EAP: Architecture Specification and Prototype

A7: High-level architecture. Privileges. Web resources specification

This artefact documents the architecture of the web application to be developed, indicating the catalogue of resources, the properties of each resource, and the format of JSON responses. This specification adheres to the OpenAPI standard using YAML.

1. Overview

Identification and brief description of the modules that will be part of the application.

Module	Description
M01: Authentication	Web resources connected with authentication. Includes the features: login/logout, registration.
M02: Auction	Web resources connected with autions. Includes the following system features: bid at an auction, auction listing and search, view, follow and report auctions, view auction's bidding history. Also includes creation, edition and cancelacion of an auction, as well as the management of the auction status.
M03: User	Web resources associated with user. Includes the following system features: user listing and search, view user profile, edit profile, review user and follow user.
M04: Administration	Web resources associated with user and auction management, includes the following system features: restrict and ban users, delete user accounts, manage and delete auctions, change user information, and view system access details for each user.
M05: Static pages and others	Web resources associated with general content of the website. Web resources with static content are associated with this module: About and FAQ.

2. Permissions

Permissions used by each module, necessary to access its data and features.

PUB	Public	Users without privileges
USR	User	Authenticated users
OWN	Owner	Users that own information (e.g. own auction, own account)
ADM	Administrator	System administrators

3. OpenAPI Specification

OpenAPI specification in YAML format to describe the web application's web resources.

OpenAPI Link.

```
openapi: 3.0.0

info:
    version: "1.0"
    title: "Hand Of Midas"
    description: "Web Resources Specification (A7) for Hand Of Midas"

servers:
    - url: http://lbaw2123.lbaw.fe.up.pt
      description: Deployment Server

tags:
    - name: "M01: Authentication"
    - name: "M02: Auction"
```

```yaml
    - name: "M03: User"
    - name: "M04: Administration"
    - name: "M05: Static Pages and others"

paths:
    #M01: Authentication
    /login:
        get:
            operationId: R101
            summary: "R101: Login form"
            description: "Provide login form. Access: PUB"
            tags:
                - "M01: Authentication"
            responses:
                "200":
                    description: "Ok. Show Log-in UI"
        post:
            operationId: R102
            summary: "R102: Login Action"
            description: "Processes the login form submission. Access: PUB"
            tags:
                - "M01: Authentication"

            requestBody:
                required: true
                content:
                    application/x-www-form-urlencoded:
                        schema:
                            type: object
                            properties:
                                email: # <!--- form field name
                                    type: string
                                password: # <!--- form field name
                                    type: string
                            required:
                                - email
                                - password

            responses:
                "302":
                    description: "Redirect after processing the login credentials."
                    headers:
                        Location:
                            schema:
                                type: string
                            examples:
                                302Success:
                                    description: "Successful authentication. Redirect to Home Page"
                                    value: "/users/{id}/dashboard"
                                302Error:
                                    description: "Failed authentication. Redirect to login form."
                                    value: "/login"

    /logout:
        post:
            operationId: R103
```

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```yaml
        summary: "R103: Logout Action"
        description: "Logout the current authenticated user. Access: USR, ADM"
        tags:
            - "M01: Authentication"
        responses:
            "302":
                description: "Redirect after processing logout."
                headers:
                    Location:
                        schema:
                            type: string
                        examples:
                            302Success:
                                description: "Successful logout. Redirect to Home Page."
                                value: "/"

/register:
    get:
        operationId: R104
        summary: "R104: Register Form"
        description: "Provide new user registration form. Access: PUB"
        tags:
            - "M01: Authentication"
        responses:
            "200":
                description: "Ok. Show Sign-Up UI"

    post:
        operationId: R105
        summary: "R105: Register Action"
        description: "Processes the new user registration form submission. Access: PUB"
        tags:
            - "M01: Authentication"

        requestBody:
            required: true
            content:
                application/x-www-form-urlencoded:
                    schema:
                        type: object
                        properties:
                            name:
                                type: string
                            email:
                                type: string
                            username:
                                type: string
                            password:
                                type: string
                            phone_number:
                                type: phone
                            profile_image:
                                type: string
                                format: binary
                        required:
                            - email
```

