船运管理系统设计文档| Ship Management System Design Document

* 问题陈述我们公司与供应商有贸易安排，可以将货物运送给我们。作为贸易协议的一部分，供应商同意按N批装运X吨货物。 N可以是一个或多个。

1. 使用单例设计模式采用双锁机制，安全且在多线程情况下能保持高性能构建出不同负载量大小的13只船的初始化船队，13只船全部装满总吨数为600吨。我们将创建一个 单例类ShipList类。ShipList类有它的私有构造函数和本身的一个静态实例。ShipList 类提供了一个静态方法，供外界获取它的静态实例。在内存里只有一个实例，减少了内存的开销，尤其是频繁的创建和销毁实例。避免对资源的多重占用。

1. 批次N可以当成参数从页面获取或供应商指定。X吨货物可以作为参数从页面获取当成参数totalQuantity传递到后台进行业务计算。
2. 供应商可以更改装运，以允许拆分或合并装运。 -拆分对货件进行拆分操作，将创建多个具有指定数量的货件。所有子装运数量的总和应等于父装运数量。
3. 合并合并多个货件的操作，将创建一个子货件，其总数量为1。所有父装运数量之和应等于子装运数量。设置一个标识拆分或者合并的操作运算符splitOrMerge 其值1代表执行拆分，2代表执行合并 作为参数从前端页面传递到后台业务代码。
4. 更改根数量此操作适用于贸易。更改贸易数量时，应按比例更新所有装运数量。交易总是从一开始就开始装运。该装运数量将与贸易数量相同。发货的数量将基于拆分/合并而增加。运输总货物吨数作为参数=待运货物总吨数+新增根数量吨数-减少根数量吨数。

• The problem stated that our company has a trade arrangement with its suppliers and can deliver the goods to us. As part of the trade agreement, the supplier agreed to ship X tons of goods in N batches. N can be one or more.

1. The single-case design model uses a double-lock mechanism, which is safe and can maintain high performance under multi-threaded conditions. An initial fleet of 13 ships of different load sizes is built, and the 13 ships are all filled with a total tonnage of 600 tons . We will create a singleton class ShipList class. The ShipList class has its private constructor and a static instance of itself. The ShipList class provides a static method for the outside world to obtain its static instance. There is only one instance in memory, which reduces the memory overhead, especially the frequent creation and destruction of instances. Avoid multiple occupation of resources.

1. Batch N can be obtained from the page as a parameter or specified by the supplier. X tons of cargo can be obtained from the page as a parameter and transferred to the background as a parameter totalQuantity for business calculation.

2. Suppliers can change shipments to allow split or merge shipments. -Split To split the shipment, multiple shipments with a specified quantity will be created. The sum of all child shipment quantities should be equal to the parent shipment quantity.

3. The operation of merging multiple shipments will create a sub-shipment with a total quantity of 1. The sum of all parent shipment quantities should equal the child shipment quantities. Set a splitOrMerge operation operator that identifies split or merge. The value 1 represents split execution, and 2 represents merge execution. It is passed as a parameter from the front-end page to the back-end business code.

4. Change the root quantity. This operation is applicable to trade. When changing the trade quantity, all shipment quantities should be updated proportionally. The transaction always starts shipping from the beginning. The shipment quantity will be the same as the trade quantity. The number of shipments will increase based on split / merger. The total tonnage of goods transported as a parameter = total tonnage of goods to be transported + tonnage of newly added roots-tonnage of reduced roots.