Project Report: Artisanal E-Commerce Platform on IBM Cloud Foundry

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Executive Summary:

This report outlines the initial steps and considerations for building an artisanal e-commerce platform on IBM Cloud Foundry. The project involves designing the platform layout and creating a database to store product information. The chosen architecture leverages IBM Cloud Foundry for application deployment and a relational database for efficient data management.

1. **Platform Layout Design:**

Homepage:

- Featured Products: Curated selection with images and brief descriptions.

- Special Promotions: Prominent display of ongoing discounts or offers.

- Navigation Menu: Intuitive menu for easy exploration.

Product Pages:

- Product Details: Comprehensive information, including name, description, price, and high-quality images.

- Add to Cart: Clearly visible button to add products to the shopping cart.

- Related Products: Suggestions or related items to encourage cross-selling.

Shopping Cart:

- Item List: Clear display of selected items with quantity and price details.

- Quantity Adjustment: Ability to adjust the quantity of items in the cart.

- Total Price Calculation: Real-time calculation of the total cost.

- Checkout Button: Clearly marked for a seamless transition to the checkout process.

User Account:

- Registration/Login: Secure and user-friendly authentication process.

- Order History: Access to past orders for user convenience.

- Profile Settings: Customization options for a personalized experience.

Checkout:

- Shipping Information: Form for users to enter shipping details.

- Payment Options: Secure payment gateway integration.

- Order Summary: Transparent breakdown of the order before finalizing the purchase.

2. Database Design:

Products Table:

- `ProductID` (Primary Key)

- `ProductName`

- `Description`

- `Price`

- `ImageURL`

- `CategoryID` (Foreign Key)

Categories Table:

- `CategoryID` (Primary Key)

- `CategoryName`

Users Table:

- `UserID` (Primary Key)

- `Username`
- `Password` (hashed)
- `Email`
- `Address`

Orders Table:

- `OrderID` (Primary Key)
- `UserID` (Foreign Key)
- `OrderDate`
- `TotalAmount`

OrderDetails Table:

- `OrderDetailID` (Primary Key)
- `OrderID` (Foreign Key)
- `ProductID` (Foreign Key)
- `Quantity`
- `UnitPrice`

3. IBM Cloud Foundry Deployment:

Steps:

1. Create IBM Cloud Account:
   - Sign up for an IBM Cloud account if not already registered.

2. Install IBM Cloud CLI:
   - Install the IBM Cloud CLI tool for command-line interactions.

3. Login to IBM Cloud:
   - Execute `ibmcloud login` to authenticate with your IBM Cloud account.

4. Create Cloud Foundry Space:

- Establish a Cloud Foundry space using `ibmcloud cf create-space`.

5. Push Your App:

- Deploy your application using `ibmcloud cf push` command.

4. Database Integration:

Steps:

1. Choose Database Service:

- Select an appropriate IBM Cloud database service (e.g., Db2 on Cloud).

2. Create Database Instance:

- Use the IBM Cloud Console to create an instance of the chosen database service.

3. Bind Database to App:

- Connect the database to your app with `ibmcloud cf bind-service`.

4. Restage App:

- Ensure changes take effect by restaging your app with `ibmcloud cf restage`.

5. Testing and Quality Assurance:

1. User Interface Testing:

- Verify the responsiveness and user-friendliness of the platform layout.

2. Database Operations Testing:

- Confirm proper storage and retrieval of product information.

3. Security Testing:

- Evaluate the security of user transactions, especially during checkout.

4. Performance Testing:

- Assess the platform's ability to handle varying levels of traffic.

6. Deployment and Monitoring:

1. Deploying Updates:

- Use `ibmcloud cf push` to deploy any subsequent updates or changes.

2. Monitoring Application Performance:

- Utilize IBM Cloud monitoring tools for continuous performance evaluation.

3. Scaling Options:

- Implement horizontal or vertical scaling based on demand.

Conclusion:

This report serves as a comprehensive guide for initiating the development of an artisanal e-commerce platform on IBM Cloud Foundry. It outlines the platform layout, the database schema, and the deployment process on IBM Cloud Foundry. Subsequent phases will involve refining the application, implementing additional features, and ensuring ongoing optimization.