OTS Report

1. Design

* Privilege design(system design)

Oil transaction system includes three kinds of role, including manager, trader and client. The responsibility of manager is to maintain OTS, including managing all traders, managing all clients, managing roles, managing resources, viewing statistics, etc. The trader is responsible for managing his/her own clients and managing the transactions created by his/her clients. Client can manage his/her transaction. We view the things that each role can do as resources. In summary, role can do something by granting corresponding resources to it, user can own resources by specifying roles to it.

The simple ER diagram is shown in the following diagram.



* Business design

ER diagram for core business is shown in the following diagram.

1) Each transaction has at most one client and must have one client, in this relation includes key constraint and participation constraint.

2) Each transaction is paid by at most one client and must be paid by one client, in this relation includes key constraint and participation constraint.

3) Each paid transaction can be canceled only by one trader, in this relation includes key constraint.

4) Each client belongs to at most one trader and must belong to one trader, in this relation includes key constraint and participation constraint.

5) Each client must have one address which belongs only to one client, once the client is deleted, the address should be deleted. In this relation address is a weak entity.

6) Client and trader must have login name and password which used to login system, so they have an ISA relation with User.

2. Soft architecture

EasyUI + JSP, spring and hibernate + JDBC are used to implement oil transaction system (OTS). The architecture of OTS employs MVC mode: view layer uses EasyUI + JSP to implement; controller layer adopts spring MVC to develop; model layer applies hibernate + JDBC to implement. The architecture is shown in the following diagram.

View layer

Controller layer

Model layer

DB

The components detail diagram is shown in the following diagram.

VIEW

HTML

DOMAIN

DAO

DB

Service

Controller

3. Overview of the code

1) The introduction of the main package is as follows:

All packages which include sys include class for system management, for example, user management. All packages which include oil include class for oil transaction, for example, oil sell and buy.

com.ots.controller

---com.ots.controller.sys

---com.ots.controller.oil

Its function is to receive user request and request service to complete request and forward the specified view to display.

com.ots.service

It implements custom business logic. It receives the request from controller and invokes corresponding method of DAO.

com.ots.dao

---com.ots.dao.hibernate

---com.ots.dao.jdbc

com.ots.dao includes the interface of access the database. com.ots.dao.hibernate includes the class implemented with hibernate. com.ots.dao.jdbc includes the class which use jdbc to access the database.

com.ots.domain

It defines object oriented presentation of the db relation.

com.ots.dto

It includes the classes used to transfer data among controller, service and dao

2) The introduction of the jsp is as follows:

The JSP page is located in WebContent/web-inf/views folder. Admin fold includes JSP used to show page for system management. Oil fold includes JSP used to show page for oil transaction.

3) The introduction of resources is as follows:

Resources fold includes all kinds of configuration file, including spring, hibernate, dbconfig.properties which is used to config the database information.

4) The introduction of JavaScript

EASYUI adopts Jquery and Jquery adopts javascript. All JavaScript libraries locate in the WebContent/jslib.

4. Group member

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