

# BudgetBuddy: A Decentralized and Secure Blockchain Ecosystem for Multi-User Expense Sharing Using Ethereum

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**Abstract:** In our quick, tech-filled world, split costs with groups like friends, roommates, or family is a real pain. Old ways such as sheets, apps, or doing math by hand can mess up, miss clear details, and lean a lot on trust between people. BudgetBuddy steps up by using a clear and safe place for many to share costs, all set up on the Ethereum blockchain. BudgetBuddy aims to give users a clear, safe place where they can note, see, and pay off costs right away. With Ethereum smart deals, it cuts out middlemen, lowers fights, and keeps track of costs and payments on its own. Each deal is safely kept on the blockchain, giving everyone a shared and sure money past. The platform lets you do things like log in with a MetaMask wallet, add costs easy, work out what everyone owes, and manage group costs. Users keep full say over their info and money, without needing a main server. This boosts safety and privacy but also builds trust between everyone. BudgetBuddy shows how + new finance tech (DeFi) can fix real problems. It makes sharing costs simple and teaches users about blockchain and its role in daily life. With an easy-to-use look and a safe back-end, BudgetBuddy offers a new way to handle group money in our digital days.

**Keywords:** Blockchain Technology, Smart Contracts, MetaMask, Web3, React.js, Firebase Authentication, Decentralized Application (dApp), Ethereum, Data Privacy, Expense Sharing Platform, Multi-user Financial Management









