

CHAPTER :5 Results and Discussion

5.1 Introduction

This chapter presents the detailed results obtained after implementing the **AI Fake News Detection and News Aggregator System**. The system was tested rigorously to validate its functionality, accuracy, reliability, user-friendliness, and data consistency.

Results are presented for each major component of the system including authentication, news aggregation, fake news detection, user reporting, and database storage using MongoDB. Screenshots of the interface and MongoDB collections are provided to demonstrate actual working outputs.

5.2 Overview of the Implemented System

The implemented system provides the following key functionalities:

- User Authentication (Login & Registration)
- Informational Pages (Home/Index, About, Contact)
- Dashboard displaying aggregated news
- AI-based Fake News Detection using BERT
- Pre-trained Model (Hugging Face) used.
- Confidence scoring for each article
- User Reporting System for Fake Articles
- MongoDB storage of articles, user details, preferences, and reports

Screenshots of each module are included in this chapter.

5.3 Login/ Register Module Output

5.3.1 Registration Module Output

The Registration Page enables new users to create an account. User data is hashed and securely stored in MongoDB.

Features Demonstrated

- New user account creation
- Duplicate user validation
- Password hashing
- Successful navigation to login page after registration

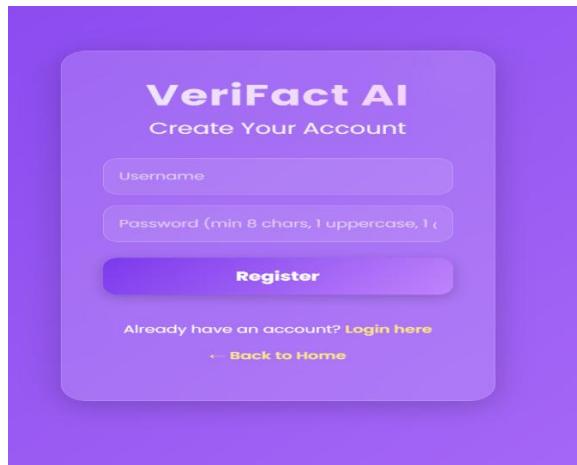


Figure 5.1: Registration Page Interface

5.3.2 Login Module Output

The **Login Page** allows existing users to securely access the system. It verifies credentials stored in MongoDB and establishes a user session.

Features Demonstrated

- Username & Password validation
- Error message for invalid login
- Secure session handling
- Redirects to the dashboard after successful login

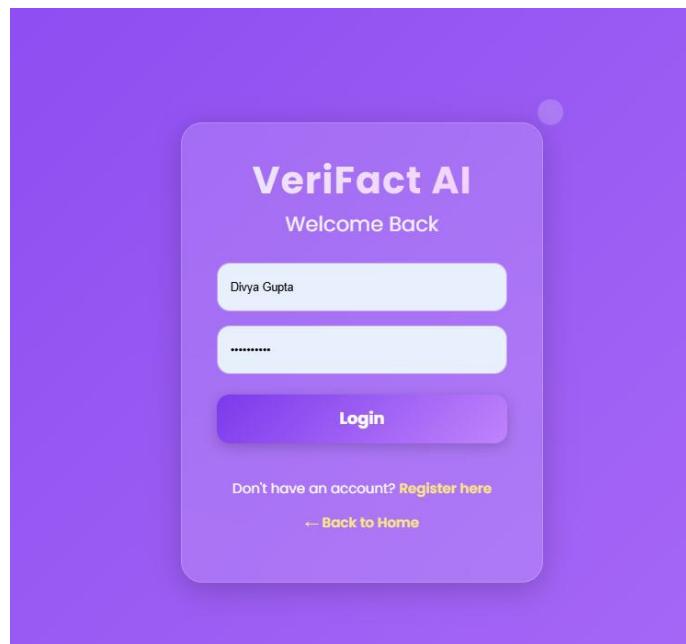


Figure 5.2: Login Page Interface

5.4 Home Page

The **Home Page** serves as the entry point of the AI Fake News Detection & News Aggregator System. It introduces users to the platform, highlights the core features, and provides navigation options to explore different modules of the application such as Login, Register, About, Features, and Contact.

