

CS5200 Fall 23

GROUP4

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1. Phase 1

- 1. 1. Step 1 Project Information
 - 1. 1. 1. Title
 - 1. 1. 2. Name
 - 1. 1. 3. Member
 - 1. 1. 4. Abstraction (Brief Description)
- 1. 2. Step 2 Problem Statement
 - 1. 2. 1. Basic Features (Minimum Requirements)
 - 1. 2. 2. Additional Features
 - 1. 2. 3. Use Case Model
 - 1. 2. 4. ER Model
- 1. 3. Step 3 Queries
 - 1. 3. 1. Basic Queries
 - 1. 3. 2. More Complex Queries
- 1. 4. Step 4 Assumptions
 - 1. 4. 1. Assumptions about Attributes
 - 1. 4. 2. Assumptions about Relationships
 - 1. 4. 3. Assumptions about Timestamps
 - 1. 4. 4. Assumptions about Winners and Transactions
 - 1. 4. 5. Assumptions about Payment Type
 - 1. 4. 6. Assumptions about Enhancing UI Experience
 - 1. 4. 7. Assumptions about Transaction

1. Phase 1

1.1. Step 1 Project Information

1.1.1. Title

Khoury Bidding System - Freelancer Auction

1.1.2. Name

SkillMatchPro

1.1.3. Member

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1.1.4. Abstraction (Brief Description)

This bidding system is a dynamic and user-friendly online platform designed to facilitate seamless interactions between clients and freelancers. It acts as a bridge connecting clients with specific project needs to talented freelancers who can fulfill those requirements. Built on a robust technology stack featuring Django with Python, MySQL hosted on Google Cloud Platform (GCP), our web-based application provides a secure and efficient environment for project bidding and management.

1.2. Step 2 Problem Statement

1.2.1. Basic Features (Minimum Requirements)

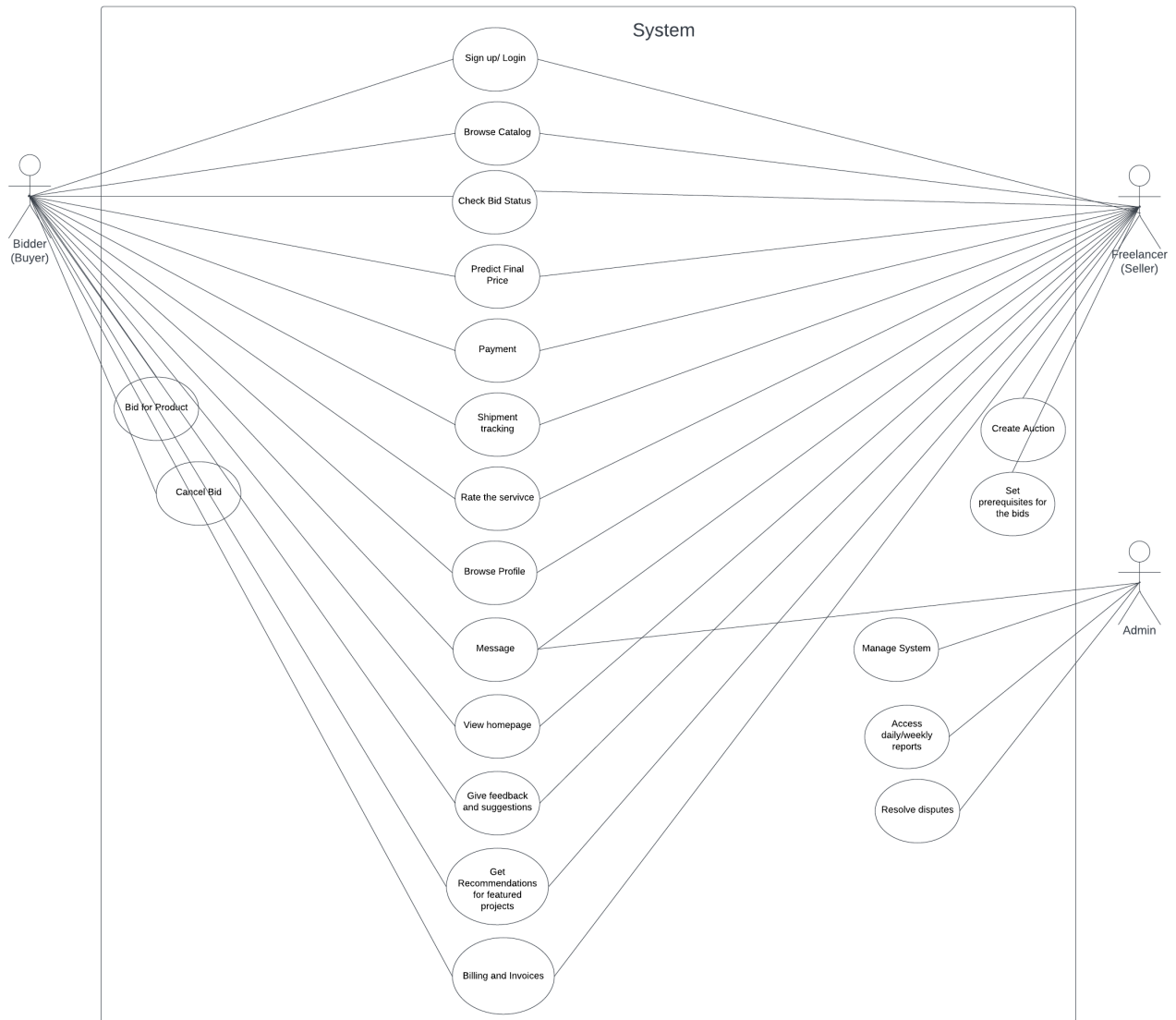
1. Admin user
 - can manage entire bidding system (able to access any data)
 - can access daily/weekly reports
2. Normal users are Freelancer and Bidder
3. Normal users can register the system, and then sign-in the system
4. Normal users (Freelancer) can post a new auction item.
5. Another normal user can bid on any item
6. Payment system can be offline (e.g. personal check) and online (e.g. credit card, bank account)
7. Shipping system can create UPS tracking number.
8. Winner and Freelancer can rate the service each other.
9. Any users can see each user profile.
10. Normal user can send a message to other user regarding to the bidding item.
11. Normal user can send a message to Admin user regarding to any issue on the item.
12. Admin user can see the receive the message and related items.

