

```

public class ExtractParameterRequest
{
    public string Data { get; set; }
    public ProductForUpdateDto Product { get; set; } = new ProductForUpdateDto();
}

[HttpPost("extract-parameter")]
public async Task<ActionResult> ExtractParameter([FromBody] ExtractParameterRequest request)
{
    if (request == null || string.IsNullOrEmpty(request.Data))
    {
        return BadRequest("Request body or data is required.");
    }

    string data = request.Data;

    // Split the data by spaces
    string[] parts = data.Split(' ', StringSplitOptions.RemoveEmptyEntries);

    if (parts.Length < 10) // Must be at least 10 parts: 1 + 1 + 16 (GUID) + 1
    {
        return BadRequest("Data format is incorrect.");
    }

    // Parse inOrOut (first value)
    bool inOrOut;
    if (parts[0] == "I")
        inOrOut = true;
    else if (parts[0] == "O")
        inOrOut = false;
    else
        return BadRequest("Invalid inOrOut parameter. Expected 'I' or 'O'.");

    // Parse warehouse (second value, should be a single character)
    if (parts[1].Length != 1)
    {
        return BadRequest("Invalid warehouse parameter. Expected a single character.");
    }
    char warehouse = parts[1][0];

    // Extract the 32-byte serial number (from index 2 to index 17)
    string serialHexString = string.Join("", parts.Skip(2).Take(16)); // Remove spaces and join

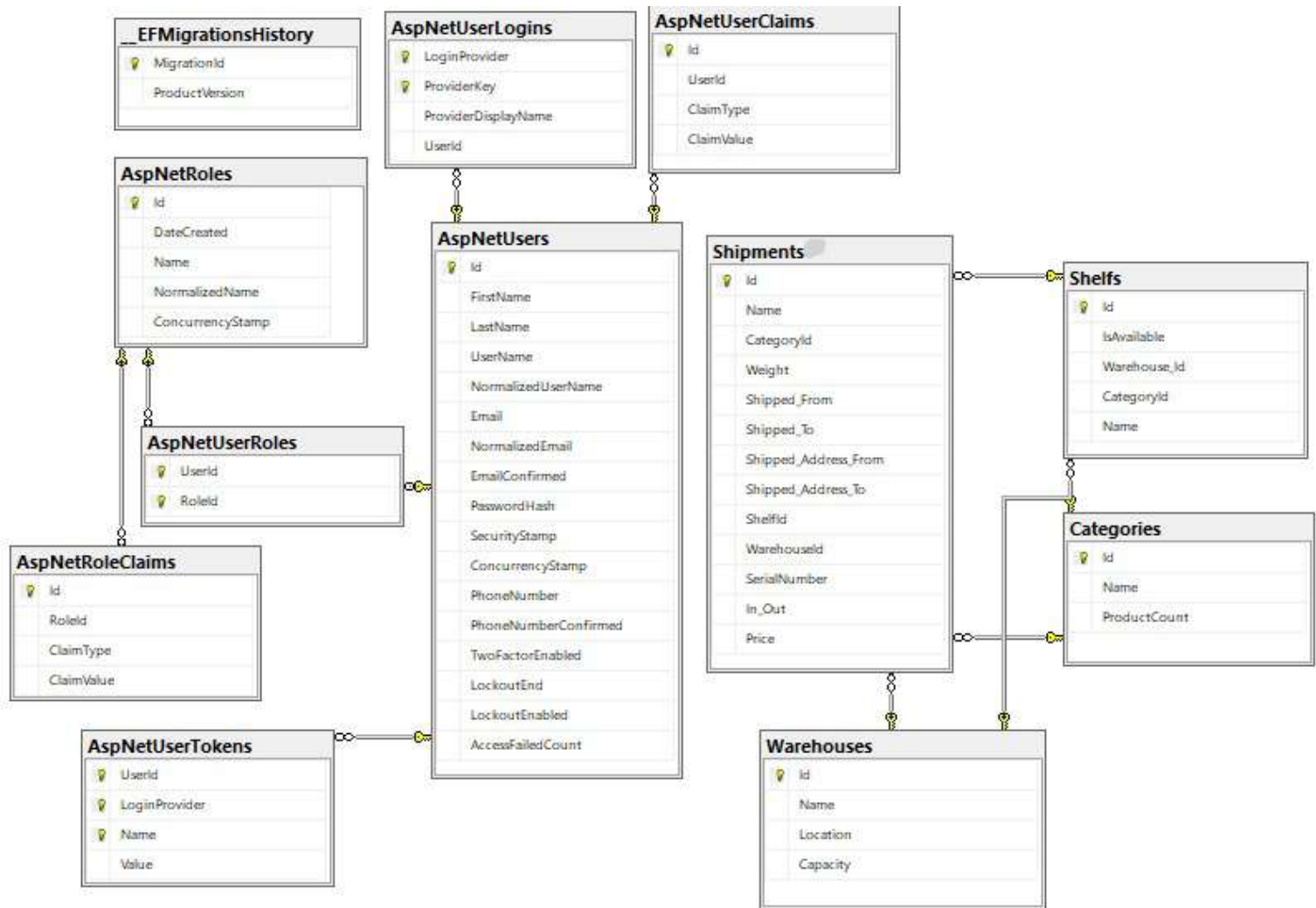
    if (serialHexString.Length != 32) // A valid GUID must have 32 hex digits
    {
        return BadRequest("Invalid serial number length. Expected 16 hexadecimal values.");
    }

    // Convert hex string to byte array
    byte[] serialBytes = new byte[16];
    for (int i = 0; i < 16; i++)
    {
        if (!byte.TryParse(parts[i + 2], System.Globalization.NumberStyles.HexNumber, null, out
serialBytes[i]))
        {
            return BadRequest($"Invalid hex value at position {i + 2}: {parts[i + 2]}");
        }
    }

    // Convert byte array to GUID by ensuring correct endianness
    Guid serialNumber = new Guid(
        new byte[]
        {
            serialBytes[1], serialBytes[2], serialBytes[3], serialBytes[0], // Data1 (4 bytes,
reversed)
            serialBytes[5], serialBytes[4], // Data2 (2 bytes, reversed)
            serialBytes[7], serialBytes[6], // Data3 (2 bytes, reversed)
            serialBytes[8], serialBytes[9], serialBytes[10], serialBytes[11], // Data4 (big-
endian, unchanged)
            serialBytes[12], serialBytes[13], serialBytes[14], serialBytes[15] // Data5 (big-
endian, unchanged)
        }
    );

    var productEntity = await _repository.Product.GetProductBySerialNumberAsync(serialNumber,
trackChanges: false);
    try
    {
        return await AssignShelfToProduct(inOrOut, warehouse, serialNumber,
_mapper.Map(request.Product, productEntity));
    }
    catch (Exception ex)
    {
        _logger.LogError($"Error in ExtractParam calling AssignShelfToProduct: {ex.Message}");
        return StatusCode(500, "Internal server error.");
    }
}

