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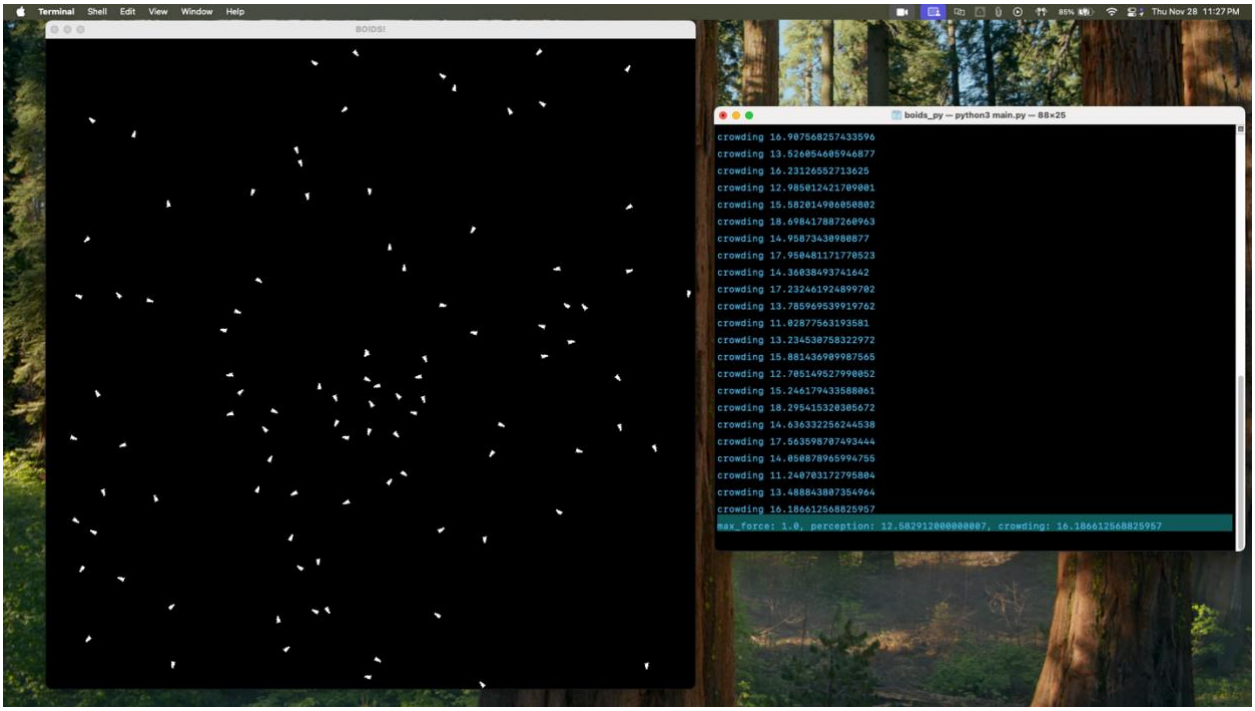
Lab 10 Submission

Here are the descriptions for the **8 possible settings** by varying **max_force**, **perception**, and **crowding**:

