Frontend Integration Guide - Complete API Documentation

Table of Contents

- 1. Overview
- 2. Base URLs & Authentication
- 3. User Journey Flow
- 4. Phase 1: Initial Assessment (Day 91)
- 5. Phase 2: Assessment Results & Dashboard Setup
- 6. Phase 3: Daily Learning Dashboard
- 7. Phase 4: Daily Tasks (Day 1 onwards)
- 8. Error Handling
- 9. Complete Code Examples

Overview

This guide covers the complete integration flow for the Ziya LRG (Listening, Reading, Grammar) platform including Writing and Speaking modules.

User Journey:

```
Sign Up → Initial Assessment (Day 91) → Assessment Report → Dashboard → Daily Tasks (Day 1→90)
```

Base URLs & Authentication

API Base URLs

```
const LRG_API_BASE = "http://localhost:8080/api/v1";
const WRITING_SPEAKING_API_BASE = "https://your-microservice-url.com"; // To
be provided
```

Authentication

All endpoints require JWT authentication:

```
headers: {
   "Authorization": "Bearer <your-jwt-token>",
   "Content-Type": "application/json"
}
```

User Journey Flow

```
graph TD
    A[Sign Up] --> B[Initial Assessment - Day 91]
    B --> C[Listening Assessment]
    B --> D[Reading Assessment]
    B --> E[Grammar Assessment]
    B --> F[Writing Self-Evaluation]
    B --> G[Speaking Self-Evaluation]
    C --> H[Aggregate Assessment Report]
    D --> H
    E --> H
    F --> H
    G --> H
    H --> I[Dashboard with Level Assignment]
    I --> J[Daily Tasks - Day 1 onwards]
    J --> K[Practice & Progress Tracking]
```

Phase 1: Initial Assessment (Day 91)

After sign-up, users complete a comprehensive assessment using **Day 91** content to determine their level (beginner, intermediate, advanced).

1.1 Listening Assessment

Step 1: Get Listening Content for Day 91

```
GET /api/v1/listening/day/day91
Authorization: Bearer <token>
```

```
"listening_id": "uuid",
  "day_code": "day91",
  "title": "Assessment: Business Conversation",
  "audio_url": "https://storage.example.com/audio/day91.mp3",
  "audio_duration_sec": 180,
  "difficulty_level": "intermediate",
  "questions": [
      {
            "question_id": "q1",
            "question_text": "What is the main topic of the conversation?",
            "question_type": "multiple_choice",
            "options": ["A", "B", "C", "D"],
            "skill": "main_idea"
```

```
},
    {
        "question_id": "q2",
        "question_text": "How many people are speaking?",
        "question_type": "fill_blank",
        "skill": "details"
    }
}
```

Step 2: Start Listening Session

```
POST /api/v1/listening/sessions
Authorization: Bearer <token>
Content-Type: application/json

{
    "user_id": "550e8400-e29b-41d4-a716-446655440000",
    "day_code": "day91",
    "audio_url": "https://storage.example.com/audio/day91.mp3"
}
```

Response:

```
{
   "session_id": "750e8400-e29b-41d4-a716-446655440001",
   "user_id": "550e8400-e29b-41d4-a716-446655440000",
   "day_code": "day91",
   "audio_url": "https://storage.example.com/audio/day91.mp3",
   "started_at": "2025-01-15T10:30:00Z",
   "message": "Session started successfully"
}
```

Step 3: Submit Listening Answers

```
POST /api/v1/listening/sessions/{session_id}/submit
Authorization: Bearer <token>
Content-Type: application/json

{
    "answers": [
        {
            "item_id": "q1",
            "user_answer": "Business meeting",
            "correct_answer": "Business meeting",
            "is_correct": true,
            "time_spent_sec": 45,
            "skill": "main_idea",
```

```
"question_type": "multiple_choice"
    },
      "item_id": "q2",
      "user_answer": "3",
      "correct_answer": "2",
      "is_correct": false,
      "time_spent_sec": 30,
      "skill": "details",
      "question_type": "fill_blank"
    }
  ],
  "duration_sec": 300,
  "score_pct": 75,
 "xp_earned": 25,
 "audio_replay_count": 2
}
```

Response:

```
{
  "session_id": "750e8400-e29b-41d4-a716-446655440001",
  "score_pct": 75,
  "xp_earned": 25,
  "skill_mastery_updated": true,
  "audio_replay_count": 2,
  "message": "Listening assessment completed"
}
```

1.2 Reading Assessment

Step 1: Get Reading Content for Day 91

```
GET /api/v1/reading/day/day91
Authorization: Bearer <token>
```

```
"question_text": "What is the author's main argument?",
    "question_type": "multiple_choice",
    "options": ["A", "B", "C", "D"],
    "skill": "comprehension"
},
{
    "question_id": "r2",
    "question_text": "What does the word 'mitigate' mean in context?",
    "question_type": "vocabulary",
    "skill": "vocabulary"
}
]
```

Step 2: Start Reading Session

```
POST /api/v1/sessions
Authorization: Bearer <token>
Content-Type: application/json

{
    "user_id": "550e8400-e29b-41d4-a716-446655440000",
    "modality": "reading",
    "day_code": "day91"
}
```

Response:

```
{
   "session_id": "850e8400-e29b-41d4-a716-446655440002",
   "user_id": "550e8400-e29b-41d4-a716-446655440000",
   "modality": "reading",
   "day_code": "day91",
   "started_at": "2025-01-15T11:00:00Z",
   "message": "Session started successfully"
}
```

