COMP 341: Introduction to Artificial Intelligence
Fall'20 / Project 4
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Q1: Probabilities for every legal position are the same for the ghost with random movements, since it makes the estimations without depending on the actual position of the ghost. Other ghost is probably the GoSouthGhost since it tends to move South direction, and the probability of being on a south position increases as it proceeds.

Q2: We cannot find the ghost in the first test because agent is trapped and cannot move, hence cannot update its observations and make calculations, unlike the second test where the agent can move.

Q3: Particles get re-initialized when every possible square is visited but the ghost is not found, resulting in setting all particle weights to zero. Agent cannot find the ghost because it ignores the ghost's trajectory. Unless we have time elapse, increasing the number of particles would not help.

Q4: Exact inference is slightly more accurate than approximate inference. Whenever we have time elapse enabled and using approximate inference, higher number of particles are more sensible.

Q5: As suggested by Berkeley's website, in the implementation of time elapse I have iterated over all the ghosts and updated the new particles as the sampled versions of their distributions.