```
                                - username
                                - password

            responses:
                "302":
                    description: "Redirect after processing the new user information."
                    headers:
                        Location:
                            schema:
                                type: string
                            examples:
                                302Success:
                                    description: "Successful authentication. Redirect to Home Page."
                                    value: "/users/{id}"
                                302Failure:
                                    description: "Failed authentication. Redirect to login form."
                                    value: "/register"

#M02: Auction
/create:
    get:
        operationId: R201
        summary: "R201: Create auction form"
        description: "Provide a new auction registration form. Access: USR"
        tags:
            - "M02: Auction"
        responses:
            "200":
                description: "Ok. Show Auction Creation UI"
    post:
        operationId: R202
        summary: "R202: Create auction"
        description: "Processes the Auction Creation form submission. Access: USR"
        tags:
            - "M02: Auction"

        requestBody:
            required: true
            content:
                application/x-www-form-urlencoded:
                    schema:
                        type: object
                        properties:
                            title:
                                type: string
                            description:
                                type: string
                            min_opening_bid:
                                type: number
                                format: money
                            min_raise:
                                type: number
                                format: money
                            start_date:
                                type: string
                                format: date
```

```yaml
                        predicted_end:
                            type: string
                            format: date
                        close_date:
                            type: string
                            format: date
                        auction_status:
                            type: string
                            enum: [active, hidden, canceled, closed]
                        auction_category:
                            type: string
                            enum:
                                [art_piece, book, jewelry, decor, other]
                        auction_image:
                            type: array
                            items:
                                type: string
                                format: binary
                    required:
                        - title
                        - min_opening_bid
                        - min_raise
                        - start_date
                        - predicted_end
                        - close_date
                        - auction_status
                        - auction_category

        respo-------------------------------nses:
            "302":
                description: "Redirect after processing the auction creation form."
                headers:
                    Location:
                        schema:
                            type: string
                        examples:
                            302Success:
                                description: "Successful auction creation. Redirect to auction page."
                                value: "/auction/{id}"
                            302Error:
                                description: "Auction creation failed. Redirect to auction creation fo
                                value: "/auction/create_auction"

/auctions/{id}/edit:
    get:
        operationId: R203
        summary: "R203: Edit auction form."
        description: "Provide edit auction form. Access: USR"
        tags:
            - "M02: Auction"
        parameters:
            - in: path
              name: id
              schema:
                    type: integer
              required: true
```

```yaml
        responses:
            "200":
                description: "Ok. Show edit auction UI"