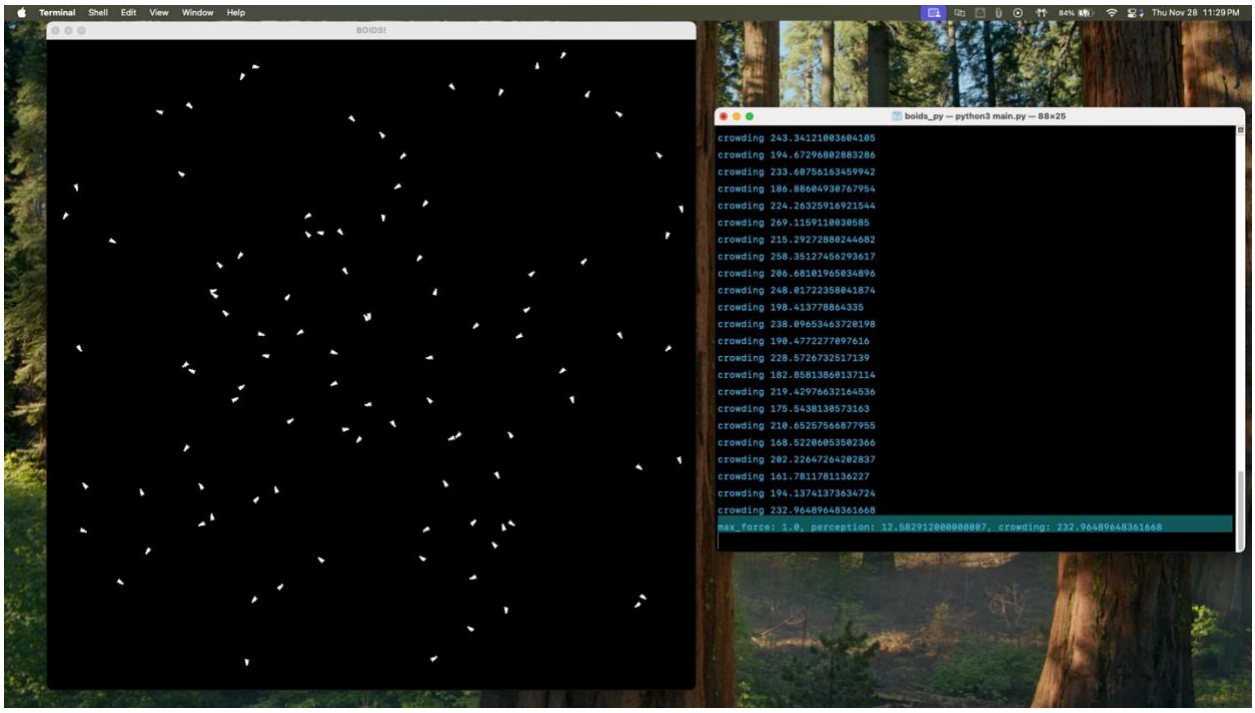
1. max_force = 1, perception ≈ 12.582, crowding = 16

The boids appear scattered across the screen, moving slowly and avoiding close proximity to each other due to their low crowding tolerance and limited perception range. This leads to minimal grouping and largely individual behavior.



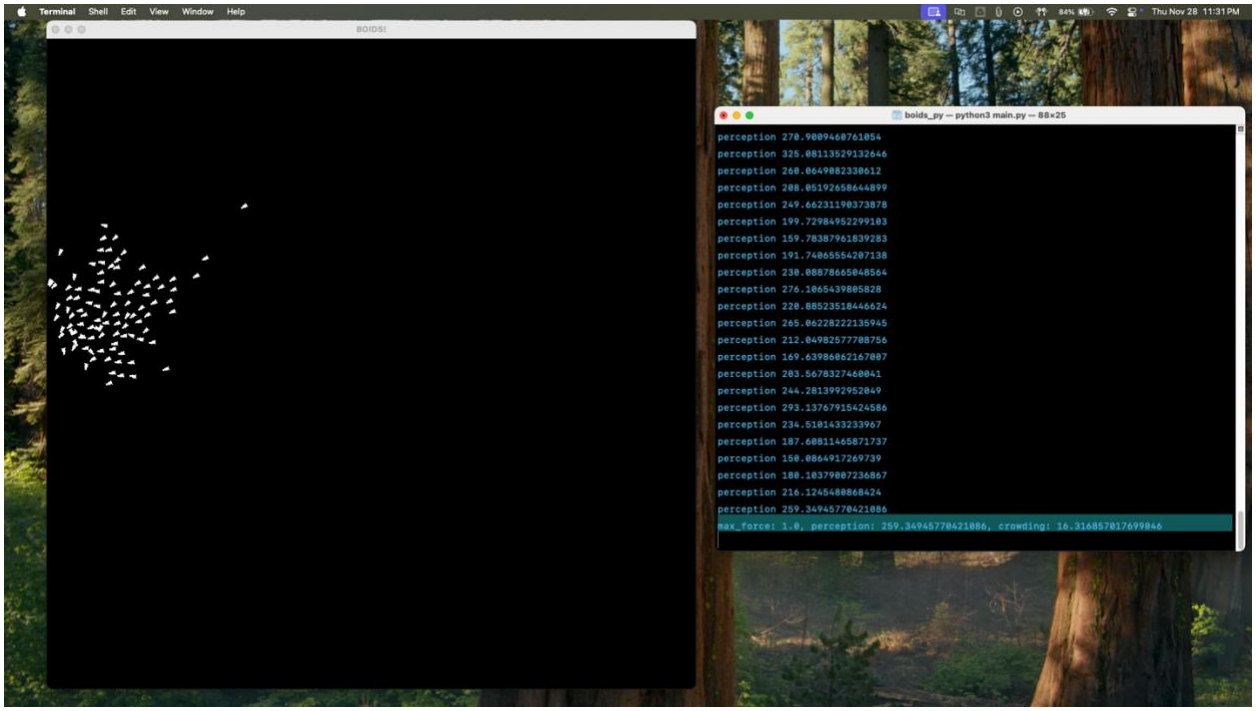
2. max_force = 1, perception ≈ 12.582, crowding ≈ 232

The boids form tighter clusters compared to case 1, as their high crowding tolerance allows them to move closer together despite their slow speed and limited perception range.



