

## What is FareTide ?

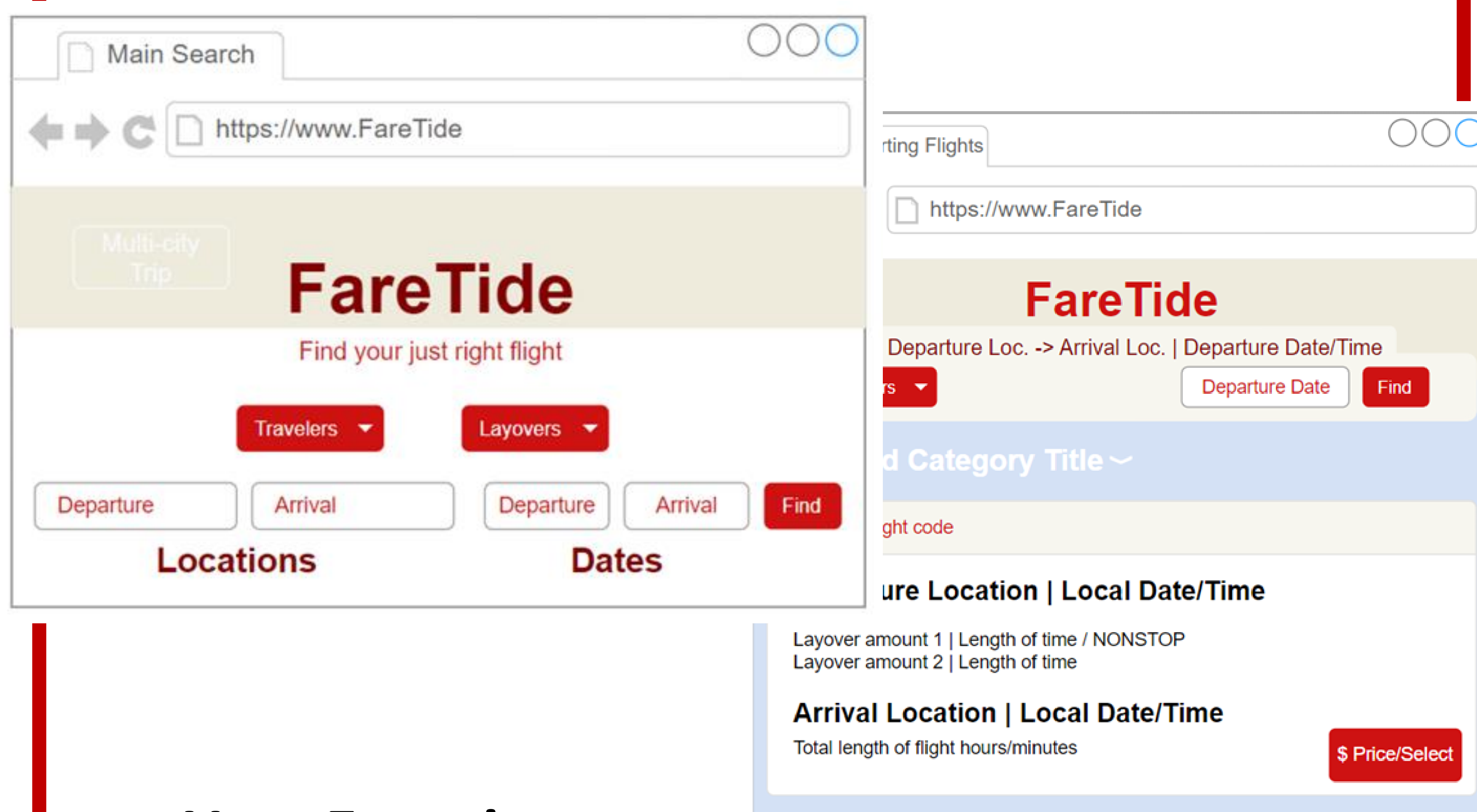
FareTide is a web application designed to help travelers determine the optimal time to purchase airline tickets. By using historical fare data and machine learning algorithms, FareTide predicts price fluctuations and recommends the best exact times to buy.

### The Inspiration...

Travelers often overpay because they don't know the best time to book. Existing tools such as Google flights or SkyScanner show trends but don't suggest exact purchase dates. FareTide fills this gap by providing specific booking recommendations.

### Key Features

- ✓ **Fare Predictions:** Suggests the best day to buy.
- ✓ **Real-Time Flight Data:** Pulls current prices from Skyscanner API.
- ✓ **User-Friendly Search & Filter:** Simple and intuitive flight search.
- ✓ **Shareable Flight Links:** Easily share flight details.



### User Experience

1. User searches for flights using the ReactJS front end.
2. The request is sent to a Flask REST API, which processes it.
3. The system retrieves real-time flight prices from Skyscanner and historical fare data from Kaggle CSV files.
4. A machine learning model predicts the best day to book.
5. The system returns predicted savings and booking options to the user.

