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COMPLETED THE PROJECT NAME AS PHASE 4

TECHNOLOGY PROJECT NAME: News Feed Application

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PROJECT PHASE 4: News Feed Application

Enhancements & Deployment

1. Additional Features

- **User Authentication (JWT-based):**
Implemented login/signup so only authenticated users can save bookmarks.
- **Dark Mode / Theme Switcher:**
Added toggle button in Header.js using Tailwind's dark mode classes.
- **Pagination / Infinite Scroll:**
Backend supports page parameter in /api/news.
Frontend implements "Load More" button for better navigation.

2. UI/UX Improvements

- Redesigned news cards with hover effects, shadows, and better readability.
- Implemented skeleton loaders for smoother user experience during data fetch.
- Added toast notifications (e.g., "Article Bookmarked", "Removed from Bookmarks").
- Improved mobile navigation with hamburger menu and smooth transitions.

3. API Enhancements

- Standardized error handling for consistency:
- { "success": false, "message": "Error description" }
- Added new endpoints:
 - /api/news/top-headlines → Returns trending news.
 - /api/news/:id → Fetches detailed article data.
- Applied rate limiting and security middleware to prevent API misuse.

4. Performance & Security Checks

- **Frontend:**
 - Code-splitting with React.lazy & Suspense for optimized loading.

- Build optimized using `npm run build`.
- **Backend:**
 - Added Helmet for security headers.
 - Sanitized inputs and secured CORS policy.
- **Database:**
 - Indexes created for faster bookmark retrieval.
 - Environment variables managed securely via `.env`.

5. Testing of Enhancements

- **Frontend:**
 - Jest + React Testing Library for unit tests.
 - Cypress for end-to-end flow (search → bookmark → view bookmark).
- **Backend:**
 - Mocha/Chai for API route testing.
 - Postman/Newman for automated API test runs.

6. Deployment

- **Frontend (React.js):**
Deployed on Vercel (alternative: Netlify).
- **Backend (Node.js + Express):**
Deployed on Render/Railway.
Connected to MongoDB Atlas (cloud database).
- **Deployment Steps:**
 - Set build command: `npm run build` for frontend.
 - Added environment variables for API keys and DB credentials.
 - Verified endpoints and UI after deployment.
- **Domain & Security:**
 - HTTPS enabled by default.

- Optional custom domain integration.