**Lab 1: Understanding ORM with a Retail Inventory System**

**Code:**

```
using Microsoft.EntityFrameworkCore;


namespace lab1
{
   public class AppDbContext : DbContext
   {
      public DbSet<Product> Products { get; set; }
      public DbSet<Category> Categories { get; set; }


      protected override void OnConfiguring(DbContextOptionsBuilder optionsBuilder)
      {

optionsBuilder.UseSqlServer(@"Server=(localdb)\MSSQLLocalDB;Database=Lab1RetailDb;Trusted_Connection=True;");
      }
   }
}
using System.Collections.Generic;


namespace lab1
{
   public class Category
   {
      public int CategoryId { get; set; }
      public string Name { get; set; }
```

```
        public List<Product> Products { get; set; }
    }
}
using lab1;

namespace lab1
{
    public class Product
    {
        public int ProductId { get; set; }
        public string Name { get; set; }
        public int Quantity { get; set; }

        public int CategoryId { get; set; }
        public Category Category { get; set; }
    }
}
using System;
using System.Linq;

namespace lab1
{
    class Program
    {
        static void Main()
        {
            using (var context = new AppDbContext())
            {
```

```
        if (!context.Categories.Any())
        {
            var electronics = new Category { Name = "Electronics" };
            var groceries = new Category { Name = "Groceries" };

            context.Categories.AddRange(electronics, groceries);
            context.Products.AddRange(
                new Product { Name = "Laptop", Quantity = 10, Category = electronics },
                new Product { Name = "Rice Bag", Quantity = 50, Category = groceries }
            );

            context.SaveChanges();
        }

        var products = context.Products
            .Select(p => new { p.Name, p.Quantity, Category = p.Category.Name })
            .ToList();

        foreach (var p in products)
        {
            Console.WriteLine($"{p.Name} ({p.Category}): {p.Quantity} in stock");
        }
    }
  }
}
<Project Sdk="Microsoft.NET.Sdk">
```

```
  <PropertyGroup>
    <OutputType>Exe</OutputType>
    <TargetFramework>net8.0</TargetFramework>
    <ImplicitUsings>enable</ImplicitUsings>
    <Nullable>enable</Nullable>
  </PropertyGroup>

  <ItemGroup>
    <PackageReference Include="Microsoft.EntityFrameworkCore.Design"
Version="9.0.6">
      <PrivateAssets>all</PrivateAssets>
      <IncludeAssets>runtime; build; native; contentfiles; analyzers;
buildtransitive</IncludeAssets>
    </PackageReference>
    <PackageReference Include="Microsoft.EntityFrameworkCore.SqlServer"
Version="9.0.6" />
    <PackageReference Include="Microsoft.EntityFrameworkCore.Tools"
Version="9.0.6">
      <PrivateAssets>all</PrivateAssets>
      <IncludeAssets>runtime; build; native; contentfiles; analyzers;
buildtransitive</IncludeAssets>
    </PackageReference>
  </ItemGroup>

</Project>


Microsoft Visual Studio Solution File, Format Version 12.00
# Visual Studio Version 17
VisualStudioVersion = 17.14.36203.30 d17.14
```

MinimumVisualStudioVersion = 10.0.40219.1

Project("{FAE04EC0-301F-11D3-BF4B-00C04F79EFBC}") = "lab1", "lab1.csproj", "{E643D78F-44C5-48E0-BC1F-BD4A6FA9EBA0}"

EndProject

**Output:**