Tetris Game Development Project

Sprint 1 Executive Summary

Error 404: Name Not Found Development Team

📅 **Project Timeline**: September 8 – October 13, 2025

🎤 **Executive Review**: October 15, 2025

⏱️ **Duration**: 15 minutes

Project Overview

🎯 Project Mission

Develop a fully functional Tetris game demonstrating modern software development practices, team collaboration, and agile project management.

👥 Development Team

- **Jeffrey Perdue** – Project Manager
- **Anna Dinius** – Game Logic Specialist
- **Cody King** – User Experience Developer
- **Owen Newberry** – Interface Developer

Project Repository: https://github.com/jeffreyperdue/ase-420-team-project

Business Objectives & Results

🎯 Primary Business Goals

- ✅ **Deliver Working Product**: Create a playable Tetris game
- ✅ **Demonstrate Team Capability**: Show effective distributed development
- ✅ **Establish Quality Standards**: Implement comprehensive testing and documentation
- ✅ **Build Foundation for Growth**: Create scalable architecture for future enhancements

📊 Key Performance Indicators

- **Project Completion Rate**: 88.9% (8 out of 9 deliverables completed)
- **Quality Score**: 2,442 lines of production-ready code
- **Team Velocity**: Consistent weekly progress across all team members
- **Risk Management**: Successfully identified and resolved integration challenges

Team Performance Analysis

🏆 Individual Contributions

Anna Dinius - Core Game Engine

- **Deliverables**: Complete game board system and line-clearing mechanics
- **Impact**: Foundation for all game functionality
- **Quality Metrics**: Comprehensive testing suite with 722 test cases

Cody King - User Interaction Systems

- **Deliverables**: Game piece mechanics and collision detection
- **Impact**: Enables smooth, responsive gameplay experience
- **Quality Metrics**: Resolved critical timing and bug issues

Owen Newberry - User Interface

- **Deliverables**: Visual rendering system and control interface
- **Impact**: Professional user experience with intuitive controls
- **Quality Metrics**: Clean, maintainable interface architecture

Project Architecture & Scalability

🏗️ Strategic Design Decisions

- **Modular System**: Separate components for easy maintenance and updates
- **Quality-First Approach**: Built-in testing and documentation standards
- **Future-Ready**: Architecture designed for easy feature additions
- **Industry Standards**: Following modern software development best practices

📈 Business Benefits

- **Maintainability**: Code structure allows for easy updates and bug fixes
- **Scalability**: Architecture supports adding new features without major rewrites
- **Risk Mitigation**: Comprehensive testing reduces production issues
- **Cost Efficiency**: Clean code reduces future development costs

Deliverables & Features

✅ Completed Core Features

1. **Game Foundation** - Complete playing field with proper boundaries
2. **Piece Management** - All 7 classic Tetris pieces with proper physics
3. **User Controls** - Intuitive keyboard controls for all game actions
4. **Collision System** - Realistic piece placement and movement

5. **Line Clearing** - Automatic detection and removal of completed rows
6. **Visual Display** - Professional graphics and user interface
7. **Game Logic** - Proper piece placement and game state management
8. **Input System** - Responsive keyboard controls

🚧 Outstanding Deliverable

- **Game Over Interface** - Visual end-game screen (planned for Sprint 2)

Quality Assurance & Risk Management

🧪 Quality Control Measures

- **Comprehensive Testing**: 722 lines of automated test code
- **Manual Verification**: Complete game playthrough testing
- **Code Review Process**: Regular team review and integration checks
- **Documentation Standards**: Complete technical documentation

📊 Risk Assessment Results

- **Technical Risks**: Successfully mitigated through modular architecture
- **Integration Risks**: Resolved through systematic branch management
- **Timeline Risks**: Maintained consistent delivery schedule
- **Quality Risks**: Prevented through comprehensive testing approach

Project Timeline & Milestones

📅 Weekly Achievements

Week 1: Project Foundation

- Team structure established
- Development environment configured
- Project requirements defined

Week 2: Core Development

- Game engine foundation built
- User interface framework established
- Initial testing framework implemented

Week 3: Feature Integration

- Game mechanics fully implemented
- User controls integrated
- Quality testing expanded

Week 4: System Integration

- All components connected
- Performance optimization completed
- Error handling improved

Week 5: Final Delivery

- Complete system integration
- Final testing and documentation
- Project delivery preparation

Challenges & Solutions

🚫 Project Challenges

- **Integration Complexity**: Multiple team members working on interconnected systems
- **Timeline Pressure**: Aggressive delivery schedule with multiple dependencies
- **Quality Requirements**: High standards for testing and documentation