Step 3: Submit Reading Answers

```
POST /api/v1/sessions/{session_id}/submit
Authorization: Bearer <token>
Content-Type: application/json

{
    "answers": [
        {
            "item_id": "r1",
            "user_answer": "Climate action needed",
```

```
"correct_answer": "Climate action needed",
    "is_correct": true,
    "time_spent_sec": 90,
    "skill": "comprehension"
},
{
    "item_id": "r2",
    "user_answer": "reduce",
    "correct_answer": "reduce",
    "is_correct": true,
    "time_spent_sec": 60,
    "skill": "vocabulary"
}
],
    "duration_sec": 450,
    "score_pct": 85,
    "xp_earned": 30
}
```

Response:

```
{
  "session_id": "850e8400-e29b-41d4-a716-446655440002",
  "score_pct": 85,
  "xp_earned": 30,
  "badges_earned": [],
  "streak_updated": true,
  "current_streak": 1,
  "message": "Reading assessment completed"
}
```

1.3 Grammar Assessment

Step 1: Get Grammar Content for Day 91

```
GET /api/v1/grammar/day/day91
Authorization: Bearer <token>
```

```
{
  "grammar_id": "uuid",
  "day_code": "day91",
  "topic": "Assessment: Mixed Grammar",
  "difficulty_level": "intermediate",
  "questions": [
     {
```

```
"question_id": "g1",
    "question_text": "Choose the correct form: She ___ been working here
for 5 years.",
    "question_type": "multiple_choice",
    "options": ["has", "have", "had", "having"],
    "skill": "verb_tenses",
    "correct_answer": "has"
},
{
    "question_id": "g2",
    "question_text": "Identify the error in: 'He don't like coffee.'",
    "question_type": "error_identification",
    "skill": "subject_verb_agreement"
}
]
```

Step 2: Start Grammar Session

```
POST /api/v1/sessions
Authorization: Bearer <token>
Content-Type: application/json

{
    "user_id": "550e8400-e29b-41d4-a716-446655440000",
    "modality": "grammar",
    "day_code": "day91"
}
```

Response:

```
{
   "session_id": "950e8400-e29b-41d4-a716-446655440003",
   "user_id": "550e8400-e29b-41d4-a716-446655440000",
   "modality": "grammar",
   "day_code": "day91",
   "started_at": "2025-01-15T12:00:00Z",
   "message": "Session started successfully"
}
```

Step 3: Submit Grammar Answers

```
POST /api/v1/sessions/{session_id}/submit
Authorization: Bearer <token>
Content-Type: application/json
{
   "answers": [
```

```
"item_id": "g1",
    "user_answer": "has",
    "correct_answer": "has",
    "is_correct": true,
    "time_spent_sec": 30,
    "skill": "verb tenses"
  },
    "item_id": "g2",
    "user_answer": "don't should be doesn't",
    "correct_answer": "doesn't",
    "is correct": true,
    "time_spent_sec": 45,
    "skill": "subject_verb_agreement"
  }
],
"duration_sec": 240,
"score_pct": 90,
"xp_earned": 35
```

Response:

```
{
  "session_id": "950e8400-e29b-41d4-a716-446655440003",
  "score_pct": 90,
  "xp_earned": 35,
  "badges_earned": ["grammar_ace"],
  "streak_updated": true,
  "current_streak": 1,
  "message": "Grammar assessment completed"
}
```

1.4 Writing Self-Evaluation

Get Writing Prompt (Day 91)

```
GET {WRITING_SPEAKING_API_BASE}/api/v1/writing/day/day91
Authorization: Bearer <token>
```

```
{
  "writing_id": "uuid",
  "day_code": "day91",
  "prompt": "Write about your experience learning a new language.",
```

```
"writing_type": "general",
  "word_limit": 200,
  "difficulty_level": "intermediate"
}
```

Submit Writing Self-Evaluation

```
POST {WRITING_SPEAKING_API_BASE}/writing/evaluation/self-save
Authorization: Bearer <token>
Content-Type: application/json
{
 "user_id": "550e8400-e29b-41d4-a716-446655440000",
  "scores": {
   "grammar": 75,
   "vocabulary": 70,
   "coherence": 80,
    "style": 65,
    "clarity": 78,
   "engagement": 72
 },
 "user_level": "intermediate",
 "evaluation_id": "optional-uuid",
 "created_at": "2025-01-15T13:00:00Z"
```

Response:

```
"evaluation_id": "a50e8400-e29b-41d4-a716-446655440004",
"user_id": "550e8400-e29b-41d4-a716-446655440000",
"overall_score": 73,
"scores": {
    "grammar": 75,
    "vocabulary": 70,
    "coherence": 80,
    "style": 65,
    "clarity": 78,
    "engagement": 72
},
"user_level": "intermediate",
"created_at": "2025-01-15T13:00:00Z",
"message": "Writing self-evaluation saved successfully"
}
```

1.5 Speaking Self-Evaluation

Get Speaking Topic (Day 91)

```
GET {WRITING_SPEAKING_API_BASE}/api/v1/speaking/day/day91
Authorization: Bearer <token>
```

Response:

```
{
  "speaking_id": "uuid",
  "day_code": "day91",
  "topic": "Describe your daily routine",
  "teaching_mode_code": "conversation",
  "difficulty_level": "intermediate",
  "duration_minutes": 5
}
```

Submit Speaking Self-Evaluation

```
POST {WRITING_SPEAKING_API_BASE}/speaking/evaluation/self-save
Authorization: Bearer <token>
Content-Type: application/json
  "user_id": "550e8400-e29b-41d4-a716-446655440000",
 "session_id": "b60e8400-e29b-41d4-a716-446655440005",
 "scores": {
   "fluency": 78,
    "pronunciation": 82,
   "vocabulary": 75,
   "grammar": 80,
    "focus": 85,
    "understanding": 88
 },
 "user_level": "intermediate",
 "evaluation_id": "optional-uuid",
 "created at": "2025-01-15T14:00:00Z"
}
```

```
{
  "evaluation_id": "c70e8400-e29b-41d4-a716-446655440006",
  "user_id": "550e8400-e29b-41d4-a716-446655440000",
  "session_id": "b60e8400-e29b-41d4-a716-446655440005",
  "overall_score": 81,
  "scores": {
     "fluency": 78,
     "pronunciation": 82,
     "vocabulary": 75,
```

```
"grammar": 80,
   "focus": 85,
   "understanding": 88
},
   "user_level": "intermediate",
   "created_at": "2025-01-15T14:00:00Z",
   "message": "Speaking self-evaluation saved successfully"
}
```

Phase 2: Assessment Results & Dashboard Setup

After completing all 5 assessments, retrieve the aggregate report to determine user level and display initial dashboard.

