

Final project Self-assessment report

Team: 22120252-22120427-22120450

GitHub repo URL: <https://github.com/ducnhat24/AWD-G04>

TEAM INFORMATION

Student ID	Full name	Git account	Contribution	Contribution percentage (100% total)	Expected total points	Final total points
22120252	Giang Đức Nhật	ducnhat24	BE: <ul style="list-style-type: none">- Google OAuth 2.0 integration- Email Synchronization- Snooze Mechanism- AI Features- Search Features- Filtering & Sorting- Email Actions- CI/CD & Dockerize- Gmail Watch Pub&Sub	33.3%	10	
22120427	Nguyễn Mạnh Văn	nmvan	FE: <ul style="list-style-type: none">- Email Display- Kanban Board Interface- Snooze Mechanism- Search & Sort & Filter Email UI- Email Action- UI AI summary- Mockdata Email	33.3%	10	

Student ID	Full name	Git account	Contribution	Contribution percentage (100% total)	Expected total points	Final total points
22120450	Bùi Đình Gia Vỹ	VyBui13	BE:	33.4%	10	
			- Authentication & Token Management			
			FE:			
			- Concurrency handling			
			- Login Page			
			- Signup Page			
			- Dynamic Kanban Configuration			
			- Keyboard navigation			
			- Offline caching			
			- Multi-tab logout sync			

FEATURE LIST

Project: React Email Client with Gmail Integration & AI-Powered Kanban

Students must input minus points to every uncompleted feature in the SE column.

*SE: Self-evaluation

*TR: Teacher review

ID	Features	Grade			Notes
		Point	SE*	TR*	
1	Overall requirements				
	User-centered design	-5	0		Built with user experience in mind. Kanban-style email management, AI summarization, semantic search for efficient email workflow
	Database design	-1	0		Database with tables: users, emails, email_vectors, kanban_columns, snooze_schedules, labels
	Database mock data	-1			Sample emails, kanban configurations, and test data
	Website layout	-2	0		3-column layout: mailbox list, email list, email detail. Kanban board view

ID	Features	Grade		Notes
	Website architect	-3	0	React SPA with backend API. Clear separation of concerns. OAuth2 flow, token handling
	Website stability and compatibility	-4	0	Responsive design, tested on Chrome, Safari, Firefox, and Edge
	Document	-2		README with setup guide, API endpoints, Google OAuth setup, token storage explanation, security considerations
	Demo video	-5		Video demonstrating: Gmail login, inbox sync, Kanban board, AI summarization, semantic search, drag-drop
	Publish to public hosts	-1	0	Frontend deployed (Netlify/Vercel), Backend deployed (Render/Railway/Cloud Run)
	Development progress is recorded in Github	-7	0	Git history with meaningful commits, branches for features, pull requests
2	Authentication & Token Management			
	Google OAuth 2.0 integration	-0.5	0	Login with Google, grant Gmail access permissions
	Authorization Code flow	-0.5	0	Backend exchanges code for tokens, stores refresh token securely
	Token storage & security	-0.5	0	Access token in-memory (frontend), refresh token server-side only
	Automatic token refresh	-0.5	0	Backend refreshes expired access tokens automatically
	Concurrency handling	-0.25	0	Single refresh request when multiple 401s occur
	Forced logout on invalid refresh	-0.25	0	Clear tokens and logout if refresh token fails
	Logout & token cleanup	-0.25	0	Clear all tokens server-side and client-side on logout
3	Email Synchronization & Display			
	Fetch emails from Gmail	-0.5	0	Use Gmail API to fetch inbox emails
	Email list with pagination	-0.25	0	Paginated/virtualized email list




ID	Features	Grade		Notes
	Email detail view	-0.25	0	Full email content with HTML/plain text support
	Mailbox/Labels list	-0.25	0	Display Gmail labels/folders in sidebar
	Open in Gmail link	-0.25	0	Button/icon to open email in Gmail
4	Kanban Board Interface			
	Kanban board layout	-0.5	0	Board with columns: Inbox, To Do, Done, etc.
	Email cards display	-0.25	0	Cards showing sender, subject, snippet
	Drag-and-drop between columns	-0.5	0	Drag cards to change email status
	Status persistence	-0.25	0	Status changes saved and persisted
	Dynamic Kanban Configuration			
	› Settings interface	-0.25	0	Modal/page to create, rename, delete columns
	› Configuration persistence	-0.25	0	Custom columns saved and restored after reload
	› Gmail label mapping	-0.5	0	Columns map to Gmail labels, moving cards syncs labels
5	Snooze Mechanism			
	Select snooze time	-0.25	0	Choose snooze duration (Tomorrow, Next week, custom)
	Hide snoozed emails	-0.25	0	Email disappears from Kanban after snooze
	Auto-return on schedule	-0.5	0	Email automatically returns to board at scheduled time
6	AI Features			
	AI Summarization			
	› Backend summarization API	-0.5	0	LLM integration (Gemini API) to summarize email content
	› Summary UI on cards	-0.25	0	Display 2-3 line summary on email cards
	Text Embedding			
	› Embedding generation	-0.5	0	Generate vector embeddings for emails using embedding model
	› Vector database storage	-0.5	0	Store embeddings in MongoDB Atlas Vector Search with vector index for similarity search

