BazmApp User Manual

Community Hub & AI Assistant

Bazm-e-Paigham Development Team

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Contents

1 Introduction

1.1 About BazmApp

BazmApp is a comprehensive desktop/mobile application designed to digitalize the operations of the Bazm-e-Paigham student community. The application streamlines event management, reporting, announcements, and provides AI-powered assistance to community members.

1.2 Key Features

- Role-based user authentication system
- Digital oath system for new members
- Event creation and registration management
- Community announcements board
- Advanced reporting system for administrators
- AI-powered chatbot assistant (Gemini 2.5 Flash)
- Real-time notifications and updates

1.3 System Requirements

- **Operating System:** macOS, Windows, or Linux
- **Python Version:** 3.8 or higher
- **RAM:** Minimum 2GB
- **Storage:** 100MB free space
- **Internet Connection:** Required for AI features

2 Getting Started

2.1 Installation

2.1.1 Clone the Repository

```
git clone https://github.com/YOUR_USERNAME/BazmApp.git
cd BazmApp
```

2.1.2 Set Up Virtual Environment

```
python3 -m venv .venv
source .venv/bin/activate  # On Windows: .venv\Scripts\activate
```

2.1.3 Install Dependencies

```
pip install -r requirements.txt
```

2.1.4 Initialize Database

```
python setup_db.py
```

2.1.5 Configure AI Service (Optional)

To enable the AI chatbot:

1. Obtain a Google Gemini API key from `https://aistudio.google.com/app/apikey`
2. Open `logic/ai_service.py`
3. Replace `API_KEY="InsertAPIkeyhere"` with your actual key
4. Save the file

2.2 Running the Application

```
python main.py
```

3 User Roles and Permissions

3.1 Role Hierarchy

BazmApp implements a hierarchical role-based access control system:

1. **Admin/Rukan:** Full system privileges including user management, event creation, report viewing, and announcement posting
2. **Member/Rafeeq:** Standard user access including event viewing and registration, announcement viewing, and AI chatbot access

3.2 Permission Matrix

Feature	Admin	Member
View Events	✓	✓
Create Events	✓	×
Register for Events	✓	✓
View Announcements	✓	✓
Post Announcements	✓	×
Submit Reports	✓	×
View Reports	✓	×
AI Chatbot Access	✓	✓

4 Feature Guide

4.1 User Authentication

4.1.1 Registration

1. Launch BazmApp
2. Click on **"Sign Up"**
3. Fill in the registration form:
   - Email address
   - Password (minimum 6 characters)
   - Select role: Member or Admin
4. Click **"Register"**
5. You will be redirected to the Oath screen

4.1.2 Digital Oath System

First-time users must complete the digital oath before accessing the main dashboard:

1. Read the three pledges carefully:
   - I will offer my five daily prayers regularly
   - I will obey my superiors in all rightful matters
   - I will devote myself to the service of Islam and Pakistan
2. Check all three checkboxes
3. Click **"Submit Oath"**
4. You will be redirected to the main dashboard

Note: The oath is required only once per user account.

4.1.3 Login

1. Launch BazmApp
2. Enter your registered email and password
3. Click **"Login"**
4. If you haven't taken the oath, you will be directed to the Oath screen
5. Otherwise, you will access the main dashboard

4.2 Dashboard Navigation

The main dashboard consists of four tabs accessible to all users:

- **Events:** View and register for community events
- **Announcements:** Read community news and updates
- **Reports:** (Admin only) Submit and view community reports
- **Bazm AI:** Interact with the AI assistant

4.3 Event Management

4.3.1 Viewing Events (All Users)

1. Navigate to the **Events** tab
2. Browse the list of upcoming events
3. Each event displays:
    - Event title
    - Date and time
    - Location
    - Description

4.3.2 Event Registration (All Users)

1. Find the event you want to attend
2. Click the **"Register"** button
3. The button will change to **"Registered"** and become disabled
4. You will receive a confirmation notification

Note: You cannot unregister from an event through the interface. Contact an administrator if you need to cancel your registration.

