Faculty: Dr.B.L.Praveena
Year & Sem: III-II
Subject : Artificial Intelligence

Title of the Report:

Building Artificial intelligence algorithms for Problem Solving.

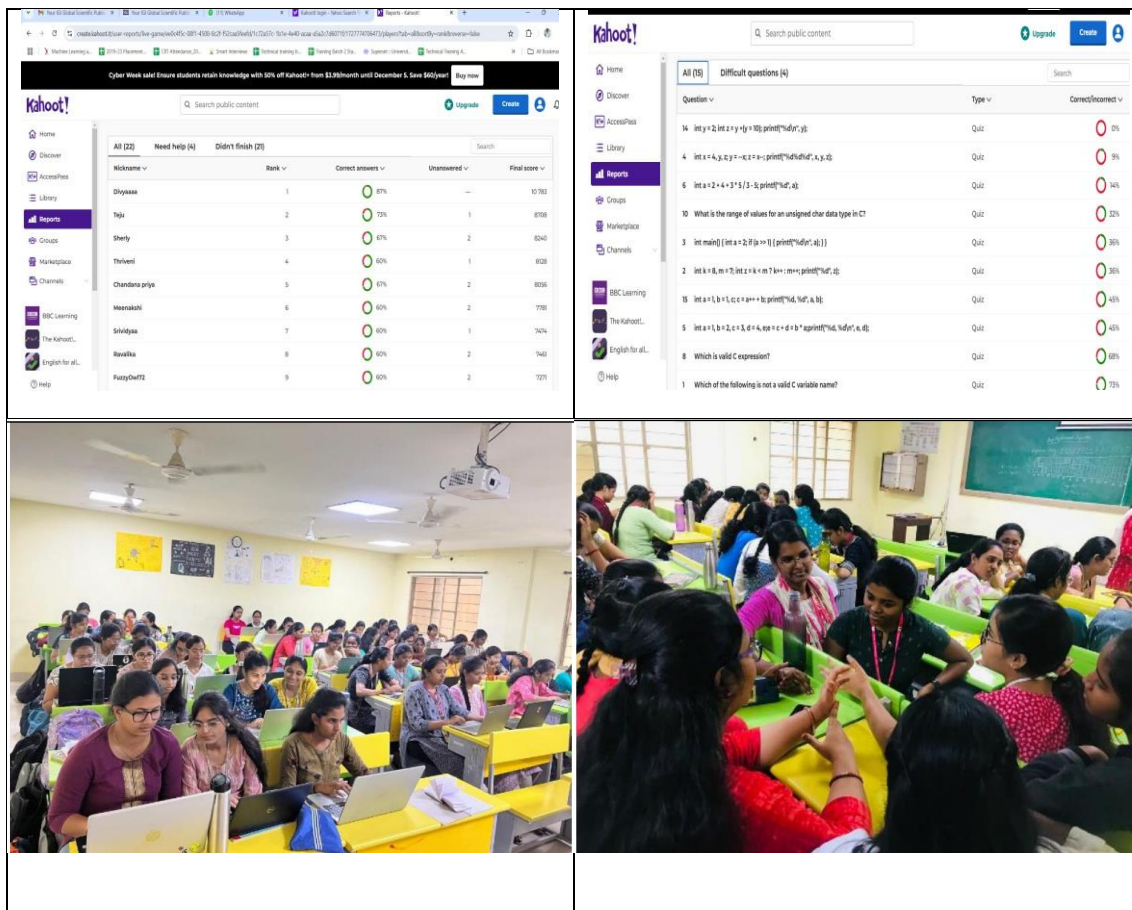**Motivation/ Teaching Problem statement**

Many third-year engineering students face challenges in understanding core Artificial Intelligence concepts such as problem-solving, search strategies, knowledge representation, and heuristic evaluation. This report presents a **problem-based learning strategy** aimed at reinforcing these concepts through hands-on coding activities, mini-projects, and interactive simulations. The objective is to help students transition from traditional algorithmic thinking to an **AI-driven problem-solving mindset** by applying AI techniques to real-world scenarios such as game playing, pathfinding, and intelligent decision-making systems.