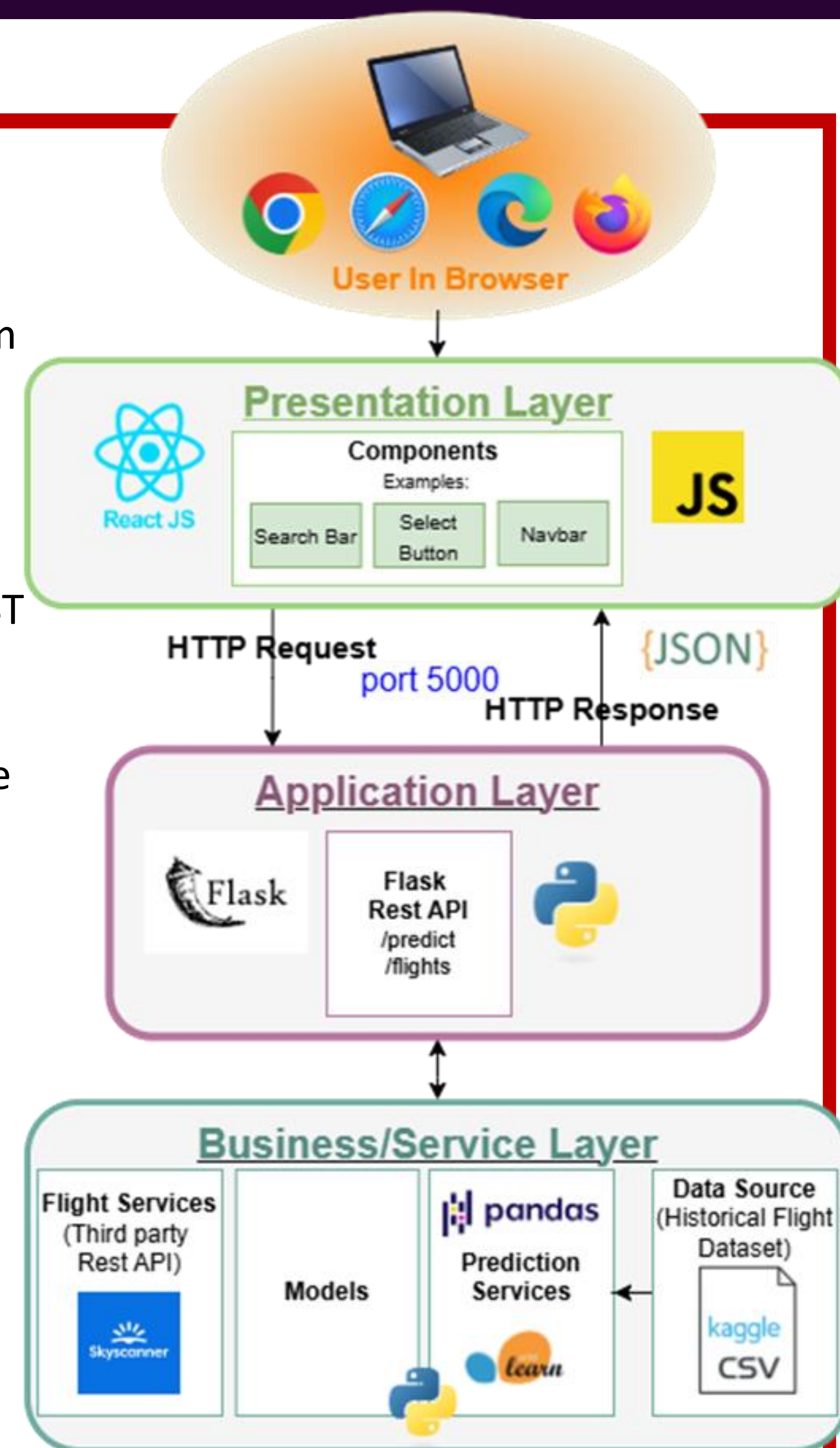
## Building FareTide

Research & Planning → System Design → Development → Test → Optimization

Technologies Used: Python (Flask), ReactJS, Skyscanner API, Machine Learning.

## How does it work?

As seen on the system architecture diagram, FareTide processes flight searches through a ReactJS front end, a Flask REST API, and a machine learning model that predicts the best time to buy tickets.



## Data Insights

- Historical Data:** Analyzed fare trends from CSV files.
- Machine Learning Predictions:** Compares actual fare changes to predicted trends.
- Results:** Users can save money by booking on suggested dates.

## Security

- Data Security:** API interactions are encrypted via HTTPS.
- Authentication:** Uses API keys for secure Skyscanner API requests. – Keys never pushed to online repositories like Github

## & Standards

- Scalability:** Optimized for fast predictions and minimal resource usage.
- Usability:** Follows modern UI/UX best practices for intuitive navigation.
- Proof of compliance:** System logs, testing results, and encrypted API request validation.