4.3.3 Creating Events (Admin Only)

1. Navigate to the **Events** tab
2. Click the **(+)** button in the top-right corner
3. Fill in the event creation form:
    - Event Title
    - Date and Time (format: YYYY-MM-DD HH:MM)
    - Location
    - Description
4. Click **"Create Event"**
5. The new event will appear immediately in the events list

4.4 Announcements

4.4.1 Viewing Announcements (All Users)

1. Navigate to the **Announcements** tab
2. Browse the latest community news
3. Each announcement shows:
   - Title
   - Content
   - Timestamp
4. Scroll down to see older announcements

4.4.2 Posting Announcements (Admin Only)

1. Navigate to the **Announcements** tab
2. Scroll to the top of the page
3. Fill in the announcement form:
   - Title: Brief headline for the announcement
   - Content: Detailed message or information
4. Click **”Post Announcement”**
5. Your announcement will appear at the top of the feed

4.5 Reporting System (Admin Only)

4.5.1 Accessing Reports

1. Navigate to the **Reports** tab
2. **Note:** This tab is only visible to Admin users

4.5.2 Submitting a Report

The reporting system captures comprehensive community data:

1. **Afraadsazi Section:**
   - Enter counts for Members, Shaheen, and Rufaqa
2. **Units Section:**
   - Enter counts for Baqaida, Zaili, and Raabta
3. **Programs Section:**
   - Add program entries dynamically

   - Click **”+Add Program”** to add more rows
   - Enter program name and participant count

4. Click **”Submit Report”**

5. Data is stored in JSON format in the database

4.6 AI Chatbot (Bazm AI)

4.6.1 Overview

Bazm AI is powered by Google’s Gemini 2.5 Flash model and provides context-aware assistance by accessing real-time data from the BazmApp database.

4.6.2 Using the Chatbot

1. Navigate to the **Bazm AI** tab

2. Type your question in the text input field

3. Click **”Send”** or press Enter

4. Wait for the AI response (typically 2-5 seconds)

5. The AI will provide a helpful answer based on:
   - Current events in the database
   - Recent announcements
   - Community terminology and context

4.6.3 Sample Questions

- ”What events are coming up?”
- ”Tell me about the latest announcements”
- ”When is the next community meeting?”
- ”What is the role of a Rukan?”
- ”How do I register for an event?”

4.6.4 AI Capabilities

- Answers questions about events and announcements
- Explains community terminology (Rukan, Rafeeq, etc.)
- Provides guidance on using BazmApp features
- Responds in a polite, culturally appropriate manner
- Uses ”Assalam-o-Alaikum” greetings when appropriate

5 Troubleshooting

5.1 Common Issues

5.1.1 Application Won't Start

Problem: Error messages when running `python main.py` **Solutions:**

- Ensure virtual environment is activated
- Verify all dependencies are installed: `pip install -r requirements.txt`
- Check Python version: `python --version` (must be 3.8+)

5.1.2 Database Errors

Problem: ”No such table” errors **Solutions:**

- Reinitialize the database: `pythonsetup_db.py`
- Run the fix script: `pythonfix_db.py`
- Delete `bazm_app.db` and run `setup_db.py` again

5.1.3 AI Chatbot Not Working

Problem: AI returns error messages or doesn't respond **Solutions:**

- Verify API key is correctly set in `logic/ai_service.py`
- Check internet connection
- Ensure `google-generativeai` package is installed
- Run test script: `pythonlogic/test_gemini.py`
- Check API quota limits at `https://aistudio.google.com`

5.1.4 Login Issues

Problem: Cannot log in with correct credentials **Solutions:**

- Verify email is correctly typed (case-sensitive)
- Try registering again with a new account
- Check database integrity: `pythonsetup_db.py`

5.1.5 Blank White Screen After Login

Problem: Application shows empty screen after successful login **Solutions:**

- Check terminal for error messages
- Verify database tables exist (run `pythonfix_db.py`)
- Restart the application

