

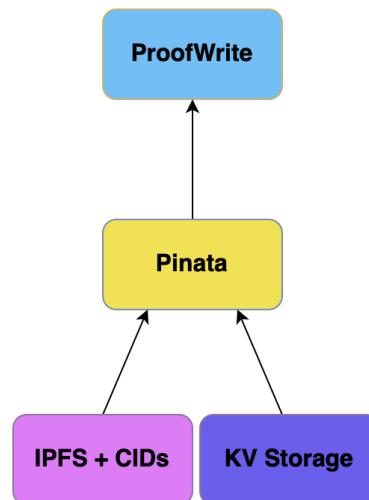
ProofWrite: Bringing Verifiability to College Essays in the Age of AI

In an era where generative AI tools are just a few keystrokes away, verifying the authenticity of student writing has become more difficult than ever - especially for college essays. How can universities ensure that what a student submits reflects their true voice, effort, and personality, rather than the output of an AI model?

Enter ProofWrite.

ProofWrite is a platform that empowers universities to verify the originality of student submissions by tracking the essay-writing process over time. Built on top of IPFS and Pinata, ProofWrite stores immutable snapshots of a student's writing over time, making it nearly impossible to paste in AI-generated content undetected, or plagiarize the writing of someone else.

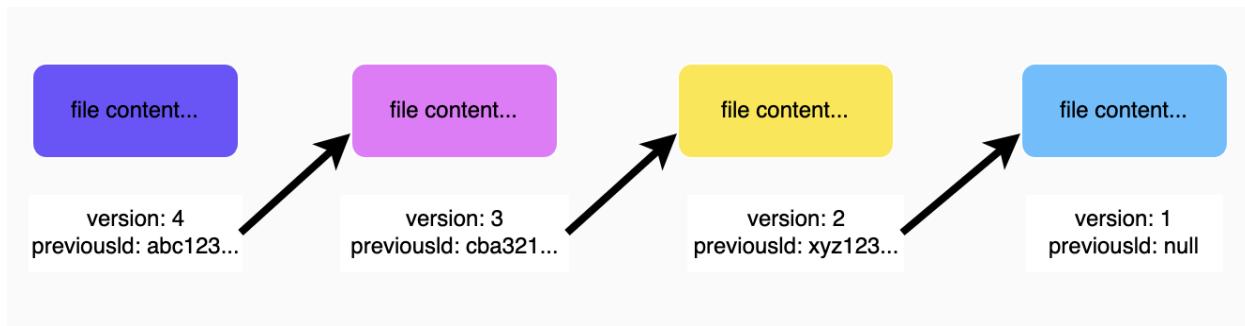
How It Works



At the core of ProofWrite is the use of CIDs (Content Identifiers), a feature of IPFS (InterPlanetary File System) that uniquely identifies the content of a file. Every time an essay is updated in ProofWrite, it's saved privately to IPFS through Pinata, and a new CID is generated. This provides a verifiable history of the document - similar to Google Docs version history, but decentralized and tamper-proof.

- As a student types, the document auto-saves every few seconds.
- Each version of the essay is uploaded to IPFS with a new CID, forming a transparent timeline of edits.
- Instructors or administrators can inspect this timeline to see how the essay evolved over time.
- Since Pinata offers private IPFS, the student's writing is securely stored and not publicly visible.
- In addition to IPFS, ProofWrite uses Pinata KV (Key-Value) storage to store essential metadata for each version - including the current version number and the ID of the

previous version. These entries are structured like a linked list, where each version knows the one before it, creating a connected chain of changes that reinforces verifiability and prevents tampering.



This combination of CID-based versioning and metadata linking ensures both content integrity and decentralized traceability.

Student Dashboard View:

ProofWrite

Manage your essays

Admin

The dashboard interface includes a search bar, a 'New Document' button, and a grid of document cards:

- First essay**
Last modified Aug 7, 2025
Essay 1, title - changed again
- 2nd essay!**
Last modified Aug 7, 2025
This is just the second essay for testing!
- Blog**
Last modified Aug 7, 2025
ProofWrite: Bringing Verifiability to College Essays in the Age of AI In an er...
- Blog 2**
Last modified Aug 7, 2025
As a student types, the document auto-saves every 10 seconds. Each version i...
- Blog 3**
Last modified Aug 7, 2025
ProofWrite: Bringing Verifiability to College Essays in the Age of AI In an er...
- Personal Essay**
Last modified Aug 7, 2025
My childhood story: it began in India.
- Essay 1**
Last modified Aug 7, 2025
Essay 1

Essay Editing Page View:

[← Back](#) 670 words 4274 characters Save

Blog 3

ProofWrite: Bringing Verifiability to College Essays in the Age of AI

In an era where generative AI tools are just a few keystrokes away, verifying the authenticity of student writing has become more difficult than ever - especially for college admissions essays. How can universities ensure that what a student submits reflects their true voice, effort, and personality, rather than the output of an AI model? Enter ProofWrite.