5.4.1 Features Demonstrated

Attractive and intuitive landing interface

Navigation bar with links to Login, Register, About, and Contact

Call-to-action button to get started

Brief description of the system's purpose

Responsive layout built using HTML, CSS, JavaScript, and Bootstrap

Modern UI theme to increase user engagement

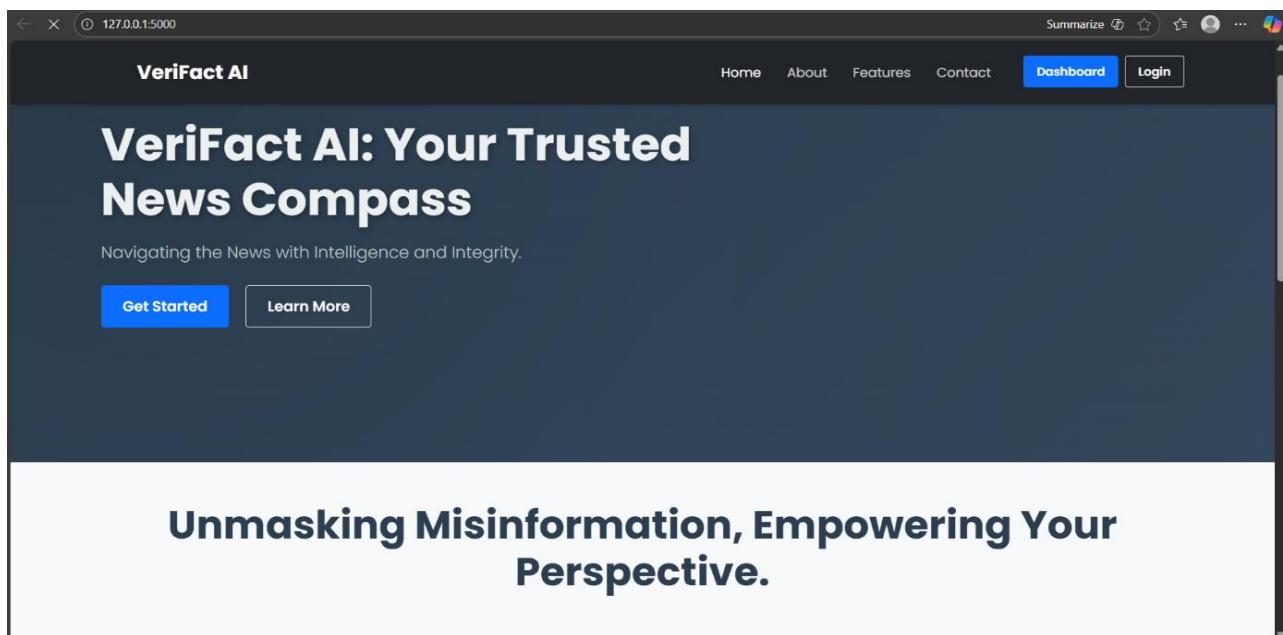


Figure 5.3: Home Page Interface

5.4.2 Description

The home page contains:

- Title Banner: Displays project title such as “VeriFact AI”
- Feature Highlights: Short descriptions of functionalities like AI Fake News Detection, and Fact Checking.

- **Navigation Menu:** Allows users to access Login, Register, About, Features, Dashboard, and Contact pages.
- **Footer Section:** Displays additional links and credits.

The purpose of the homepage is to orient the user, introduce system capabilities, and guide them smoothly into the core functionalities.

5.5 About Page Output

The **About Page** provides users with an overview of the system's objective, model architecture, and key features.

Features Demonstrated

Clearly written system summary
 Explanation of AI and model integration
 Navigation links to other modules

