The JOROCHIAL Auction System
Software Requirements Specification

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I. Purpose & Scope

A. The Overall Scope and Goal

This document represents the SRS of the JOROCHAL Auction Site designed on behalf of Rendezvous Haiti for the stakeholders for the project; such as our client Herve Franceschi, bidders, donors, and developers. Its purpose is to describe the functional and non-functional software requirements as well as the design constraints of the whole auction project. Additionally, this document demonstrates how the system's functionality/interfaces are designed in detail.

B. Stakeholders

- **The Client** wants to procure secure and rigorous software from the developers
- **The Bidders** want to buy items during the auction by placing bids
- **The Administrators** want to organize a silent auction
- **The Donors** want recognition for their donation or to support the charity organization.
- **The Charity manager**/head wants to see a fundraiser function smoothly and gain as much profit as possible
- **The Developers** want to build a system that fits the stakeholder's needs

C. The Scope of the Project

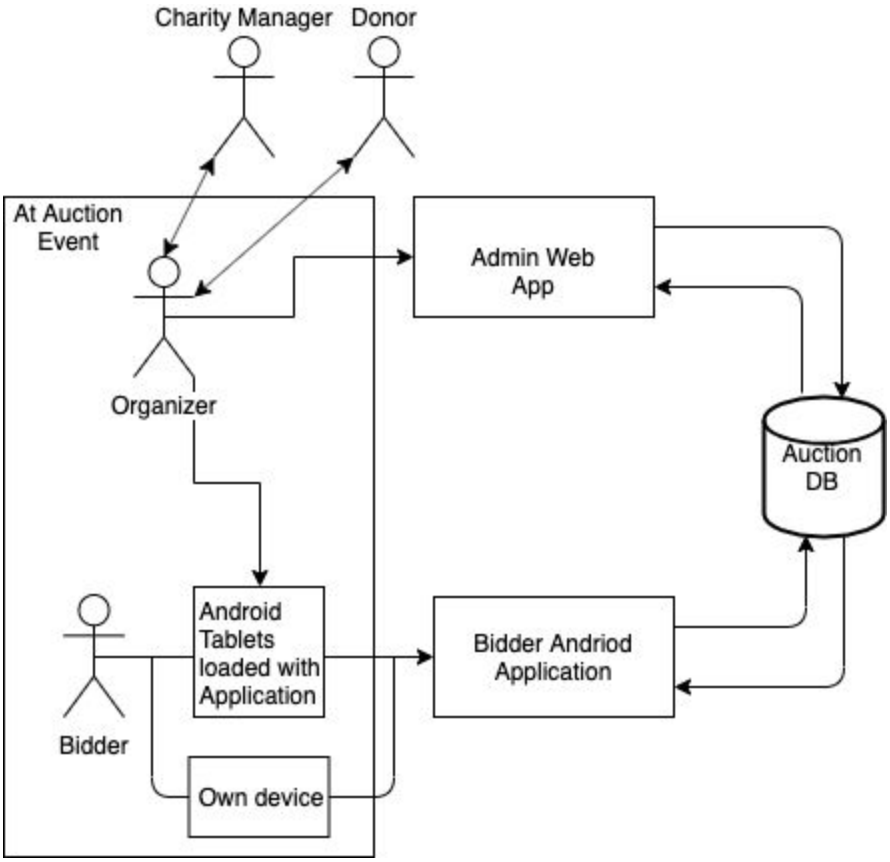
The auction site addresses the management of donated items as listed by an auction administrator. It provides the framework for the bidding and the listing of donated items in such a way that all these listings deliver pertinent and useful information to the possible bidders and aggregates the resulting information for the administrator to see immediately and in the future. This SRS describes the required functionality of the auction system from both the client app side and administrator web side, as well as the organization of the database and server-side connecting all these together. As organized by the use case model, the system delivers functionality based on a user story flow system.

II. Problem & Problem Domain

A. The Problem and Domain Overview

The client requires a three-part system; an administrative web-based component for organizing auctions, a database to store system details, as well as auction information, and a client-facing tablet application for placing bids and collecting client information. The client intends to use this software for a silent auction to benefit Rendezvous Haiti. The client intends to use the software at an in-person event, during which the bidders use pre-loaded tablets or their own device to bid on items up for sale, rather than writing bids on a sheet of paper or holding up a sign. The client uses the web interface to set up the auction event, input the items for sale, and access the results of an auction event.

