Savitribai Phule Shikshan Prasarak Mandal's

SKN SINHGAD COLLEGE OF ENGINEERING
(Approved by AICTE, Recognized by DTE (MS), UGC Section 2(f) & 12(B)
Affiliated to Punyashlok Ahilyadevi Holkar Solapur University, Solapur)
Accredited with 'A+' Grade by NAAC

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Report on Innovative Teaching-Learning Activity in Reinforcement Learning: Crossword Puzzle

1. Objective of the Activity

The primary objective of this activity was to enhance the learning experience by introducing an innovative and interactive teaching method. The crossword puzzle was designed to reinforce core concepts in the course, encourage active participation, and promote critical thinking skills among students.

2. Description

This activity used a crossword puzzle as a tool to engage students in active learning. The puzzle focused on key concepts in reinforcement learning, as described in the provided crossword. Students collaborated to solve challenging questions, which helped in deepening their understanding of the subject matter.

Key Features of the Crossword Puzzle:

- **Across and Down Clues**: Covered topics like learning algorithms, state and action mapping, agent behavior, and reinforcement learning goals.
- **Focus on Understanding**: Questions were framed to challenge students' conceptual clarity and practical application.

(See the attached crossword puzzle for details)
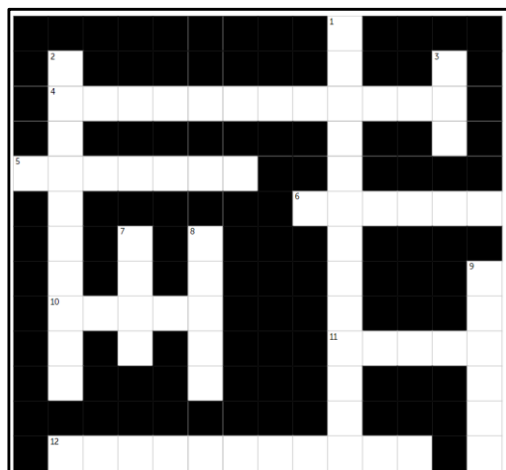
Across

4 ....learning involves training an algorithm on an unlabeled dataset.

5 ....are the total accumulated rewards an agent collects from a given time step until the end of the episode.

6 Mapping of state and action is called as.....

10 ....is a representation of the current situation of the environment.

11 This is something that mimics the behavior of the environment

12 ....learning involves continuously updating a model's knowledge with new data while retaining previous knowledge

Down

1 In which learning an agent learns to behave in an environment, by performing certain actions

2 In ------------- learning, the algorithm is trained on a labeled dataset, where the input data is paired with the corresponding correct output.

3 .... is defined as a 5 tuple: $<S, A, T, R, \gamma>$

7. In RL. .... is often defined as achieving a specific outcome or set of outcomes that the agent aims to accomplish.

8 The entity making decisions in the environment

9 The goal of the agent is to find a........that maximizes the cumulative reward over time.

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3. Highlights

- Active participation from all students
- Significant improvement in understanding complex concepts
- Encouragement of teamwork and collaboration

4. Photos of the Activity

Below are some glimpses from the activity:

5. Outcomes

- Students gained a deeper understanding of core concepts.
- Improved engagement and retention through interactive learning.
- Strengthened problem-solving and critical-thinking abilities

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