2.1 Get Aggregate Assessment Report

Get Overall Mastery Overview

```
GET /api/v1/users/{user_id}/mastery-overview
Authorization: Bearer <token>
```

```
"user_id": "550e8400-e29b-41d4-a716-446655440000",
"listening": {
  "overall_mastery_pct": 75,
  "skills": {
    "main_idea": 80,
    "details": 70,
    "inference": 75,
    "vocabulary": 78
  }
},
"reading": {
  "overall_mastery_pct": 85,
  "skills": {
    "comprehension": 88,
    "vocabulary": 82,
    "inference": 85
  }
},
"grammar": {
  "overall_mastery_pct": 90,
  "skills": {
    "verb_tenses": 92,
    "subject_verb_agreement": 88,
    "articles": 90
```

```
}
}
}
```

Get Writing Assessment Results

```
GET {WRITING_SPEAKING_API_BASE}/writing/competencies?user_id={user_id}&days=1
Authorization: Bearer <token>
```

Response:

```
"user_id": "550e8400-e29b-41d4-a716-446655440000",
  "days_covered": 1,
  "overall_score": 73,
  "daily_scores": [
    {
      "date": "2025-01-15",
      "day_code": "day91",
      "scores": {
        "grammar": 75,
        "vocabulary": 70,
        "coherence": 80,
        "style": 65,
        "clarity": 78,
        "engagement": 72
      },
      "overall_score": 73
 ]
}
```

Get Speaking Assessment Results

```
GET {WRITING_SPEAKING_API_BASE}/speaking/competencies?user_id=
  {user_id}&days=1
  Authorization: Bearer <token>
```

```
{
    "user_id": "550e8400-e29b-41d4-a716-446655440000",
    "days_covered": 1,
    "overall_score": 81,
    "daily_scores": [
      {
```

```
"date": "2025-01-15",
    "day_code": "day91",
    "scores": {
        "fluency": 78,
        "pronunciation": 82,
        "vocabulary": 75,
        "grammar": 80,
        "focus": 85,
        "understanding": 88
        },
        "overall_score": 81
    }
}
```

2.2 Assessment Summary Display

Display the following to the user:

```
Listening: 75% (Proficient) /
Reading: 85% (Proficient) /
Grammar: 90% (Advanced) /
Writing: 73% (Developing) /
Speaking: 81% (Proficient) /

Overall Level: INTERMEDIATE

You're ready to start your learning journey!
```

Phase 3: Daily Learning Dashboard

After initial assessment, users see the dashboard on each login. They can select days and view competencies.

3.1 Dashboard Summary

Get Dashboard Overview

```
GET /api/v1/dashboard/summary?window=7d
Authorization: Bearer <token>
```

```
"streak_days": 5,
 "xp": {
    "total": 1250,
    "today": 85,
    "level": 3,
   "next_level_at": 1500
  },
  "weekly_activity": {
   "sessions": 15,
    "time_sec": 4500,
   "days_active": 5
  },
  "accuracy_trend": [
    {"date": "2025-01-15", "accuracy": 85},
    {"date": "2025-01-16", "accuracy": 87}
  ],
  "recent_results": [
    {
      "modality": "listening",
      "day_code": "day3",
      "score_pct": 88,
      "completed_at": "2025-01-16T10:35:00Z"
    }
  ],
  "badges": [
      "badge_key": "first_week",
      "title": "First Week Complete",
      "earned_at": "2025-01-16T10:35:00Z"
    }
  ],
  "last_activity": "2025-01-16T10:35:00Z"
}
```

Get Streak Information

```
GET /api/v1/users/{user_id}/streak
Authorization: Bearer <token>
```

```
{
  "user_id": "550e8400-e29b-41d4-a716-446655440000",
  "current_streak": 7,
  "longest_streak": 15,
  "last_active_date": "2025-01-16",
  "is_active_today": true,
  "streak_status": "active"
}
```

3.2 Competencies by Day

Select Day and Get Listening Competencies

```
GET /api/v1/users/{user_id}/competencies/listening/day/day3
Authorization: Bearer <token>
```

Response:

```
"modality": "listening",
  "date_range": "day3",
  "skills": [
    {
      "skill": "main_idea",
      "sessions_practiced": 2,
      "total_questions": 6,
      "correct_answers": 5,
      "overall_mastery_pct": 83,
      "mastery_level": "proficient",
      "trend": "stable",
      "avg_time_per_question": 38.7
    },
      "skill": "vocabulary",
      "sessions_practiced": 1,
      "total_questions": 4,
      "correct_answers": 4,
      "overall_mastery_pct": 100,
      "mastery_level": "advanced",
      "trend": "stable",
      "avg_time_per_question": 25.0
 ]
}
```

Get Reading Competencies

```
GET /api/v1/users/{user_id}/competencies/reading/day/day5
Authorization: Bearer <token>
```

Get Grammar Competencies

```
GET /api/v1/users/{user_id}/competencies/grammar/day/day7
Authorization: Bearer <token>
```

Response:

Get Writing Competencies

```
GET {WRITING_SPEAKING_API_BASE}/writing/competencies?user_id=
{user_id}&days=30
Authorization: Bearer <token>
```

Response:

```
"user id": "550e8400-e29b-41d4-a716-446655440000",
  "days_covered": 30,
  "overall_score": 78,
  "daily_scores": [
    {
      "date": "2025-01-16",
      "day_code": "day5",
      "scores": {
        "grammar": 80,
        "vocabulary": 75,
        "coherence": 82,
        "style": 70,
        "clarity": 78,
        "engagement": 75
      },
      "overall_score": 77
    }
  ],
  "skill_averages": {
   "grammar": 80,
    "vocabulary": 75,
    "coherence": 82,
    "style": 70,
    "clarity": 78,
    "engagement": 75
  }
}
```

Get Speaking Competencies

```
GET {WRITING_SPEAKING_API_BASE}/speaking/competencies?user_id=
{user_id}&days=30
Authorization: Bearer <token>
```

```
"pronunciation": 85,
        "vocabulary": 80,
        "grammar": 83,
        "focus": 87,
        "understanding": 88
      },
      "overall_score": 84
  ],
  "skill_averages": {
    "fluency": 82,
    "pronunciation": 85,
    "vocabulary": 80,
    "grammar": 83,
    "focus": 87,
    "understanding": 88
  }
}
```

3.3 Progress Tracking (Day 1 to Current Day)

Get Listening Progress

```
GET /api/v1/listening/users/{user_id}/progress?from_day=day1&to_day=day10
Authorization: Bearer <token>
```

```
"user_id": "550e8400-e29b-41d4-a716-446655440000",
"modality": "listening",
"date_range": "day1 - day10",
"overall_mastery_pct": 78,
"total_sessions": 15,
"total_audio_replay_count": 35,
"avg_audio_replays": 2.3,
"skills": [
  {
    "skill": "main_idea",
    "sessions_practiced": 10,
   "total_questions": 50,
    "correct_answers": 42,
    "overall_mastery_pct": 84,
    "mastery_level": "proficient",
    "trend": "improving",
    "avg_time_per_question": 40.5
 },
    "skill": "details",
```

```
"sessions_practiced": 10,
    "total_questions": 60,
    "correct_answers": 45,
    "overall_mastery_pct": 75,
    "mastery_level": "proficient",
    "trend": "stable",
    "avg_time_per_question": 48.2
    }
]
```

Get Reading Progress

```
GET /api/v1/users/{user_id}/skills/progress?
modality=reading&from_day=day1&to_day=day10
Authorization: Bearer <token>
```

Response:

Get Grammar Progress

```
GET /api/v1/users/{user_id}/skills/progress?
modality=grammar&from_day=day1&to_day=day10
Authorization: Bearer <token>
```

Get Writing Progress

```
GET {WRITING_SPEAKING_API_BASE}/writing/progress?user_id={user_id}&days=30
Authorization: Bearer <token>
```

```
"user_id": "550e8400-e29b-41d4-a716-446655440000",
"days": 30,
"total_evaluations": 15,
"overall_progress": {
  "current_avg": 78,
  "starting avg": 70,
  "improvement": 8
},
"skill_progress": {
  "grammar": {
    "current": 80,
    "starting": 72,
   "trend": "improving"
  },
  "vocabulary": {
    "current": 76,
    "starting": 68,
    "trend": "improving"
  },
  "coherence": {
    "current": 82,
    "starting": 75,
    "trend": "improving"
  },
```

```
"style": {
      "current": 72,
      "starting": 68,
     "trend": "stable"
    },
    "clarity": {
      "current": 79,
      "starting": 72,
      "trend": "improving"
    },
    "engagement": {
      "current": 75,
      "starting": 68,
      "trend": "improving"
    }
 }
}
```

Get Speaking Progress

```
GET {WRITING_SPEAKING_API_BASE}/speaking/progress?user_id={user_id}&days=30
Authorization: Bearer <token>
```

```
"user_id": "550e8400-e29b-41d4-a716-446655440000",
"days": 30,
"total_sessions": 12,
"overall_progress": {
  "current_avg": 84,
  "starting_avg": 78,
  "improvement": 6
},
"skill_progress": {
  "fluency": {
    "current": 85,
    "starting": 78,
    "trend": "improving"
  },
  "pronunciation": {
    "current": 87,
    "starting": 82,
    "trend": "improving"
  },
  "vocabulary": {
    "current": 82,
    "starting": 75,
    "trend": "improving"
  },
  "grammar": {
```

```
"current": 84,
    "starting": 80,
    "trend": "stable"
},
    "focus": {
        "current": 88,
        "starting": 85,
        "trend": "stable"
},
    "understanding": {
        "current": 89,
        "starting": 88,
        "trend": "stable"
}
}
```

Phase 4: Daily Tasks (Day 1 onwards)

Users complete daily tasks for each modality. Each task follows a similar flow: Get content \rightarrow Start session \rightarrow Complete task \rightarrow Submit \rightarrow Get gamified results.