1.2.2. Additional Features

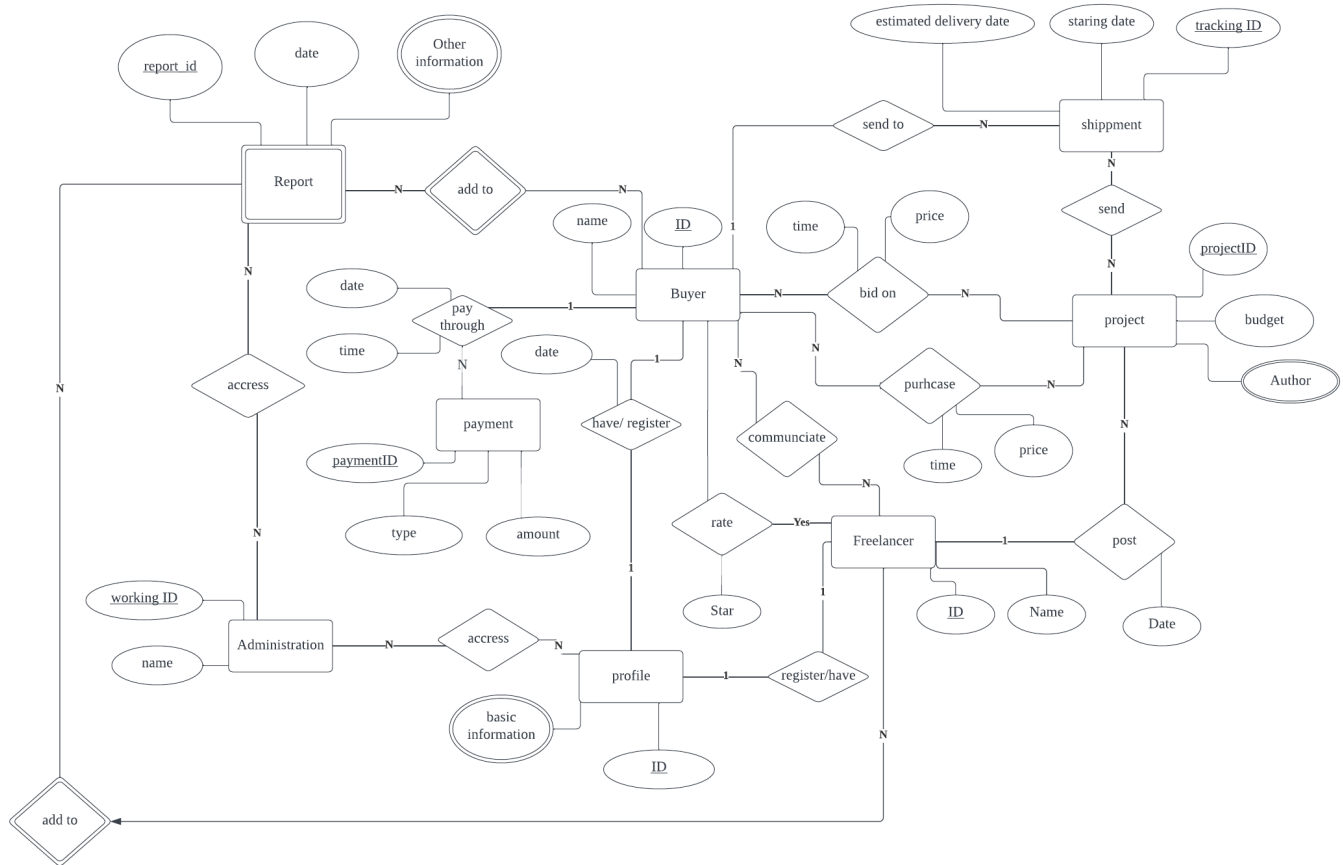
1. Homepage:
 - The landing page where users can find an overview of the platform, featured projects, and sign-up/login options.
2. Registration and Login:
 - Registration page for new users to create their accounts.
 - Login page for returning users to access their accounts.
3. User Dashboard:
 - A personalized dashboard for users to manage their activities and settings.
 - Features include project listings, bid management, messages, profile settings, and more.
4. Project Listings:
 - A page where clients post project listings.
 - Users can browse and search for projects based on categories, keywords, or filters.
5. Project Details:
 - Individual project pages displaying project descriptions, budgets, deadlines, and bid details.
 - Includes a place for freelancers to submit their bids.
6. Bids and Proposals:
 - A page where freelancers can view and manage their bids on various projects.
 - Clients can review received bids and proposals.
7. Profile Pages:
 - User profiles for both clients and freelancers.
 - Includes user details, portfolios, ratings, reviews, and contact options.
8. Payment and Transactions:
 - A section for managing payments, invoices, and transaction history.
 - Users can make payments for awarded projects.
9. Messages and Communication:
 - A messaging system to facilitate communication between clients and freelancers.
 - May include real-time chat and notifications.
10. Notifications:
 - A page or feature to display notifications, updates, and alerts related to projects and messages.
11. Rating and Review Pages:

- Pages for users to leave ratings and reviews for each other after project completion.
12. Categories and Search:
 - A page for browsing projects by categories or using search filters.
 13. Admin Dashboard:
 - A separate dashboard for administrators to manage user accounts, projects, and resolve issues.
 14. Reports and Analytics (Admin):
 - Pages for generating daily/weekly reports and analytics related to user activities and projects.
 15. Contact Us:
 - A page or form for users to contact platform support or administrators with inquiries or issues.
 16. 404 Error Page:
 - A custom error page for handling page not found errors.
 17. Feedback and Suggestions:
 - A page for users to provide feedback and suggestions for platform improvements.
 18. Logout:
 - A page or option for users to log out of their accounts securely.
 19. Project Management (Client):
 - A page for clients to manage their active projects, including editing, closing, or marking projects as complete.
 20. Freelancer Portfolio:
 - A page for freelancers to showcase their work, skills, and past projects in a portfolio format.
 21. Billing and Invoices:
 - A section for managing billing information, generating invoices, and tracking payment status.
 22. Featured Projects:
 - A section highlighting featured or recommended projects on the platform.
 23. Bidder can cancel bid
 24. lock/trigger manager:
 - adding a lock/trigger to multiple related events
 - e.g. if the deal is finished, then no one can make any more bids regarding the deal
 - no more messaging between the bidder and Freelancers after a deal is closed, that means communication after that need to go through admin in order to protect user privacy

1.2.3. Use Case Model



1.2.4. ER Model



1.3. Step 3 Queries

1.3.1. Basic Queries

1. Retrieve all active projects currently available on the platform.
2. Find the total number of projects in each category.
3. List all projects that have a budget greater than \$1,000.
4. Show the projects that have received the highest number of bids.
5. Identify the freelancers with the highest average project completion ratings.
6. List all users who have not logged in for the past month.
7. Find projects that are due to be completed within the next seven days.
8. Display all projects posted by a specific client.
9. List the projects that are currently in progress.
10. Find freelancers who specialize in a particular category (e.g., web development)
11. Retrieve the total amount paid by a specific client for completed projects.
12. Show all projects that have not received any bids.
13. Find the average response time for freelancers to submit bids on projects.
14. Identify the clients with the highest number of completed projects.
15. Retrieve all messages related to a specific project.