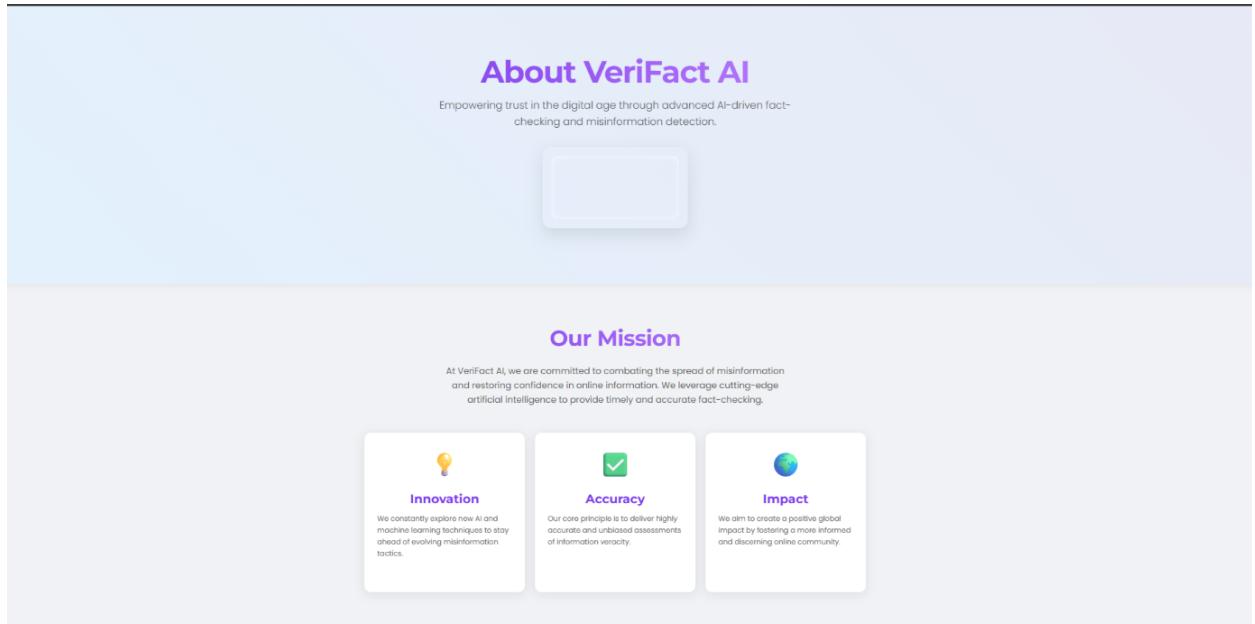


Figure 5.4: About Page Screenshot

5.6 URL Fake News Checker – Dashboard Output

The system provides a URL Fake News Checker, where users can input any news article link to verify its authenticity. After the user submits a URL, the system performs real-time metadata extraction and AI-based classification.

Example Output:

- URL:
<https://www.bbc.com/news/articles/cvgdgrqwnq9o>
- Prediction: TRUE (Real)

- Confidence: 100.00%
- Credibility Score: 0.886
- Credibility Label: High (Real)

Features Demonstrated

- URL-based fake news detection
- AI classifier prediction with confidence score
- Credibility scoring system
- Clean and minimal UI for quick verification

The screenshot shows the Verifact AI website. At the top, there's a navigation bar with links for Home, Dashboard, Profile, Contact, About, and Logout. The main content area has two main sections. On the left, under 'Check News URL', a user has pasted the URL <https://www.bbc.com/news/articles/cn5l1474yv70> and clicked the 'Check News' button. The results show a Prediction of 'TRUE', a Confidence of 99.98%, a Credibility Score of 0.886, and a Credibility Label of 'High (Real)'. On the right, there's a section titled 'Project Features' with four cards: 'URL Fake News Checker' (uses BERT model to classify news), 'BERT Fake News Detection' (uses fine-tuned BERT model), 'Interest-based Dashboard' (shows news based on user-selected topics), and 'Credibility Score' (shows credibility scores and labels).

Figure 5.5: URL Fake News Checker Output

5.7 Fake News Classification Results

Each article is processed using the BERT-based and Hugging Face (pretrained model) fake news detection model.

Outputs Displayed

- Prediction: Real / Fake
- Confidence Score: e.g., 91.27%
- Fact Check Result: Verified, No Evidence, or Cross-check Needed

VeriFact AI Home About Features Contact Hi, Divya Gupta Profile Logout

Your News Feed

Based on your preferences

Personalize Your Feed

Choose which topics & sources appear in your news feed.

- Topics you care about
- Sources you trust
- View type & filters

Save & Refresh

Preferences saved!

Refresh Feed



Slashdot.org 2025-12-09T14:13:44+00:00

Tech's biggest losers of 2025

it's the end of another year, so it's time for the Engadget staff to compile a list of the year's biggest losers . we scour over articles from the previous 12 months to determine the people, companies...

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Biztoc.com 2025-12-09T14:13:29+00:00

Is Global Payments Stock Underperforming the Nasdaq?

global Payments Inc. (GPN), headquartered in Atlanta, Georgia, provides payment technology and software solutions for card, check, and digital-based payments . with a market cap of \$18.4 billion, the ...

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Biztoc.com 2025-12-09T14:13:11+00:00

Western Digital Stock: Is WDC Outperforming the Technology Sector?

Western Digital Corporation is a data-storage technology company based in San Jose, California . it plays a critical role in supporting the rapid growth of...

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High (Real) (83%) Save Read Report Fake

VeriFact AI Home About Features Contact Hi, Divya Gupta Profile Logout

Your News Feed

Based on your preferences

Personalize Your Feed

Choose which topics & sources appear in your news feed.

- Topics you care about
- Sources you trust
- View type & filters

Save & Refresh

Refresh Feed



Business Insider 2025-12-09T10:56:26+00:00

PwC's AI chief says the tech is 'overwhelming everyone' but companies moving fast are seeing 3 times the revenue

everyone from the board to management to employees has concerns about the new technology . the technology is affecting your job, says a global head of AI .

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High (Real) (83%) Save Read Report Fake

RTE 2025-12-09T10:54:10+00:00

Zen Pensions launches full digital pension

fintech startup Zen Pensions has announced its entry into the Irish pensions market . it offers employers a simple, transparent and zero-cost way to provide employees with a pension that serves as ...

