5.2 Quest Feature

Feature Goal: Guide users through structured philosophical explorations with clear learning objectives, interactive elements, and rewards using an engaging skill tree design.

System Architecture

Frontend Components:

QuestScreen.tsx: Quest browsing and selection

QuestDetailScreen.tsx: Individual quest view with skill tree visualization

SkillTreeView.tsx: Zoomable skill tree visualization

QuestStep.tsx: Individual step in a quest

QuestProgress.tsx: Progress indicator

QuestNodeComponent.tsx: Individual node in skill tree

ConceptMiniTree.tsx: Mini visualization of related concepts

AccessibilityControls.tsx: Controls for accessibility options

Backend Components:

quest\_service.py: Quest management and progress tracking

concept\_service.py: Concept integration

xp\_service.py: XP tracking and badge management

Database Models:

quests: Quest definitions and metadata

CREATE TABLE quests (

id UUID PRIMARY KEY DEFAULT uuid\_generate\_v4(),

title VARCHAR(100) NOT NULL,

description TEXT NOT NULL,

difficulty VARCHAR(20) NOT NULL,

estimated\_duration INTEGER NOT NULL,

xp\_reward INTEGER NOT NULL,

concepts JSONB NOT NULL,

prerequisites JSONB,

is\_premium BOOLEAN DEFAULT FALSE,

skill\_tree\_structure JSONB DEFAULT '{}',

xp\_threshold INTEGER DEFAULT 0,

accessibility\_options JSONB DEFAULT '{}',

created\_at TIMESTAMP WITH TIME ZONE DEFAULT NOW(),

updated\_at TIMESTAMP WITH TIME ZONE DEFAULT NOW()

);

quest\_steps: Individual steps within quests

CREATE TABLE quest\_steps (

id UUID PRIMARY KEY DEFAULT uuid\_generate\_v4(),

quest\_id UUID NOT NULL REFERENCES quests(id),

step\_number INTEGER NOT NULL,

title VARCHAR(100) NOT NULL,

content TEXT NOT NULL,

step\_type VARCHAR(50) NOT NULL,

interaction\_data JSONB,

xp\_reward INTEGER NOT NULL,

node\_position JSONB DEFAULT '{}',

connected\_nodes JSONB DEFAULT '[]',

concept\_links JSONB DEFAULT '[]',

is\_challenge\_node BOOLEAN DEFAULT FALSE,

bonus\_xp INTEGER DEFAULT 0,

created\_at TIMESTAMP WITH TIME ZONE DEFAULT NOW(),

updated\_at TIMESTAMP WITH TIME ZONE DEFAULT NOW(),

UNIQUE(quest\_id, step\_number)

);

user\_quests: User progress on quests

CREATE TABLE user\_quests (

id UUID PRIMARY KEY DEFAULT uuid\_generate\_v4(),

user\_id UUID NOT NULL REFERENCES users(id),

quest\_id UUID NOT NULL REFERENCES quests(id),

status VARCHAR(20) NOT NULL DEFAULT 'not\_started',

current\_step INTEGER,

started\_at TIMESTAMP WITH TIME ZONE,

completed\_at TIMESTAMP WITH TIME ZONE,

xp\_earned INTEGER DEFAULT 0,

created\_at TIMESTAMP WITH TIME ZONE DEFAULT NOW(),

updated\_at TIMESTAMP WITH TIME ZONE DEFAULT NOW(),

UNIQUE(user\_id, quest\_id)

);

user\_quest\_steps: User progress on individual steps

CREATE TABLE user\_quest\_steps (

id UUID PRIMARY KEY DEFAULT uuid\_generate\_v4(),

user\_quest\_id UUID NOT NULL REFERENCES user\_quests(id),

step\_id UUID NOT NULL REFERENCES quest\_steps(id),

status VARCHAR(20) NOT NULL DEFAULT 'not\_started',

user\_response JSONB,

started\_at TIMESTAMP WITH TIME ZONE,

completed\_at TIMESTAMP WITH TIME ZONE,

xp\_earned INTEGER DEFAULT 0,

created\_at TIMESTAMP WITH TIME ZONE DEFAULT NOW(),

updated\_at TIMESTAMP WITH TIME ZONE DEFAULT NOW(),

UNIQUE(user\_quest\_id, step\_id)