```



Empathy Map

SAYS

"We waste a lot of time on manual stocktaking."

"Human errors are costing us significant losses."

"We need real-time updates on inventory status."

"Technology could make our operations much more efficient."

THINKS

"If we had an automated system, things would be much easier."

"How can I reduce errors and improve data accuracy?"

"Customers would be happier if orders were delivered faster."

"I'm worried competitors might outperform us if we don't improve."



Warehouse Manager

DOES

Inspects the warehouse daily to ensure smooth operations.

Holds meetings with teams to discuss stocktaking and counting challenges.

Uses manual reports to track inventory but feels frustrated by their inaccuracy.

Researches technological solutions to improve inventory management.

FEELS

Due to recurring errors and delays in operations.

About losing products and the impact on the company's reputation.

That technology can improve operations and save time.

To meet company goals with limited resources.



Paula Gerges

"Manager"

- Age : 38
- Warehouse Manager
- Location : Cairo , Egypt
- Married with two children

Bio

Paula is a warehouse manager at a large international logistics company. With over 12 years of experience in inventory management and logistics coordination, he works hard to ensure operational efficiency and achieve company goals.

"Time is money, and mistakes cost us a lot. We need smart solutions that work with precision and speed."

Personality



Goals

Improve inventory counting accuracy to avoid human errors.

Save time in stocktaking and product tracking processes.

Enhance customer experience by delivering orders faster and more accurately.

Frustration

Human errors in manual counting lead to lost products and inaccurate data.

Delays in stocktaking processes slow down order fulfillment and harm the company's reputation.

Lack of real-time updates on inventory status hinders quick decision-making.

Motivations

Desire to improve operational efficiency to meet customer demands faster.

Aim to reduce costs caused by human errors and lost products.

Eagerness to adopt modern technology to excel in the logistics field.

Everyday Activities

Monitoring the movement of products in and out of the warehouse.

Coordinating teams to conduct periodic manual stocktaking.

Analyzing inventory reports and identifying issues related to missing or excess products.

Device Usage

Laptop: Used for data analysis and preparing daily reports.

Tablets: Used while moving around the warehouse to access real-time inventory data.

Problem Statement

I am

a developer and innovator focused on solving real-world problems in large-scale warehouse operations. I am passionate about leveraging technology to improve efficiency, accuracy, and productivity in industries that rely heavily on inventory management. My goal is to create systems that eliminate inefficiencies and provide seamless solutions for businesses dealing with massive quantities of products.

I'm trying to

address the challenges faced by large warehouses, such as Amazon and Aramex, where manual inventory counting leads to human errors, time loss, and inaccuracies in tracking product quantities. These issues are particularly problematic in warehouses that operate 24/7 and handle high volumes of inventory. My aim is to develop a smart inventory management system that automates the entire process, ensuring real-time tracking and updates without the need for human intervention.

But

the current manual methods of inventory counting are inefficient and prone to errors. Human workers often make mistakes, leading to discrepancies in stock levels, delays in order fulfillment, and even lost products. These inefficiencies not only waste time but also increase operational costs and reduce customer satisfaction. Additionally, the lack of real-time data makes it difficult for warehouse managers to make informed decisions about inventory management.

Because

warehouses are growing in size and complexity, and the demand for faster and more accurate inventory tracking is increasing. Companies need a reliable system that can handle large volumes of products, operate around the clock, and provide real-time updates to ensure smooth operations. Without such a system, businesses risk falling behind competitors and failing to meet customer expectations.

Which makes me feel

motivated to create a solution that can revolutionize the way warehouses manage their inventory. I believe that by automating the inventory counting process, we can eliminate human errors, save time, and improve overall efficiency. This will not only benefit warehouse owners and managers but also enhance the customer experience by ensuring timely and accurate order fulfillment.

Solution

The smart inventory management system I am developing will use modern technologies such as gates, sensors, barcode scanners, RFID, and ultrasonic or IR sensors to automate the tracking of products as they enter, exit, or move within the warehouse. The system will operate 24/7, providing real-time updates to a central system that warehouse staff can access via a dedicated website. By eliminating the need for manual counting, this system will save time, reduce errors, and improve operational efficiency, ultimately helping businesses manage their inventory more effectively.