ID	Features	Grade		Notes
7	Search Features			
	Fuzzy Search (Backend) chưa integrate đúng cách			
	› Typo tolerance	-0.5	0	"marketng" finds "marketing"
	› Partial matches	-0.5	0	"Nguy" finds "Nguyen Van A"
	› Relevance ranking	-0.25	0	Best matches ranked first
	Fuzzy Search UI (Frontend)			
	› Search bar integration	-0.25	0	Search bar in header/main UI
	› Search results as cards	-0.25	0	Results displayed as email cards with sender, subject, snippet
	› Loading/empty/error states	-0.25	0	Handle UX states properly
	› Navigation back to main view	-0.25	0	Clear way to return to Kanban view
	Semantic Search			
	› Conceptual relevance search	-0.5	0	Query "money" finds "invoice", "price", "salary"
	› Semantic search API endpoint	-0.25	0	POST /api/search/semantic endpoint
	Search Auto-Suggestion			
	› Type-ahead dropdown	-0.25	0	Dropdown appears while typing with 3-5 suggestions
	› Suggestions from contacts/keywords	-0.25	0	Suggestions populated from sender names, subject keywords
	› Trigger search on selection	-0.25	0	Clicking suggestion triggers semantic search
8	Filtering & Sorting			
	Sort by date (newest/oldest)	-0.25	0	At least two sorting options
	Filter by unread	-0.25	0	Show only unread emails

ID	Features	Grade		Notes
	Filter by attachments	-0.25	0	Show only emails with attachments
	Real-time filter updates	-0.25	0	Changes apply immediately without page reload
9	Email Actions			
	Mark as read/unread	-0.25	0	Toggle read status via Gmail API
	Compose modal	-0.25	0	Modal to compose new email
	Reply/Forward flow	-0.25	0	Reply to and forward emails
	Send via Gmail API	-0.25	0	Send emails through Gmail API
	View attachments	-0.25	0	Display attachments in email detail
	Download attachments	-0.25	0	Download attachment files
	Delete emails	-0.25	0	Move to trash via Gmail API
10	Advanced features			
	Gmail Push Notifications	0.25		Real-time inbox updates via Gmail watch + Pub/Sub
	Multi-tab logout sync	0.25	0.25	BroadcastChannel for logout sync across tabs
	Offline caching	0.25	0.25	IndexedDB + stale-while-revalidate for emails
	Keyboard navigation	0.25	0.25	Navigate emails with keyboard shortcuts
	Dockerize your project	0.25	0.25	Docker containers for backend, frontend
	CI/CD	0.25	0.25	Automated testing and deployment pipeline

GIT HISTORY

Contributors

Avatar	Username	Commits	Additions	Deletions
	ducnhat24	39	27267	2636
	nmvan	43	4721	2200
	VyBui13	15	8015	4887

Commits

List significant commits here with format:

Date	Author	Commit Message	Files Changed
YYYY-MM-DD	<author>	<commit message>	<number>

PROJECT SUMMARY

System Overview

React Email Client with Gmail Integration is a web-based email client that transforms Gmail into a Kanban-style productivity tool:

- Gmail OAuth2 authentication with secure token handling
- Kanban board interface for email workflow management (Inbox, To Do, Done)
- AI-powered email summarization using LLM (OpenAI/Gemini)
- Snooze mechanism to temporarily hide and auto-return emails
- Fuzzy search with typo tolerance and partial matching
- Semantic search using vector embeddings for conceptual relevance
- Dynamic Kanban configuration with Gmail label mapping
- Full email actions: compose, reply, forward, delete, attachments

