# MONTBRIDGE PROJECT - GANTT CHART

## 10-Week Development Timeline

## VISUAL TIMELINE

WEEK: 1 2 3 4 5 6 7 8 9 10  
 |---------|---------|---------|---------|---------|---------|---------|---------|---------|  
   
PHASE 1: SETUP  
Setup ████████ ████████  
Requirements ████████   
Architecture ████████   
   
PHASE 2: BACKEND  
Data Process ████████   
Financial Model ████████   
API Endpoints ████████   
Unit Tests ████████   
  
PHASE 3: AI/ML  
NLP Module ████████   
Risk Analysis ████████   
Model Training ████████   
  
PHASE 4: FRONTEND   
UI Components ████████   
Visualizations ████████   
Integration ████████   
  
PHASE 5: TESTING  
Testing ████████  
Bug Fixes ████████  
  
PHASE 6: DEPLOY  
Documentation ████████  
Deployment ████████  
Demo Prep ████████  
  
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Legend:  
████████ = Active development (40 hours/week)

## DETAILED WEEKLY BREAKDOWN

### 📅 WEEK 1: PROJECT FOUNDATION (40 hours)

**Monday-Tuesday (16 hours): Requirements & Planning**

Hour 1-4: Stakeholder interviews (PE firm requirements)  
Hour 5-8: User story creation and prioritization  
Hour 9-12: Feature specification and acceptance criteria  
Hour 13-16: Risk assessment and mitigation planning

**Deliverables:** Requirements document, user stories, acceptance criteria

**Wednesday-Thursday (16 hours): Technology Stack**

Hour 17-20: Technology evaluation (Python vs. Node, React vs. Vue)  
Hour 21-24: Development environment setup (Python 3.12, venv, npm)  
Hour 25-28: Dependency installation and configuration  
Hour 29-32: Git repository setup, branch strategy, CI/CD planning

**Deliverables:** Development environment ready, Git repo initialized

**Friday (8 hours): Project Structure**

Hour 33-36: Create folder structure and file organization  
Hour 37-40: Initial README and documentation templates

**Deliverables:** Project scaffold, initial documentation

**Week 1 Status:** ✅ Foundation established, ready for development

### 📅 WEEK 2: ARCHITECTURE DESIGN (40 hours)

**Monday-Tuesday (16 hours): Database & API Design**

Hour 1-4: Database schema design (if using PostgreSQL)  
Hour 5-8: API endpoint specifications (REST architecture)  
Hour 9-12: Data flow diagrams and system architecture  
Hour 13-16: Security planning (authentication, authorization)

**Deliverables:** Database schema, API specification document

**Wednesday-Thursday (16 hours): Frontend Architecture**

Hour 17-20: Component hierarchy planning  
Hour 21-24: Wireframes for all major pages  
Hour 25-28: State management strategy  
Hour 29-32: UI/UX design principles and style guide

**Deliverables:** UI wireframes, component architecture

**Friday (8 hours): Integration Planning**

Hour 33-36: Define frontend-backend communication contracts  
Hour 37-40: Error handling and logging strategy

**Deliverables:** Integration specification, logging framework

**Week 2 Status:** ✅ Complete architecture designed, ready to code

### 📅 WEEK 3: DATA PROCESSING MODULE (40 hours)

**Monday (8 hours): File Upload System**

Hour 1-4: Flask endpoint for file upload  
Hour 5-8: File validation (size, type, security checks)

**Deliverables:** Working file upload endpoint

**Tuesday (8 hours): CSV/Excel Processing**

Hour 9-12: Pandas integration for CSV parsing  
Hour 13-16: Excel file processing with openpyxl

**Deliverables:** Structured data parser

**Wednesday (8 hours): PDF Processing**

Hour 17-20: PyPDF2 integration for text extraction  
Hour 21-24: PDF table detection and parsing

**Deliverables:** PDF text extractor

**Thursday (8 hours): Word Document Processing**

Hour 25-28: python-docx integration  
Hour 29-32: Text extraction from DOCX files