post:
    operationId: R204
    summary: "R204: Edit auction"
    description: "Processes the edit auction form submission. Access: OWN"
    tags:
        - "M02: Auction"
    parameters:
        - in: path
          name: id
          schema:
                type: integer
          required: true
    requestBody:
        required: true
        content:
            application/x-www-form-urlencoded:
                schema:
                    type: object
                    properties:
                        title:
                            type: string
                        description:
                            type: string
                        min_opening_bid:
                            type: number
                            format: money
                        min_raise:
                            type: number
                            format: money
                        start_date:
                            type: string
                            format: date
                        predicted_end:
                            type: string
                            format: date
                        close_date:
                            type: string
                            format: date
                        auction_status:
                            type: string
                            enum: [active, hidden, canceled, closed]
                        auction_category:
                            type: string
                            enum:
                                [art_piece, book, jewelry, decor, other]
                        auction_image:
                            type: array
                            items:
                                type: string
                                format: binary
                    required:
                        - title
```

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```yaml
                        - min_opening_bid
                        - min_raise
                        - start_date
                        - predicted_end
                        - close_date
                        - auction_status
                        - auction_category

        responses:
            "302":
                description: "Redirect after processing the edit auction form."
                headers:
                    Location:
                        schema:
                            type: string
                        examples:
                            302Success:
                                description: "Auction successfully edited. Redirect to auction page."
                                value: "/auction/{id}"
                            302Failure:
                                description: "Auction couldn't be edited. Redirect to auction page."
                                value: "/auction/{id}"

/auctions/{id}/delete:
    delete:
        operationId: R205
        summary: "R205: Delete an auction"
        description: "Set specified auction as 'Canceled'. Access: OWN, ADM"
        tags:
            - "M02: Auction"
        parameters:
            - in: path
              name: id
              schema:
                    type: integer
              required: true
        responses:
            "200":
                description: "Ok."

/auctions/{id}:
    get:
        operationId: R206
        summary: "R206: View auction page"
        description: "Show auction page. Access: PUB"
        tags:
            - "M02: Auction"
        parameters:
            - in: path
              name: id
              schema:
                    type: integer
              required: true
        responses:
            "200":
                description: "Ok. Show Auction Page UI"
```

```yaml
/auctions/{id}/bid:
    post:
        operationId: R208
        summary: "R208: Auction bid"
        description: "R303: Bid on auction. Access: USR"
        tags:
            - "M02: Auction"

        parameters:
            - in: path
              name: id
              schema:
                    type: integer
              required: true

        requestBody:
            required: true
            content:
                application/x-www-form-urlencoded:
                    schema:
                        type: object
                        properties:
                            bid_value:
                                type: integer
                                format: money
                            bidder_id:
                                type: integer
                        required:
                            - bid_value
                            - bidder_id
        responses:
            "302":
                description: "Redirect after processing the bid."
                headers:
                    Location:
                        schema:
                            type: string
                        examples:
                            302Success:
                                description: "Auction bid successful. Redirect to auction page."
                                value: "/auction/{id}"
                            302Failure:
                                description: "Couldn't bid on auction. Redirect to auction page."
                                value: "/auction/{id}"

/auctions/{id}/report:
    get:
        operationId: R209
        summary: "R209: Report auction form."
        description: "Provide report auction form. Access: USR"
        tags:
            - "M02: Auction"
        parameters:
            - in: path
              name: id
```

```yaml
                schema:
                    type: integer
                required: true
        responses:
            "200":
                description: "Ok. Ok. Show Auction Report Page UI"

    post:
        operationId: R210
        summary: "R210: Report Auction"
        description: "Processes the report auction form submission. Access: USR"
        tags:
            - "M02: Auction"

        requestBody:
            required: true
            content:
                application/x-www-form-urlencoded:
                    schema:
                        type: object
                        properties:
                            description:
                                type: string
                        required:
                            - description

        parameters:
            - in: path
              name: id
              schema:
                    type: integer
              required: true

        responses:
            "302":
                description: "Redirect after processing the report information."
                headers:
                    Location:
                        schema:
                            type: string
                        examples:
                            302Success:
                                description: "Auction report successful. Redirect to auction page."
                                value: "/auction/{id}"
                            302Failure:
                                description: "Couldn't report auction. Redirect to report auction form
                                value: "/auction/{id}"

/auctions/{id}/follow:
    post:
        operationId: R211
        summary: "R211: Follow Auction"
        description: "Follow Auction. Access: USR"
        tags:
            - "M02: Auction"
```