Learning Goals/ Course Outcomes

CO1	Explore search strategies and intelligent agents
CO2	Describe different adversarial search techniques

Activity Setup and Group Formation

A total of 60 students were divided into 20 groups, each with 3 students. Kahoot - is an engaging, game-based learning platform that makes quizzes fun and interactive for students. It encourages active participation by transforming learning into a competitive experience. Using a unique Game PIN (2887482), 20 participants joined, entered their nicknames, and answered questions displayed on a shared screen via their mobile devices. A set of 15 questions was prepared from the Unit-1 and Unit-2 syllabus. The host's screen displayed the questions and answer options, while students responded on their devices by selecting the color-coded button or shape matching the correct answer. Each question had a time limit, with faster correct responses earning more points, making the game exciting and interactive for everyone.

Rubrics for Project Evaluation

Rank	Player	Total Score (points)	Correct Answers	Incorrect Answers
1	Jahnavi	7183	13	2
2	Divya	7108	11	4
3	Harshita	6140	10	5
4	Janvi	5128	9	6
5	Harshitha	4956	10	5
6	Chandrika	4881	9	6
7	Prasanna	4774	9	6
8	Shivani	4661	9	6
9	Padmasri	4571	9	6
10	Vaishnavi	4348	8	7

11	Asritha	4205	9	6

12	Geethika	4178	8	7
13	Prashanthi	3967	8	7
14	Vaishnavi	3846	8	7
15	Madhuri	3741	8	7
16	Pavani	3643	8	7
17	Rishitha	3589	7	8
18	Saranya	3453	7	8
19	Lasya	3366	5	10
20	Akshaya	3284	4	11

Impact of Student Learning:

In the Artificial Intelligence context, students demonstrated improved understanding of foundational AI concepts such as state-space representation, uninformed and informed search strategies, and problem-solving agents. Group activities involving algorithm design and implementation (e.g., BFS, DFS, A*) enabled collaborative exploration and reinforced conceptual learning. Students were more confident in formulating AI problems and applying heuristic-based solutions in real-world scenarios. However, advanced topics like constraint satisfaction problems and knowledge representation required additional instructional support, guided examples, and visualization tools to bridge comprehension gaps.

Mid Marks analysis on CO1 and CO2:

Performance on CO1 (Understanding and formulating AI problems) was generally strong, with students showing good grasp of problem definition, state representation, and goal formulation. This indicates a solid conceptual foundation in identifying AI problems and selecting appropriate solution strategies.

CO2 (Application of search algorithms to solve AI problems) displayed a wider variance in marks. While some students effectively implemented search techniques and used heuristics accurately, others struggled with translating theoretical knowledge into working code. This highlights the need for increased focus on step-by-step demonstrations, debugging sessions, and practical problem sets to enhance algorithmic implementation skills.

Reflection of Teaching:

The incorporation of hands-on coding tasks, simulations, and AI-based mini-projects significantly improved student engagement and conceptual clarity. Students collaborated effectively to solve search-based problems and demonstrated curiosity when exploring different AI strategies. Peer discussion and real-time feedback encouraged active participation.

Moving forward, future sessions will incorporate visual aids, gamified learning environments (e.g., AI puzzles or simulations), and detailed walkthroughs of algorithm execution to support students in mastering complex topics like heuristic design and constraint satisfaction.

Text Books:
1. Artificial Intelligence: A Modern Approach, Third Edition, Stuart Russell and Peter Norvig, Pearson Education.

Reference Books:
1. Artificial Intelligence,3rd Edn., E.Rich and K.Knight(TMH)
2. Artificial Intelligence, 3rd Edn., Patrick Henny Winston, Pearson Education.
3. Artificial Intelligence, Shivani Goel, Pearson Education. 4. Artificial Intelligence and Expert systems– Patterson, Pearson Education.

