



# Level 6



Glados:

Amazing work commander! Your tower-placing skills were off the charts! Well, actually, quite on point but you get it...

But wait, there's more! Some of our doctors got a bit too curious (let's just leave it at that) and started dissecting some dead aliens and, lo and behold, we found *gold!*

Not actual gold, silly, but we found ***toweranium***, the resource we need most to build towers and robots and ... I talk too much

Task for Level 6:

Using the new loot from dead aliens, dynamically place towers  
while an attack is underway



- › Aliens are all the same, they give the same amount of *toweranium*
  - › they're probably cloned from what we could gather
- › You will have to say the exact point in time (tick) when you want to build a tower and the coordinates at which you want it built
  - › **make sure you have enough resources for that, at that point in time!**
- › Same conditions for building towers apply as on the previous level
- › Again, you can choose not to use all your *toweranium*
- › Towers are built at the end of the tick
  - › if tower build time is  $x$  then at the end of tick  $x$  the tower is placed



- › Let's review this information. Each tick of the simulation should
  1. update the alien positions
  2. check if any alien has reached the end\*
  3. spawn new aliens
  4. simulate tower shots
  5. check for dead aliens
  6. **spawn new towers**
    - › **here we take all towers that are built at the end of the tick and place them**
  7. check if we have survived\*
  
- › **IN THIS EXACT ORDER!**
- › \* - the tick ends if the check is true and the game is over
- › **Tower shots happen before tower spawn. In tick 0, no tower shots are fired**

**Input:**

&lt;WX&gt; &lt;WY&gt;

&lt;X&gt; &lt;Y&gt;

&lt;Movement\_Sequence&gt;

<Health> <Speed> **<Loot>** -> the amount of loot per alien

&lt;N&gt;

&lt;SpawnTime&gt;

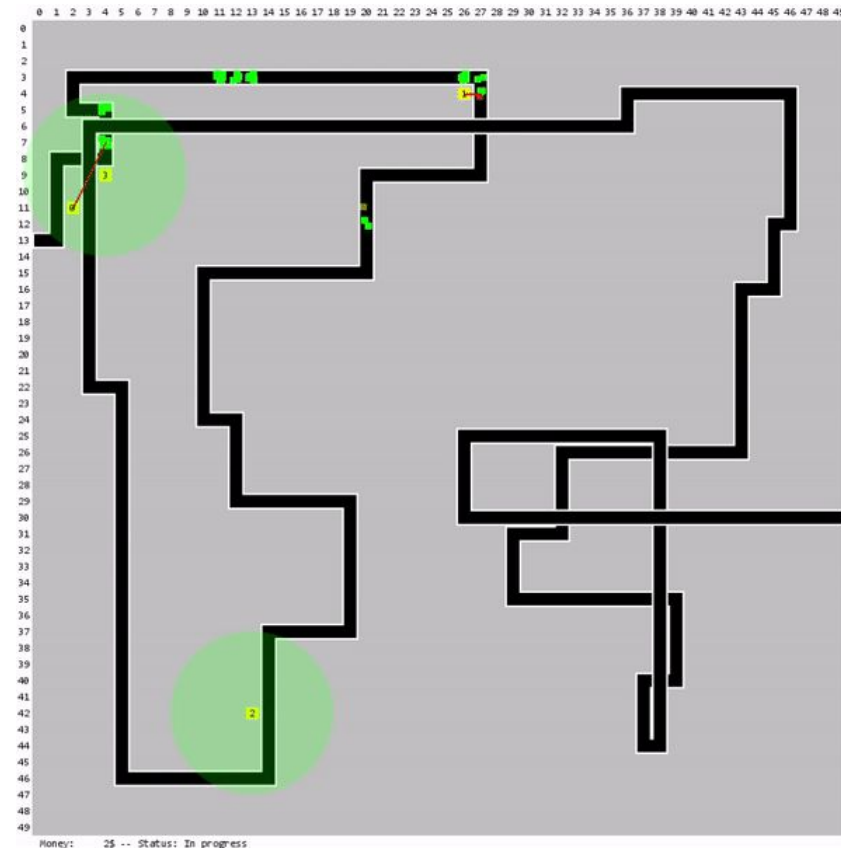
...

