A1 - Proposal

COMP 4451 – Game Programming

Group ID assigned by the course staff	18
Group Alias connect.ust.hk email of any one of the members	hmmleung@connect.ust.hk
Game Name tentative name which can be changed later	Steel of Stalin
Group members Student name (connect.ust.hk email address) E.g.: *Pedro Sander (psander)*	hmmleung
	hkleungai

For each of the questions below, the suggested number of sentences is just a rough guideline. You may elaborate further if you think it is important to get the idea across.

1. Summary of the idea

What the game is about and its overall objective. (5-8 sentences)

Steel of Stalin is a simultaneous turn-based strategy game. The major objective is to manipulate *units* to capture or destroy enemy's capital. It is about careful planning for *units* to advance through the map, choosing among several advantages, such as which technology to research first. It is also about map control, when players control certain parts of the map or cities to gain advantages. Moreover, logistics comes into play when the frontline is in a stalemate.

2. Inspiration

Sources of inspiration for this game idea and the creative aspects that you introduce. (4-6 sentences)

The major inspiration of Steel of Stalin comes from Advanced daisenryaku: Deutsch Dengeki Sakusen, which is a tile-based strategy game published in 1991 by Sega. Steel of Stalin also implements similar basic mechanisms. Yet in addition to that, Steel of Stalin also incorporates several mechanisms such as signaling, scouting and customizations of weapons and modules of units. Another inspiration comes from Diplomacy, which is a strategic board game created by Allan B. Calhamer in 1954. Steel of Stalin adopts the game's simultaneous turn-based and has a collision-handling mechanism inspired from it.

3. Category

See introduction slides for common options. If it doesn't fit any, specify "Other" and describe why.

Strategy

4. Game structure

Linear *or* ***Sandbox*** *(or* ***hybrid****):* Hybrid

Describe why. (1-2 sentences)

There is a map creator for players to create their own maps, with possible game levels' implementation.

5. Players

Single-player *or* ***multi-player****:* Single ***Competitive*** *or* ***cooperative****:* Competitive

Describe how and discuss plans for AI computer players if applicable. (3 or more sentences)

AI shall be trained such that some probabilities of training units that counter known hostile units would be computed. For example, if the player has tanks (a proposed *unit*) spotted by the AI, the AI player will have a higher chance to train some anti-tank guns. AI will also fortify buildings and cities whenever there are spare resources left.

6. Visual characteristics

If it doesn't fit the options below, specify "Other" and describe why.

Realism *or* ***Abstraction****:*	**Abstraction**
2D *or* ***3D****:*	**2D**
1st *or* ***3rd*** *person view:*	**Other, top-down view**

7. Mechanics of gameplay

What is the importance percentage of each of the following elements:

a) *Luck* 10%

b) *Strategy* 30%

c) *Diplomacy* 0%

d) Resource management 20%

e) Territory control 40%

Also describe how the game is played and how dominant strategies are avoided, if applicable. (5-8 sentences)

Each turn is divided into several phases. In planning phase, the players take turn to issue various commands such as moving *units*, firing at hostile *units*, constructing buildings etc. After the planning phase, other phases such as "firing" and "moving" (and could be more) are computed and carried out by the computer.

No players can win by spamming with the cheapest *units* or saving up for training the most powerful *units* because there are always other types of *units* that can effectively counter them. And with probabilistic implementations, small variations would be added into the impact of player's action, which makes the game unpredictably interesting.

8. Goal

Describe the final objective of the game. (1-2 sentences)

Each player makes plan and aims for enemy's capital. With one's capital destroyed or fell in other player's hands for more than a certain game rounds, the game ends and the winner would be determined.

9. Simplicity and consistency

Remarks on how you plan to make your game rules interesting, without overcomplicating and keeping consistent. (4-6 sentences)

The rules of Steel of Stalin are simple. In the simplest term, players basically train and deploy *units* and advance through the map to accomplish the goal. Along the way they may also explore various game features, like terrains and technologies as like in other strategic games, for supplementing their main *units* actions.

10. Audience

Age group, demographics, any other audience characteristics. (1-2 sentences)

Age group: 12+, or anyone with a clear mind and patience on strategic planning.

11. Platform, Language, Libraries, APIs

Remarks on how you plan to implement your game and what you plan to use. (3-4 sentences)

To make this game doable within a few months, we would use the threeJS framework with the WebGL library for basic infrastructure that would be viewable in any modern app browser. Along the way if necessary, we would also exploit the strength of other javascript libraries or even web framework to empower the game.