6 Technical Architecture

6.1 System Design

BazmApp follows a strict 3-tier layered architecture:

1. **Presentation Layer** (`ui/`): Built with Flet framework, handles all user interface and interactions
2. **Business Logic Layer** (`logic/`): Contains service classes that implement application rules and workflows
3. **Data Layer** (`data/`): Manages SQLite database operations and persistence

6.2 Database Schema

6.2.1 Tables

- **users:** Stores user credentials and role information
- **events:** Contains event details and scheduling
- **registrations:** Links users to events (many-to-many relationship)
- **announcements:** Stores community news and updates
- **reports:** Contains administrative reports in JSON format

6.3 Technology Stack

- **Frontend:** Flet (Python-based cross-platform UI framework)
- **Backend:** Python 3.x
- **Database:** SQLite (serverless, file-based)
- **AI:** Google Gemini API (2.5 Flash model)
- **Authentication:** SHA-256 password hashing

7 Security and Privacy

7.1 Data Protection

- Passwords are hashed using SHA-256 before storage
- Database is stored locally on the user's device
- No sensitive data is transmitted except to Google's Gemini API
- API keys should never be committed to version control

7.2 Best Practices

- Use strong passwords (minimum 6 characters recommended)
- Keep your API key confidential
- Regularly backup the `bazm_app.db` file
- Update dependencies periodically for security patches

8 Frequently Asked Questions

Q: Can I use BazmApp offline? A: Yes, most features work offline. Only the AI chatbot requires an internet connection.

Q: How do I become an Admin? A: Admin status must be selected during registration. Contact the system administrator if you need role changes.

Q: Can I edit or delete events after creation? A: Currently, the application does not support editing. This feature may be added in future updates.

Q: Is my data secure? A: Yes, all passwords are hashed, and data is stored locally on your device. The AI service only accesses event and announcement data.

Q: Why do I need to take an oath? A: The digital oath is a unique feature that reinforces the community's values and commitment. It's required only once per account.

Q: Can I access BazmApp on mobile devices? A: BazmApp is built with Flet, which supports cross-platform deployment. Mobile versions can be compiled but are not included in the current release.

9 Contact and Support

9.1 Development Team

- Abdullah Azzam (Backend/Database) - bscs22143@itu.edu.pk
- Ahmad Mujtaba (Frontend/AI) - bscs22051@itu.edu.pk

9.2 Reporting Issues

- GitHub Issues: `https://github.com/YOUR_USERNAME/BazmApp/issues`
- Email: Contact the development team directly

9.3 Contributing

We welcome contributions! Please:

1. Fork the repository

2. Create a feature branch
3. Submit a pull request with detailed description

10 Appendix

10.1 File Structure

```
BazmApp/
+-- .venv/                  # Virtual environment
+-- data/
|   +-- __init__.py
|   +-- database.py         # Database operations
|   +-- models.py           # Data models
+-- logic/
|   +-- __init__.py
|   +-- ai_service.py       # AI chatbot service
|   +-- auth_service.py     # Authentication
|   +-- event_service.py    # Event management
|   +-- report_service.py   # Reporting system
|   +-- announcement_service.py
+-- ui/
|   +-- views.py            # UI components
|   +-- login_screen.py     # Login interface
+-- main.py                 # Application entry point
+-- setup_db.py             # Database initialization
+-- fix_db.py               # Database repair utility
+-- requirements.txt        # Python dependencies
+-- bazm_app.db             # SQLite database file
```

10.2 Version History

- **v1.0 (Current):** Initial release with core features
  - User authentication and roles
  - Event management
  - Announcements system
  - Reporting system
  - AI chatbot (Gemini 2.5 Flash)
  - Digital oath system

10.3 Planned Features

- Salat (prayer) tracker
- Enhanced e-library integration
- Event editing and deletion

- User profile management
- Email notifications
- Export reports to PDF/Excel
- Advanced analytics dashboard

Thank you for using BazmApp!
For the service of Islam and Pakistan