Monks Knights Barbarians:

**Path following:**

Originally, the monks used path following. They moved along a set path going from on monastery to the next in a never ending loop. However, we took it out of the game because it was not helping the game in any way and replaced it with path finding.

**Path finding:**

The monks, knights, and the barbarians all use path finding. We use a navigation mesh for the movement, with the positions of the monasteries baked into the mesh.

**Decision Tree:**

The knights use a decision tree to determine their behavior.

**State Machine:**

The barbarians use a state machine to determine their behavior

5. Am all alone

1. See unguarded Monk

3. See more friends than knights

5. Am all alone

2. See more knights than friends

5. Am all alone

2. See more knights than friends

1. See unguarded Monk

**Behavior Tree:**

We did not implement behavior trees into the game. We created a prolog behavior tree for the monks.

**Genetic Algorithm:**

All three use genetic algorithms to change their attributes every round.

The thresholds evolved by each unit is as followed:

Monks: sight range and move speed

Knights – sight range, speed, and attack delay

Barbarians – hit chance, sight range, speed, and attack delay

We used a population of 30 units, 10 of each class. Each chromosome had 10 bits. We calculated fitness based on the time that the unit survived and, for the knights and barbarians, how many units they killed. For the monks, since they could not kill, the time survived counted more heavily towards their fitness value.

We never evolved the each of the units separately, but instead did them all at the same time.

**Bayes Classifier:**

Need to Complete