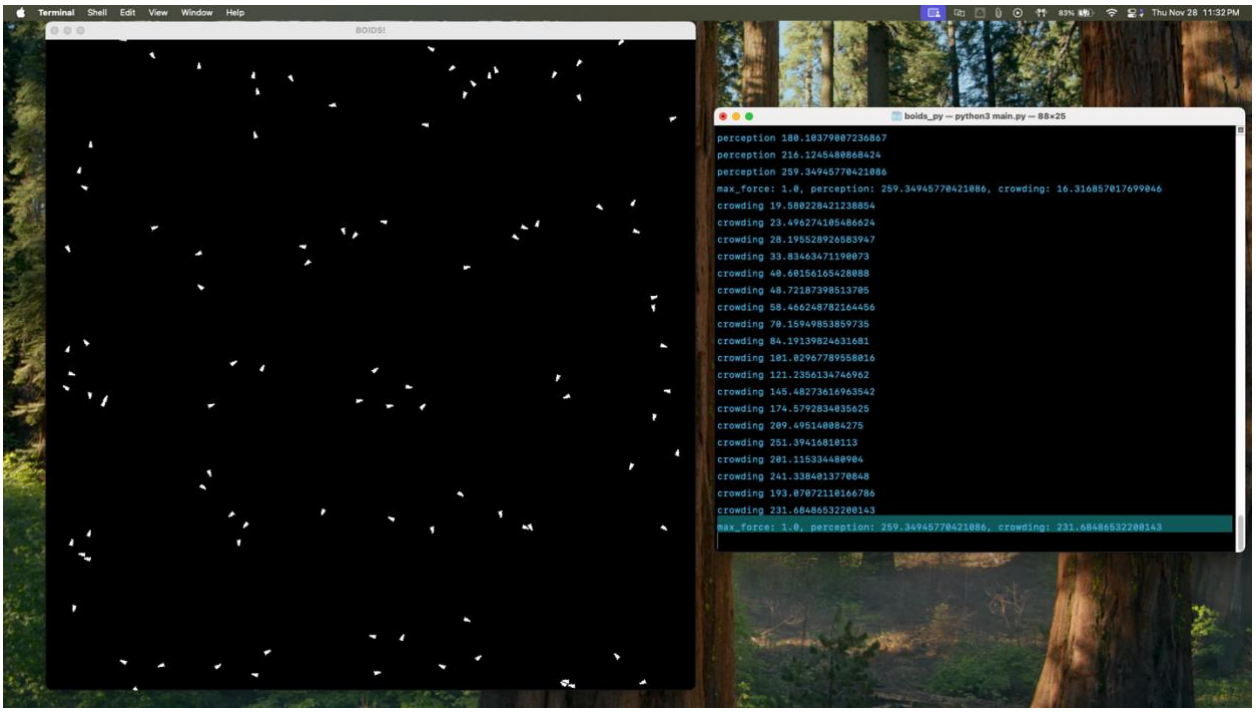
3. max_force = 1, perception ≈ 258, crowding = 16

The boids appear tightly clustered. This suggests that while their perception allows them to sense neighbors over a wide range, their low speed (due to low max_force) and the influence of other flocking forces keep them grouped closely together.



