

## **Implementation:**

The features required for this deliverable are the map, the conflict resolution mechanic, and the mechanic for distributing new units. All of these features, as well as some additional minor features, have been implemented as follows:

### **Map**

The layout of the map was based on the early design used in the paper prototype [\[link\]](#). As per our requirements, the general shape of the map and the placement of the landmarks reflect the University of York campus (N4, N6, N7). At the same time, the sector distribution and landmark placement were carefully designed to create a balanced play space so that no player gained an unfair advantage or disadvantage based on where on the map they started the game (N5, N6, N8).

### **Conflict Resolution**

The conflict resolution mechanic was designed to reward strategic play while maintaining some element of randomness that would give even the weakest player a chance to win (N9). To determine who wins a conflict, each player essentially rolls a random number and adds a static bonus to the roll. Whichever player has the higher total wins the conflict, with ties resolving in favor of the defender. The upper-bound on the random number depends on the level of the unit involved in the conflict, and the static bonus corresponds to the amount of resources the player owns.

### **New Unit Allocation**

For the sake of simplicity and to speed up the game, new units spawn each turn, but only on landmarked sectors (F6). In addition, a landmark will not produce a new unit if it is already occupied by a unit. This introduces a risk associated with unit production, as a player needs to leave a landmark partially undefended in order to receive a new unit.

### **Resources and Unit Level Progression**

These features were implemented as an accessory to the conflict resolution mechanic, since both were needed in order to fully implement it. Each landmark is associated with a type and amount of resources, and the player that owns a landmark also benefits from its resources. New units spawn at Level 1 and may progress up to Level 5 by capturing sectors.

### **Unit Movement & Capturing Sectors**

These features were added in order to properly test and implement the conflict resolution mechanic. Units could move into unoccupied sectors to capture them, swap places with a friendly unit in an adjacent sector, or move into a sector occupied by a hostile unit to start a conflict.

### **Fully-Playable Game**

The addition of this feature did not arise as a consequence of any specific mandatory feature, but rather as a tool to facilitate playtesting and debugging so that the initial design could be evaluated and tweaked if necessary.