**Deliverables:** Word document processor

**Friday (8 hours): Data Validation**

Hour 33-36: Data cleaning and normalization  
Hour 37-40: Error handling for malformed data

**Deliverables:** Robust data validation module

**Week 3 Status:** ✅ Data processing complete, accepts all file types

### 📅 WEEK 4: FINANCIAL MODELING MODULE (40 hours)

**Monday (8 hours): DCF Foundation**

Hour 1-4: Revenue and EBITDA projection logic  
Hour 5-8: Free cash flow calculation

**Deliverables:** Cash flow projections

**Tuesday (8 hours): DCF Advanced**

Hour 9-12: Terminal value calculation (Gordon Growth Model)  
Hour 13-16: Discounting mechanism (NPV calculation)

**Deliverables:** Complete DCF model

**Wednesday (8 hours): Comparable Company Analysis**

Hour 17-20: Industry multiple database creation  
Hour 21-24: EV/Revenue and EV/EBITDA calculations

**Deliverables:** Comparable analysis model

**Thursday (8 hours): Precedent Transactions**

Hour 25-28: Transaction multiple application  
Hour 29-32: Control premium adjustments

**Deliverables:** Precedent transaction model

**Friday (8 hours): Sensitivity Analysis**

Hour 33-36: Scenario testing (growth, margin, discount rate)  
Hour 37-40: Range calculation and output formatting

**Deliverables:** Sensitivity analysis generator

**Week 4 Status:** ✅ All valuation methods implemented

### 📅 WEEK 5: NLP MODULE (40 hours)

**Monday (8 hours): spaCy Setup**

Hour 1-4: spaCy installation and model download (en\_core\_web\_sm)  
Hour 5-8: Basic text processing pipeline setup

**Deliverables:** Working NLP environment

**Tuesday (8 hours): Entity Recognition**

Hour 9-12: Named entity recognition for companies, people, dates  
Hour 13-16: Custom entity training for financial terms

**Deliverables:** Financial entity recognizer

**Wednesday (8 hours): Metric Extraction**

Hour 17-20: Pattern matching for financial figures  
Hour 21-24: Context understanding for metric identification

**Deliverables:** Metric extraction engine

**Thursday (8 hours): Sentiment Analysis**

Hour 25-28: Sentiment analysis integration  
Hour 29-32: Risk keyword detection

**Deliverables:** Sentiment analyzer

**Friday (8 hours): Testing & Optimization**

Hour 33-36: Accuracy testing on sample documents  
Hour 37-40: Performance optimization and error handling

**Deliverables:** Production-ready NLP module

**Week 5 Status:** ✅ NLP extraction fully functional

### 📅 WEEK 6: RISK ANALYSIS MODULE (40 hours)

**Monday (8 hours): Inconsistency Detection**

Hour 1-4: Cross-reference algorithm development  
Hour 5-8: Discrepancy threshold configuration

**Deliverables:** Inconsistency detector

**Tuesday (8 hours): Inconsistency Advanced**

Hour 9-12: Multi-source comparison logic  
Hour 13-16: Contradiction detection in narratives

**Deliverables:** Advanced inconsistency engine

**Wednesday (8 hours): Risk Categorization**

Hour 17-20: Risk type classification (financial, operational, market)  
Hour 21-24: Severity scoring (High/Medium/Low)

**Deliverables:** Risk categorization system

**Thursday (8 hours): Risk Scoring**

Hour 25-28: Weighted risk scoring model  
Hour 29-32: Composite risk score calculation

**Deliverables:** Risk scoring engine

**Friday (8 hours): Recommendations**

Hour 33-36: Mitigation strategy generation  
Hour 37-40: Deal structure suggestion logic

**Deliverables:** Recommendation engine

**Week 6 Status:** ✅ Complete risk analysis system

### 📅 WEEK 7: UI COMPONENTS (40 hours)

**Monday (8 hours): Welcome Page**

Hour 1-4: Hero section with branding  
Hour 5-8: Feature highlights and call-to-action

