

Project for CSGY6083: Principle of Database System

Milestone 3

TimeBank Platform Description

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note: TimeGarden and TimeBank are 2 names for our projects. The official name for submission is TimeGarden.

Choice: Web Software Application (JavaScript)

TimeBank is a web-based task delegation platform designed as a standalone software application built with React.js, Vite, and modern web technologies. Each user can play dual roles (requester/provider). It operates as a responsive web application accessible through browsers, providing a marketplace for skill exchange and task delegation.

Rationale

Web-first delivery fits campus-wide usage across devices; React component model accelerates building reusable cards (tasks, proposals, contracts) and stateful widgets (wallet, chat). Tailwind ensures consistent spacing, accessible contrast, and fast iteration.

Target Audience

This platform is specifically designed for US university communities, including international students, domestic students, faculty members, and university staff who need academic support or want to offer their skills.

UI Components Design and Functionalities

- Layout Component

Design: Fixed header with TimeBank logo, navigation sidebar, and main content area

Functionalities: Header shows logo, Time Coin balance (ex., 150 TC displayed), notifications, and user profile dropdown. Sidebar navigation for Dashboard, Browse Tasks, My Proposals, Contracts, Messages, and Wallet.

The screenshot shows the TimeBank dashboard. At the top left is the TimeBank logo with a blue clock icon. To its right is a user icon with a yellow 'Z' and a bell notification icon. The sidebar on the left contains links for Dashboard, Browse Tasks, My Proposals, Contracts, Messages, and Wallet. The main content area starts with a 'Dashboard' section that says 'Welcome back! Here's what's happening.' Below it is a large blue gradient card showing 'Total Balance 150.00 TC' with breakdowns for Available (110.00 TC) and In Escrow (40.00 TC). There are buttons for '+ Post New Task', 'View Wallet', and 'Add Funds'. Below this are four small cards: 'My Tasks' (Draft: 0, Open: 0, Contracted: 0, Need Review: 0), 'My Proposals' (Pending: 1, Accepted: 1, Rejected: 0), 'Contracts' (Awaiting Escrow: 0, Active: 1, Delivered: 0), and 'Quick Actions' (Post Task, Browse Task, Messages). The 'Pending Actions' section lists three items: a new proposal for 'Website Design' (10 minutes ago), an unread message from 'Li Student' (1 hour ago), and a contract for 'Python Tutoring' needing review. The 'Recent Contracts' section is currently empty.

- Dashboard Component

Design: Multi-card layout with a gradient wallet card and a statistics grid

Functionalities: Large gradient wallet card shows total balance (ex., 150.00 TC), available vs. escrowed breakdown, and quick access buttons. "Post New Task" button is primary action for requesters. The stats grid displays My Tasks, My Proposals, and Active Contracts counts. Pending actions section for new proposals and messages.

This screenshot shows the same TimeBank dashboard as the previous one, but the 'Pending Actions' section has been removed. The rest of the layout, including the header, sidebar, and main content areas for balance, tasks, proposals, contracts, and quick actions, remains the same.

- Task List Component (Browse Tasks)

Design: Filterable card-based task browser with search functionality

Functionalities: Search bar and filters for keywords, category, skills, and budget range. Task cards show title, budget, required skills, deadline, and publisher info. Toggle to hide low-priced tasks with warning badges.

The screenshot shows the 'Browse Tasks' page of the TimeBank platform. On the left is a sidebar with links: Dashboard, Browse Tasks (which is selected and highlighted in blue), My Proposals, Contracts, Messages, and Wallet. The main area has a header 'Browse Tasks' with a search bar and a '+ Post New Task' button. Below the header are several filter dropdowns: 'Search tasks, skills, or keywords', 'All', 'Latest First', and a checkbox for 'Hide low-price tasks (below 25th percentile)'. There's also a 'More Filters' link. A budget range selector shows 'Budget Range: 0 - 200 TC'. Below these filters, there are two task cards. The first task is 'Build a responsive website' with a description: 'Need a modern, responsive website for my small business. Should include home, about, services, and contact pages. Must be mobile friendly with a clean, modern design.', skills: 'HTML, CSS, JavaScript, React', budget: '\$ 50.00 TC', deadline: '45 Days Left', and proposals: '5 Proposals'. The second task is 'Logo design for startup' with a description: 'Looking for a creative logo-designer to create modern logo for tech startup. Need 3 initial concepts and unlimited revisions.', skills: 'Graphic Design, Illustrator, Photoshop', budget: '\$ 35.00 TC', deadline: '57 Days Left', and proposals: '8 Proposals'. Each task card has a green circular badge next to it.

