Software Metrics Report

Project: Deepfake Detection System using MesoNet

Team Members IDs: 59, 54, 61, 65

Course: Software Engineering

Date: May 04, 2025

# 1. Lines of Code (LOC)

Total: **1050 LOC**

| **Module** | **LOC** |
| --- | --- |
| Flask App + Routes | 450 |
| MesoNet Integration | 250 |
| HTML/CSS Frontend | 150 |
| Database Integration | 100 |
| Utility Functions | 100 |

# 2. Function Point (FP) Analysis

* External Inputs (EI): 3 × 4 = 12
* External Outputs (EO): 3 × 5 = 15
* External Inquiries (EQ): 2 × 4 = 8
* Internal Logical Files (ILF): 2 × 7 = 14
* External Interface Files (EIF): 1 × 5 = 5
* **Total Unadjusted FP:** 54
* **Final FP (adjusted):** ≈ 60 FP  
    
  Final Function Point = 54 × Adjustment Factor ≈ 60 FP (Assuming factor = 1.1)

# 3. Cyclomatic Complexity

* Image Upload & Prediction: 5
* Video Upload & Frame Analysis: 8
* DB Logging: 3
* Error Handling: 4
* **Average Range:** 5–8

# 4. Defect Density

* Total Defects: 3
* LOC: 1050
* **Defect Density:** 2.86 defects/KLOC

# 5. Code Coverage

Code Coverage (manual estimation): ~80%  
Coverage includes core logic, model interface, upload and logging.

# 6. COCOMO Estimation

Effort Applied (E): 2.4 × (1.05)^1.05 ≈ 2.53 person-months  
Development Time (D): 2.5 × (2.53)^0.38 ≈ 3.3 months  
People Required (P): 2.53 / 3.3 ≈ 0.76 (You had 4 part-time people)

# 7. Risk Metrics

| **Risk ID** | **Description** | **Likelihood** | **Impact** | **Status** |
| --- | --- | --- | --- | --- |
| R1 | Model not accurate | Medium | High | Mitigated |
| R2 | Large video crashes app | Medium | Medium | Resolved |
| R3 | Deployment delays | Low | Medium | Avoided |
| R4 | Missing DB entries | Medium | Medium | Resolved |

# 8. Effort Distribution

| **Phase** | **Percentage** |
| --- | --- |
| Requirement Analysis | 10% |
| Design | 15% |
| Development | 45% |
| Testing | 20% |
| Documentation | 10% |

# People Metrics

# Team Size:

* + Total team members: 4 (Members 59, 54, 61, 65)

# Team Productivity:

* + **Code Contribution (by person):**
    - Member 59: 30%
    - Member 54: 25%
    - Member 61: 25%
    - Member 65: 20%

# Development Effort:

* + **Total Effort (Person-Months):** 2.53 person-months (calculated using COCOMO model)
  + **Effort Distribution:**
    - Requirement Analysis: 10%
    - Design: 15%
    - Development: 45%
    - Testing: 20%
    - Documentation: 10%

# Team Skills:

* + Members with deep learning experience: 2
  + Members with web development experience: 3
  + Members with database integration skills: 2

# Team Collaboration:

* + **Communication Efficiency (self-assessed):** 80% (based on weekly updates)
  + **Collaboration Tools:** GitHub for version control, Slack for team communication