B. Flow Diagram



III. Glossary

Term	**Definition**
Application	A program designed to have a certain function
Android	Operating system used as a software stack for the application, as well as the operating system of the tablets that will run the app.
Bidder	The people on the user side of the application, who place bids on items of their choice during the auction.
Administrator (Admin)	The person who uses the web application. The administrators control everything about the auction, including when it starts and what items are up for bidding.

Charity Manager	A representative from Rendezvous-Haiti or other charity receiving the profits from the auction.
Donor	Each item has a donor, the one who donated the item for the auction.
Silent Auction	Bids are placed through the application instead of with an auctioneer. At the end of the auction, the highest bidder for each item keeps the item.
Database	The database in this application stores the auction and bidding information, as well as relevant user information.
Rendezvous Haiti	Sustainability initiative focused in Santo, a suburb of Haiti's capital city. They fundraise, care for residents, organize volunteer service trips, and more.
Tablet	A device at auction that bidders will utilize when interacting with the application.
Encryption	The process of "encoding data such that authorized parties can access it and those who are not authorized cannot."
Cross-Site Scripting	Type of computer security vulnerability typically found in web applications. Enables attackers to inject client-side script into web pages viewed by other users.
SQL Injection	A code injection technique in which malicious SQL statements are put into an entry field for execution.
Item	A prize to being bid on at the auction.
Bid	To offer a certain price for an item at the auction.

IV. Functional Requirements

A. The Primary Actors and Their General Goals.

1. Administrator

   The goal of the administrator is to create auctions by entering items for the auction including all the item information. Item information includes starting price, description, who it was donated by, etc. The administrator enters items for the auction via the website. The Administrator also sets a time on when the auction starts and when it ends.

2. Bidder

   The goal of the bidder is to view and bid on items in a given action. The bidder will sign-in/login and be able to view all available items in an auction during the time period when the auction is live. The bidder will also be able to auto bid on an item if someone outbids them until it reaches the bidder's maximum bid.

3. Client

   To obtain a secure software product based on all the requirements specified in this document.

B. Features List

1. Priority 1 Requirements

i. The system shall have a web interface for the Administrator.
ii. The system shall have a database of all auction items and item information.
iii. The system shall have an android app that connects to the database for the auction.

2. Future Work

i. The system shall have a vertical and horizontal display on the android application.
ii. The system shall have a web interface to make multiple auctions.

C. The User Stories

General System:

- As a client, I want a one-way encrypted password so that the system is up to my security standards.
- As a client, I want my app to be protected from SQL injection attacks so that the system is up to my security standards.
- As a client, I want my system to be protected from cross-site scripting so that the system is up to my security standards.

Web Application:

- As an admin, I want a web interface so that I can manage my auctions.

