Centurion University

School: ..... Campus: .....

Academic Year: ..... Subject Name: ..... Subject Code: .....

Semester: ..... Program: ..... Branch: ..... Specialization: .....

Date: .....

Applied and Action Learning

(Learning by Doing and Discovery)

Name of the Experiement : Store with IPFS – Decentralized file upload.

Objective/Aim:

- To build a web-based application that uploads files to the **InterPlanetary File System (IPFS)** using **Pinata's API** through a secure, frontend-only method using **JWT (JSON Web Token)**.

Apparatus/Software Used:

- Laptop/PC
- PowerPoint/Word for documentation
- Internet for research
- https://pinata.cloud/

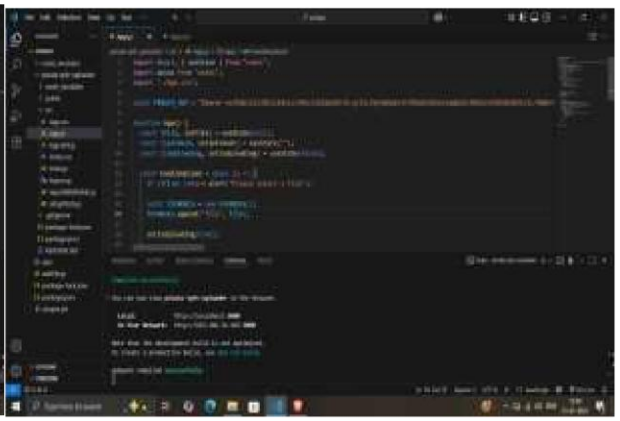
Theory/Concept:

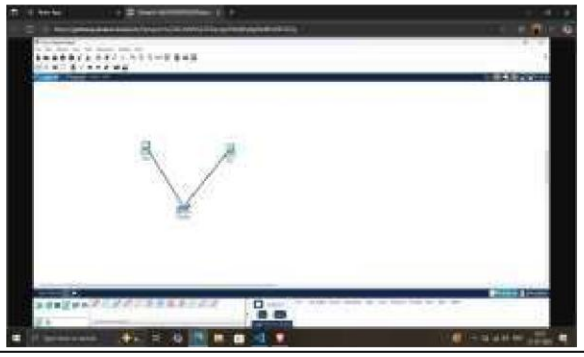
IPFS (InterPlanetary File System) is a decentralized protocol for storing and sharing files using a peer-to-peer network.

Pinata provides an IPFS API gateway that allows users to pin files so they remain permanently accessible.

JWT (JSON Web Token) is used to securely authenticate frontend users without exposing secret keys.

1. **Create a React app** using npx create-react-appand navigate into the project folder.
2. **Install Axios** using npm install axiosto handle HTTP requests.
3. Inside the App.jsfile, **set up the file upload interface** using a file input and a button.
4. Use the **useStatehook** to manage file selection, upload state, and the IPFS hash result.
5. When the user selects a file and clicks upload, **create a FormDataobject** and append the file to it.
6. Make a **POST request to Pinata's IPFS API endpoint** (https://api.pinata.cloud/pinning/pinFileToIPFS) using Axios.
7. In the request, include the **Authorizationheader with your Pinata JWT token** (must begin with "Bearer ").
8. If the upload is successful, **receive the IpfsHash**from the response and display the gateway URL to access the file.
9. **Test the uploaded file** using https://gateway.pinata.cloud/ipfs/<your-ipfs-hash>to verify successful storage on IPFS.





Observation Table:

Test File Name	File Type	IPFS Hash (CID)	Status
`test.png`	Image	QmXyz...	Uploaded
`project.pdf`	PDF	Qm123...	Uploaded
`network.docx`	DOCX	Qm456...	Uploaded

ASSESSMENT

	Full Mark	Marks Obtained	Remarks
Concept	10		
Planning and Execution/ Practical Simulation/ Programming	10		
Interpretation	10		
Record of Applied and Action Learning	10		
	10		

Signature of the Student:

Signature of the Faculty:

Name :

Regn.No.