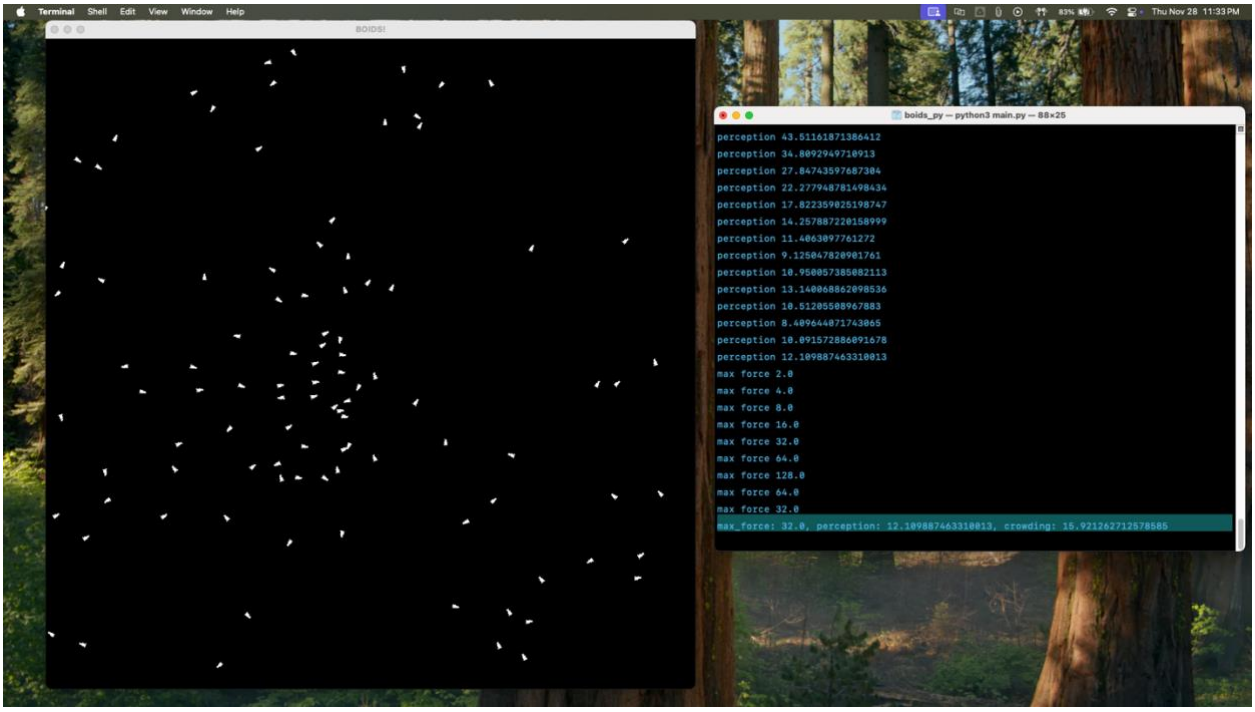
4. max_force = 1, perception ≈ 258, crowding ≈ 232

The boids appear more evenly distributed and moderately cohesive, forming loose clusters. Their high perception enables them to interact with distant neighbors, while the high crowding tolerance allows for tighter groupings without complete dispersion.



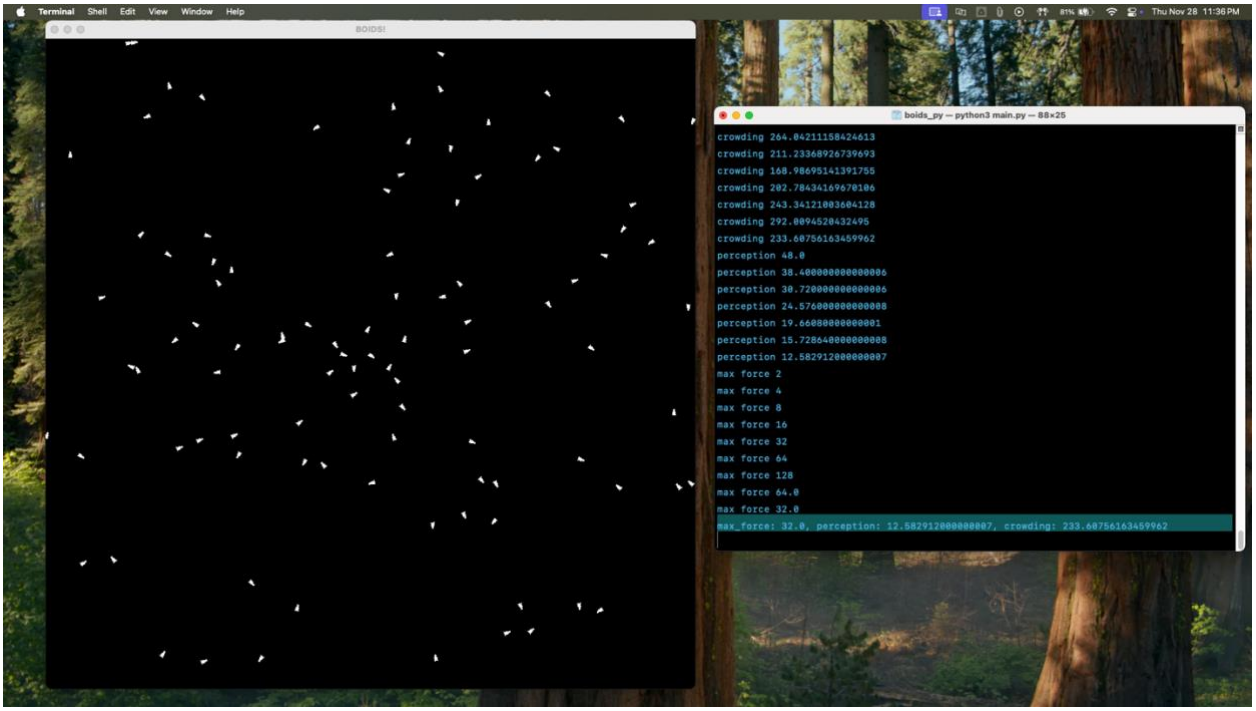
5. max_force = 32, perception ≈ 12.582, crowding = 16