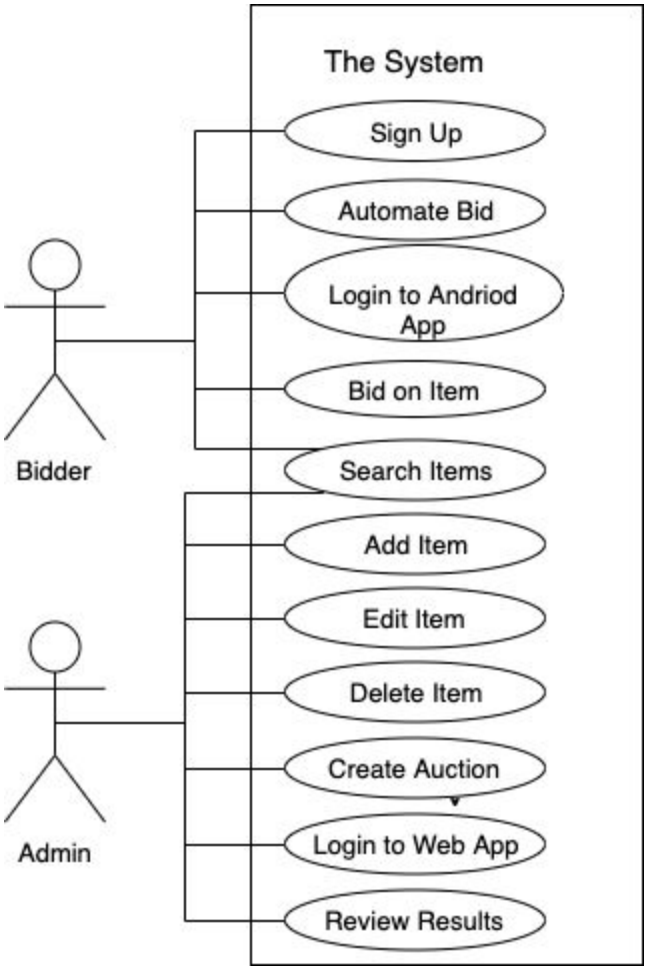
- As an admin, I want my web interface password-protected so that only approved admins can access the system.
- As an admin, I want to be able to add more admin and bidder accounts to the system so that I can add people to my team without contacting the developers.
- As an admin, I want to be able to change my password so that my password is more secure.
- As an admin, I want to be able to add items to my auctions so that I can run my event.
    - As an admin, I want the following information to be available for each item, a small paragraph description, a picture, a starting bid, a minimum increment, and the item's donor so that I can use my data effectively.
    - As an admin, I want an item's picture to only accept images with .gif, .png, or .jpg/.jpeg file extensions.
    - As an admin, I want the information stored about an item's donor to include their email, and their first and last names so that I may contact them in regard to an item.
- As an admin, I want to be able to set time bounds for an auction so that bidders can only bid during my event.
- As an admin, I want to be able to update or change an item so that I can easily keep my auction filled with current information.
- As an admin, I want to be able to delete an item so that my auction does not contain invalid items.
- As an admin, I want a summary view so that I can easily read the results of my auction event.
    - As an admin, I want the summary view to include a bidding history of each item so that I can assess its popularity.
    - As an admin, I want the summary view to include aggregate results of the auction, such as how much money was raised so that I can assess my event.
    - As an admin, I want the summary view to include the total money raised per donor so that I can report to the donor the results of their generosity.
- As an admin, I would like the ability to plan more than one event at a time through my web application so that I can improve efficiency.

Android Application:

- As a bidder, I want to be able to sign up so that I may log-in at another time.
- As a bidder, I want to be able to log-in so that I may view all the items available at the auction.
- As a bidder, I want an option to change my password so that my account remains secure.

- As a bidder, I want to see the current bid on an item so that I can decide if I would like to bid on it.
- As a bidder, I want to have a way to auto-bid so that I can bid on an item again if someone outbids me.
- As a bidder, I want to have a maximum auto bid so that I can cap the amount of money I bid on an item.
- As a bidder, I want to be notified when someone outbid me on an item so that I can determine if I want to up my bid.
- As a bidder, I want to see a list of all the current items I have the top bid for so that I can keep track of my bids.
- As a bidder, I want to see a list of “past bids” i.e. bids that I have bid on but someone had outbid me so that I can see if I want to bid again.
- As a bidder, I want to see on my “past bids” page the amount that I bid and the current asking price of the item so that I can determine if I want to bid again.
- As a bidder, I want to see a picture and description of an item so that I can determine if I would like to bid on it.
- As a bidder, I want to search for items by keyword so that I can streamline my bids on items that I am looking to bid on.
- As a bidder, I want to see a countdown of how much time is remaining in the auction so that I can bid on items before the auction is over.
- As an admin, I want the bidders to be brought to the login screen once the auction is over so that no one can bid once the auction is closed.
- As an admin, I want the bidder’s passwords to be encrypted so that their information can stay safe.
- As an admin, I want an email to be sent to the winning bidders so that they can know they won the bid.

D. Use Case Diagram



E. Fully Dressed Use Cases

1. **Use Case UC1:** Bid On Item

Primary Actor: Bidder

Stakeholders and Interests:

- Bidder: Wants to be able to quickly enter a bid for an item
- Administrator: Wants bid information in the database updated

Preconditions:

- The bidder has an account. The bidder has been validated

Success Guarantee(Postconditions):

- Bidder's bid is entered. Item bid information is updated in the database. Bidder is displayed as the current highest bidder until outbid.