);

quest\_badges: Badges for quest achievements

CREATE TABLE quest\_badges (

id UUID PRIMARY KEY DEFAULT uuid\_generate\_v4(),

name VARCHAR(100) NOT NULL,

description TEXT NOT NULL,

xp\_threshold INTEGER NOT NULL,

quest\_category VARCHAR(50) NOT NULL,

icon\_url VARCHAR(255) NOT NULL,

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP

);

user\_quest\_badges: User earned badges

CREATE TABLE user\_quest\_badges (

id UUID PRIMARY KEY DEFAULT uuid\_generate\_v4(),

user\_id UUID NOT NULL REFERENCES users(id),

badge\_id UUID NOT NULL REFERENCES quest\_badges(id),

earned\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

UNIQUE(user\_id, badge\_id)

);

API Endpoints

GET /api/v1/quests: Get available quests

Query Parameters:

page: Pagination page number (default: 1)

limit: Items per page (default: 20, max: 50)

difficulty: Filter by difficulty level (beginner, intermediate, advanced)

concept\_id: Filter by related concept

status: Filter by user status (not\_started, in\_progress, completed)

skill\_tree: Boolean to return skill tree view (default: false)

Response:

{

"quests": [

{

"id": "550e8400-e29b-41d4-a716-446655440000",

"title": "Introduction to Stoicism",

"description": "Explore the foundational principles of Stoic philosophy",

"difficulty": "beginner",

"estimated\_duration": 30,

"xp\_reward": 100,

"concepts": ["stoicism", "virtue", "nature"],

"is\_premium": false,

"user\_status": "not\_started"

},

{

"id": "550e8400-e29b-41d4-a716-446655440001",

"title": "Epicurean Philosophy",

"description": "Discover the philosophy of pleasure and tranquility",

"difficulty": "intermediate",

"estimated\_duration": 45,

"xp\_reward": 150,

"concepts": ["epicureanism", "pleasure", "tranquility"],

"is\_premium": false,

"user\_status": "in\_progress"

}

],

"total": 15,

"page": 1,

"pages": 1,

"limit": 20

}

GET /api/v1/quests/{id}: Get quest details

Response:

{

"id": "550e8400-e29b-41d4-a716-446655440000",

"title": "Introduction to Stoicism",

"description": "Explore the foundational principles of Stoic philosophy",

"difficulty": "beginner",

"estimated\_duration": 30,

"xp\_reward": 100,

"concepts": [

{

"id": "123",

"name": "stoicism",

"description": "An ancient Greek philosophy that teaches virtue and resilience"

},

{

"id": "124",

"name": "virtue",

"description": "Moral excellence and righteousness"

},

{

"id": "125",

"name": "nature",

"description": "The physical world and its phenomena"

}

],

"prerequisites": [],

"is\_premium": false,

"steps": [

{

"id": "650e8400-e29b-41d4-a716-446655440001",

"step\_number": 1,

"title": "The Stoic Worldview",

"content": "Stoicism teaches that virtue is the only true good...",

"step\_type": "reading",

"xp\_reward": 20

},

{

"id": "650e8400-e29b-41d4-a716-446655440002",

"step\_number": 2,

"title": "The Four Cardinal Virtues",

"content": "Stoics identified four primary virtues...",

"step\_type": "multiple\_choice",

"interaction\_data": {

"question": "Which of the following is NOT one of the four cardinal virtues in Stoicism?",

"options": ["Wisdom", "Justice", "Courage", "Happiness", "Temperance"],

"correct\_answer": 3

},

"xp\_reward": 25,

"is\_challenge\_node": true,

"bonus\_xp": 10

}

],

"user\_progress": {

"status": "not\_started",

"current\_step": null,

"started\_at": null,

"completed\_at": null,

"xp\_earned": 0

},

"skill\_tree\_structure": {

"position": {"x": 100, "y": 200},

"connected\_quests": ["550e8400-e29b-41d4-a716-446655440001"]

},

"xp\_threshold": 0,

"accessibility\_options": {

"high\_contrast\_available": true,

"audio\_narration\_available": true

}

}

GET /api/v1/quests/skill-tree: Get skill tree visualization

Response:

{

"quests": [

{

"id": "550e8400-e29b-41d4-a716-446655440000",

"title": "Introduction to Stoicism",

"description": "Explore the foundational principles of Stoic philosophy",

"xp\_threshold": 0,

"user\_status": "completed",

"position": {"x": 100, "y": 200},

"connected\_quests": ["550e8400-e29b-41d4-a716-446655440001"]

},

{

"id": "550e8400-e29b-41d4-a716-446655440001",

"title": "Advanced Stoic Practices",

"description": "Deepen your understanding of Stoic philosophy through practical exercises",

"xp\_threshold": 500,

"user\_status": "locked",

"position": {"x": 300, "y": 200},

"connected\_quests": ["550e8400-e29b-41d4-a716-446655440002"]

