**Capstone Weekly Project Summary**

Keep your total weekly project summary to a single double-sided printed page.

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| Week 1 | Project Status: Green |
| Tasks Completed/New Functionality | * Set up repository * Created structure for the project |
| Comments | Started the project and thought about how to implement the two games. |

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| Week 2 | Project Status: Green |
| Tasks Completed/New Functionality | * Created the polymorphism for both games so the AI can play both, but it will not be complete until I finish the second game. * 80% of human control in risk game * Ability for computer to play, but no code for the computer to play with. |
| Comments | Worked on the game primarily, found many new functions that I would have not thought of if I started with the AI first. |

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| Week 3 | Project Status: Green |
| Tasks Completed/New Functionality | * Finished the turn taking for both human and computer players * AI can play the game * Both the AI and Human player use the same framework. |
| Comments | Finished the game, but will probably add more to it to make it smoother and give it more functionality, tried AI control of the game. |

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| Week 4 | Project Status: Green |
| Tasks Completed/New Functionality | * Risk game runs more smoothly * Cleaned the files * Got rid of unneeded files and is now more focused on a simpler implementation. * Structure for the AI is changed to fit new implementation of learning algorithm |
| Comments | Did a lot of research this week to determine how I will implement the learning algorithm. The plan is to have a genetic algorithm change the modifier value. These modifiers are set randomly at first but the winner is bred and mutated. |

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| Week 5 | Project Status: Yellow |
| Tasks Completed/New Functionality | * Calculator can do half of the desired calculations * Calculates value for capturing a continent * Calculates value for breaking a continent * Calculates value for eliminating opponent |
| Comments | Ran into some problems with cloning complex objects, took some time to fix. Slowed down progress. Spent some time coming up with algorithms to determine values for territories/continents. |

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| Week 6 | Project Status: Red |
| Tasks Completed/New Functionality | * AI places reinforcements on best territory * AI attacks best territory. * Does many different kind of calculations to determine good moves. |
| Comments | Spent a lot of time on coming up with new calculations that would improve the AI. |

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| Week 7 | Project Status: Green |
| Tasks Completed/New Functionality | * The game is now projected onto a GUI * The GUI updates itself with changes to the map * The AI can play a game all the way through in a very short time * Genetic algorithm Alpha modifier in place |
| Comments | Fully working AI, GUI that shows the moves of the current board, Beginning stages of genetic algorithm  It took a while to get the console application to work with a WPF window. |

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| Week 8 | Project Status: Green |
| Tasks Completed/New Functionality | * Genetic Algorithm implementation * Ability to play itself * Genetic code stored and loaded each game * Genetic code mutates based on the bred winner |
| Comments | The core of my project is in place, the learning AI is learning and playing against itself |

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| Week 9 | Project Status: Green |
| Tasks Completed/New Functionality | * AI is now learning to play against all kinds of players, before it would only learn how to play against itself. * The history of the 3 Learning AIs is stored * The length of the game is stored |
| Comments | I can now use all this data I have collected to show at capstone. |

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| Week 10 | Project Status: N/A (presentation week) |
| Tasks Completed/New Functionality |  |
| Comments |  |