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```yaml
                parameters:
                    - in: path
                      name: id
                      schema:
                          type: integer
                      required: true

                responses:
                    "302":
                        description: "Redirect after processing auction follow"
                        headers:
                            Location:
                                schema:
                                    type: string
                                examples:
                                    302Success:
                                        description: "Auction successfully followed. Redirect to auction page.
                                        value: "/auction/{id}"
                                    302Failure:
                                        description: "Auction follow failed. Redirect to auction page."
                                        value: "/auction/{id}"

        delete:
            operationId: R212
            summary: "R212: Unfollow Auction"
            description: "Unfollow Auction. Access: USR"
            tags:
                - "M02: Auction"

            parameters:
                - in: path
                  name: id
                  schema:
                      type: integer
                  required: true

            responses:
                "302":
                    description: "Redirect after processing auction unfollow"
                    headers:
                        Location:
                            schema:
                                type: string
                            examples:
                                302Success:
                                    description: "Auction successfully unfollowed. Redirect to auction page
                                    value: "/auction/{id}"
                                302Failure:
                                    description: "Auction unfollow failed. Redirect to auction page."
                                    value: "/auction/{id}"

    /auctions:
        get:
            operationId: R213
            summary: "R213: Auctions page"
            description: "Displays auctions. Access: PUB."
```

```yaml
        tags:
            - "M02: Auction"
        responses:
            "200":
                description: "Ok. Show Auctions page UI"

/auctions/search:
    post:
        operationId: R213
        summary: "R213: Search auctions"
        description: "Searches for auctions. Access: PUB."

        tags:
            - "M02: Auction"

        parameters:
            - in: query
              name: query
              description: String to use for full-text search
              schema:
                  type: string
              required: false
            - in: query
              name: category
              description: Auction category
              schema:
                  type: string
                  enum: [art_piece, book, jewelry, decor, other]
              required: false
            - in: query
              name: status
              description: Auction status
              schema:
                  type: string
                  enum: [active, hidden, canceled, closed]
              required: false
            - in: query
              name: min_bid
              description: Minimum value for current bid of auction.
              schema:
                  type: number
                  format: money
              required: false
            - in: query
              name: max_bid
              description: Maximum value for current bid of auction.
              schema:
                  type: number
                  format: money
              required: false
            - in: query
              name: owner
              description: Boolean with the owner flag value
              schema:
                  type: boolean
              required: false
```

```yaml
            - in: query
              name: classification
              description: Integer corresponding to the work classification
              schema:
                  type: integer
              required: false

        responses:
            "200":
                description: Success
                content:
                    application/json:
                        schema:
                            type: array
                            items:
                                type: object
                            properties:
                                id:
                                    type: integer
                                title:
                                    type: string
                                current_bid:
                                    type: number
                                    format: money
                                start_date:
                                    type: string
                                    format: date
                                close_date:
                                    type: string
                                    format: date
                                auction_status:
                                    type: string
                                    enum: [active, hidden, canceled, closed]
                                auction_category:
                                    type: string
                                    enum:
                                        [
                                            art_piece,
                                            book,
                                            jewelry,
                                            decor,
                                            other,
                                        ]
                                auction_image:
                                    type: array
                                    items:
                                        type: string
                                        format: binary

/:
    get:
        operationId: R501
        summary: "R501: Redirect to auctions page"
        description: "Redirect to auctions page. Access: PUB"
        tags:
            - "M05: Static Pages and others"
```

```yaml
        responses:
            "200":
                description: "Ok.Redirect to /auctions "

/contact_us:
    get:
        operationId: R502
        summary: "R502: Display Contact Us page"
        description: "Display Contact Us page. Access: PUB"
        tags:
            - "M05: Static Pages and others"
        responses:
            "200":
                description: "Ok. Show contact us page UI"

/faq:
    get:
        operationId: R502
        summary: "R502: Display FAQ page"
        description: "Display FAQ page. Access: PUB"
        tags:
            - "M05: Static Pages and others"
        responses:
            "200":
                description: "Ok. Show FAQ page UI"

/services:
    get:
        operationId: R503
        summary: "R503: Display Services page"
        description: "Display Services page. Access: PUB"
        tags:
            - "M05: Static Pages and others"
        responses:
            "200":
                description: "Ok. Show Services page UI"

