Google Summer of Code 2025 Proposal

# Project: PersonalAIs – Generative AI Agent for Personalized Music Recommendations

Submitted by: Muneeb Ahmed Khan

# Personal Statement

As a passionate AI student with a strong academic record and a drive for real-world impact, I see music not just as entertainment—but as a powerful emotional companion. My previous work in AI-based recommendation systems for non-profits sparked a realization: personalization, empathy, and technology can come together to create meaningful, human-centered tools.  
  
Through GSoC, I aim to blend my technical expertise and user-first thinking to develop a smart, emotionally aware music recommender that truly resonates with its users—literally and figuratively.

# Synopsis

PersonalAIs is a full-stack conversational AI system that curates music playlists based on users’ moods and preferences. It uses NLP to understand natural language input, leverages generative AI for dynamic interaction, and integrates the Spotify API to access real-time listening data. This AI agent not only makes music recommendations—it understands you.

# Benefits to the Community

This project brings a human touch to AI music recommendation by:  
- Promoting ethical personalization with data opt-out options  
- Demonstrating local AI deployment via lightweight models  
- Empowering open-source developers with a modular music-AI toolkit  
- Building awareness of emotional AI applications in everyday life

# Deliverables

Phase-wise deliverables:  
- Community Bonding: Architecture planning and tech stack finalization  
- Week 1–4: NLP emotion/intent detection module  
- Week 5–7: Spotify API integration  
- Week 8–10: Conversational AI agent for playlist editing  
- Week 11–13: Full-stack chatbot interface development  
- Week 14–16: Real-time playlist tweaks, testing, feedback incorporation  
- Final Week: Documentation, demo, and deployment-ready version

# Architecture Overview

- Frontend (React/Next.js): Chat interface, real-time feedback, mood controls  
- Backend (FastAPI): Manages NLP, AI model calls, and Spotify interactions  
- NLP & AI: Emotion detection using BERT or LLMs, dialogue using GPT2/API  
- Spotify Integration: Authentication, metadata access, playlist management  
- Data Opt-Out Logic: For non-personalized exploration

# Stretch Goals

- Voice input support  
- Audio analysis for emotion tagging of songs  
- Playlist analytics: mood trends, genre spread, etc.

# Why Me?

- Experience: Built AI-based recommendation system during an NGO internship  
- Leadership: CR of class, strong collaboration & decision-making skills  
- Technical Skills: Python, NLP, OpenAI, FastAPI  
- Academic Excellence: CGPA 3.95, currently in 4th semester of BS AI  
- Vision: Focus on empathetic and ethical AI

# Timeline

- May 20 – June 16: Community bonding, planning, feedback from mentors  
- June 17 – July 15: Phase 1 – NLP and Spotify integration  
- July 16 – July 22: Midterm Evaluation  
- July 23 – Aug 15: Phase 2 – Chat interface and playlist tuning  
- Aug 16 – Sept 9: Testing, UI polish, documentation  
- Sept 10 – Sept 16: Final Evaluation and wrap-up

# Future Work

- Add Apple Music, YouTube Music support  
- Plugin architecture for mood datasets  
- Community-driven playlist tweaking events/hackathons

# Contact Information

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