ProofWrite is a platform that empowers universities to verify the originality of student submissions by transparently tracking the essay-writing process over time. Built on top of IPFS and Pinata, ProofWrite stores immutable, timestamped snapshots of a student's writing - making it nearly impossible to fake authorship or paste in AI-generated content undetected.

How It Works

At the core of ProofWrite is the use of CIDs (Content Identifiers), a feature of IPFS (InterPlanetary File System) that uniquely identifies the content of a file. Every time an essay is updated in ProofWrite, it's saved privately to IPFS through Pinata, and a new CID is generated. This provides a verifiable history of the document - similar to Google Docs version history, but decentralized and tamper-proof.

As a student types, the document auto-saves every 10 seconds.

Each version is uploaded to IPFS with a new CID, forming a transparent timeline of edits.

Instructors or administrators can inspect this timeline to see how the essay evolved over time.

Since Pinata offers private IPFS, the student's writing is securely stored and not publicly visible.

In addition to IPFS, ProofWrite uses KV (Key-Value) storage to store essential metadata for each version - including the essay's id and version and the text. These entries are structured like a linked list, where each version knows the one before it, creating a connected chain of changes that reinforces verifiability and prevents tampering.

Admin Dashboard View:

[← Back to Dashboard](#) **Admin View** Student Essay Verification History Student: John Doe

7 Total Essays

17 IPFS Versions

4 Pending Essays

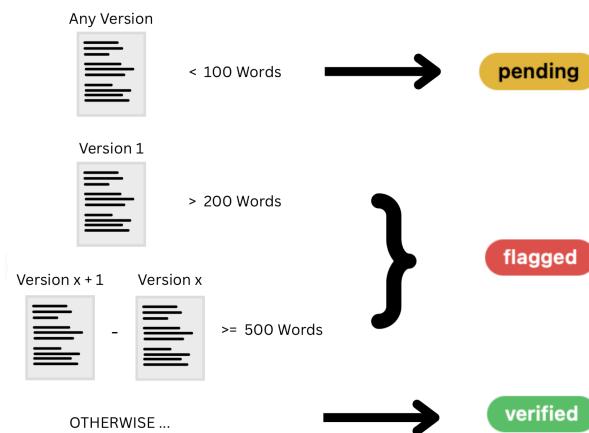
14% Verified

Essay Title	Status
First essay Created Aug 7, 2025 at 01:22 PM	pending
Current Word Count 6	IPFS Versions 3
View Version History	
2nd essay! Created Aug 7, 2025 at 01:26 PM	pending
Current Word Count 8	IPFS Versions 1
View Version History	
Blog Created Aug 7, 2025 at 02:57 PM	verified
Current Word Count 670	IPFS Versions 3
View Version History	
Blog 2 Created Aug 7, 2025 at 02:58 PM	flagged
Current Word Count 480	IPFS Versions 1
View Version History	
Blog 3 Created Aug 7, 2025 at 02:59 PM	flagged
Current Word Count 670	IPFS Versions 3
View Version History	
Personal Essay Created Aug 7, 2025 at 04:03 PM	pending
Current Word Count 7	IPFS Versions 5
View Version History	

Smart Flags for Academic Integrity

In addition to tracking versions, ProofWrite also flags suspicious behavior based on typing patterns:

- Pending: All new essays start in a "pending" state. If a document has fewer than 100 words at any given version, it remains pending.
- Flagged:
 - If the very first version of an essay exceeds 200 words, it's flagged, since this suggests a copy-paste.
 - Also, if there's a sudden spike in word count between versions, the essay is flagged for review.
- Verified: Otherwise, if the essay shows consistent growth over time without suspicious activity, it is marked as verified.



These simple yet effective checks help universities identify potential misuse of AI, without accusing students unfairly. Additionally, future verifications can easily be added that use more intelligent mechanisms to analyze the typing patterns, like machine learning models.

Built for Universities (and Beyond)

ProofWrite is designed with scalability in mind. Universities can use it to manage and store hundreds of versions per assignment per student, making it ideal for enterprise use. Thanks to Pinata's private IPFS features, all data remains secure and inaccessible to the public.

In the future, ProofWrite could integrate with university grading systems or LMS platforms, making it an even more seamless part of the academic process. Further, while ProofWrite focuses on college essays today, the core idea can be expanded to any domain that values originality: journalism, research, contracts, and more.

AI Isn't the Enemy, but Authenticity Matters

We're not anti-AI. In fact, we believe AI can be a powerful tool for brainstorming, editing, and feedback. But when it comes to expressing your own understanding, especially in something like college essay assignments, your own voice should come through.

ProofWrite isn't here to punish students for using AI. It's here to encourage them to own their ideas, put in the work, and showcase their genuine self in their writing.

