

IT314 – Software Engineering

Group 22 – Fingenie

AI – Powered Balance Sheet Analysis Tool

User Stories

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Object Oriented Design

1. User Management

Class: User

Attributes:

- id: int
- username: string
- email: string
- password: string
- first_name: string
- last_name: string
- is_active: boolean
- date_joined: datetime
- last_login: datetime

Methods:

- register(username: string, email: string, password: string) → bool
- login(identifier: string, password: string) → bool
- logout() → None
- checkPassword(password: string) → bool
- setPassword(new_password: string) → None

Class: UserProfile

Attributes:

- id: int
- user: User
- phone_number: string
- country_code: string
- date_of_birth: date
- bio: string
- profile_picture: string
- theme_preference: string
- email_notifications: boolean
- is_google_user: boolean
- google_id: string
- email_verified: boolean
- created_at: datetime
- updated_at: datetime

Methods:

- updateProfile(phone_number: string, country_code: string, date_of_birth: date, bio:

string) → bool

- updateSettings(theme_preference: string, email_notifications: boolean) → bool

Class: UserActivity

Attributes:

- id: UUID
- user: User
- activity_type: string
- title: string
- description: string
- content_type: string
- object_id: string
- created_at: datetime

Methods:

- logActivity(user: User, activity_type: string, title: string, description: string) → None
- getUserHistory(user: User, limit: int) → List[UserActivity]

Class: Feedback

Attributes:

- id: UUID
- user: User
- feedback_type: string
- subject: string
- message: string
- status: string
- admin_notes: string
- created_at: datetime

Methods:

- submitFeedback(user: User, subject: string, message: string, feedback_type: string) → UUID
- getUserFeedbacks(user: User) → List[Feedback]
- updateStatus(feedback_id: UUID, status: string) → bool
- addAdminNotes(feedback_id: UUID, note: string) → bool

Class: SupportTicket

Attributes:

- id: UUID
- user: User
- subject: string
- message: string
- priority: string

- status: string
- admin_response: string
- created_at: datetime
- updated_at: datetime

Methods:

- createTicket(user: User, subject: string, message: string, priority: string) → UUID
- getUserTickets(user: User) → List[SupportTicket]
- updateStatus(ticket_id: UUID, status: string) → bool
- addAdminResponse(ticket_id: UUID, response: string) → bool

Class: GoogleOAuthService**Methods:**

- verifyGoogleToken(token: string) → dict
- verifyGoogleTokenFallback(token: string) → dict
- createUsernameFromGoogleInfo(google_info: dict) → string
- getOrCreateGoogleUser(google_info: dict) → (User, boolean)

2. Company & Financial Data Management

Class: CompanySearch**Attributes:**

- symbol: string
- name: string
- search_count: int
- last_searched: datetime
- created_at: datetime
- is_active: boolean
- exchange: string
- currency: string
- last_data_refresh: datetime

Methods:

- incrementSearchCount() → None
- getDaysSinceLastSearch() → int
- getPopularSearches(limit: int) → List[CompanySearch]
- cleanupOldSearches(days_old: int) → int

Class: FinancialStatementCache**Attributes:**

- symbol: string
- statement_type: string

- period: date
- data: JSON
- last_updated: datetime
- created_at: datetime
- is_valid: boolean
- expires_at: datetime
- data_source: string
- data_version: string

Methods:

- markInvalid() → None
- getLatestCachedData(symbol: string, statement_type: string) →

FinancialStatementCache

- cleanupExpiredEntries() → int
- invalidateSymbolCache(symbol: string) → int

3. Financial Report & Analysis

Class: FinancialReport

Attributes:

- report_id: UUID
- company_name: string
- ticker_symbol: string
- user: User
- uploaded_pdf: File
- pdf_original_name: string
- summary: JSON
- ratios: JSON
- created_at: datetime

Methods:

- getSummary() → dict
- getRatios() → List[dict]
- setSummary(data: dict) → None
- setRatios(data: List[dict]) → None
- pros() → List[string]
- cons() → List[string]
- financialHealthSummary() → string
- hasUploadedPdf() → boolean
- displayName() → string
- timeAgo() → string
- toApiResponse() → dict

4. Chatbot & AI Interaction

Class: ChatbotService

Methods:

- buildContext(report_id: UUID) → string
- answerQuery(question: string, report_id: UUID) → string

Object Diagram

