8: MicroRTS
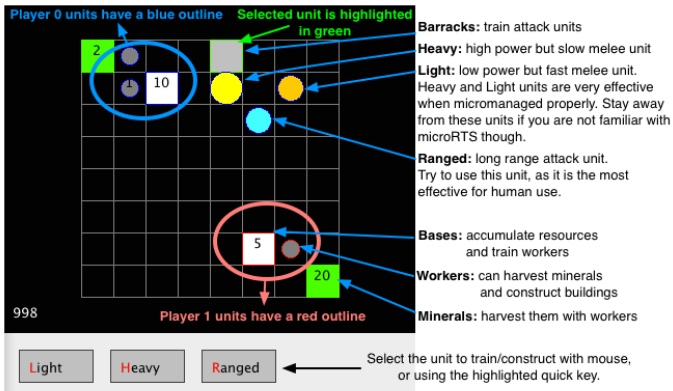
MicroRTS

MicroRTS competition

- This should be your main focus (for COMP250) from now on
- Fork the repository at `https://github.com/falmouth-games-academy/comp250-bot` and follow the instructions
- Look at the example bots in the `microrts` project
    - Start with the "rush" bots in `ai.abstraction`
    - Move on to search-based AI:
      `ai.minimax.RTMiniMax.RTMiniMax`,
      `ai.mcts.naivemcts.NaiveMCTS`, ...
    - Use these samples as a basis to create your own AI

Playing the game

Player 0 units have a blue outline
Selected unit is highlighted in green

Barracks: train attack units

Heavy: high power but slow melee unit

Light: low power but fast melee unit.
Heavy and Light units are very effective when micromanaged properly. Stay away from these units if you are not familiar with microRTS though.

Ranged: long range attack unit.
Try to use this unit, as it is the most effective for human use.

Bases: accumulate resources and train workers

Workers: can harvest minerals and construct buildings

Minerals: harvest them with workers

Player 1 units have a red outline

Light   Heavy   Ranged

Select the unit to train/construct with mouse, or using the highlighted quick key.

- **Select** units by left-clicking on them
- **Move** units by right-clicking on a destination
- **Attack** enemies by right-clicking on them
- **Harvest** minerals by right-clicking on them
- **Train** units by selecting them at the bottom of the screen
- **Construct** buildings by selecting the type of building at the bottom, and then right-clicking on the destination

MicroRTS

- **Workers** can harvest **minerals** and build **bases** and **barracks**
- **Bases** can train **workers**
- **Barracks** can train **attack units**
- **Attack units**: light, heavy, ranged (workers can also attack)

MicroRTS bot

- `getAction` is called every game tick
- Assign **actions** to each of the player's units (including buildings)
- Two levels to work at:
  - Basic actions up, down, left, right, attack, etc.
  - `AbstractionLayerAI`: higher-level actions with built-in pathfinding, e.g. `move`, `build`, `attack` etc.

Example bots