}

],

"user\_xp": 350,

"next\_unlock": {

"quest\_id": "550e8400-e29b-41d4-a716-446655440001",

"xp\_required": 500,

"xp\_remaining": 150

}

}

POST /api/v1/quests/{id}/start: Start a quest

Response:

{

"success": true,

"user\_quest\_id": "750e8400-e29b-41d4-a716-446655440000",

"quest\_id": "550e8400-e29b-41d4-a716-446655440000",

"status": "in\_progress",

"current\_step": 1,

"xp\_earned": 5,

"total\_xp": 1255,

"xp\_to\_next\_level": 745

}

POST /api/v1/quests/{id}/steps/{step\_id}/complete: Complete a quest step

Request:

{

"user\_response": {

"answer": "Virtue is living in accordance with nature.",

"reflection": "I find this concept particularly relevant because..."

}

}

Response:

{

"success": true,

"step\_id": "650e8400-e29b-41d4-a716-446655440001",

"status": "completed",

"xp\_earned": 20,

"next\_step": {

"id": "650e8400-e29b-41d4-a716-446655440002",

"step\_number": 2,

"title": "The Four Cardinal Virtues",

"content": "Stoics identified four primary virtues...",

"step\_type": "multiple\_choice",

"interaction\_data": {

"question": "Which of the following is NOT one of the four cardinal virtues in Stoicism?",

"options": ["Wisdom", "Justice", "Courage", "Happiness", "Temperance"],

"correct\_answer": 3

},

"xp\_reward": 25

},

"quest\_progress": {

"completed\_steps": 1,

"total\_steps": 5,

"percentage": 20

},

"total\_xp": 1275,

"xp\_to\_next\_level": 725

}

GET /api/v1/quests/recommended: Get personalized quest recommendations

Response:

{

"recommended\_quests": [

{

"id": "550e8400-e29b-41d4-a716-446655440002",

"title": "Introduction to Epicureanism",

"description": "Discover the philosophy of pleasure and tranquility",

"difficulty": "beginner",

"estimated\_duration": 30,

"xp\_reward": 100,

"reason": "Based on your interest in Stoicism"

},

{

"id": "550e8400-e29b-41d4-a716-446655440003",

"title": "Aristotle's Ethics",

"description": "Explore Aristotle's views on virtue and the good life",

"difficulty": "intermediate",

"estimated\_duration": 45,

"xp\_reward": 150,

"reason": "Popular with users who completed Introduction to Stoicism"

}

]

}

POST /api/v1/quests/{id}/concepts/{concept\_id}/explore: Track concept exploration from quest

Response:

{

"success": true,

"concept": {

"id": "123",

"name": "stoicism",

"description": "An ancient Greek philosophy that teaches virtue and resilience"

},

"related\_concepts": [

{

"id": "124",

"name": "virtue",

"description": "Moral excellence and righteousness",

"relationship": "core principle"

},

{

"id": "125",

"name": "nature",

"description": "The physical world and its phenomena",

"relationship": "guiding force"

}

],

"mastery": {

"level": 2,

"percentage": 40,

"next\_level\_at": 75

}

}

User Experience Flow

User browses available quests on the QuestScreen with the skill tree visualization

User selects and views details of a quest on the QuestDetailScreen

User starts the quest via POST /api/v1/quests/{id}/start

System presents quest steps sequentially using the QuestStep component

User completes interactive elements (readings, questions, reflections, etc.)

User can explore related concepts through hyperlinks in quest content

System tracks progress via the QuestProgress component and awards XP

User completes the quest and receives rewards (XP, badges, concept mastery)

XP Integration

XP awarded for starting quests (+5 XP)

XP awarded for completing quest steps (+10-30 XP per step, based on difficulty)

XP awarded for completing full quests (+25-100 XP, based on difficulty)

Challenge nodes provide bonus XP (+5-15 XP)

XP thresholds unlock advanced quests (e.g., 500 XP for "Advanced Stoic Practices")

Badges for quest completion milestones (5, 25, 50 quests)

Concept mastery progress for related concepts

Implementation Considerations

Step Types: Support for various interactive elements (reading, multiple\_choice, reflection, AI interaction)

Offline Support: Quest content will be available offline after initial download

Premium Content: Some quests marked as premium for paid subscribers only

Prerequisites: Some quests may require completion of other quests or specific XP thresholds

Content Updates: Regular updates with new quests via content management system

Accessibility Features: High-contrast mode, screen reader support, voice input, audio narration

Performance Optimization: Progressive loading for large skill trees, efficient caching