1.3.2. More Complex Queries

1. Find Freelancers with the Highest Average Ratings:
 - Retrieve freelancers' usernames and their average ratings based on completed projects.
2. Identify Projects with No Bids:
 - List project titles and descriptions for projects that have not received any bids.
3. Find Users with the Most Active Projects:
 - Retrieve usernames and the count of active projects posted by each client.
4. List the Most Popular Project Categories:
 - Display project categories along with the count of projects in each category.
5. Find Clients with High Spending:
 - Identify clients who have spent over a certain amount (e.g., \$5,000) on completed projects.
6. Retrieve Messages between Specific Users:
 - Display all messages exchanged between a specific client and freelancer.
7. Identify Inactive Freelancers:
 - Find freelancers who have not submitted any bids or logged in for the past 60 days.
8. Calculate Total Earnings for Freelancers:
 - Calculate the total earnings for each freelancer based on completed projects.
9. Find Ongoing Projects with Multiple Bids:
 - List project titles and descriptions for projects that are still in progress and have received bids from multiple freelancers.
10. Retrieve User's Most Recent Message Contacts:
 - For a specific user, display their most recent message contacts (other users they have messaged) and the date of the last message.
11. Identify Clients with a High Number of Completed Projects and High Ratings:
 - Find clients who have completed more than 10 projects and have an average project completion rating of 4.5 or higher.
12. List Freelancers with a High Bid Success Rate:
 - Display freelancers who have submitted at least 20 bids and have a bid success rate (percentage of awarded projects) greater than 50%.
13. Retrieve Projects Completed Within a Specific Time Range:

- Find projects that were completed between two specified dates, along with their titles and completion dates.
14. Calculate Total Payments Made by Clients in Each Category:
- Calculate the total payments made by clients in each project category.

1.4. Step 4 Assumptions

1.4.1. Assumptions about Attributes

- User Attributes: Users have attributes such as userID (Primary Key), username, email, password, userType (Admin or Normal), registrationDate, and lastLogin.
- Profile Attributes: Profiles have attributes including profileID (Primary Key), userID (Foreign Key to User), firstName, lastName, profileType (Freelancer or Bidder), profilePicture, and bio.
- Project Attributes: Projects have attributes such as projectID (Primary Key), userID (Foreign Key to User), title, description, budget, deadline, category, status, and creationDate.
- Bid Attributes: Bids have attributes including bidID (Primary Key), userID (Foreign Key to User), projectID (Foreign Key to Project), amount, timeline, message, and bidDate.
- Payment Attributes: Payments have attributes like paymentID (Primary Key), userID (Foreign Key to User), projectID (Foreign Key to Project), paymentType (e.g., Offline), status, and paymentDate.
- Shipping Attributes: Shipping records include attributes such as shippingID (Primary Key), userID (Foreign Key to User), projectID (Foreign Key to Project), trackingNumber, and shipmentDate.
- Rating Attributes: Ratings have attributes like ratingID (Primary Key), ratedUserID (Foreign Key to User), ratingByUserID (Foreign Key to User), rating (e.g., on a scale of 1 to 5), comment, and ratingDate.
- Message Attributes: Messages have attributes including messageID (Primary Key), fromUserID (Foreign Key to User), toUserID (Foreign Key to User), projectID (Foreign Key to Project), messageContent, messageType (User-to-User or User-to-Admin), and messageDate.

1.4.2. Assumptions about Relationships

- Users can have one Profile (One-to-One)
- Users can post multiple Projects (One-to-Many)
- Users can submit multiple Bids (One-to-Many).
- Users can make multiple Payments (One-to-Many).
- Users can have multiple Shipping records (One-to-Many).
- Users can rate each other, resulting in multiple Rating records (Many-to-Many).
- Users can send Messages to each other or to Admin, leading to multiple Message records associated with Users and Projects (Many-to-Many).

1.4.3. Assumptions about Timestamps

- Various timestamp attributes are included for tracking user actions and project status changes (e.g., creationDate, bidDate, paymentDate, shipmentDate, ratingDate, messageDate).

1.4.4. Assumptions about Winners and Transactions

- Winning bidders need to make payment, for which payment information, including payment methods (credit card, PayPal, etc.) and transaction records, need to be recorded in a table.

1.4.5. Assumptions about Payment Type

- More than one payment types are supported. Winners (buyers) can pay the Freelancer with online methods as well as offline payments such as personal checks. The attribute PaymentType can be extended to include various payment methods.

1.4.6. Assumptions about Enhancing UI Experience

- Additional attributes like profilePicture and bio are included to enhance user profiles.

1.4.7. Assumptions about Transaction

- Freelancers cannot bid on the products that they post for bidding (only normal users other than the Freelancers themselves can bid on the products)