**WEEK 3**

**(ENTITY FRAMEWORK CORE 8.0)**

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**TOPIC: EF CORE**

**EXERCISE 1:-**

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

**Program.cs**

**using System;**

using System.Linq;

using Microsoft.EntityFrameworkCore;

using RetailInventory.Data;

using RetailInventory.Models;

namespace RetailInventory

{

class Program

{

static void Main(string[] args)

{

using (var context = new RetailContext())

{

// Ensure database and tables are created

context.Database.EnsureCreated();

// Seed a category if none exists

if (!context.Categories.Any())

{

var electronics = new Category

{

Name = "Electronics",

Products = new List<Product>

{

new Product { Name = "Laptop", Stock = 10 },

new Product { Name = "Smartphone", Stock = 20 }

}

};

context.Categories.Add(electronics);

context.SaveChanges();

Console.WriteLine("Sample data added.");

}

// Fetch and display all products with their category names

var products = context.Products

.Include(p => p.Category)

.ToList();

Console.WriteLine("\n--- Product List ---");

foreach (var product in products)

{

Console.WriteLine($"Product: {product.Name}, Stock: {product.Stock}, Category: {product.Category?.Name}");

}

}

Console.WriteLine("\nDone. Press any key to exit...");

Console.ReadKey();

}

}

}

**Category.cs**

using System.Collections.Generic;

using System.ComponentModel.DataAnnotations;

namespace RetailInventory.Models

{

public class Category

{

[Key] // Primary key

public int CategoryId { get; set; }

[Required]

public string Name { get; set; }

// Navigation property (one-to-many relationship)

public ICollection<Product> Products { get; set; }

}

}

**Product.cs**

using System.ComponentModel.DataAnnotations;

using System.ComponentModel.DataAnnotations.Schema;

namespace RetailInventory.Models

{

public class Product

{

[Key] // Primary key

public int ProductId { get; set; }

[Required]

public string Name { get; set; }

public int Stock { get; set; }

// Foreign key

public int CategoryId { get; set; }

// Navigation property (many-to-one relationship)

public Category Category { get; set; }

}

}

**RetailContext.cs**

using Microsoft.EntityFrameworkCore;

using RetailInventory.Models;

namespace RetailInventory.Data

{

public class RetailContext : DbContext

{

// These represent tables in the database

public DbSet<Product> Products { get; set; }

public DbSet<Category> Categories { get; set; }

// Define how to connect to the SQL Server database

protected override void OnConfiguring(DbContextOptionsBuilder optionsBuilder)

{

// Connection string (uses LocalDB)

optionsBuilder.UseSqlServer(@"Server=(localdb)\MSSQLLocalDB;Database=RetailInventoryDb;Trusted\_Connection=True;");

}

// Optional: Model configuration using Fluent API

protected override void OnModelCreating(ModelBuilder modelBuilder)

{

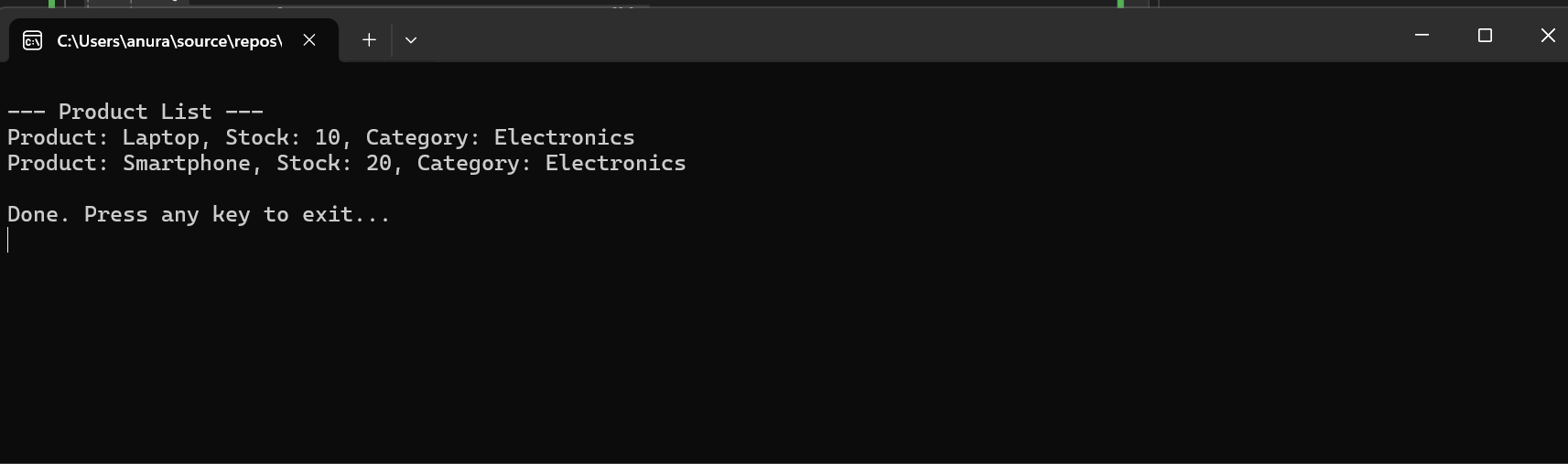
// Optional: Configure relationships or constraints here

}

}

}

**OUTPUT:-**

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