- Task Creation Component

Design: Two-column layout with form on left, pricing recommendation card on right

Functionalities: Task form fields for title, description, category, skills, deadline, and fixed budget. Right-side pricing card provides AI recommendations with confidence levels, one-click adoption, and floor validation warnings.

The screenshot shows the 'Create New Task' page of the TimeBank platform. On the left is a sidebar with links: Dashboard, Browse Tasks, My Proposals, Contracts, Messages, and Wallet. The main area has a header 'Create New Task' with a back arrow and a 'preview' button. Below the header is a 'Basic Information' section with fields for 'Task Title' (with placeholder 'e.g., Build a responsive website') and 'Description' (with placeholder 'Describe your task in detail. Include requirements, deliverables, and any specific instructions...'). To the right of this is a callout box with the text 'Fill in task details to see price recommendation'. The next section is 'Budget & Timeline' with fields for 'Budget (Time Coins)' (with placeholder 'Enter amount') and 'Deadline' (with placeholder 'yyyy-mm-dd'). Below this is a 'Required Skills' section with a 'Add Skills' input field ('Type skill and press Enter') and a '+ Add' button. Underneath is a 'Suggested Skills' section with a list of skills: '+ JavaScript', '+ Python', '+ React', and '+ ...'. At the bottom is a 'Design Skills' button. At the very bottom are buttons for 'Once published, you'll start receiving proposals' (with a note icon), 'Save Draft', and 'Publish Task'.

- Task Detail Component

Design: Tabbed interface with overview, proposals, and messages tabs

Functionalities: The Overview tab shows complete task details and budget. The Proposals tab displays a provider comparison table with accept/reject actions. Messages tab for task-specific conversations.

The screenshot shows the 'Browse Task' section of the TimeBank platform. On the left, there's a sidebar with icons for Dashboard, Browse Tasks, My Proposals, Contracts, Messages, and Wallet. The main area has a search bar with placeholder text 'e.g., Build a responsive website'. Below it are dropdown menus for 'All' and 'Latest First', and a checkbox for 'Hide low-price tasks (below 25th percentile)'. There's also a 'Budget Range' input with values 0 and 200, and a 'TC' button. At the bottom, there are tabs for 'All Tasks (4)' and 'My Tasks(3)'. A specific task card is displayed for 'Build a responsive website', which needs a modern, responsive website for a small business. It includes tags for HTML, CSS, and JavaScript, a budget of \$ 50.00 TC, 20 days left, 5 proposals, and a provider named Li Student with a rating of 4.8.

- Message Component

Design: Two-panel chat interface with conversation list and active chat view.

Functionalities: Displays ongoing conversations by project, supports real-time messaging, read status indicators, and file attachments within project discussions.

The screenshot shows the 'Messages' section of the TimeBank platform. The sidebar has an active 'Messages' tab. The main area shows a conversation with 'Li Student' and 'Wang Student'. The message from Li Student says: 'Hi! Thank you for accepting my proposal. I have a few questions about the project requirements.' The message from Wang Student says: 'Sure! What would you like to know?'. Below that, Wang Student asks: 'What color scheme would you prefer for the website?' and Li Student replies: 'I would like a modern blue and white theme, similar to professional tech companies.'. At the bottom, there's a message input field with placeholder 'Type your message...' and a send button with a paper airplane icon. A note at the bottom says 'Press Enter to send, Shift+Enter for new line'.