12. Focus of development and algorithm challenges

What aspects will you focus mostly on? What algorithms or other challenges you plan to program directly? What do you plan to incorporate using existing libraries or engines? (8-10 sentences)

In answering, you may consider any of the below if applicable to your game:
Rendering, Modeling, Physics, Audio, AI players, Networking, any others that come to mind.

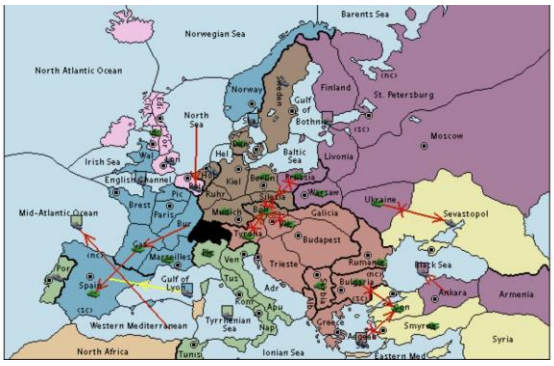
The major source of challenges instead comes from the ai players' design. To make the bot "smart" enough, we need to make its action sufficiently probabilistic. That is, our goal is to make it behave as unpredictable as it can be, and at the same time to be able to act in a way that would not benefit or disadvantage the human player too much. For these purposes, we then need to keep monitoring and evaluating the game *units* at the current timeframe, so that metrics can be computed and applied to the AI player.

Another challenge is the design of grid and game *units*. It involves constructing and loading and arranging grids, and a careful visual design of various *units*, which is crucial but less demanding than the ai's one.

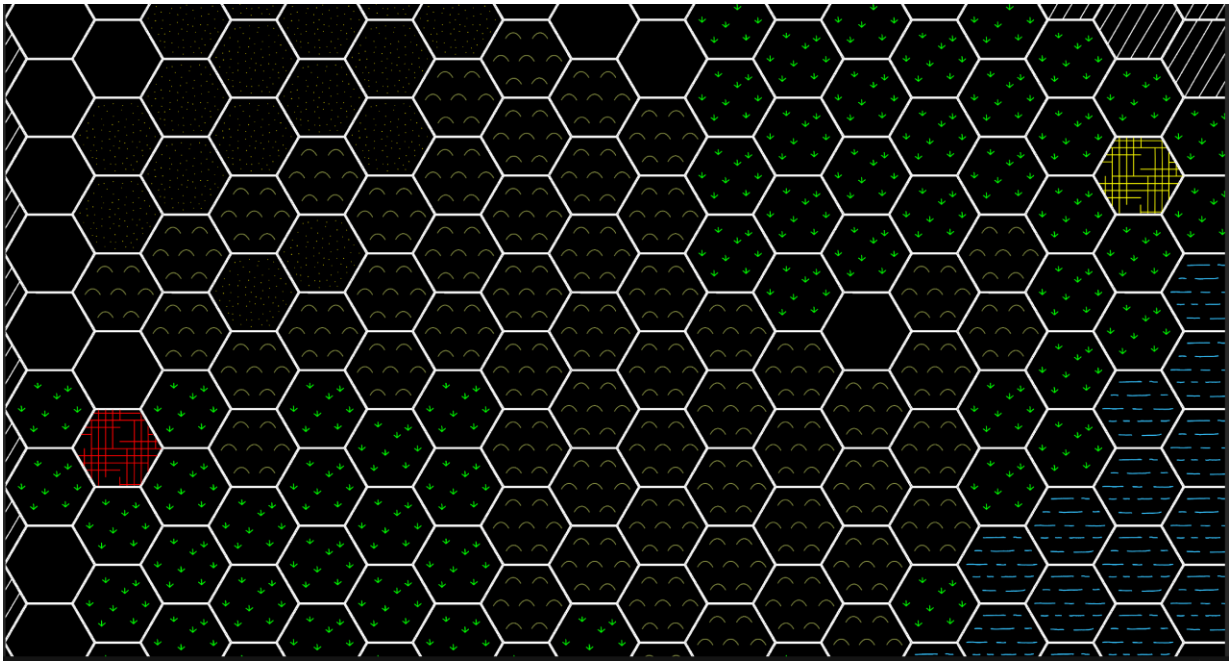
13. Additional information

Optional section. You may include other information about your game that is not described above (e.g., screenshots of related games used for inspiration, drawings of your game world that may help better understand the game, …)

Advanced daisenryaku: Deutsch Dengeki Sakusen



Diplomacy



Sample game map by zig-zag (subject to changes due to balancing)