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[Course](#) > [Bandits](#) > [Lab](#) > Exercise 2A Epsilon...

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## Exercise 2A Epsilon Greedy

### Exercise 2.2A: Epsilon Greedy

In this exercise, you will examine the epsilon greedy policy.

Make sure that you have:

1. Completed the setup requirements as described in the Set Up Lab Environments section
2. Completed the previous exercises in this lab

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Now, run jupyter notebook and open the “Ex2.2A Epsilon Greedy.ipynb” notebook under **Module 2** folder.

1. Examine the notebook. We have given you an implementation of the epsilon greedy algorithm.
2. Once you have studied the notebook, prepare a simulation. Don't change any other parameter, that is:
  - `evaluation_seed = 5016`
  - `num_actions = 10`
  - `trials = 10000`
  - `distribution = "bernoulli"`
3. Set the epsilon to zero.
4. Run the simulation, observe the results, and answer the following questions.

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## Lab Question

1.0/1.0 point (graded)

With epsilon set to zero, what do you observe?

- ☐ The epsilon greedy behaves randomly
- ☐ The epsilon greedy behaves like the optimistic greedy algorithm
- ☒ The epsilon greedy behaves like the greedy algorithm



Submit

You have used 1 of 2 attempts

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Set the epsilon to one. Run the simulation again and observe the results.

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## Lab Question

1.0/1.0 point (graded)

With epsilon set to one, what do you observe?

- ☒ The epsilon greedy behaves randomly
- ☐ The epsilon greedy behaves like the optimistic greedy algorithm
- ☐ The epsilon greedy behaves like the greedy algorithm



Submit

You have used 2 of 2 attempts

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Now, try several different number of epsilons (0.05, 0.1, 0.15). Make sure the other parameters stay the same, that is:

- evaluation\_seed = 5016
- num\_actions = 10
- trials = 10000
- distribution = "bernoulli"

Run the simulations and observe the results.

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## Lab Question

1.0/1.0 point (graded)

Which epsilon gives the most average reward?

☒ 0.05  
✓

☐ 0.1

☐ 0.15

Submit

You have used 1 of 2 attempts

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Now let's prepare another simulation by setting a different seed, so your parameters should look like this:

- evaluation\_seed = 1239
- num\_actions = 10
- trials = 10000
- distribution = "bernoulli"

Run the simulations with different number of epsilons (0.05, 0.1, 0.15) and observe the results.

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## Lab Question

1.0/1.0 point (graded)

Which epsilon gives the most average reward?

☐ 0.05

☒ 0.1  
✓

☐ 0.15

Submit

You have used 1 of 2 attempts