

Setup & Installation Guide

What is StudyBuddy Phase 3?

Phase 3 focuses on the Quizzes & Flashcards features with advanced database optimization and security.

System Requirements

Before you start, make sure you have:

Software Requirements

- Python 3.8+ - For backend
- Node.js 16+ - For frontend
- MySQL 8.0+ - For database
- Git - For version control
- npm - Package manager (comes with Node.js)
- pip - Python package manager (comes with Python)

Hardware Requirements

- At least 2GB RAM
- 500MB free disk space
- Internet connection (for downloads)

How to Check Your Versions

```
# Check Python
```

If any are missing, install them first.

Installation Steps

Step 1: Clone the Repository

```
# Clone from GitHub
```

Step 2: Create MySQL Database

Open MySQL and run:

```
CREATE DATABASE IF NOT EXISTS StudyBuddy;
```

Then load the schemas:

```
# Navigate to schema directory
```

Step 3: Set Up Environment Variables

Copy the example environment file:

```
cd "Project phase 3/backend"
```

Edit .env and set your MySQL credentials:

```
MYSQL_HOST=localhost
```

Step 4: Run Everything with One Command

```
# Go back to root directory
```

Running Separately (If Needed)

Run Backend Only

```
cd "Project phase 3/backend"
```

Backend will start on <http://127.0.0.1:8001>

Run Frontend Only (In Another Terminal)

```
cd "Project phase 3/frontend"
```

Frontend will start on <http://127.0.0.1:5173>

Accessing the Application

Using the App

- Open browser: <http://127.0.0.1:5173>
- You'll see the login page
- Email: admin

- Password: admin
- Click "Take Quiz" or "Create Flashcard Set"
- Enjoy! ■

API Endpoints (For Testing)

If you want to test the API directly:

Base URL: `http://127.0.0.1:8001`

Create Quiz:

```
POST /quiz/create
```

List Quizzes:

```
GET /quiz/quizzes
```

Submit Quiz:

```
POST /quiz/submit
```

See `API_DOCUMENTATION.md` for complete endpoint reference.

Troubleshooting

Problem: "MySQL connection failed"

Problem: "Python: command not found"

Problem: "npm: command not found"

Problem: "Port 5173 already in use"

Problem: "Admin user already exists" warning

Problem: "CORS error" in console

Project Structure

```
Study_Buddy_hub/
```

Features Implemented

Quizzes

- ■ Create quizzes with questions and answers
- ■ View list of quizzes (with pagination)
- ■ Take quizzes and get instant scores
- ■ Automatic score calculation
- ■ ACID transaction safety

Flashcards

- ■ Create flashcard sets with cards
- ■ Browse flashcard sets (with pagination)
- ■ Practice flashcards with flip animation
- ■ Auto-refresh when creating new sets
- ■ ACID transaction safety

Advanced Features

- ■ ACID transactions (all-or-nothing operations)
- ■ Parametrized SQL queries (security)
- ■ N+1 query optimization (performance)
- ■ Pagination (scalability)
- ■ Session-based authentication

Performance Metrics

Security Features

- ■ Password hashing
- ■ SQL injection prevention (parametrized queries)
- ■ Session-based authentication
- ■ CORS protection
- ■ Input validation

Getting Help

Documentation Files

- README.md - Quick start guide
- API_DOCUMENTATION.md - All API endpoints
- ADVANCEDDATABASEFEATURES.md - Technical details
- PERFORMANCE_ANALYSIS.md - Optimization details
- ALL_CHANGES.txt - What was modified

Testing the App

- Login with admin/admin
- Create a quiz
- Create a flashcard set
- Take the quiz
- Practice flashcards

GitHub

Visit: <https://github.com/VivekReddy10-08-2004/StudyBuddyhub>

Check the vivek_phase_3 branch for all Phase 3 code.

Next Steps

After installation:

- Login and create a quiz
- Try the flashcard feature
- Take a quiz and see your score
- Check backend/app.py for main logic
- Check frontend/src/pages/ for UI
- Check backend/utils/transactions.py for ACID implementation
- Use the API endpoints to test

- Try creating and submitting quizzes
- Try flashcard creation and practice
- Change admin password
- Add more quiz questions
- Modify frontend colors/styling

Summary

StudyBuddy Phase 3 is now installed and ready to use!

Enjoy using StudyBuddy.

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