/about:
    get:
        operationId: R504
        summary: "R504: Display About page"
        description: "Display about page. Access: PUB"
        tags:
            - "M05: Static Pages and others"
        responses:
            "200":
                description: "Ok. Show About page UI"
#M03: User
/users/{id}:
    get:
        operationId: R301
        summary: "R301: User profile"
        description: "Show user profile. Access: PUB"
        tags:
            - "M03: User"
        parameters:
```

```yaml
              - in: path
                name: id
                schema:
                    type: Integer
                required: true
          responses:
              "200":
                  description: "Ok. Show User Profile UI"

/users/{id}/follow:
    post:
        operationId: R302
        summary: "R302: Follow user"
        description: "Follow another user. Access: USR"
        tags:
            - "M03: User"
        parameters:
            - in: path
              name: id
              schema:
                  type: integer
              required: true
        responses:
            "200":
                description: "Ok. Success"
    delete:
        operationId: R303
        summary: "R303: Unfollow user"
        description: "Unfollow another user. Access: USR"
        tags:
            - "M03: User"
        parameters:
            - in: path
              name: id
              schema:
                  type: integer
              required: true
        responses:
            "200":
                description: "Ok. Success"

/users/{id}/rate:
    post:
        operationId: R304
        summary: "R304: Rate user"
        description: "Rate a user. Access: USR"
        tags:
            - "M03: User"
        parameters:
            - in: path
              name: id
              schema:
                  type: integer
              required: true
        requestBody:
            required: true
```

```yaml
                content:
                    application/x-www-form-urlencoded:
                        schema:
                            type: object
                            properties:
                                rate_value:
                                    type: integer
                            required:
                                - rate_value
        responses:
            "200":
                description: "Ok. Success"


/users/{id}/edit:
    get:
        operationId: R305
        summary: "R305: Provide profile edit form"
        description: "Provide profile edit form. Access: OWN"
        tags:
            - "M03: User"
        parameters:
            - in: path
              name: id
              schema:
              type: Integer
              required: true
        responses:
            "200":
                    description: "Ok. Show Profile Edit UI"


    post:
        operationId: R306
        summary: "R306: Edit Profile Action"
        description: "Processes the edit user profile form submission. Access: OWN"
        tags:
            - "M03: User"

        requestBody:
            required: true
            content:
                application/x-www-form-urlencoded:
                    schema:
                        type: object
                        properties:
                            name:
                                type: string
                            email:
                                type: string
                            username:
                                type: string
                            password:
                                type: string
                            phone_number:
                                type: phone
                            profile_image:
                                type: string
```

```
                        format: binary
                    required:
                        - email
                        - username
                        - password

/users/{id}/delete:
    delete:
        operationId: R307
        summary: "R307: Delete a user account"
        description: "Remove unwanted user from the website. Access: OWN, ADM"
        tags:
            - "M03: User"
        parameters:
            - in: path
              name: id
              schema:
                  type: integer
              required: true
        responses:
            "200":
                description: "Ok."

/users:
    get:
        operationId: R308
        summary: "R308: Users page"
        description: "Lists users. Access: PUB"
        tags:
            - "M03: User"
        parameters:
            - in: path
              name: id
              schema:
                  type: Integer
              required: true
        responses:
            "200":
                description: "Ok. Show Users page UI"

#M04: Administration

/admin/reported_auctions:
    get:
        operationId: R402
        summary: "R402: View all reported auctions"
        description: "Displays reported auctions. Access: ADM"
        tags:
            - "M04: Administration"
        responses:
            "200":
                description: "Success"
                content:
                    application/json:
                        schema:
                            type: array
```

