Exercise 2: Implementing the Factory Method Pattern:

using System;

namespace FactoryMethodDemo

{

    // Product Interface

    interface ITransport

    {

        void Deliver();

    }

    // Concrete Product: Truck

    class Truck : ITransport

    {

        public void Deliver()

        {

            Console.WriteLine("Delivery by land in a truck.");

        }

    }

    // Concrete Product: Ship

    class Ship : ITransport

    {

        public void Deliver()

        {

            Console.WriteLine("Delivery by sea in a ship.");

        }

    }

    // Creator Abstract Class

    abstract class Logistics

    {

        // Factory Method

        public abstract ITransport CreateTransport();

        // Common logic using the factory method

        public void PlanDelivery()

        {

            var transport = CreateTransport();

            transport.Deliver();

        }

    }

    // Concrete Creator: RoadLogistics

    class RoadLogistics : Logistics

    {

        public override ITransport CreateTransport()

        {

            return new Truck();

        }

    }

    // Concrete Creator: SeaLogistics

    class SeaLogistics : Logistics

    {

        public override ITransport CreateTransport()

        {

            return new Ship();

        }

    }

    class Program

    {

        static void Main(string[] args)

        {

            Console.WriteLine("Enter delivery method (road/sea):");

            string method = Console.ReadLine()?.ToLower();

            Logistics logistics;

            if (method == "road")

            {

                logistics = new RoadLogistics();

            }

            else if (method == "sea")

            {

                logistics = new SeaLogistics();

            }

            else

            {

                Console.WriteLine("Invalid delivery method.");

                return;

            }

            logistics.PlanDelivery();

        }

    }

}

OUTPUT:

