A/B Testing

Comparing Explore-Exploit Solutions

Scenario

You have four advertisement options (bandits), and your task is to design an experiment using Epsilon Greedy and Thompson Sampling.

Design of Experiment

A bandit class has already been created for you. It is an abstract class with abstract methods. You must not exclude anything from Bandit() class. However, you can add **more stuff if you need**.

BANDIT_REWARD=[1,2,3,4]

NUMBER_OF_TRIALS: 20000

1. **Create a Bandit Class**
2. **Create EpsilonGreedy*() and* ThompsonSampling() classes and methods (inherited from Bandit()).**
    1. Epsilon-greedy:
        1. decay epsilon by 1/t
        2. design the experiment
    2. Thompson Sampling
        1. design with known precision
        2. design the experiment
3. **Report:**
    1. Visualize the learning process for each algorithm (plot1())
    2. Visualize cumulative rewards from E-Greedy and Thompson Sampling.
    3. Store the rewards in a CSV file ({Bandit, Reward, Algorithm})
    4. Print cumulative reward (try using the modified logging package)
    5. Print cumulative regret (try using the modified logging package)

Note that the values of *epsilon* and *precision* are up to you to decide.

Submission

1. The code must be well documented; I'd recommend using the *pyment* package
2. We will not continue checking after the error message (regardless of the error).
3. Late submissions will be treated according to the rules written in the syllabus.
4. **Push the codes to GitHub and submit only the link of a repo to Moodle**

Grade 50 points