

Input: Set of slot machines S , exploration parameter ϵ

Output: Action a_t

Initialization: $R(s) \leftarrow 0$ for all $s \in S$;

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for $t = 1$ *to* T **do**

if $\text{random}(0, 1) > \epsilon$ **then**

 Choose action $a_t = \arg \max_{s \in S} R(s)$;

else

 Choose a random action $a_t \sim \text{Uniform}(A)$;

end

 Perform action a_t on the chosen slot machine;

 Observe reward r_t obtained from the chosen action;

 Update action count: $N(a_t) \leftarrow N(a_t) + 1$;

 Update estimated reward value: $R(a_t) \leftarrow \frac{R(a_t) \cdot (N(a_t) - 1) + r_t}{N(a_t)}$;

end

Algorithm 1: Epsilon-Greedy Algorithm