```
                        items:
                            type: object
                            properties:
                                id:
                                    type: integer
                                title:
                                    type: string
```

A8: Vertical prototype

The Vertical Prototype includes the implementation of the features marked as necessary in the common and theme requirements documents. This artefact aims to validate the architecture presented, also serving to gain familiarity with the technologies used in the project.

The implementation is based on the LBAW Framework and include work on all layers of the architecture of the solution to implement: user interface, business logic and data access. The prototype includes the implementation of pages of visualization, insertion, edition and removal of information; the control of permissions in the access to the implemented pages.

1. Implemented Features

1.1. Implemented User Stories

User stories that were implemented in the prototype.

User Story reference	Name	Priority	Description
US01	View active auctions	high	As a User, I must be able to view all active auctions, so that I'm able to find the ones that interest me.
US03	Search auctions	high	As a User, I must be able to search an active auction, so that I can access a chosen auction at any given time.
US09	View/Search user profiles	medium	As a User, I want to be able to search and see other user's profiles, so that i can access information that might interest me.
US11	Login	high	As a Visitor, I want to login into the system, so that I may access more information.
US12	Registration	high	As a Visitor, I want to be able to register into the system, so that I may access information.
US21	Administer user accounts	high	As an Admin, I must to be able to search, view, edit and create user accounts.
US22	Block and unblock user accounts	high	As an Admin, I must have the ability to block and unblock accounts, so that I can manage the type of users on the website.
US23	Manage auction	high	As an Admin, I must be able to view, edit and supervise any auction occurring at any time, so that I can make sure things run smoothly.
US24	Cancel auction	high	As an Admin, I must be able to cancel any auction, so that I can manage the type of auctions occurring on the website.
US25	Delete user account	low	As an Admin, I want to be able to delete accounts at will, so that I can remove unwanted users from the website.
US31	View/Edit Profile	high	As an authenticated user, I want to be able to view and edit my own profile, so that I can present myself in a way that I identify with.
US32	Create Auction	high	As an authenticated user, I want to auction a new item, so that other users can bid on it and eventually buy it.

User Story reference	Name	Priority	Description
US32	Edit/Delete Auction	high	As an authenticated user, I want to be able to edit and/or delete any of my auctions, so that I can decide exactly what my auctions say and if I want them on the platform.
US33	View My Auctions	high	As an authenticated user, I want to access the auctions I own, and all the information attached to them, so that it's easier to run those auctions.
US34	Bid on Auction	high	As an authenticated user, I want to choose the amount of money to be placed, so that I can bid on an item.
US35	Logout	high	As an authenticated user, I want to logout of the system, so that the next person using the browser doesn't see my info.
US38	View My Bidding History	medium	As an authenticated user, I want to see all the bids I made, so that I can see their value and to what auction they refer to.

1.2. Implemented Web Resources

Web resources that were implemented in the prototype.

Module M01: Authentication

Web Resource Reference	URL
R101: Login Form	GET /login
R102: Login Action	POST /login
R103: Logout	GET /logout
R104: Register Form	GET /register
R105: Register Action	POST/register

Module M02: Auction

Web Resource Reference	URL
R201: Create auction form	GET /create
R202: Create auction	POST /create
R203: Edit auction form	GET /auctions/{id}/edit
R204: Edit auction	POST /auctions/{id}/edit
R205: Delete an auction	GET /auctions/{id}/delete
R206: View an auction	GET /auctions/{id}'
R208: Auction bid	GET /auctions/{id}/bid'
R213: View all auctions	GET /auctions
R214: Search auctions	GET /search

Module M03: User

Web Resource Reference	URL
R301: View user profile	GET /users/{id}
R205: Profile edit form	GET /profile/edit
R206: Profile edit Action	POST /profile/edit
R207: Delete a user account	GET /users/{id}/del
R208: Users page	GET /users
R209: Search users	GET /search_users
R210: View bids made	GET /mybids

2. Prototype

The prototype is available at http://lbaw2123.lbaw.fe.up.pt

The code is available at https://git.fe.up.pt/lbaw/lbaw2122/lbaw2123

User credentials necessary to test all features:

Normal user Account:

- email: prof@gmail.com
- password: 1234

Admin Account:

- email: admin@gmail.com
- password: 1234

1. GROUP2123, 04/01/2022:

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