The boids show rapid and scattered movement due to their high force (max_force = 32) and limited perception. Their low crowding tolerance causes them to avoid forming tight groups



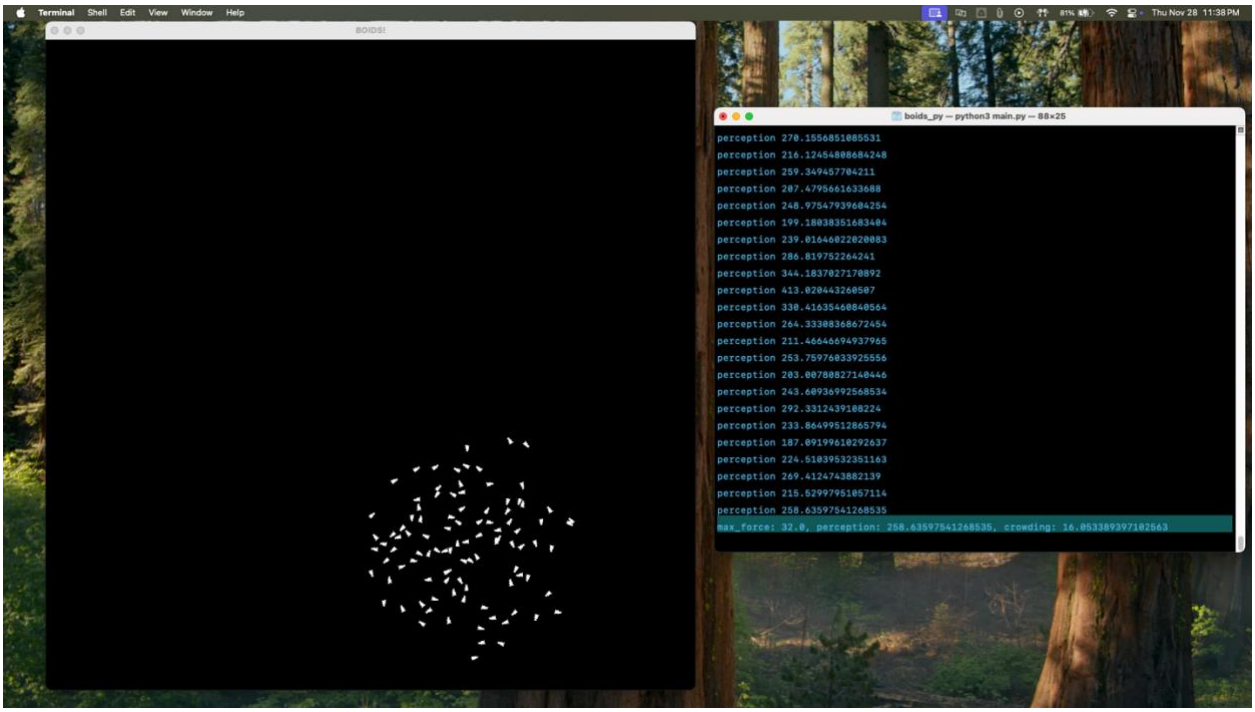
6. max_force = 32, perception ≈ 12.582, crowding ≈ 232

The boids move fast and form small, loose groups. They can stay close to each other because of high crowding tolerance.



7. max_force = 32, perception ≈ 258, crowding = 16

The boids move very fast and stick close together in a tight group. Their wide vision helps them stay aligned, and even though they don't like being too close, their behavior pulls them into one dense flock.



8. max_force = 32, perception ≈ 258, crowding ≈ 232

The boids move fast and form a large, spread-out group. Their wide vision helps them stay aware of distant neighbors, and their high crowding tolerance allows them to move closer together without avoiding each other.