

GEO 1006 UML Modelling Warhammer

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Project Description

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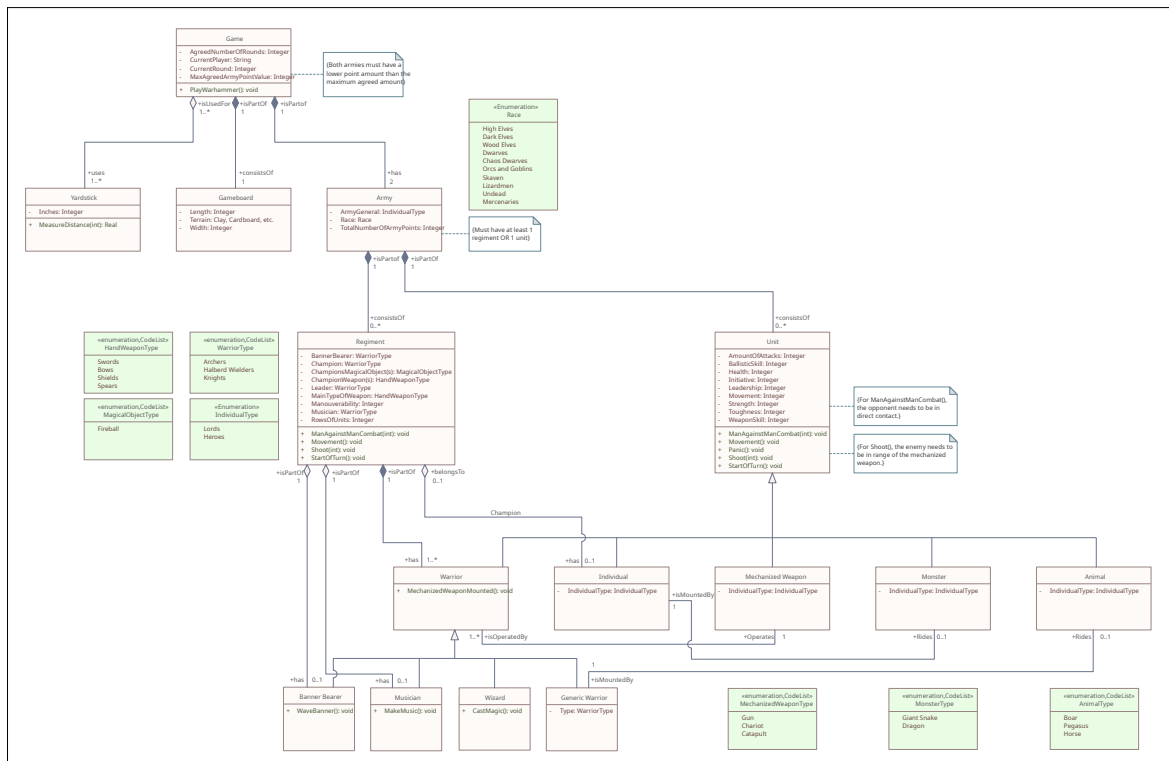


Figure 1: Overall UML diagram (zoom in to see the details)

1 Game, Army, Board

Our model starts with the **GAME** class, which tracks the following attributes:

1. The players who's turn it currently is.
2. The number of rounds being played.
3. The current round.
4. The maximum number of points that each **ARMY** can have.

A **GAME** instance is composed of a single **BOARD** and two **ARMY** instances. A **BOARD** contains information on its size. An **ARMY** tracks the number of points of the **UNIT** instances it is composed of, the race of those instances and which of them is designated as the general. The possible races that an **ARMY** can be are stored in an enumeration. Each **ARMY** is composed of at least one **UNIT**, and zero or more **REGIMENT** instances.

2 Units

The abstract **UNIT** class defines the shared attributes and operations for the following subclasses:

1. **WARRIOR**
2. **INDIVIDUAL**
3. **MONSTER**
4. **MECHANIZED WEAPON**
5. **ANIMAL**

Shared attributes define values such as movement distance or toughness. Shared operations let the **UNIT** instances perform different actions during each phase of a turn. Except for the **WARRIOR** subclass, each subclass has an enumeration listing the possible types an that an instance of these subclasses could be. The **WARRIOR** subclass is itself an abstract class that has the following subclasses:

1. **GENERIC WARRIOR**
2. **MUSICIAN**
3. **WIZARD**
4. **BANNER BEARER**

The **GENERIC WARRIOR** subclass is accompanied by an enumeration describing the possible types its instances can be. The other **WARRIOR** subclasses don't require an explicit type attribute, as these subclasses are already identified by their class names and behaviors. The **UNIT** subclasses have a number of associations with each other defined as follows:

- An **INDIVIDUAL** can ride a **MONSTER**.
- A **GENERIC WARRIOR** can ride an **ANIMAL**.
- All **WARRIOR** subclasses can operate a **MECHANIZED WEAPON**.

Almost all the attributes and operations are defined in the **UNIT** and thus inherited by children. For those operations or attributes that a **UNIT** instance doesn't need, we set the values to 0 or make the operation do nothing. (e.g. an **ANIMAL** object doesn't need the **BallisticSkill** attribute or **Shoot()** operation, so we'll set **BallisticSkill** to 0 and make **Shoot()** void and empty)

3 Regiments

REGIMENT instances are composed of one or more WARRIOR objects, and can additionally be an aggregate of single instances of the INDIVIDUAL, MUSICIAN and BANNER BEARER UNIT types. If a REGIMENT instance is associated with an INDIVIDUAL, this INDIVIDUAL is listed as a champion. One of the WARRIOR instances in a REGIMENT is listed as the leader. WARRIOR objects in a REGIMENT all use the same weapon type, for which the possible options are saved in a codelist.