**Emotion-Aware Music and Lyrics Generation System Using Facial Expression Analysis**

**(True Promise To Babi Fatima sa)**

**📌 Phase 1: Project Setup & Research (Days 1–4)**

**Goal:** Define scope, prepare environment, and do background research.

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| Day | Task | Tools | Output |
| 1 | Finalize idea, objectives, deliverables | Notion/Docs | Project proposal |
| 2 | Research face emotion datasets & models | Paperswithcode, Kaggle | Notes on datasets |
| 3 | Install dependencies, test OpenCV, load webcam | Python, OpenCV | Working webcam |
| 4 | Draft SRS (Software Requirements Spec) | Word/LaTeX | SRS.docx |

**📌 Phase 2: Model Development (Days 5–12)**

**Goal:** Build emotion recognition and song/lyrics modules.

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| Day | Task | Tools | Output |
| 5–6 | Train/test emotion recognition (FER2013 or pre-trained CNN) | TensorFlow/Keras | .h5 or .pt model |
| 7 | Create label-to-emotion mapping (e.g., happy, sad) | Python | emotion\_map.py |
| 8–9 | Music recommendation logic using APIs or datasets | Spotify API / CSV | recommend\_song.py |
| 10 | Lyrics generation using Hugging Face model (GPT-2 or similar) | transformers | generate\_lyrics.py |
| 11 | Test full emotion → song/lyrics flow | Python | Working prototype |
| 12 | Write Model Design section in report | Word/LaTeX | report\_section2.docx |

**📌 Phase 3: Integration & UI (Days 13–20)**

**Goal:** Build web interface and integrate components.

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| Day | Task | Tools | Output |
| 13–15 | Build Streamlit/Flask interface for webcam input → emotion → output | Streamlit/Flask | app.py |
| 16 | Display song info / play via YouTube embed or lyrics on screen | YouTube Embed / Text | UI Update |
| 17 | Store logs and outputs in local DB (optional) | SQLite/MongoDB | db.py |
| 18 | Improve UI with buttons, emojis, colors | Streamlit | Final interface |
| 19–20 | Write System Architecture, Interface Design in report | Word | report\_section3.docx |

**📌 Phase 4: Testing, Documentation, and Final Report (Days 21–30)**

**Goal:** Polish, test, document, and prepare for submission.

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| Day | Task | Tools | Output |
| 21 | Test all modules for errors | Manual/Unit testing | test\_results.txt |
| 22–23 | Write Evaluation & Results, take screenshots | Word | report\_section4.docx |
| 24 | Add future work, limitations | Word | report\_section5.docx |
| 25 | Final report assembly | Word/LaTeX | Final\_Report.pdf |
| 26 | Create PPT slides | PowerPoint | FYP\_Presentation.pptx |
| 27–28 | Record demo video or prepare live demo | OBS/Phone | demo.mp4 |
| 29 | Submit report and project | GitHub/Google Drive | ✅ |
| 30 | Backup & Review | Notion/Git | ✅ |

**📄 Project Documents to Prepare:**

1. ✅ Project Proposal (1–2 pages)
2. ✅ Software Requirement Specification (SRS)
3. ✅ Final Report (~20–25 pages: Intro, Methodology, Results, Conclusion)
4. ✅ Presentation Slides (10–12 slides)
5. ✅ Demo Video (optional, 1–2 minutes)
6. ✅ Timeline (09 May to 12 Jun)