**Deliverables:** Professional welcome page

**Tuesday (8 hours): Navigation & Routing**

Hour 9-12: Header with navigation menu  
Hour 13-16: Section switching logic

**Deliverables:** Complete navigation system

**Wednesday (8 hours): File Upload Interface**

Hour 17-20: Drag-and-drop file upload area  
Hour 21-24: File list display with validation

**Deliverables:** Interactive file upload

**Thursday (8 hours): Modal Dialogs**

Hour 25-28: Company name input modal  
Hour 29-32: Loading states and progress indicators

**Deliverables:** Modal system

**Friday (8 hours): Error Handling UI**

Hour 33-36: Error message displays  
Hour 37-40: Success notifications and alerts

**Deliverables:** Complete error handling

**Week 7 Status:** ✅ All UI components built

### 📅 WEEK 8: DATA VISUALIZATION (40 hours)

**Monday (8 hours): Dashboard Layout**

Hour 1-4: Metric cards design and implementation  
Hour 5-8: Grid layout for dashboard sections

**Deliverables:** Professional dashboard

**Tuesday (8 hours): Valuation Tables**

Hour 9-12: DCF breakdown table  
Hour 13-16: Sensitivity analysis matrix

**Deliverables:** Financial tables

**Wednesday (8 hours): Chart.js Integration**

Hour 17-20: Bar chart for valuation comparison  
Hour 21-24: Line chart for cash flow projections

**Deliverables:** Interactive charts

**Thursday (8 hours): Advanced Charts**

Hour 25-28: Doughnut chart for risk distribution  
Hour 29-32: Chart styling and customization

**Deliverables:** Complete visualization suite

**Friday (8 hours): Market Watcher**

Hour 33-36: Live market data widget  
Hour 37-40: Multi-market switching functionality

**Deliverables:** Market watcher widget

**Week 8 Status:** ✅ All visualizations complete

### 📅 WEEK 9: INTEGRATION & TESTING (40 hours)

**Monday (8 hours): Frontend-Backend Integration**

Hour 1-4: API client setup with Axios  
Hour 5-8: Request/response handling

**Deliverables:** Connected frontend-backend

**Tuesday (8 hours): End-to-End Testing**

Hour 9-12: Complete workflow testing  
Hour 13-16: Edge case identification

**Deliverables:** Test results documentation

**Wednesday (8 hours): Bug Fixes**

Hour 17-20: Critical bug resolution  
Hour 21-24: Error handling improvements

**Deliverables:** Stable application

**Thursday (8 hours): Performance Optimization**

Hour 25-28: Code optimization and refactoring  
Hour 29-32: Load time improvements

**Deliverables:** Optimized performance

**Friday (8 hours): Cross-Browser Testing**

Hour 33-36: Chrome, Safari, Firefox testing  
Hour 37-40: Responsive design validation

**Deliverables:** Cross-platform compatibility

**Week 9 Status:** ✅ Production-ready application

### 📅 WEEK 10: DOCUMENTATION & DEPLOYMENT (40 hours)

**Monday (8 hours): User Documentation**

Hour 1-4: User guide creation  
Hour 5-8: Tutorial videos or screenshots

**Deliverables:** Complete user documentation

**Tuesday (8 hours): Technical Documentation**

Hour 9-12: API documentation  
Hour 13-16: Architecture documentation

**Deliverables:** Technical docs

**Wednesday (8 hours): Demo Preparation**

Hour 17-20: Test scenarios and sample data  
Hour 21-24: Demo script and talking points

**Deliverables:** Demo materials

**Thursday (8 hours): Final Polish**

Hour 25-28: UI refinements and final touches  
Hour 29-32: Performance final checks

**Deliverables:** Polished application

**Friday (8 hours): Presentation**

Hour 33-36: Presentation slides creation  
Hour 37-40: Rehearsal and final review

**Deliverables:** Ready for presentation

**Week 10 Status:** ✅ PROJECT COMPLETE

## MILESTONE TRACKER

### 🎯 Major Milestones

| Week | Milestone | Status | Date |
| --- | --- | --- | --- |
| 2 | Architecture Complete | ✅ | Week 2 End |
| 4 | Backend Complete | ✅ | Week 4 End |
| 6 | AI/ML Integration Complete | ✅ | Week 6 End |
| 8 | Frontend Complete | ✅ | Week 8 End |
| 9 | Testing Complete | ✅ | Week 9 End |
| 10 | Project Delivery | ✅ | Week 10 End |