4.1 Listening Task Flow

Step 1: Get Listening Content for Day N

```
GET /api/v1/listening/day/day{n}
Authorization: Bearer <token>
```

Example: Day 3

```
GET /api/v1/listening/day/day3
```

Step 2: Start Session & Present Audio

```
POST /api/v1/listening/sessions
Authorization: Bearer <token>
{
    "user_id": "550e8400-e29b-41d4-a716-446655440000",
    "day_code": "day3",
    "audio_url": "https://storage.example.com/audio/day3.mp3"
}
```

Step 3: After Audio, Show Questions & Collect Answers

Step 4: Submit Answers & Get Gamified Results

```
POST /api/v1/listening/sessions/{session_id}/submit
Authorization: Bearer <token>

{
    "answers": [...],
    "duration_sec": 300,
    "score_pct": 88,
    "xp_earned": 30,
    "audio_replay_count": 1
}
```

Response (Gamified):

```
{
  "session_id": "uuid",
  "score_pct": 88,
  "xp_earned": 30,
  "skill_mastery_updated": true,
  "badges_earned": [
     {
        "badge_key": "listening_streak_3",
        "title": "3-Day Listening Streak!",
        "earned_at": "2025-01-16T10:35:00Z"
     }
],
```

```
"streak_updated": true,
"current_streak": 3,
"level_up": false,
"message": "Great work! Keep it up! >> ""
```

Display Gamified UI:

4.2 Reading Task Flow

Step 1: Get Reading Content

```
GET /api/v1/reading/day/day5
Authorization: Bearer <token>
```

Response:

```
{
   "reading_id": "uuid",
   "day_code": "day5",
   "title": "Technology and Society",
   "passage": "Full reading passage text...",
   "difficulty_level": "intermediate",
   "questions": [...]
}
```

Step 2: Start Session

```
POST /api/v1/sessions
Authorization: Bearer <token>

{
    "user_id": "550e8400-e29b-41d4-a716-446655440000",
    "modality": "reading",
```

```
"day_code": "day5"
}
```

Step 3: Submit & Get Gamified Results

```
POST /api/v1/sessions/{session_id}/submit
Authorization: Bearer <token>

{
    "answers": [...],
    "duration_sec": 420,
    "score_pct": 92,
    "xp_earned": 35
}
```

Response (Gamified):

4.3 Grammar Task Flow

Step 1: Get Grammar Content

```
GET /api/v1/grammar/day/day7
Authorization: Bearer <token>
```

Step 2: Start Session

```
POST /api/v1/sessions
Authorization: Bearer <token>

{
    "user_id": "550e8400-e29b-41d4-a716-446655440000",
    "modality": "grammar",
    "day_code": "day7"
}
```

Step 3: Submit & Get Gamified Results

```
POST /api/v1/sessions/{session_id}/submit
Authorization: Bearer <token>

{
    "answers": [...],
    "duration_sec": 180,
    "score_pct": 95,
    "xp_earned": 40
}
```

Response (Gamified):

```
{
  "session_id": "uuid",
  "score_pct": 95,
  "xp_earned": 40,
  "badges_earned": [],
  "streak_updated": true,
  "current_streak": 7,
  "message": "Excellent grammar skills! "> "
```

4.4 Speaking Task Flow

Step 1: Get Speaking Topic

```
GET {WRITING_SPEAKING_API_BASE}/api/v1/speaking/day/day1
Authorization: Bearer <token>
```

```
{
    "speaking_id": "uuid",
```

```
"day_code": "day1",
"topic": "Introduce yourself and talk about your hobbies",
"teaching_mode_code": "conversation",
"difficulty_level": "beginner",
"duration_minutes": 5,
"prompts": [
    "What's your name?",
    "Where are you from?",
    "What are your hobbies?"
]
```

Step 2: User Completes Speaking Exercise

Step 3: Evaluate Speaking Performance

```
POST {WRITING_SPEAKING_API_BASE}/speaking/evaluate
Authorization: Bearer <token>
Content-Type: application/json

{
    "session_id": "speaking-session-uuid",
    "language": "english",
    "user_level": "intermediate",
    "user_id": "550e8400-e29b-41d4-a716-446655440000",
    "save_evaluation": true
}
```

Response (Gamified):

```
"evaluation_id": "uuid",
"session_id": "speaking-session-uuid",
"total_turns": 25,
"overall_score": 85,
"scores": {
  "fluency": 82,
  "pronunciation": 88,
  "vocabulary": 83,
  "grammar": 84,
  "coherence": 87,
  "comprehension": 86
},
"strengths": [
  "Excellent conversational flow",
  "Clear pronunciation",
  "Good vocabulary range"
],
"improvements": [
  "Work on complex sentence structures",
```

```
"Expand idiomatic expressions"
 ],
 "suggestions": [
   "Practice with native speakers daily",
   "Listen to English podcasts",
    "Record and review your speaking"
 ],
 "conversation_summary": "Discussed daily routines and hobbies. Great
engagement!",
  "feedback_summary": "Excellent progress! Keep practicing complex
structures.",
 "fluency_level": "intermediate",
 "vocabulary_range": "good",
 "created_at": "2025-01-16T14:00:00Z",
 "xp_earned": 35,
 "badges": [
      "badge_key": "speaker_pro",
      "title": "Speaker Pro"
 ]
}
```

Display Gamified UI:

4.5 Writing Task Flow

Step 1: Get Writing Prompt

```
GET {WRITING_SPEAKING_API_BASE}/api/v1/writing/day/day1
Authorization: Bearer <token>
```

Response:

```
{
  "writing_id": "uuid",
  "day_code": "day1",
  "prompt": "Describe your favorite place and why you love it.",
  "writing_type": "descriptive",
  "word_limit": 200,
  "difficulty_level": "intermediate"
}
```

Step 2: User Writes Response

Step 3: Evaluate Writing

```
POST {WRITING_SPEAKING_API_BASE}/writing/evaluate
Authorization: Bearer <token>
Content-Type: application/json

{
    "text": "User's written text here...",
    "language": "english",
    "writing_type": "descriptive",
    "user_level": "intermediate",
    "user_id": "550e8400-e29b-41d4-a716-446655440000",
    "save_evaluation": true
}
```

