PROJECT PLANNING PHASE

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| --- | --- |
| Date | 15 February 2025 |
| Team ID | LTVIP2025TMID20355 |
| Project Name | PATTERN SENSE |
| Maximum Marks | 5 Marks |

**Project Planning Phase – Pattern Sense**

**👥 Team Composition**

| **Team Member** | **Role** | **Skills Utilized** |
| --- | --- | --- |
| **Member 1** | Data Engineer | Python, Data Preprocessing Techniques |
| **Member 2** | Deep Learning Engineer | TensorFlow, Deep Learning |
| **Member 3** | Frontend/Integration Developer | Python (Flask/Django), REST APIs, UI Integration |
| **Member 4** | Project Manager & QA | Project Coordination, Testing, Documentation |

**🧩 Phase 1: Requirement Analysis (Week 1)**

**Objective**: Understand functional and technical requirements.

| **Task** | **Responsible** | **Deliverables** |
| --- | --- | --- |
| Gather domain-specific pattern types | Project Manager | Requirements document |
| Define classification categories (e.g., stripes, floral) | Data Engineer & PM | Label schema |
| Define dataset source and licensing | Project Manager | Dataset shortlist |
| Define performance benchmarks | All | Evaluation metrics draft |

**🧪 Phase 2: Data Collection & Preprocessing (Week 2–3)**

**Objective**: Gather and prepare data for training.

| **Task** | **Responsible** | **Deliverables** |
| --- | --- | --- |
| Collect and curate labeled fabric pattern images | Data Engineer | Raw dataset |
| Clean, augment, and preprocess data | Data Engineer | Processed dataset |
| Split data into training, validation, test sets | Data Engineer | Data pipeline script |
| Store data in accessible format (TFRecord/NumPy) | Data Engineer | Data storage format |

**🧠 Phase 3: Model Development (Week 4–6)**

**Objective**: Build and train deep learning model for classification.

| **Task** | **Responsible** | **Deliverables** |
| --- | --- | --- |
| Select baseline model (CNN, ResNet, etc.) | Deep Learning Engineer | Baseline model |
| Build and train model using TensorFlow | Deep Learning Engineer | Training script, model weights |
| Evaluate model using validation set | Deep Learning Engineer | Training logs, performance report |
| Tune hyperparameters and apply regularization | Deep Learning Engineer | Final trained model |

**🌐 Phase 4: System Integration & API Development (Week 7–8)**

**Objective**: Build user interface or API to use the model.

| **Task** | **Responsible** | **Deliverables** |
| --- | --- | --- |
| Create REST API to serve model | Integration Developer | Flask/Django API |
| Develop frontend or minimal UI | Integration Developer | UI prototype (optional) |
| Integrate model with UI/API backend | Integration Developer | Working MVP system |

**✅ Phase 5: Testing & Quality Assurance (Week 9)**

**Objective**: Ensure model and application meet quality standards.

| **Task** | **Responsible** | **Deliverables** |
| --- | --- | --- |
| Perform unit and integration tests | Project Manager & Developer | Test report |
| Evaluate model on test set | Deep Learning Engineer | Final evaluation metrics |
| Conduct scenario-based testing (Fashion/Textile/Interior Design) | All | Use case demo results |
| Identify bugs, performance issues | Project Manager | Bug tracker |

**📝 Phase 6: Documentation & Presentation (Week 10)**

**Objective**: Finalize project, create documentation and present outcomes.

| **Task** | **Responsible** | **Deliverables** |
| --- | --- | --- |
| Prepare project report and user manual | Project Manager | Final report |
| Create demo presentation or video | All | Presentation/demo video |
| Push code to GitHub or internal repo | All | GitHub repo |
| Final project review | All | Feedback & closure report |

**⏳ Overall Timeline Summary**

| **Week** | **Focus Area** |
| --- | --- |
| Week 1 | Requirement Analysis |
| Week 2–3 | Data Collection & Preprocessing |
| Week 4–6 | Model Development |
| Week 7–8 | System Integration |
| Week 9 | Testing & QA |
| Week 10 | Documentation & Final Presentation |