APG WebShop: Acme Plastic Gnomes Enter Cyberspace

Problem formulation

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General description

Acme Plastic Gnomes are selling more and more gnomes each day and the CEO, Mr. S. Anta, has finally decided that the time is ripe for Acme Plastic Gnomes to enter cyberspace!

The first attempts of devising an electronic commerce infra-structure using pigeons and straw were complete failures.

The tasks are now in your hands. You will have to implement and deploy a working web shop in Java. You implement the web shop as a Web-application using the Java EE technologies,

This project is broken down into following three sub-assignments (sub-systems).

1. Customer management

This sub-assignment of the Project 4 aims at implementing the infra-structure for tracking customers. Customers must be able to register themselves and must be able to log on to the system after presenting a user id and a password. Each customer has its own set of ids and passwords.

To pass this sub-assignment the system must handle the following cases:

1. A customer must be able to register itself. The customer must be able to choose an arbitrary a password and user id. Both user id and password are strings. Customers cannot register an already existing user id.
2. A registered customer must be able to log on to the system.
3. A customer that have logged in must be able to log out from the system.

2. Inventory and shopping basket management. Buy and pay functionality.

Each customer has a shopping basket when he or she is logged on to the system. The customer fills this basket with gnomes from the inventory. In this sub-assignment the shopping basket and inventory is to be implemented.

To pass this sub-assignment the system must handle the following cases:

1. A customer must be able to browse the articles, i.e., the different types of gnomes, and the inventory, i.e., the available amount of gnomes of each type. It is assumed that you hardcode the inventory to hold at least three (3) different types of gnomes and that there are initially at least 10 units of each type. For each type of gnome the currently available number of units in the inventory must be displayed.

2. A customer must be able to take units from the inventory and put them into his or her shopping basket. The status of the shopping basket, i.e., the number of units of each type of gnome in the shopping basket, must be displayed.
3. A customer must be able to buy and pay for the units in her shopping basket. After payment, the units should be removed from the basket as being bought by the customer.

3. Administrative interface

The third and final sub-assignment aims at implementing the administrative interface to the system. This interface is, for example, to be used to update the inventory when new shipments of gnomes arrive from the factory.

Acme Plastic Gnome has in the past had problems with customers who cannot pay for the goods. Mr S. Anta has decided that customers can be banned if they do not behave.

To pass this sub-assignment of Project 4 the system must handle these cases:

1. It must be possible to log on to the system as an administrator.
2. As an administrator it must be possible to add and remove articles to the inventory.
3. As an administrator it must be possible to add additional units to an arbitrary article.
4. As an administrator it must be possible to ban registered customer. A banned customer can not log on. The user id is still, however, valid and no other customer can register the banned user id.