Main Success Scenario(or Basic Flow):

1. Bidder selects the item they want to bid on.
2. Bidder enters a bid for the item.

3. Bid information is updated in the user application and in the database.
4. User is displayed as the current highest bidder for the item until they are outbid

Extensions (or Alternative Flow)

1. If, at any time, the bidder cannot bid on an item:
    a) Invalid amount:
        i) An alert message appears: “Failed to bid on the item, please enter a valid amount”
        ii) The alert message fades, user free to bid again or exit to the main screen
    b) If no number was entered:
        i) Automatically bids the minimum amount

Special Requirements:

- Bidder must bid a minimum amount above the current highest bid. Minimum increment is set by the administrator on a per-item basis.
- The highest bidder is displayed to everyone for each item.
- Bidders get an email notification when they are outbid.
- Bidders can set to auto-bid if they get outbid, can choose the amount to auto-bid.

Frequency of Occurrence: High

2. **Use Case UC52**: Create Auction

Primary Actor: Administrator

Stakeholders and Interests:

- Admin: Wants to be able to create auction with numerous items to be bid on with proper detailing information for each item. Wants to be able to set start and end time for the auction
- Bidder: Wants to be able to navigate auction, browse and bid on items

Preconditions: Must have items to populate auction

Success Guarantee (Postconditions):

- Auction created with items to be bid on

Main Success Scenario (or Basic Flow):

1. Admin logs into Web Interface
2. Admin adds items to auction (see use case UC3)
3. Admin sets start and end time for the auction
4. Admin creates auction

Extensions (or Alternative Flow):

A) Anytime the system fails:
    a) Auction is not created
    b) Admin is taken back to the creation page

Frequency of Occurrence: Low

3. **Use Case UC3:** Add Item

Primary Actor: Administrator

Stakeholders and Interests:

- Administrator: Wants to be able to add items with picture, description, starting bid, a minimum increment, and the item's donor to the auction.

Preconditions:

- Must have with picture, description, starting bid, a minimum increment, and the item's donor

Success Guarantee(Postconditions): Item added to the auction

Main Success Scenario(or Basic Flow):

1. Admin logs into Web Interface
2. Admin arrives at Add Item page
3. Admin adds information for the item to add
4. Admin adds item

Extensions(or Alternative Flow):

A) Anytime the system fails:
   a) Item is not added
   b) Admin is taken back to Add Item page

Special Requirements:

- Each item must have a small paragraph description, a picture, a starting bid, a minimum increment, and the item's donor

Technology and Data Variations List:

- An item's picture can only accept images with .gif, .png, or .jpg/.jpeg file extensions

Frequency of Occurrence: Low

4. **Use Case UC4:** Edit Item

Primary Actor: Admin

Stakeholders and Interests:

- Admin: Wants to edit information on an item such as minimum bid, item name, donor, item description incase it was misentered previously.
- Bidder: Wants to see factual information for each item on sale at the auction

Preconditions: item must exist previously

Success Guarantee(Postconditions):

- The item information is updated. The database now stores the correct information on the item. The android app view on the item is updated to reflect the newly changed information.

Main Success Scenario(or Basic Flow):

1. Admin logs into Web Interface
2. Admin arrives at View Items Page.
3. Admin locates the item they would like to edit.
4. Admin clicks the edit button to edit the item.
5. Admin is brought the edit item page.
6. Admin updates item information.
7. Admin hit submit to upload new information.
8. The database is updated with updated item information.
9. Android App Item info is updated for view.

Extensions (or Alternative Flow):

A) Anytime the system fails:
   a) The database is not updated.
   b) Android App does not update item view information.
   c) Web-interface has pop-up exclaiming that the item could not be edited at this time.

Frequency of Occurrence: Could by nearly continuous.

5. **Use Case UC5:** Delete Item

Primary Actor: Admin

Stakeholders and Interests:

- Admin: Wants to delete an item when it is no longer available to be sold in the auction or placed in auction in error.
- Bidder: Only wants to see items on sale during the auction.
- Donor: wants to revoke a donation prior to the start of an auction

Preconditions: Item must exist in the database

Success Guarantee(Postconditions):

- The item information is deleted.
- The database no longer holds data on that item.
- The android app view on the item is updated so that the item no longer exists.

