ON-LINE AUCTION DEVELOPMENT: BEST PRACTICES PATTERNS

Belarusian state university of informatics and radio electronics
Minsk, Republic of Belarus

Kavalchuk I. V.

Shelyagova T. G. – candidate of philological sciences, associate professor

The emergence and growing popularity of Internet-based electronic commerce has raised the challenge to explore scalable global electronic market information systems, involving both human and automated traders.

Online auctions are a particular type of Internet-based markets, id est, world-wide-open markets in which participants buy and sell goods and services in exchange for money.

My Master Thesis topic is called «DotNet Framework Online Auction User Experience Enhancement», and it is a further development of my Diploma Project topic. This research implies theoretical work as well as practical appliance. The chosen type of auction is «Silent auction» – English auction in which one participant's bids are hidden from other participants. Auction system is based on Microsoft .NET platform using Windows Communication Foundation (WCF) framework and Microsoft SQL Server 2008 as a database management system.

This report focuses on best practices to better understand and build the features that are very important for successful auction application. Some of the features can be introduced in the system in several ways, requiring further comparison and evaluation.

First pattern is **Proxy Bidding**. Online auctions can last for several days, making it impossible for human buyers to follow the auction in its integrity, as is the case in traditional ones. Proxy bidding allows buyers to specify their maximum willingness to pay. A procedure is then used to automatically increase their bid until the specified maximum is reached, or the auction is closed. This enables human buyers to be represented in the auction, without requiring their physical presence in order to interact with their Buyer agent. There are two alternatives of a proxy bidding.

The first alternative seems more adequate. The responsibility of managing proxy bidding is allocated to the Buyer agent. When the Buyer manages proxy bidding, price preferences are not communicated to outside agents. Consequently, Privacy is higher than in the second alternative which requires the transfer of price preferences to the Auction Manager. There are some concerns about Speed, Security and Reliability, but these parameters are considered to be not of high priority in an English online auction.

The second alternative is suitable for other types of auctions (for example, First-Price Sealed Bid Auction, Vickrey Auction, Dutch Auction etc.), so there is no need to describe it here completely.

The second pattern is **Reputation Management**. In classical exchanges where buyers and sellers actually meet, trust results from repeated buyer-seller interactions, from the possibility to inspect items before the purchase, etc. In online auctions, sellers and buyers do not meet, and little personal information is publicly available during the auction. In addition, product information is limited to information provided willfully by the seller. In such a context, a mechanism for managing trust should be provided in order to reduce uncertainty in transactions among auction participants.

This pattern satisfies all but one of the requirements specified above: it does not make it costly for participants to change identities. For example, eBay deals with this problem by requiring each seller to provide a valid credit card number. Such possibility is not introduced into this pattern as it is not a standardized solution (eBay applies it only for its US users and none of its competitors applies it anywhere in the world).

The third pattern is **Dispute Resolution**. The trade settlement that follows the closure of the auction may not be successful for many reasons (e.g., late deliveries, late payment, no payment at all, etc.). It then results in dispute that can require mediation by a third party in order to be resolved. The third party (here, a Negotiation Assistant) can be either a software agent that manages an automated dispute resolution process, or a human mediator.

The Negotiation Assistant collects Buyer and Seller Arguments, and makes them available to both parties. On the basis of these Arguments and its Solution Knowledge Base, the agent Selects Solution – both the Buyer and the Seller depend on the agent to Suggest Solution to their dispute.

The fourth pattern is **Payment**. Payment can be accomplished in numerous ways in the context of an online auction. They can be either managed (in part) through the online auction – exempli gratia, credit card based transactions – or outside the scope of the online auction information system (OAIS) – exempli gratia, cash, checks, et cetera.

In the Payment pattern, the Payment Agent (specialization of the Negotiating and Contracting Agent) mediates the payment interaction between the Seller and the Buyer. The Payment Agent depends on the Payment System to provide Money Transfer Confirmation, which is used to confirm Money Transfer to the Seller.

The fifth pattern is **Fraud Detection**. Fraud is common in online auctions. Fraud issues are strongly related to trust and reputation, and should be accounted for an online auction system, in terms of specific parts of the system that are specialized in fraud detection activities.

The Fraud Detector requires specific User information and therefore depends on the Reputation Manager for Seller Reputation Information, the Account Manager for User Information, and on the Auction Manager for Auction Information.

This report describes the above-mentioned patterns by analyzing some aspects of online auctions functionalities with the help of agent paradigm. Patterns of best practices of online auctions can be very useful for the process of such systems development. There are, though, some limitations to these patterns because only social and intentional dimensions were provided for the patterns.