



Workshop 9 – Introduction of RL and Multi-armed Bandits

Advanced Analytics and Applications [AAA]

Multiple Choice Questions

|| Calculation

||| Programming

Question 1.1: Reinforcement Learning

Which of the following is an application of reinforcement learning?

- i. Topic modeling
- ii. Recommendation systems
- iii. Pattern recognition
- iv. Image classification

Question 1.2: Reinforcement Learning

Which one is a proper step-size for a stationary reinforcement learning problem?

- i. Number of iterations
- ii. A constant number $0 \leq \alpha \leq 1$
- iii. $1/(\text{Number of iterations})^2$
- iv. $1/(\text{Number of iterations} + 2)$

Multiple Choice Questions

||| Calculation

||| Programming

I | Multiple Choice Questions

II | Calculation

III | Programming

Question 2: A Multi-armed Bandit program

Create a class of multi-armed bandits containing the following methods:

- Initial attributes: number of arms, epsilon (Search probability), reward distribution (use a uniform function)
- **Action method** (function): taking action using an epsilon-greedy approach
- **Update method**: updating the action values after each decision
- **Run method**: iterating the MAB algorithm

Note: you need to keep track the count of each action and the mean reward

Contact



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