Main Success Scenario(or Basic Flow):

1. Admin logs into Web Interface
2. Admin arrives at View Items Page.
3. Admin locates the item they would like to delete.
4. Admin clicks the delete button to delete the item.
5. Admin is asked if they are sure they want to delete the item.
6. Admin clicks yes.
7. Item is deleted in Admin View.
8. Item information is deleted from Database.
9. Item is deleted from Android Application View.

Extensions(or Alternative Flow):

A) Anytime the system fails:
(a) The database is not updated.
(b) Android App does not update item view information.
(c) Web-interface has pop-up exclaiming that the item could not be deleted at this time.

Frequency of Occurrence: Could by nearly continuous.

6. **Use Case UC6:** Automatic Bid

Primary Actor: Bidder

Stakeholders and Interests:

- Bidder: Wants a way to keep bidding automatically if someone beats their previous bid. Also wants a cap on how high the auto-bid can go.
- Admin: Wants auto bidding as an option so that bids will rise faster, generating more money.

Preconditions:

- Admin must set an auto bid price at which bidders can increase by.
- The item must be available at the time of the auction
- The auction must still be in session.

Success Guarantee (Postconditions):

- Every time someone outbids the bidder auto bid will begin until the new bid is greater than the maximum specified by the bidder.

Main success scenario (or basic flow):

1. The Bidder1 finds an item of interest.
2. The Bidder1 clicks auto-bid on the item button.
3. A Pop Up appears asking Bidder1 to enter a maximum bid to cap at.
4. Bidder 1 enters the maximum bid and submits.
5. Bidder 1 wins the bid at the maximum bid.

Extensions (or alternative flows):

1. If Bidder 2's bid is greater than Bidder 1's max:
    a. Notify Bidder 1 that they have been outbid.
2. Otherwise, if Bidder 2's bid plus the automatic bid amount is greater than Bidder 1's max:
    a. Make current bid Bidder 1's Max Bid.
    b. Otherwise, make current bid Bidder 2's bid plus automatic bid amount where the highest bidder is now Bidder 1.

Special requirements:

- Android App will display what auto-bid increment amount is for an item.

Technology and Data Variations List:

Open issues:

- Will each item have a separate auto bid increment amount? Or will it be consistent for all items?

Frequency of Occurrence: Continuous.

7. **Use Case UC7:** Login to Web App

Primary Actor: Admin

Stakeholders and Interests:

- Admin: Wants to access system to set up an auction
- Client: Wants access to system secured with one-way encryption.

Preconditions:

- Admin in possession of valid access credentials

Success Guarantee (Postconditions):

- If credentials correct, Admin allowed access to web application system.
- If credentials are incorrect, access to the system is denied.

Main success scenario (or basic flow):

- Admin enters a valid username and valid passcode into the login screen.
- Credentials (username and passcode) are verified against the server
- Access granted.

Extensions (or alternative flows):

- Admin enters an invalid username and/or invalid passcode into the login screen.
- Credentials (username and passcode) are verified against the server
- Access denied.

Special requirements:

- The first Admin account is hardcoded into the server with a temporary passcode. This account can then add additional admins to the system.
- Logout function should also be available

Technology and Data Variations List:

- Login Web Page required
- In Database, authorized Admin Account Table required

Open issues:

- Should a strong password be required (letters, numbers, special character requirements)?

Frequency of Occurrence: Frequent

8. **Use Case UC8:** Login to Android App

Primary Actor: Bidder

Stakeholders and Interests:

- Admin: Wants bidders to access system to bid and result in a successful auction
- Client: Wants access to system secured with one-way encryption.
- Bidder: Wants to access system

Preconditions:

- The bidder has signed up for an account, hence has obtained valid credentials.

Success Guarantee (Postconditions):

- If credentials correct, Admin allowed access to the web application system.
- If credentials are incorrect, access to the system is denied.

Main success scenario (or basic flow):

- Admin enters a valid username and valid passcode into the login screen.
- Credentials (username and passcode) are verified against the server
- Access granted.

Extensions (or alternative flows):

- Admin enters invalid username and/or invalid passcode into login screen.
- Credentials (username and passcode) are verified against the server
- Access denied.

Special requirements:

- Logout function should be available

Technology and Data Variations List:

- Login form required

Frequency of Occurrence: Nearly continuous.