Technology Stack

- **Architecture:** React SPA + Backend API (Node.js)
- **Frontend:** React, react-window (virtualization), drag-and-drop library
- **Backend:** Node.js with Express
- **Database:** MongoDB with MongoDB Vector Search for embeddings
- **Authentication:** Google OAuth2 (Authorization Code flow)
- **AI/ML:** OpenAI API or Gemini API for summarization and embeddings
- **Email:** Gmail REST API
- **Vector Search:** pgvector or similar vector database
- **Deployment:** Frontend (Vercel), Backend(Vercel)

API Endpoints

Endpoint	Description
Auth	
POST /auth/login	Đăng nhập hệ thống (trả về Access Token & User Info).
Search Features	
GET /mail/search	Fuzzy Search: Tìm kiếm email theo từ khóa (Subject, Sender) dùng Fuse.js.

Endpoint	Description
POST /mail/search/semantic	Semantic Search: Tìm kiếm email theo ngữ nghĩa dùng Vector Search (Gemini embedding).
GET /mail/suggestions	Auto-suggestion: Gợi ý từ khóa/người gửi khi user đang nhập liệu.
Mail Operations	
GET /mail/mailboxes	Lấy danh sách các hộp thư (Inbox, Sent, Drafts, Trash...).
GET /mail/mailboxes/:labelId/emails	Lấy danh sách email trong một hộp thư cụ thể (có phân trang).
GET /mail/emails/:id	Lấy chi tiết nội dung của một email.
GET /mail/emails/:id/summary	AI Summary: Lấy tóm tắt nội dung email do AI tạo ra.
POST /mail/send	Gửi email mới.
POST /mail/emails/:id/reply	Trả lời (Reply) một email.
POST /mail/emails/:id/forward	Chuyển tiếp (Forward) một email.
POST /mail/emails/:id/modify	Thay đổi trạng thái email (Đánh dấu đã đọc, Xóa, Gán nhãn...).
GET /mail/attachments/:msgId/:attId	Tải xuống file đính kèm của email.
Kanban Configuration	
GET /kanban/config	Lấy cấu hình bảng Kanban cá nhân của user (danh sách cột, màu sắc, label mapping).
POST /kanban/config	Khởi tạo cấu hình Kanban mới (thường gọi khi user lần đầu vào Dashboard).
PUT /kanban/config	Cập nhật toàn bộ cấu hình Kanban (ví dụ: thay đổi thứ tự các cột, đổi tên nhiều cột cùng lúc).
DELETE /kanban/config	Xóa cấu hình Kanban hiện tại (Reset về mặc định).
PATCH /kanban/config/column/:id	Cập nhật thông tin chi tiết của một cột cụ thể (đổi tên cột, đổi màu, đổi Gmail Label liên kết).
DELETE /kanban/config/column/:id	Xóa một cột cụ thể khỏi bảng Kanban.
Gmail Watch Pub&Sub	
POST /mail/watch	Endpoint để Gmail Watch
POST /mail/notification	Endpoint để nhận thông báo từ Gmail Pub&Sub

Key User Flows

1. **Authentication:** Google Sign-In → Backend token exchange → Session created → Redirect to Kanban

- 2. **Email Sync:** Login → Fetch Gmail inbox → Display as Kanban cards → Real-time updates
- 3. **Kanban Workflow:** View cards → Drag to columns → Status synced → Gmail labels updated
- 4. **AI Summary:** Email synced → LLM summarizes → Summary displayed on card
- 5. **Semantic Search:** User types query → Embedding generated → Vector search → Related emails returned
- 6. **Snooze:** Select email → Choose snooze time → Email hidden → Auto-returns at scheduled time

Development Timeline

Week	Focus	Key Deliverables
Week 1	Basic Application	Gmail OAuth, email sync, Kanban interface with cards
Week 2	Core Workflow & AI	Drag-and-drop, snooze mechanism, AI summarization
Week 3	Fuzzy Search & Filtering	Fuzzy search (BE+FE), sorting, filtering on Kanban
Week 4	Semantic Search & Config	Vector embeddings, semantic search, dynamic Kanban config
Week 5	Deployment & Deliverables	Testing, deployment, demo video

Security Considerations

- **Access Token:** Stored in-memory on frontend only
- **Refresh Token:** Stored server-side in secure datastore (never exposed to frontend)
- **OAuth Flow:** Authorization Code flow (not implicit) for security
- **Token Refresh:** Handled server-side with concurrency protection
- **Logout:** Clears all tokens and optionally revokes OAuth refresh token

Note: Fill in the student information, contribution details, self-evaluation scores, and git history before submission.