

COMM2020 Team Project

Project Specification

Project Brief: Market Diplomacy Digital Edition – A Competitive Business Strategy Game for Students

Guidelines

- This assessment falls under the University's AI-Minimal category: you may use AI tools for spelling and grammar checks only (see 'Usage of AI Tools: AI-Minimal' below).
- Your application will be demonstrated online. Provide a deployed URL for the live demo and a clear local run guide for markers.
- If you use third-party APIs or data sources, handle failures gracefully and avoid embedding secrets (use environment variables).

Usage of AI Tools: AI-Minimal

These tasks have been set to assess your problem-solving abilities, and so you may not use AI for generating code or autocomplete while completing the project.

The University of Exeter is committed to the ethical and responsible use of Generative AI (GenAI) tools in teaching and learning, in line with our academic integrity policies where the direct copying of AI-generated content is included under plagiarism, misrepresentation and contract cheating under definitions and offences in TQA Manual Chapter 12.3.

This assessment falls under the category of AI-Minimal in the University's Guidance on use of Gen AI in Assessment.

This means: You may use AI tools for checking spelling and grammar mistakes only, with no other impact on the structure or content of the assessment. This is because using GenAI tools outside of these uses prevents fair assessment of your ability to achieve module learning outcomes.

When writing your assessment, you must never use AI tools:

- For uses other than checking your spelling and grammar.
- To translate more than a word or short phrase into English.
- To upload sensitive or identifying material to an AI tool.
- To present material that has been generated by AI as your own work or the work of someone else.

When submitting your assessment, you must:

- Check the box during the submission process that confirms you have adhered to the University's academic conduct policy and the expectations on use of GenAI in your assessment brief.

NOTICE: Your coding activity must all be completed on the GitHub repository. This logs your activity as you code, and the logs will be checked for submissions that have made use of AI-generated code.

1 Requirements

Executive Summary

The **Market Diplomacy Digital Edition** transforms the original board game concept into an interactive **online multiplayer experience**. This digital game combines strategic negotiation, ethical decision-making, and applied business knowledge in a dynamic environment. Players compete to expand their influence across virtual business markets using actions: **Acquire**, **Support**, or **Consolidate**. Ethics and trust remain central, with reputation scores influencing gameplay. Knowledge checks powered by IBM SkillsBuild content ensure that success depends on both strategy and learning.

Objectives & Learning Outcomes

Educational Objectives

- Teach **business ethics**, negotiation, and strategic thinking in a digital format.
- Integrate **IBM SkillsBuild learning modules** into gameplay for applied knowledge.
- Foster collaboration and competition through real-time negotiation and decision-making.

Learning Outcomes

- Students demonstrate ethical reasoning and negotiation skills.
- Students apply knowledge from AI, Data Science, Security, and Design Thinking courses.
- Students improve decision-making under uncertainty and time constraints.

Game Format

- **Platform:** Web-based application (desktop and mobile responsive).
- **Players:** 3–9 per session; ideal cohort size: 5–7.
- **Session Length:** 60–90 minutes.
- **Mode:** Real-time multiplayer with simultaneous order locking.

Core Mechanics

Digital Board

- Interactive map of **business markets** with clickable regions.
- Each market displays stats: Capacity, Compliance, Talent, and Market Value.

Player Actions

- **Acquire:** Attempt to take over an adjacent market.
- **Support:** Allocate resources to assist another player's market.
- **Consolidate:** Strengthen owned markets and gain resources.

Negotiation System

- Built-in **chat and commitment ledger** for recording agreements.
- Time-limited negotiation phase before order submission.

Ethics & Reputation

- **Digital Trust Ledger** tracks promises and breaches.

- Reputation impacts acquisition costs and question difficulty.
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Turn Flow

1. **Negotiation Phase:** Players chat and record commitments.
 2. **Order Locking:** Players submit actions via the interface.
 3. **Reveal & Resolution:** System adjudicates actions simultaneously.
 4. **Knowledge Check:** For each Acquire attempt, attacker answers IBM SkillsBuild-aligned questions.
 5. **Update Scores:** Market control, resources, and reputation adjusted.
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Knowledge Check Integration

- **Question Bank:** AI, Data Science, Security, Design Thinking.
 - **Delivery:** Timed multiple-choice and scenario questions.
 - **Adaptive Difficulty:** Based on reputation and prior performance.
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Digital Features

- **Real-Time Dashboard:** Displays market ownership, resources, and reputation.
 - **Automated Scoring:** Tracks Market Value, Reputation, and Knowledge Mastery.
 - **Commitment Tracking:** Logs agreements and breaches for transparency.
 - **Analytics:** Facilitators can view engagement metrics and learning outcomes.
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Technology Stack

- **Frontend:** React or Vue.js for responsive UI.
 - **Backend:** Node.js or Python Flask for game logic.
 - **Database:** PostgreSQL for player data, commitments, and question bank.
 - **Security:** Role-based access for instructors and students.
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Victory Conditions

- Highest combined **Market Value + Reputation Bonus** at game end.
 - Tie-breakers: Knowledge mastery percentage, fulfilled commitments.
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Development Roadmap

1. **Phase 1:** Core game engine and UI prototype.
 2. **Phase 2:** Integration of IBM SkillsBuild question API.
 3. **Phase 3:** Ethics and reputation system implementation.
 4. **Phase 4:** Multiplayer negotiation and chat features.
 5. **Phase 5:** Analytics dashboard for instructors.
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Success Metrics

- $\geq 80\%$ positive feedback on engagement and learning.
 - $\geq 70\%$ average correct answers in knowledge checks.
 - Reduced breach rates over time (learning effect).
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Next Steps

- Confirm **digital-first MVP** requirements.
- Define **question bank size** and integration method.
- Decide on **session length** and **turn count**.