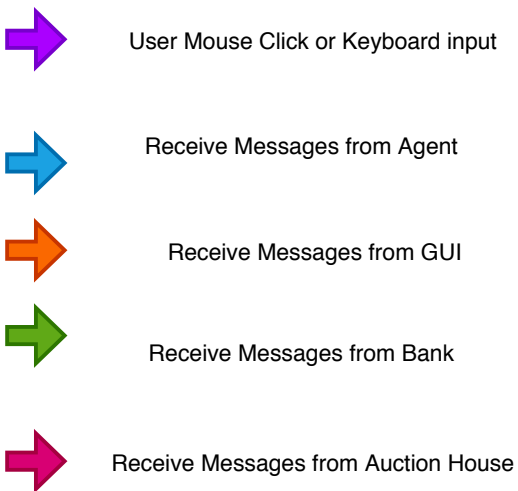
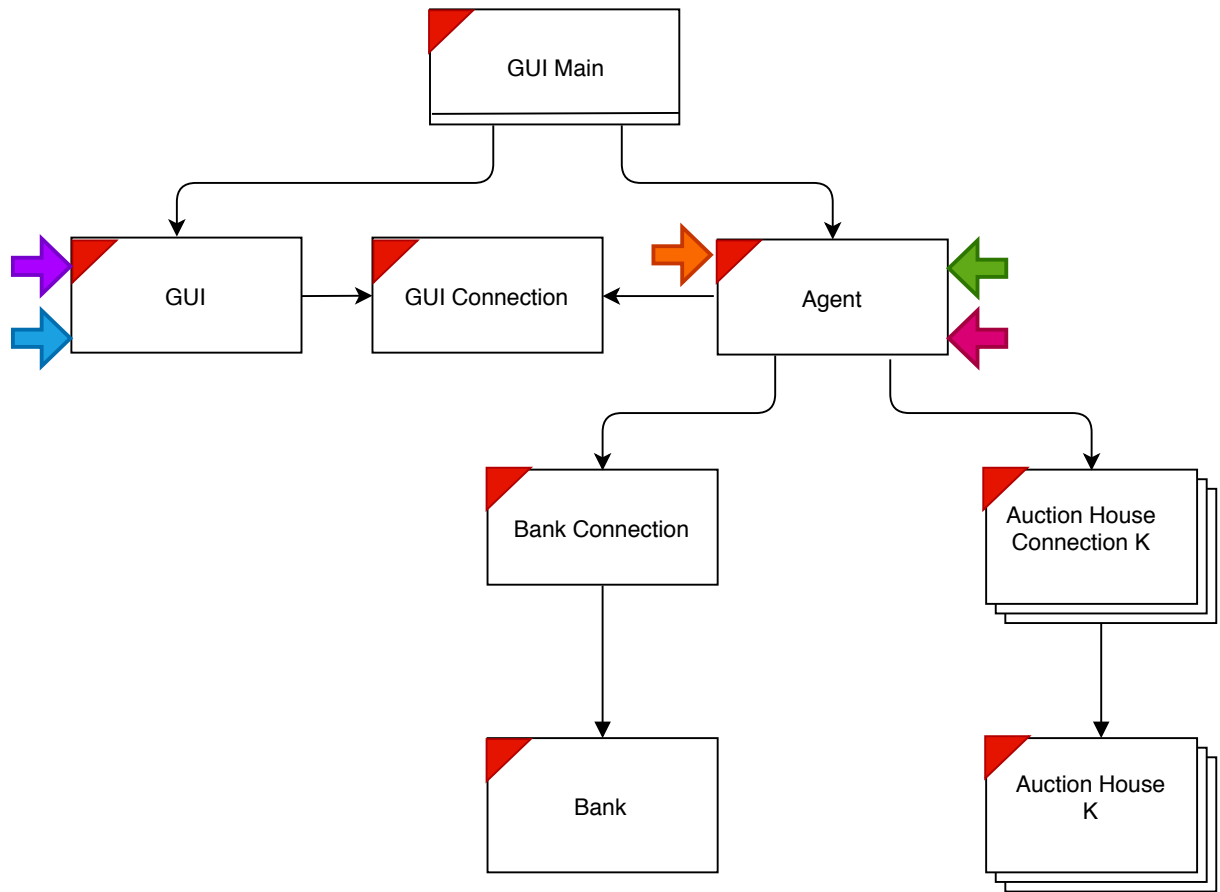


Auction Agent Design Diagram



Auction Agent Design

GUI Main:

- Starts the agent and GUI threads

GUI:

- Displays 3 different pages
 - Loading Page when no auction houses have been connected
 - Auction House List Page: list of auction houses and corresponding id's
 - Item List Page: list of items with bid info
- Displays agent info
 - Account Number
 - Balance
 - Available Funds
- Displays statuses of bids
 - Bid Accepted, Bid Rejected, Bid Outbid, Bid Won
- User can select a house from house list page with mouse
- User can select an item from item list to bid on
- User can enter bid amount for item with keyboard and place bid with mouse
- Sends messages to Agent's message queue when user interacts with GUI
- Has a message queue that receives messages from Agent to update GUI
 - E.g. status messages, updated bid info on items, list of houses, list of items

Agent:

- Separate thread
- Has an account number (agent id), agent name, balance, and available funds
- Has a message queue
 - Receives messages from Bank, Auction Houses, and GUI
- Has a single Bank Connection to Bank
- Can have several Auction House Connections to connect to Auction Houses
 - Maps auction house id to respective connection in a hash map
 - Updates this map whenever a list of houses is received from Bank
- Sends messages to GUI when:
 - Receives messages from Bank to update balance, available funds, account number and list of auction houses
 - Receives messages from Auction House bid status messages
- Sends messages to Bank when:
 - Account needs to be opened
 - Receives message from GUI to request a house list
 - Receives messages from Auction Houses about bid status messages and GUI needs to be updated with balance, available funds
 - Receives a bid won message from Auction House and sends a transfer funds to Bank
- Sends messages to Auction Houses when:
 - Receives a message from GUI that a bid has been placed by the user
 - Receives a message from GUI that for a request of the list of items from a house
- Shuts Down when there are no ongoing bids
 - Keeps track of how many bids are ongoing

Bank Connection:

- Separate thread
- Has a socket, input stream and an output stream
- Sends messages to bank via the output stream
- Receives messages from the Bank via input stream
 - Places messages in Agent's message queue

Auction House Connection:

- Separate thread
- Has a socket, input stream and an output stream
- Sends messages to auction house via the output stream
- Receives messages from the bank via input stream
 - Places messages in Agent's message queue

GUI Connection

- Separate thread
- Has a reference to GUI'S message queue and Agent's message queue
- Sends and receives messages to and from GUI to Agent
- Sends and receives messages from and to Agent to GUI

Messages

- Two types of messages
 - GUI Messages
 - Used only for the communication from Agent to GUI
 - Regular Messages
 - Used for communication between Agent to Bank, Agent To Auction House and GUI to Agent