- Wallet Component

Design: Gradient dashboard summarizing TimeCoin balance, income, and expenses.
Functionalities: Displays balance (Available/In Escrow), transaction history, quick actions (Add Funds, Export, View Escrow), and monthly earning/spending analytics.

The screenshot shows the 'Wallet & Transactions' section of the TimeBank application. At the top, it displays the total balance as 150.00 TC, with 110.00 TC available and 40.00 TC in escrow. To the right, there are summary boxes for 'This Month Earned' (+ 85 TC) and 'This Month Spent' (- 60 TC). Below this, a 'Quick Actions' section offers options for Deposit, Withdraw, Statements, and Escrow. The main area is titled 'Transaction History' and shows a list of recent transactions, including a payment received for 'Logo Design' (+ 35 TC) and a deposit account top-up (+ 80 TC). A 'Load More Transactions' button is at the bottom.

- Contract Component

Design: Card-based contract overview with phase tracker and minimal status badges.
Functionalities: Displays contract info, supports three payment phases (Unfunded → Escrowed → Released), includes escrow/release/cancel actions, and file upload for deliverables.

The screenshot shows the 'Contracts' section of the TimeBank application. It displays a summary of contract status: Total 5 contracts, Active 1, Delivered 1, and Completed 1. Below this, a 'My Role' dropdown menu is shown. A navigation bar at the bottom allows filtering by status: All(5), Draft(1), Active(1), Delivered(1), Complete(1), Cancelled(1), and Disputed(0). Two specific contracts are listed: 'Build a responsive website' (Active, Escrowed) and 'Logo design for startup' (Delivered, Escrowed). Both contracts show their creation date, last update, partner information (e.g., Li Student, Wang Student), role (Provider, Requester), amount (48 TC, 35 TC), and deadline (2024-02-01, 2024-01-25). A note at the bottom of each card says 'Action Required: Review deliverables and release payment'.

- Contract Detail Component

Design: Contract summary with payment phases and action buttons

Functionalities: Contract information display, three-phase payment system (Unfunded → Escrowed → Released), escrow/release buttons, file upload for deliverables.

The screenshot shows the TimeBank Task Marketplace interface. On the left is a sidebar with icons for Dashboard, Browse Tasks, My Proposals, Contracts, Messages, and Wallet. The main area is titled 'Contract Details' (Contract #1). It displays the following sections:

- Build a responsive website**: Full website development with React and modern design. Status: Active. Created: 2025-03-18 13:00. Deadline: 2025-04-11.
- Contract Status**: Unknown flow.
- Payment Information**: Fixed Price: 50.00 TC. Payment is held in escrow and will be released after requester approval.
- Deliverables**: Upload deliverables. A purple button at the bottom says "Mark as Delivered".
- Participants**: Requester (Li Student, 4.9 rating) and Provider (Wang Student, 4.8 rating).
- Contract Details**: Estimated Time: 40 h. Contract Value: 48 TC. My Role: Provider.
- Quick Actions**: Message and View Original Task buttons.

- Pricing Card Component

Design: Interactive recommendation card with visual feedback

Functionalities: AI-powered price suggestions with confidence scoring, factor breakdown, acceptance rate prediction bar, one-click price adoption, and floor price warnings with auto-correction.

- Authentication Components

Design: Clean forms with university-focused styling

Functionalities: Login form with email/password authentication. Registration form with role selection and skill profile setup.

Key Design Principles

1. No Bargaining Model: Fixed pricing eliminates negotiation
2. Low Friction Discovery: AI matchmaking in one click
3. University-Focused: Designed for academic communities
4. Transparent Pricing: AI recommendations with confidence scoring
5. Escrow Protection: Secure payment system
6. Simple Wallet Reporting: One wallet card shows all at a glance
7. Easy Generate Report: one-click for CSV export
8. International Student Friendly: Simple English interface
9. Mobile-Responsive: Works on all devices