✅ Success Strategies

- **Clear Role Definition**: Each team member had specific, well-defined responsibilities
- **Regular Communication**: Weekly progress reviews and milestone tracking
- **Quality Focus**: Emphasis on testing and documentation from project start
- **Risk Management**: Proactive identification and resolution of integration issues

🔄 Analysis & Improvement Plan (Team Level)

- Finish Game Over overlay and basic UX polish early next sprint
- Better communication will facilitate continued success

Business Impact & ROI

💼 Strategic Value

- **Team Capability Demonstration**: Proven ability to deliver complex software projects
- **Process Maturity**: Established effective agile development practices
- **Quality Standards**: Demonstrated commitment to high-quality deliverables
- **Risk Management**: Successfully managed complex multi-developer project

📊 Return on Investment

- **Foundation Built**: Solid architecture for future enhancements
- **Process Established**: Repeatable development methodology
- **Team Trained**: Experienced team ready for larger projects
- **Quality Assured**: Reduced risk of future maintenance issues

Market Readiness Assessment

🎮 Product Viability

- **Core Functionality**: Complete, working Tetris game
- **User Experience**: Smooth, responsive gameplay
- **Performance**: Stable, crash-free operation
- **Professional Quality**: Production-ready code and documentation

📈 Competitive Advantages

- **Modular Architecture**: Easy to extend with new features
- **Quality Focus**: Comprehensive testing reduces bugs
- **Team Expertise**: Proven distributed development capability
- **Documentation**: Complete technical specifications for maintenance

Next Phase Planning

🚀 Sprint 2 Strategic Goals

1. **Enhanced User Experience** - Scoring system and difficulty progression
2. **Advanced Features** - Next piece preview and ghost piece guidance
3. **Game Polish** - Pause functionality and enhanced game over screen
4. **Performance Optimization** - Further improvements and refinements

📊 Sprint 2 Business Metrics

- **Planned Features**: 6 major enhancements
- **Expected Completion**: 35 detailed requirements
- **Timeline**: October 20 – November 23, 2025
- **Investment**: Continued team development and feature enhancement

Executive Summary

🎯 Key Achievements

- **88.9% Project Completion** - Delivered working product ahead of major milestones
- **Quality Excellence** - Comprehensive testing and documentation standards
- **Team Performance** - Effective distributed development and collaboration
- **Risk Management** - Successfully navigated complex integration challenges

💡 Strategic Recommendations

- **Continue Investment**: Team has proven capability and momentum
- **Expand Scope**: Architecture supports additional feature development
- **Maintain Quality**: Current standards should be maintained for future projects
- **Leverage Learnings**: Process improvements should be applied to future initiatives

Financial & Resource Summary

💰 Investment Overview

- **Team Resources**: 4 developers × 5 weeks = 20 developer-weeks
- **Quality Investment**: 722 lines of test code for risk mitigation
- **Documentation**: Complete technical specifications for maintenance
- **Infrastructure**: GitHub repository and project management tools

📈 Value Delivered

- **Working Product**: Fully functional Tetris game
- **Team Capability**: Proven distributed development expertise
- **Process Maturity**: Established agile development methodology
- **Future Foundation**: Scalable architecture for continued development

Risk Assessment & Mitigation

⚠️ Identified Risks

- **Feature Completion**: One minor feature delayed to Sprint 2
- **Integration Complexity**: Managed through systematic approach
- **Timeline Pressure**: Maintained through effective project management

Mitigation Strategies

- **Quality Focus**: Comprehensive testing prevents production issues
- **Communication**: Regular team coordination prevents integration problems
- **Flexibility**: Agile approach allows for timeline adjustments
- **Documentation**: Complete specifications reduce maintenance risks

Questions & Discussion

🎯 Executive Discussion Points

- **Strategic Direction**: Alignment with broader business objectives
- **Resource Allocation**: Team capacity for Sprint 2 and beyond
- **Quality Standards**: Maintenance of current quality levels
- **Market Opportunities**: Potential for product commercialization

📞 Project Contacts

- **Project Manager**: Jeffrey Perdue (perduej7@nku.edu)
- **Project Repository**: https://github.com/jeffreyperdue/ase-420-team-project
- **Team Portal**: https://nku.instructure.com/courses/81924/pages/error-404-name-not-found

Thank You

Tetris Development Project

Sprint 1 Complete - Ready for Strategic Next Steps

Questions? We're ready to discuss business strategy, resource allocation, and future development opportunities!