**Data Management Plan**

A Data Management Plan (DMP) is crucial for a project, outlining how data will be handled, stored, and secured. Below is a template for a Data Management Plan, focusing on using MongoDB as the database for ESPARTA.

Data Management Plan for ESPARTA

Summary of Data:

The data to be stored in ESPARTA includes information about artists, buyers, artwork, transactions, and user interactions. Here's a summary of the key fields for each entity:

Artists:

Artist ID

Name

Email

Image

Password (hashed)

Address

Artwork uploaded by the artist

Customers:

Customer ID

Name

Email

Image

Password (hashed)

Purchased artworks

Address

Artwork:

Artwork ID

Artist ID (foreign key)

Title

Description

Price

Genre

Image URL(s)

Upload date

Transactions:

Transaction ID

Buyer ID (foreign key)

Artwork ID (foreign key)

Purchase date

Payment details (encrypted)

ER diagrams are typically associated with relational databases, and MongoDB, being a NoSQL database, operates without a fixed schema. However, we can provide a visual representation of the relationships between entities:

Security Measures:

Access Restriction:

Implement user authentication and authorization mechanisms.

Enforce role-based access control to restrict access to sensitive data.

Regularly review and update user roles based on evolving project needs.

Encryption:

Encrypt sensitive user information, such as passwords, using strong encryption algorithms (e.g., bcrypt).

Consider using HTTPS to encrypt data in transit between the application and the database.

If necessary, implement field-level encryption for specific sensitive fields (e.g., payment details).

Mapping Functional Requirements to Data Storage:

User Registration (Functional Requirement):

Data Storage: Store user information (name, email, hashed password) in the respective collections (artists/buyers).

Artwork Upload (Functional Requirement):

Data Storage: Save artwork details (title, description, price, genre) and associate them with the respective artist in the artwork collection.

Search for Artwork (Functional Requirement):

Data Storage: Utilize MongoDB queries to search and filter artwork based on user criteria.

Add Artwork to Cart (Functional Requirement):

Data Storage: Maintain a shopping cart for each buyer, storing selected artworks.

Purchase Artwork (Functional Requirement):

Data Storage: Record transactions, associating the buyer and purchased artwork, and store payment details securely.

Messaging Artists (Functional Requirement):

Data Storage: Implement a messaging system, storing messages with references to the sender, receiver, and associated artwork.

Provide Feedback and Ratings (Functional Requirement):

Data Storage: Capture user feedback and ratings, associating them with the respective artwork or artist.

ER diagram

The data of the entities, as entered in our .json files would be as follows:

Artists: We shall use the artist.json file, with the sample contents:

[

{

"artistId": "avafarris88",

"name": "Ava Farris",

"email": "ava.farris@example.com",

"password": "\*\*\*\*\*\*",

"profileInfo": "An emerging artist with deep interest in abstract art.",

"artworks": [

{

"artworkId": "A1",

"title": "Abstract Dreams",

"description": "Vivid colors in an abstract composition",

"price": 500.00,

"genre": "Abstract",

"imageUrl": "https://wallpapercave.com/w/wp10535018",

"uploadDate": "2023-09-01"

},

{

"artworkId": "A2",

"title": "Flower",

"description": "Cute flower",

"price": 200.00,

"genre": "Vibrant",

"imageUrl": "https://wallpapercave.com/w/wp3530906",

"uploadDate": "2023-10-15"

}

]

},

{

"artistId": "dureso",

"name": "Jamie Wu",

"email": "wu.jamie@example.com",

"password": "\*\*\*\*\*\*",

"profileInfo": "A landscape artist.",

"artworks": [

{

"artworkId": "A3",

"title": "Scenary",

"description": "Village scenery digital art wallpaper",

"price": 1000.00,

"genre": "Landscape",

"imageUrl": "https://wallpapercave.com/w/wp7998901",

"uploadDate": "2022-08-09"

}

]