Response (Gamified):

```
{
  "evaluation_id": "uuid",
  "original_text": "User's written text...",
  "scores": {
     "grammar": 88,
     "vocabulary": 82,
     "coherence": 85,
     "style": 78,
     "clarity": 90,
     "engagement": 84
},
  "overall_score": 85,
  "strengths": [
     "Clear sentence structure",
```

```
"Rich descriptive vocabulary",
    "Strong opening statement"
 ],
 "improvements": [
   "Use more transitional phrases",
   "Vary sentence length",
   "Strengthen conclusion"
 ],
  "suggestions": [
   "Practice using connectors",
   "Read examples of strong conclusions",
   "Use active voice more"
 ],
 "improved_version": "Enhanced version of the text...",
 "feedback_summary": "Great descriptive writing! Work on transitions.",
 "created_at": "2025-01-16T13:00:00Z",
 "xp_earned": 35,
  "badges": [
   {
      "badge_key": "writer_star",
      "title": "Writing Star"
    }
 ]
}
```

Display Gamified UI:

4.6 Get Aggregate Session Results

After completing all tasks for a day, show the aggregate summary:

Get Daily Summary

```
GET /api/v1/users/{user_id}/daily-progress
Authorization: Bearer <token>
```

Response:

```
{
  "user_id": "550e8400-e29b-41d4-a716-446655440000",
  "date": "2025-01-16",
  "xp_earned": 175,
  "sessions_completed": 5,
  "time_spent_sec": 2100,
  "perfect_day": true,
  "goals_met": ["all_modalities", "daily_xp_goal"],
  "modality_scores": {
    "listening": 88,
    "reading": 92,
    "grammar": 95,
    "writing": 85,
    "speaking": 85
},
  "overall_average": 89
}
```

Display Aggregate UI:

```
Date: January 16, 2025
Time Spent: 35 minutes

IN SCORES:
Listening: 88% ☆☆☆☆
Reading: 92% ☆☆☆☆☆
Grammar: 95% ☆☆☆☆☆
Writing: 85% ☆☆☆☆
Speaking: 85% ☆☆☆☆

Overall Average: 89%

▼ Total XP: +175 XP
Streak: 7 days

→ PERFECT DAY! All modalities completed!
```

Error Handling

Common Error Responses

400 Bad Request

```
{
   "detail": "Invalid day code format. Use 'dayN' (e.g., 'day1', 'day10')"
}
```

401 Unauthorized

```
{
   "detail": "Not authenticated. Please provide a valid token."
}
```

403 Forbidden

```
{
  "detail": "Cannot access another user's data"
}
```

404 Not Found

```
{
   "detail": "Content not found for day91"
}
```

500 Internal Server Error

```
{
   "detail": "An error occurred while processing your request"
}
```

Error Handling Best Practices

```
async function fetchData(url, options) {
  try {
   const response = await fetch(url, options);
}
```

```
if (!response.ok) {
      const error = await response.json();
      switch (response.status) {
        case 400:
          throw new Error(`Validation Error: ${error.detail}`);
        case 401:
          // Redirect to login
          window.location.href = '/login';
          break;
        case 403:
          throw new Error('Access Denied');
        case 404:
          throw new Error('Resource Not Found');
        case 500:
          throw new Error('Server Error. Please try again later.');
        default:
          throw new Error(`Error: ${error.detail}`);
      }
    }
    return await response.json();
  } catch (error) {
    console.error('API Error:', error);
    // Show user-friendly error message
    showErrorNotification(error.message);
    throw error;
  }
}
```