9. **Use Case UC9:** Review Results

Primary Actor: Admin

Stakeholders and Interests:

- Donor: want to know the impact of their donation
- Charity Manager: wants to know the amount raised
- Admin: wants to provide stakeholders with information and make assessments for next auction

Preconditions: Auction has completed, Admin has logged in

Success Guarantee (Postconditions):

- Admin has found information

Main success scenario (or basic flow):

- Admin accesses list of past and present auctions
- Admin selects a past auction to transition to the summary page

Extensions (or alternative flows):

Special requirements:

Admin can access a summary web page that includes:

- view a bidding history of each item
- aggregate results of the auction
- the total money raised per donor

Technology and Data Variations List:

- Auction manager page required
- Auction summary page required

Open issues:

Frequency of Occurrence: Rarely

10. **Use Case UC10: Search Item**

Primary Actors: Admin/Bidder

Stakeholders and Interests:

- Admin: Wants to be able to search for items on the Web-Interface, with a sorting algorithm of Price Ascending, Price Descending, Relevancy, and Alphabetical.
- Bidder: Wants to be able to search for items based on keywords in the item title or item description on the Android, with a sorting algorithm of Price Ascending, Price Descending, Relevancy, and Alphabetical.

Preconditions:

- In both the Web Interface and Android App there should be a text search box located on the view all items page. There should be a drop-down where the Admin/Bidder can specify the order the items will appear on the page.

Success Guarantee (Postconditions):

- After Admin/Bidder presses the search button with text in the search text box, the page will be updated with items matching the keywords entered. The items will appear according to the sorting algorithm specified by the Admin/Bidder.

Main success scenario (or basic flow):

Web-Interface:

1. Admin clicks on the search bar on the items page.
2. Admin types in a keyword to search bar.
3. Admin clicks the search button.
4. Items matching keyword searched only appear on the page. The order of the items is determined by the sort algorithm specified by the Admin.

Android Application:

1. Bidder clicks on the search bar on the items page.
2. Bidder types in a keyword to search bar.

3. Bidder clicks the search button.
4. Items matching keyword searched only appear on the page. The order of the items is determined by the sort algorithm specified by the Bidder**.**

Extensions (or alternative flows):

1. If no items match the keyword entered the page will display "No items match search. Try again"

Special requirements:

Technology and Data Variations List:

Frequency of Occurrence: Often

11. **Use Case UC11:** Sign Up

Primary Actor: Bidder

Stakeholders and Interests:

- Admin: Wants bidders to access the system to bid and result in successful auction.
- Bidder: Wants to gain access to the system so that they can bid on items.

Preconditions:

- The bidder has an android device that supports the auction app.

Success Guarantee (Postconditions):

- Bidder can sign up and log in to the auction to start bidding on items.

Main success scenario (or basic flow):

- Bidder clicks sign up on Android App login page
- Bidder is brought to a page where they enter their name, username, email, password, and billing information.
- Bidder can now enter the auction.

Extensions (or alternative flows):

- Bidder enters invalid email, password, or billing information.
- Bidder is prompted to try again.

Special requirements:

- After signing up, the bidder should be brought back to the login page.

Technology and Data Variations List:

- Sign up form required

Open issues: None

Frequency of Occurrence: Often

V. Technology Used

A. Technology Requirements:

1. The bidding application will be written in Java and XML for devices running an Android operating system.
2. The bidders will require an Android phone or tablet to run the bidding application.
3. The web administration application will be written in HTML, CSS, JavaScript, and PHP.
4. The Database will be a SQL server.

B. Supporting Systems:

Both the administrator and bidder applications will need to interact with a SQL database to access real-time auction information. This is something both applications will be capable of doing.

VI. Nonfunctional and Other Requirements

A. Capture the nonfunctional and other requirements. For example:

1. Performance and scalability related requirements.

   Currently none.
2. User and usability related requirements.
   - The auction android app should be in vertical layout only.
   - The android auction app should have the color scheme of Rendezvous Haiti.
   - In the auction android app, the items page and search page should be in a list format.
3. Maintenance and portability related requirements.

   The android app will be available on both mobile and tablet usage, whereas the web-based portion will be desktop/laptop-based.

VII. References

“Dictionary by Merriam-Webster: America's Most-Trusted Online Dictionary.” *Merriam-Webster*, Merriam-Webster, www.merriam-webster.com/.