},

{

"artistId": "paganjedi",

"name": "Pagan Jedi",

"email": "jedi.pagan@example.com",

"password": "\*\*\*\*\*\*",

"profileInfo": "Artist with scienic views in focus.",

"artworks": [

{

"artworkId": "A4",

"title": "Lake and trees",

"description": "Scenery painting wallpaper",

"price": 1250.00,

"genre": "Landscape",

"imageUrl": "https://wallpapercave.com/w/wp11930665",

"uploadDate": "2023-01-24"

}

]

},

{

"artistId": "welb25",

"name": "Adam Zu",

"email": "zu.adam@example.com",

"password": "\*\*\*\*\*\*",

"profileInfo": "Yound and aspiring artist.",

"artworks": [

{

"artworkId": "A5",

"title": "Village",

"description": "Aesthetic landscape",

"price": 350.00,

"genre": "Vibrant",

"imageUrl": "https://wallpapercave.com/w/wp9817271",

"uploadDate": "2023-02-28"

}

]

},

{

"artistId": "sumitjha",

"name": "Sumit Jha",

"email": "sumit.0923@example.com",

"password": "\*\*\*\*\*\*",

"profileInfo": "An artist who loves the nature and scienic views.",

"artworks": [

{

"artworkId": "A6",

"title": "Green Hills",

"description": "Landscape art",

"price": 480.00,

"genre": "Landscape",

"imageUrl": "https://wallpapercave.com/w/wp7925391",

"uploadDate": "2023-05-13"

}

]

}

]

Artwork: We shall use the artwork.json file, with the sample contents:

[

{

"artistId": "avafarris88",

"name": "Ava Farris",

"email": "ava.farris@example.com",

"password": "\*\*\*\*\*\*",

"image" : "img1",

"artworks": [

{

"artworkId": "A1",

"title": "Abstract Dreams",

"description": "Vivid colors in an abstract composition",

"price": 500.00,

"genre": "Abstract",

"imageUrl": "https://wallpapercave.com/w/wp10535018",

"uploadDate": "2023-09-01"

},

{

"artworkId": "A2",

"title": "Flower",

"description": "Cute flower",

"price": 200.00,

"genre": "Vibrant",

"imageUrl": "https://wallpapercave.com/w/wp3530906",

"uploadDate": "2023-10-15"

}

]

},

{

"artistId": "dureso",

"name": "Jamie Wu",

"email": "wu.jamie@example.com",

"password": "\*\*\*\*\*\*",

"image" : "img2",

"artworks": [

{

"artworkId": "A3",

"title": "Scenary",

"description": "Village scenery digital art wallpaper",

"price": 1000.00,

"genre": "Landscape",

"imageUrl": "https://wallpapercave.com/w/wp7998901",

"uploadDate": "2022-08-09"

}

]

},

{

"artistId": "paganjedi",

"name": "Pagan Jedi",

"email": "jedi.pagan@example.com",

"password": "\*\*\*\*\*\*",

"image" : "img3",

"artworks": [

{

"artworkId": "A4",

"title": "Lake and trees",

"description": "Scenery painting wallpaper",

"price": 1250.00,

"genre": "Landscape",

"imageUrl": "https://wallpapercave.com/w/wp11930665",

"uploadDate": "2023-01-24"

}

]

},

{

"artistId": "welb25",

"name": "Adam Zu",

"email": "zu.adam@example.com",

"password": "\*\*\*\*\*\*",

"image" : "img4",

"artworks": [

{

"artworkId": "A5",

"title": "Village",

"description": "Aesthetic landscape",

"price": 350.00,

"genre": "Vibrant",

"imageUrl": "https://wallpapercave.com/w/wp9817271",

"uploadDate": "2023-02-28"

}

]

},

{

"artistId": "sumitjha",

"name": "Sumit Jha",

"email": "sumit.0923@example.com",

"password": "\*\*\*\*\*\*",

"image" : "img5",

"artworks": [

{

"artworkId": "A6",

"title": "Green Hills",

"description": "Landscape art",

"price": 480.00,

"genre": "Landscape",

"imageUrl": "https://wallpapercave.com/w/wp7925391",

"uploadDate": "2023-05-13"

}

]

}

]

Artwork: We shall use the artwork.json file, with the sample contents:

[

{

"artworkId": "A1",

"artistId": "avafarris88",

"title": "Abstract Butterfly",

"description": "Vivid colors in an abstract composition",

"price": 500.00,

"genre": "Abstract",

"imageUrls": [

"https://wallpapercave.com/w/wp10535018"

],

"uploadDate": "2023-09-01"

},

{

"artworkId": "A2",

"artistId": "avafarris88",

"title": "Flower",

"description": "Cute flower",

"price": 200.00,

"genre": "Vibrant",

"imageUrls": [

"https://wallpapercave.com/w/wp3530906"

],

"uploadDate": "2023-10-15"

},

{

"artworkId": "A3",

"artistId": "dureso",

"title": "Scenary",

"description": "Village scenery digital art wallpaper",

"price": 1000.00,

"genre": "Landscape",

"imageUrls": [

"https://wallpapercave.com/w/wp7998901"

],

"uploadDate": "2022-08-09"

},

{

"artworkId": "A4",

"artistId": "paganjedi",

"title": "Lake and trees",

"description": "Scenery painting wallpaper",

"price": 1250.00,

"genre": "Landscape",

"imageUrls": [

"https://wallpapercave.com/w/wp11930665"

],

"uploadDate": "2023-01-24"

},

{

"artworkId": "A5",

"artistId": "welb25",

"title": "Village",

"description": "Aesthetic landscape",

"price": 350.00,

"genre": "Vibrant",

"imageUrls": [

"https://wallpapercave.com/w/wp9817271"

],

"uploadDate": "2023-02-28"

},

{

"artworkId": "A6",

"artistId": "sumitjha",

"title": "Green Hills",

"description": "Landscape art",

"price": 480.00,

"genre": "Landscape",

"imageUrls": [

"https://wallpapercave.com/w/wp7925391"

],

"uploadDate": "2023-05-13"

}

]

Customers: We shall use the buyer.json file, with the sample contents:

[

{

"customerID": "789012",

"name": "Shawn Mendes",

"email": "mendes.shawn@example.com",

"password": "\*\*\*\*\*\*",

"image" : "img1",

"purchasedArtworks": [

{

"artworkId": "A1",

"purchaseDate": "2023-09-03"

},

{

"artworkId": "A4",

"purchaseDate": "2023-01-26"

}

]

},

{

"customerID": "794356",

"name": "Rohit Sharma",

"email": "sharma.rohit@example.com",

"password": "\*\*\*\*\*\*",

"image" : "img2",

"purchasedArtworks": [

{

"artworkId": "A2",

"purchaseDate": "2023-10-17"

}

]

},

{

"customerID": "193876",

"name": "Virat Kohli",

"email": "kohli.virat@example.com",

"password": "\*\*\*\*\*\*",

"image" : "img3",

"purchasedArtworks": [

{

"artworkId": "A3",

"purchaseDate": "2022-08-11"

}

]

}

]

Transactions: We shall use the transaction.json file, with the sample contents:

[

{

"transactionId": "T123",

"customerID": "789012",

"artworkId": "A1",

"purchaseDate": "2023-09-03",

"paymentDetails": {

"cardNumber": "\*\*\*\*\*\*\*\*\*\*\*\*1234",

"expirationDate": "12/25",

"cvv": "\*\*\*"

}

},

{

"transactionId": "T001",

"customerID": "794356",

"artworkId": "A2",

"purchaseDate": "2023-10-17",

"paymentDetails": {

"cardNumber": "\*\*\*\*\*\*\*\*\*\*\*\*1008",

"expirationDate": "05/27",

"cvv": "\*\*\*"

}

},

{

"transactionId": "T052",

"customerID": "789012",

"artworkId": "A4",

"purchaseDate": "2023-01-26",

"paymentDetails": {

"cardNumber": "\*\*\*\*\*\*\*\*\*\*\*\*3217",

"expirationDate": "02/24",

"cvv": "\*\*\*"

}

},

{

"transactionId": "T024",

"customerID": "193876",

"artworkId": "A3",

"purchaseDate": "2022-08-11",

"paymentDetails": {

"cardNumber": "\*\*\*\*\*\*\*\*\*\*\*\*6382",

"expirationDate": "08/26",

"cvv": "\*\*\*"

}

}

]