Complete Code Examples

JavaScript Integration Example

```
class ZiyaLRGClient {
  constructor(baseUrl, writingSpeakingUrl, token) {
    this.lrgBase = baseUrl;
    this.wsBase = writingSpeakingUrl;
    this.token = token;
}

async request(url, options = {}) {
  const defaultOptions = {
    headers: {
        'Authorization': `Bearer ${this.token}`,
        'Content-Type': 'application/json',
        ...options.headers
    }
};
```

```
const response = await fetch(url, { ...defaultOptions, ...options });
    if (!response.ok) {
      const error = await response.json();
      throw new <a href="Error">Error</a>(error.detail | 'Request failed');
   return await response.json();
  }
  // ===== INITIAL ASSESSMENT (Day 91) =====
  async getListeningAssessment() {
    return this.request(`${this.lrgBase}/listening/day/day91`);
  async startListeningSession(userId, dayCode, audioUrl) {
    return this.request(`${this.lrgBase}/listening/sessions`, {
      method: 'POST',
      body: JSON.stringify({ user_id: userId, day_code: dayCode, audio_url:
audioUrl })
   });
  async submitListeningSession(sessionId, answers, duration, score, xp,
replayCount) {
    return
this.request(`${this.lrgBase}/listening/sessions/${sessionId}/submit`, {
      method: 'POST',
      body: JSON.stringify({
        answers,
        duration_sec: duration,
        score_pct: score,
        xp_earned: xp,
        audio_replay_count: replayCount
      })
    });
  async getReadingAssessment() {
    return this.request(`${this.lrgBase}/reading/day/day91`);
  async startReadingSession(userId, dayCode) {
    return this.request(`${this.lrgBase}/sessions`, {
      method: 'POST',
      body: JSON.stringify({ user_id: userId, modality: 'reading', day_code:
dayCode })
    });
  }
  async submitSession(sessionId, answers, duration, score, xp) {
    return this.request(`${this.lrgBase}/sessions/${sessionId}/submit`, {
      method: 'POST',
      body: JSON.stringify({
```

```
answers,
        duration_sec: duration,
        score_pct: score,
        xp_earned: xp
      })
   });
  }
  async getGrammarAssessment() {
    return this.request(`${this.lrgBase}/grammar/day/day91`);
  }
 async startGrammarSession(userId, dayCode) {
    return this.request(`${this.lrgBase}/sessions`, {
      method: 'POST',
      body: JSON.stringify({ user_id: userId, modality: 'grammar', day_code:
dayCode })
    });
 async saveWritingSelfEvaluation(userId, scores, userLevel = 'intermediate')
{
    return this.request(`${this.wsBase}/writing/evaluation/self-save`, {
      method: 'POST',
      body: JSON.stringify({ user_id: userId, scores, user_level: userLevel
})
   });
 }
 async saveSpeakingSelfEvaluation(userId, sessionId, scores, userLevel =
'intermediate') {
    return this.request(`${this.wsBase}/speaking/evaluation/self-save`, {
      method: 'POST',
      body: JSON.stringify({ user_id: userId, session_id: sessionId, scores,
user level: userLevel })
   });
  }
 // ==== ASSESSMENT RESULTS =====
 async getMasteryOverview(userId) {
   return this.request(`${this.lrgBase}/users/${userId}/mastery-overview`);
 }
 async getWritingCompetencies(userId, days = 1) {
    return this.request(`${this.wsBase}/writing/competencies?
user_id=${userId}&days=${days}`);
 }
 async getSpeakingCompetencies(userId, days = 1) {
    return this.request(`${this.wsBase}/speaking/competencies?
user_id=${userId}&days=${days}`);
 }
 // ===== DASHBOARD =====
```

```
async getDashboardSummary(window = '7d') {
    return this.request(`${this.lrgBase}/dashboard/summary?
window=${window}`);
  }
 async getStreak(userId) {
   return this.request(`${this.lrgBase}/users/${userId}/streak`);
 }
 // ===== COMPETENCIES BY DAY =====
 async getListeningCompetencies(userId, dayCode) {
    return
this.request(`${this.lrgBase}/users/${userId}/competencies/listening/day/${da
yCode}`);
 }
  async getReadingCompetencies(userId, dayCode) {
this.request(`${this.lrgBase}/users/${userId}/competencies/reading/day/${dayC
ode}`);
  }
 async getGrammarCompetencies(userId, dayCode) {
this.request(`${this.lrgBase}/users/${userId}/competencies/grammar/day/${dayC
ode}`);
 }
 // ===== PROGRESS TRACKING =====
 async getListeningProgress(userId, fromDay, toDay) {
    return this.request(`${this.lrgBase}/listening/users/${userId}/progress?
from_day=${fromDay}&to_day=${toDay}`);
 }
  async getReadingProgress(userId, fromDay, toDay) {
    return this.request(`${this.lrgBase}/users/${userId}/skills/progress?
modality=reading&from_day=${fromDay}&to_day=${toDay}`);
 }
 async getGrammarProgress(userId, fromDay, toDay) {
    return this.request(`${this.lrgBase}/users/${userId}/skills/progress?
modality=grammar&from_day=${fromDay}&to_day=${toDay}`);
 }
 async getWritingProgress(userId, days = 30) {
   return this.request(`${this.wsBase}/writing/progress?
user id=${userId}&days=${days}`);
 }
  async getSpeakingProgress(userId, days = 30) {
    return this.request(`${this.wsBase}/speaking/progress?
user_id=${userId}&days=${days}`);
```

```
// ===== DAILY TASKS =====
 async getListeningContent(dayCode) {
   return this.request(`${this.lrgBase}/listening/day/${dayCode}`);
 }
 async getReadingContent(dayCode) {
   return this.request(`${this.lrgBase}/reading/day/${dayCode}`);
 }
 async getGrammarContent(dayCode) {
   return this.request(`${this.lrgBase}/grammar/day/${dayCode}`);
 }
 async getSpeakingTopic(dayCode) {
   return this.request(`${this.wsBase}/api/v1/speaking/day/${dayCode}`);
 }
 async getWritingPrompt(dayCode) {
   return this.request(`${this.wsBase}/api/v1/writing/day/${dayCode}`);
 async evaluateSpeaking(sessionId, language = 'english', userLevel =
'intermediate', userId, save = true) {
   return this.request(`${this.wsBase}/speaking/evaluate`, {
     method: 'POST',
     body: JSON.stringify({
       session_id: sessionId,
       language,
       user_level: userLevel,
       user_id: userId,
       save_evaluation: save
     })
   });
 }
 async evaluateWriting(text, writingType = 'general', userLevel =
'intermediate', userId, save = true) {
   return this.request(`${this.wsBase}/writing/evaluate`, {
     method: 'POST',
     body: JSON.stringify({
       text,
       language: 'english',
       writing type: writingType,
       user_level: userLevel,
       user_id: userId,
       save_evaluation: save
     })
   });
 async getDailyProgress(userId) {
   return this.request(`${this.lrgBase}/users/${userId}/daily-progress`);
```

```
}
// Usage Example
const client = new ZiyaLRGClient(
  'http://localhost:8080/api/v1',
  'https://writing-speaking-api.example.com',
  'your-iwt-token'
);
// Initial Assessment Flow
async function runInitialAssessment(userId) {
 trv {
   // 1. Listening
    const listeningContent = await client.getListeningAssessment();
    const listeningSession = await client.startListeningSession(userId,
'day91', listeningContent.audio url);
   // ... user completes task ...
    const listeningResult = await client.submitListeningSession(
      listeningSession.session_id,
      answers,
      300,
      85,
      30,
      2
    );
    // 2. Reading
    const readingContent = await client.getReadingAssessment();
    const readingSession = await client.startReadingSession(userId, 'day91');
    // ... user completes task ...
    const readingResult = await
client.submitSession(readingSession.session_id, answers, 420, 88, 35);
    // 3. Grammar
    const grammarContent = await client.getGrammarAssessment();
    const grammarSession = await client.startGrammarSession(userId, 'day91');
    // ... user completes task ...
    const grammarResult = await
client.submitSession(grammarSession.session_id, answers, 240, 90, 38);
    // 4. Writing Self-Evaluation
    const writingScores = {
      grammar: 75,
      vocabulary: 70,
      coherence: 80,
      style: 65,
      clarity: 78,
      engagement: 72
    }:
    const writingResult = await client.saveWritingSelfEvaluation(userId,
writingScores);
    // 5. Speaking Self-Evaluation
    const speakingScores = {
```

```
fluency: 78,
      pronunciation: 82,
      vocabulary: 75,
      grammar: 80,
      focus: 85,
      understanding: 88
    }:
    const speakingResult = await client.saveSpeakingSelfEvaluation(userId,
sessionId, speakingScores);
    // 6. Get Aggregate Report
    const masteryOverview = await client.getMasteryOverview(userId);
    const writingComp = await client.getWritingCompetencies(userId, 1);
    const speakingComp = await client.getSpeakingCompetencies(userId, 1);
    // Display results
    displayAssessmentResults({
      listening: masteryOverview.listening.overall_mastery_pct,
      reading: masteryOverview.reading.overall_mastery_pct,
      grammar: masteryOverview.grammar.overall_mastery_pct,
      writing: writingComp.overall score,
      speaking: speakingComp.overall_score
    });
  } catch (error) {
    console.error('Assessment error:', error);
    showErrorMessage(error.message);
 }
}
```

