.WriteLine(company.SearchCustomer(1).ConvertToString());
37 Console.WriteLine(company.SearchCustomer(99).ConvertToString());
```

Customer Searching

Displaying Customer Info

Customer ID: Customer A
Customer Address: Address A
Customer Phone: 1111111111
Customer Type: TrungThanh

404 Not Found

Displaying Customer Info

Customer ID: Customer B
Customer Address: Address B
Customer Phone: 2222222222
Customer Type: TienMang

404 Not Found

```

39         company.AddCustomer(new Customer("Customer A", "Address A", "1111111111", CustomerType.TrungThanh));
40         company.AddCustomer(new Customer("Customer B", "Address B", "2222222222", CustomerType.TiemNang));
41         company.AddCustomer(new Customer("Customer C", "Address C", "3333333333", CustomerType.CanQuanTam));
42         Console.WriteLine();
43         company.CompanyInfo();
44         Customer customer = company.SearchCustomer("Customer A");
45         company.RemoveCustomer(customer);
46         Console.WriteLine();
47         company.CompanyInfo();
48
49         Console.ReadKey();
50     }
51 }
52

```

```

Customer A has been added
Customer B has been added
Customer C has been added

Displaying Company Info .....
-----
Company Name: Gangster Company
Number of Customers: 3, including:

Displaying Customer Info .....
Customer ID: Customer A
Customer Address: Address A
Customer Phone: 1111111111
Customer Type: TrungThanh
---Khac hang TrungThanh la khach hang TrungThanh---
-----

Displaying Customer Info .....
Customer ID: Customer B
Customer Address: Address B
Customer Phone: 2222222222
Customer Type: TiemNang
---Khac hang TiemNang la khach hang TiemNang---
-----

Displaying Customer Info .....
Customer ID: Customer C
Customer Address: Address C
Customer Phone: 3333333333
Customer Type: CanQuanTam
---Khac hang CanQuanTam la khach hang CanQuanTam---
-----

Customer A has been removed

Displaying Company Info .....
-----
Company Name: Gangster Company
Number of Customers: 2, including:

Displaying Customer Info .....
Customer ID: Customer B
Customer Address: Address B
Customer Phone: 2222222222
Customer Type: TiemNang
---Khac hang TiemNang la khach hang TiemNang---
-----

Displaying Customer Info .....
Customer ID: Customer C
Customer Address: Address C
Customer Phone: 3333333333
Customer Type: CanQuanTam
---Khac hang CanQuanTam la khach hang CanQuanTam---
-----

```