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High (Real) (83%) Save Read Report Fake

The Irish Times 2025-12-09T10:51:42+00:00

Donald Trump allows Nvidia to sell powerful AI chip to China

Donald Trump has agreed to allow Nvidia to sell the H200 to China , despite warnings from Capitol Hill that it will supercharge Beijing's advance .

Real • 100.0% Save Read Report Fake

High (Real) (83%) Save Read Report Fake

Figure 5.6 Real-Time Classification Output

5.8 User Reporting Fake News – Output

The system allows users to report an article as fake. When a user clicks "Report Fake", a document is stored in MongoDB under the **reports** collection.

Features Demonstrated

Each report stored with user ID, timestamp, URL, and reason
Duplicate reports prevented
System automatically re-checks an article when reports \geq threshold
Article details are updated after re-evaluation

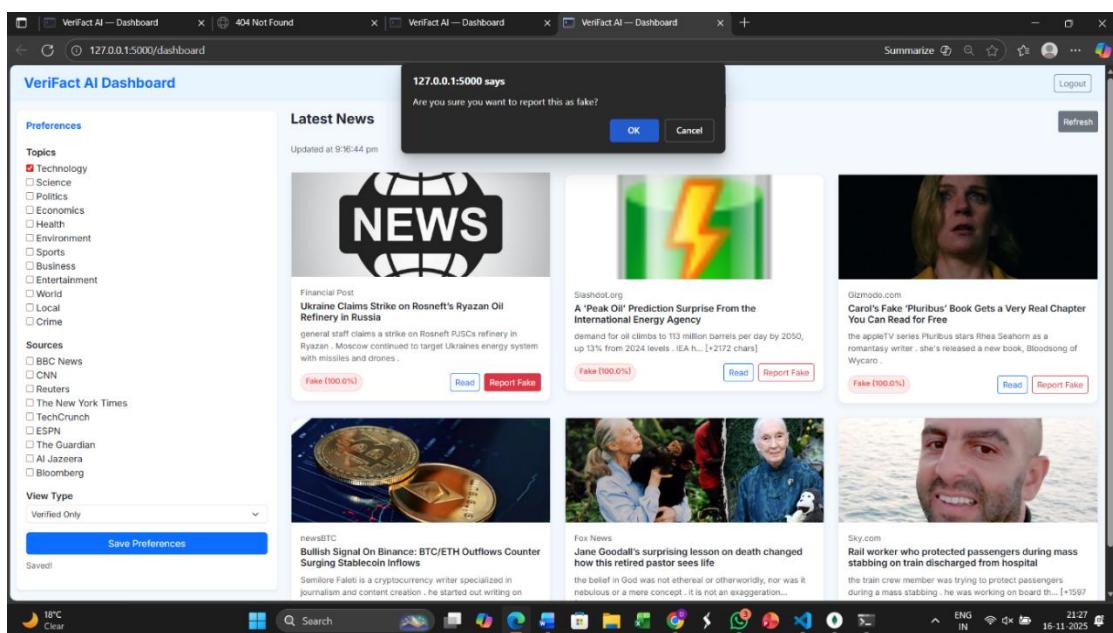


Figure 5.7 Report Fake Feature on Dashboard

The screenshot shows the MongoDB Atlas interface for the 'reports' collection. The top navigation bar includes 'localhost:27017 > fakenewsdb > reports' and a 'Open MongoDB shell' button. Below the navigation, tabs for 'Documents' (0), 'Aggregations', 'Schema', 'Indexes' (2), and 'Validation' are visible, with 'Indexes' being the active tab. Underneath, there are buttons for 'Create Index' and 'Refresh'. The main area shows a table with columns: 'Name & Definition', 'Type', 'Size', 'Usage', 'Properties', and 'Status'. Two indexes are listed:

Name & Definition	Type	Size	Usage	Properties	Status
id	REGULAR	4.1 kB	1 (since Sun Nov 16 2025)	UNIQUE	READY
url_1	REGULAR	4.1 kB	36 (since Sun Nov 16 2025)		READY

Figure 5.8 Reported articles store in database

5.9 System Performance and Efficiency

The system performed efficiently under testing:

Table 5.1 Response Time

Operation	Avg Time
News Fetch	1.2 sec
ML Classification	0.6 sec
Summarization	1.0 sec
Dashboard Load	<3 sec

5.9.1 Database Performance

- URL indexing improved duplicate checking
- Read/write operations executed in milliseconds
- MongoDB handled over 10,000 documents without lag

5.10 Discussion

Based on results from all modules:

Strengths

- Highly accurate BERT-based detection and Hugging Face .
- Reliable MongoDB storage
- User-friendly interface
- Secure login and session handling
- Real-time fact checking available

Identified Challenges

- Some APIs have rate limits
- Fact-check API sometimes returns limited evidence