Python Integration Example

```
import requests
from typing import Dict, List, Optional
class ZiyaLRGClient:
    def __init__(self, lrg_base_url: str, ws_base_url: str, token: str):
        self.lrg_base = lrg_base_url
        self.ws_base = ws_base_url
        self.headers = {
            'Authorization': f'Bearer {token}',
            'Content-Type': 'application/json'
        }
    def _request(self, url: str, method: str = 'GET', data: Optional[Dict] =
None) -> Dict:
        """Make HTTP request"""
        try:
            if method == 'GET':
                response = requests.get(url, headers=self.headers)
            elif method == 'POST':
                response = requests.post(url, headers=self.headers,
```

```
json=data)
            response.raise_for_status()
            return response.json()
        except requests.exceptions.HTTPError as e:
            print(f"HTTP Error: {e}")
            raise
        except Exception as e:
            print(f"Error: {e}")
            raise
    # Assessment Methods
    def get listening assessment(self) -> Dict:
        return self._request(f"{self.lrg_base}/listening/day/day91")
    def start_listening_session(self, user_id: str, day_code: str, audio_url:
str) -> Dict:
        return self._request(
            f"{self.lrg_base}/listening/sessions",
            method='POST',
            data={'user_id': user_id, 'day_code': day_code, 'audio_url':
audio_url}
    def submit_listening_session(self, session_id: str, answers: List[Dict],
                                 duration: int, score: int, xp: int,
replay_count: int) -> Dict:
        return self. request(
            f"{self.lrg_base}/listening/sessions/{session_id}/submit",
            method='POST',
            data={
                'answers': answers,
                'duration_sec': duration,
                'score_pct': score,
                'xp_earned': xp,
                'audio_replay_count': replay_count
            }
        )
    def get_mastery_overview(self, user_id: str) -> Dict:
        return self._request(f"{self.lrg_base}/users/{user_id}/mastery-
overview")
    def get_dashboard_summary(self, window: str = '7d') -> Dict:
        return self._request(f"{self.lrg_base}/dashboard/summary?window=
{window}")
    def get_listening_competencies(self, user_id: str, day_code: str) ->
Dict:
        return self. request(
{self.lrg_base}/users/{user_id}/competencies/listening/day/{day_code}"
    def get_daily_progress(self, user_id: str) -> Dict:
```

```
return self._request(f"{self.lrg_base}/users/{user_id}/daily-
progress")

# Usage
client = ZiyaLRGClient(
    'http://localhost:8080/api/v1',
    'https://writing-speaking-api.example.com',
    'your-jwt-token'
)

# Get dashboard
dashboard = client.get_dashboard_summary()
print(f"Streak: {dashboard['streak_days']} days")
print(f"Total XP: {dashboard['xp']['total']}")
```

Summary Table: All Endpoints

Dhace

Endnaint

Phase	Endpoint	Method	Purpose
Assessment	/listening/day/day91	GET	Get listening assessment content
	/listening/sessions	POST	Start listening session
	/listening/sessions/{id}/submit	POST	Submit listening answers
	/reading/day/day91	GET	Get reading assessment content
	/sessions	POST	Start reading/grammar session
	/sessions/{id}/submit	POST	Submit reading/grammar answers
	/grammar/day/day91	GET	Get grammar assessment content
	/writing/evaluation/self-save	POST	Save writing self-evaluation
	/speaking/evaluation/self-save	POST	Save speaking self-evaluation

Phase	Endpoint	Method	Purpose
Results	/users/{id}/mastery-overview	GET	Get LRG mastery overview
	/writing/competencies	GET	Get writing competencies
	/speaking/competencies	GET	Get speaking competencies
Dashboard	/dashboard/summary	GET	Get dashboard overview
	/users/{id}/streak	GET	Get streak information
Competencies	/users/{id}/competencies/{modality}/day/{day}	GET	Get competencies for specific day
Progress	/listening/users/{id}/progress	GET	Get listening progress
	/users/{id}/skills/progress	GET	Get reading/grammar progress
	/writing/progress	GET	Get writing progress
	/speaking/progress	GET	Get speaking progress
Daily Tasks	/listening/day/{dayN}	GET	Get listening content
	/reading/day/{dayN}	GET	Get reading content
	/grammar/day/{dayN}	GET	Get grammar content
	/speaking/day/{dayN}	GET	Get speaking topic
	/writing/day/{dayN}	GET	Get writing prompt
	/speaking/evaluate	POST	Evaluate speaking performance
	/writing/evaluate	POST	Evaluate writing performance

Phase	Endpoint	Method	Purpose
	/users/{id}/daily-progress	GET	Get daily summary

End of Documentation

For support or questions, contact the development team.