Final Report: Forecasting Bitcoin Transaction Fees

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4.1 Overview of the Data Product

This data product directly supports Trilemma Capital's mission of serving industry talent and advancing Bitcoin infrastructure through data science, both educational and technical. Its design intentionally tailors to three core audiences. General users and institutions can rely on the 24-hour forecasts to plan transactions and reduce fee costs. Learners and educators receive a transparent, step-by-step walkthrough of Bitcoin-fee forecasting and time-series methodology. Industry experts and partners see infrastructure-grade modeling practice embodied in a modular pipeline and well-documented repository. The product is purposefully modular. Jupyter notebooks guide users through EDA, modeling decisions, and final TFT results. Python scripts implement a structured pipeline for reproducible experiments and easy re-training on new data. Finally, the open-source GitHub repository—with clear documentation—enables collaboration, scalability, and long-term extensibility.

4.2 Results

5 Conclusion and Recommendations

5.1 Subsection (Use Two Hashes)

5.2 Subsection (Use Two Hashes)

6 Appendix

6.1 Terminology

Term	Definition
Bitcoin	Unit of currency is called "bitcoin" with a small b, and system is called "Bitcoin," with a capital B. "bitcoin" is a virtual currency (cryptocurrency) designed to act as money and a form of payment outside the control of any one person, group, or entity (i.e. decentralized).
Bitcoin Address	"1DSrfJdB2AnWaFNgSbv3MZC2m74996JafV" An encoded base58-check version of a public key 160-bit hash consists of a string of letters and numbers. Think of it analogous to an email address when sending someone an email.
Blockchain	A decentralized digital ledger that records transactions across a network of computers, making it transparent, immutable, and resistant to tampering. Technology used by Bitcoin.
Fees	The sender of a transaction often includes a fee to the network for processing the requested transaction. Most transactions require a minimum fee of 0.5 mBTC (millibitcoin) = 0.0005 BTC. Typical unit measurement in satoshi/bytes.
Hash	A function that converts an input of letters and numbers into an encrypted output of a fixed length. The hash is irreversible, meaning it cannot be decrypted back to the original input. Hashes are used in Bitcoin to create blocks and verify transactions.
Mempool	The bitcoin Mempool (memory pool) is a collection of all transaction data in a block that have been verified by Bitcoin nodes, but are not yet confirmed.
Mining / Miner	A process/network node that finds valid proof of work for new blocks, by repeated hashing.
Node	Refers to blockchain stakeholders and their devices that keep a copy of the distributed ledger and serve as communication points within the network. Major purpose is to verify the validity of the transactions within a particular blockchain.
Proof-of-Work	A piece of data that requires significant computation to find; In bitcoin, miners must find a numeric solution to the SHA256 algorithm that meets a network-wide target, the difficulty target.

Satoshi	The smallest denomination of bitcoin that can be recorded on the blockchain. 1 Bitcoin is equivalent to 100 million satoshis, named after the creator of Bitcoin, Satoshi Nakamoto.

Table 1: Key Terms and Definitions in Bitcoin and Blockchain (Alphabetically Ordered)

7 References