&lt;SpawnTime&gt;

} N times

&lt;Damage&gt; &lt;Range&gt; &lt;Cost&gt;

&lt;Gold&gt; -&gt; the amount of gold you start with

[\\*Click to see animated version](#)

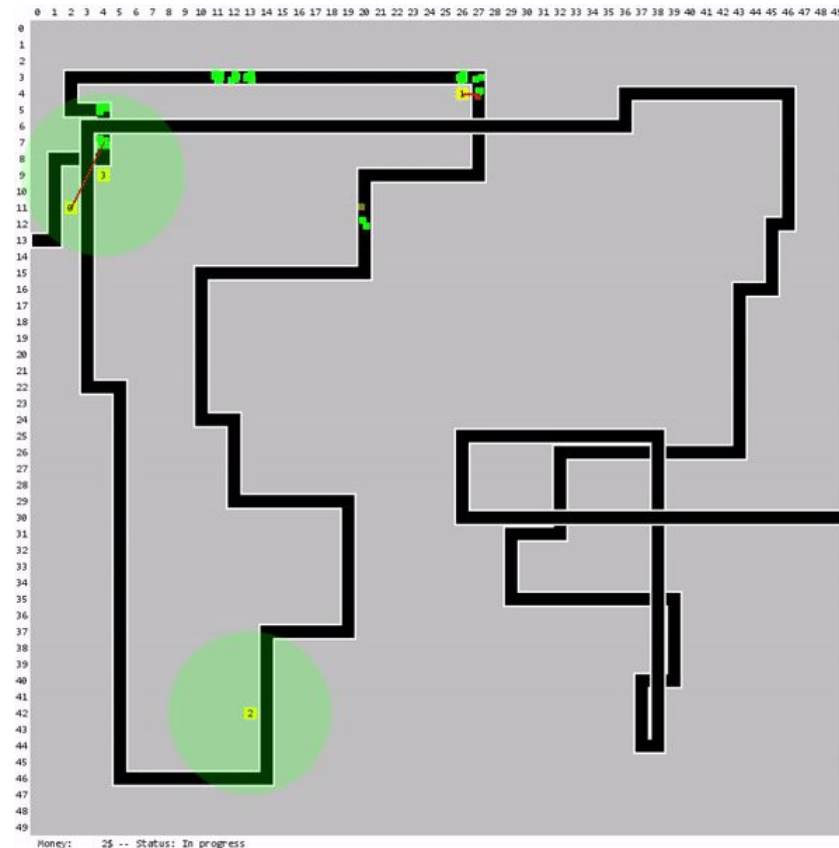
**Output:**

&lt;X&gt; &lt;Y&gt; &lt;Time&gt;

&lt;X&gt; &lt;Y&gt; &lt;Time&gt;

...

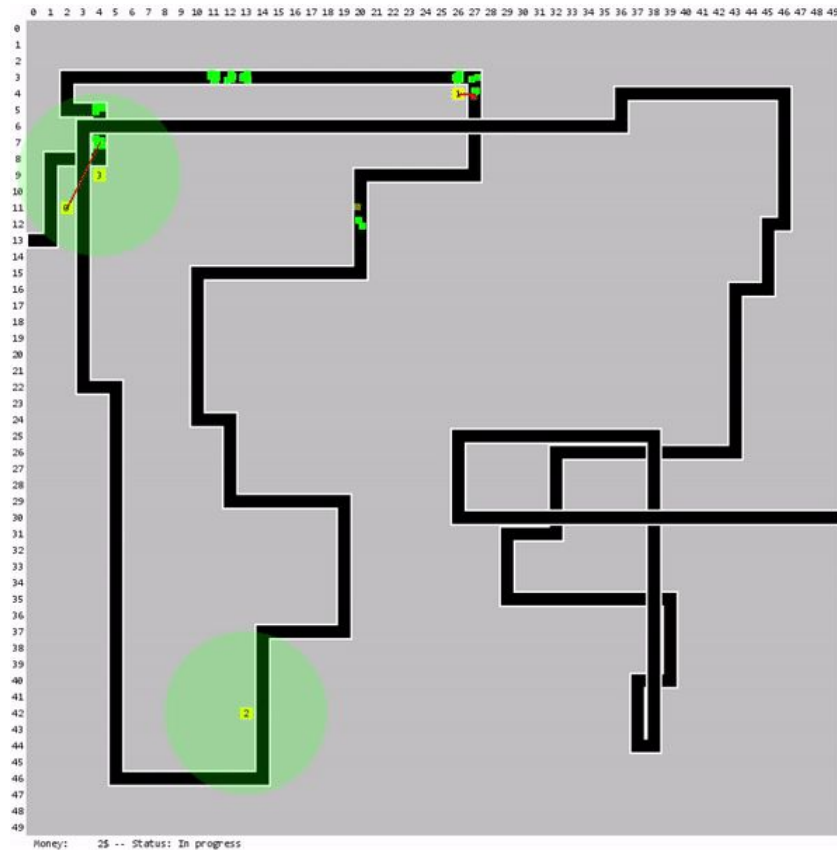
**Any** configuration that manages to **win** is considered **correct**

[\\*Click to see animated version](#)

**Example:**

**Check the simulation on the right**

(note that the game does not speed up, that's just the simulation speed being increased)



[\\*Click to see animated version](#)



### Keep in mind:

- › If you try to build a tower and you don't have the required *gold* amount at that tick, you **lose**