## RESOURCE ALLOCATION

### Team Roles & Time Distribution

**Lead Developer (400 hours total):** - Backend development: 120 hours (30%) - AI/ML integration: 80 hours (20%) - Frontend development: 120 hours (30%) - Integration & testing: 40 hours (10%) - Documentation: 40 hours (10%)

**UI/UX Designer (80 hours total):** - Wireframes: 16 hours (20%) - Visual design: 24 hours (30%) - Component design: 24 hours (30%) - User testing: 16 hours (20%)

**QA Tester (40 hours total):** - Test plan creation: 8 hours (20%) - Manual testing: 16 hours (40%) - Bug reporting: 8 hours (20%) - Regression testing: 8 hours (20%)

## RISK MANAGEMENT TIMELINE

### Identified Risks & Mitigation Schedule

**Week 3-4: Data Processing Risks** - Risk: Complex file formats may be difficult to parse - Mitigation: Allocate extra time for PDF/Excel edge cases - Buffer: 8 hours contingency

**Week 5-6: AI/ML Risks** - Risk: NLP accuracy may be lower than expected - Mitigation: Use pre-trained models, focus on rule-based fallbacks - Buffer: 8 hours for model tuning

**Week 7-8: Frontend Risks** - Risk: Chart.js integration complexity - Mitigation: Use documentation extensively, simple charts first - Buffer: 4 hours for troubleshooting

**Week 9: Integration Risks** - Risk: Frontend-backend communication issues - Mitigation: Early API testing, clear contracts - Buffer: 8 hours for debugging

## DEPENDENCIES & CRITICAL PATH

### Critical Path (longest chain of dependent tasks):

Setup (Week 1-2)   
 → Backend Data Processing (Week 3)   
 → Financial Modeling (Week 4)   
 → Risk Analysis (Week 6)   
 → Frontend Dashboard (Week 7-8)   
 → Integration (Week 9)   
 → Deployment (Week 10)  
  
Total Critical Path: 10 weeks

### Parallel Tracks (can be done simultaneously):

NLP Module (Week 5) || Financial Modeling (Week 4)  
UI Components (Week 7) || Visualization prep  
Documentation (Week 10) || Final testing

## COMPLETION CHECKLIST

### ✅ Week 1-2: Foundation

* Requirements document
* Technology stack selected
* Development environment setup
* Architecture design complete
* API specifications written

### ✅ Week 3-4: Backend

* File upload endpoint
* CSV/Excel parser
* PDF/Word processor
* DCF model implemented
* Comparable analysis working
* Precedent transactions complete
* Sensitivity analysis functional

### ✅ Week 5-6: AI/ML

* spaCy NLP integration
* Entity recognition working
* Metric extraction functional
* Risk detection algorithms
* Risk scoring model
* Recommendation engine

### ✅ Week 7-8: Frontend

* Welcome page designed
* File upload interface
* Dashboard layout
* Chart.js visualizations
* Market watcher widget
* Modal dialogs

### ✅ Week 9: Testing

* Unit tests passing
* Integration tests complete
* Bug fixes implemented
* Performance optimized
* Cross-browser tested

### ✅ Week 10: Delivery

* User documentation written
* Technical docs complete
* Demo prepared
* Presentation ready
* Project delivered

## PROJECT TIMELINE SUMMARY

**Total Duration:** 10 weeks (70 days)  
**Total Effort:** 520 hours  
**Team Size:** 3 people  
**Phases:** 6 major phases  
**Milestones:** 6 key milestones  
**Deliverables:** 40+ individual deliverables

**Start Date:** August 1, 2025  
**End Date:** October 10, 2025  
**Status:** ✅ COMPLETED ON TIME

**Note:** This Gantt chart represents the planned timeline. Actual development followed this schedule with minor adjustments for optimization and additional features (e.g., market watcher added in final week).