VEDIC

Faculty: Dr.B.L.Praveena
Year & Sem: II-I
Subject : Java Programming

Title of the Report:

Building Object-Oriented Programming Skills through Java-Based Problem Solving.

Motivation/ Teaching Problem statement

Many second-year engineering students face challenges in understanding object-oriented programming concepts such as classes, objects, inheritance, polymorphism, and abstraction in Java. This report presents a problem-based learning strategy aimed at reinforcing these concepts through hands-on coding activities, mini-projects, and interactive debugging sessions. The objective is to help students transition from procedural thinking to an object-oriented mindset by applying Java concepts in real-world programming scenarios.

Learning Goals/ Course Outcomes
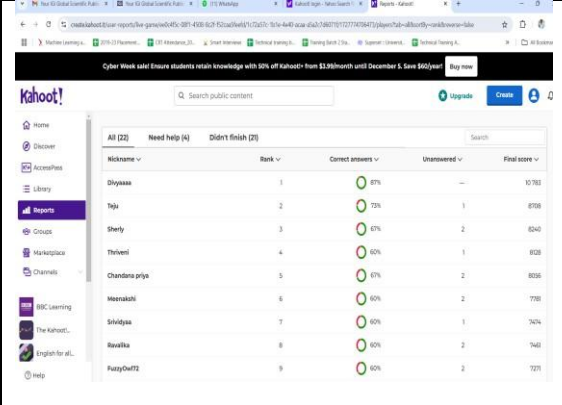
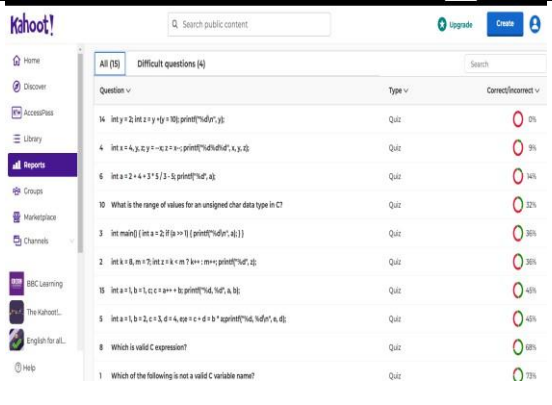| CO1	Illustrate Object-Oriented concepts and basics of Java programming.
CO2	Explore the concepts of inheritance, packages, and interfaces.

Activity Setup and Group Formation

A total of 70 students were divided into 23 groups, each with 3 students. Kahoot - is an engaging, game-based learning platform that makes quizzes fun and interactive for students. It encourages active participation by transforming learning into a competitive experience. Using a unique Game PIN (2887482), 23 participants joined, entered their nicknames, and answered questions displayed on a shared screen via their mobile devices. A set of 15 questions was prepared from the Unit-1 and Unit-2 syllabus. The host's screen displayed the questions and answer options, while students responded on their devices by selecting the color-coded button or shape matching the correct answer. Each question had a time limit, with faster correct responses earning more points, making the game exciting and interactive for everyone.

Rubrics for Project Evaluation

Rank	Player	Total Score (points)	Correct Answers	Incorrect Answers
1	Vaishnavi	10783	13	2
2	Madhuri	8708	11	4
3	Pavani	8240	10	5
4	Rishitha	8128	9	6
5	Saranya	8056	10	5
6	Lasya	7781	9	6
7	Akshaya	7474	9	6
8	Indu	7461	9	6
9	Padma sir	7271	9	6
10	Vaishnavi	6948	8	7

11	Asritha	6605	9	6
12	Geethika	6478	8	7
13	Prashanthi	6467	8	7
14	Jahnavi	6446	8	7
15	Divya	6441	8	7
16	Harshita	5743	8	7
17	Janvi	5689	7	8
18	Harshitha	5553	7	8
19	Chandrika	4066	5	10
20	Prasanna	3284	4	11
21	Moukthika	0	0	15
22	Meghana	0	0	15

Total Score (points)
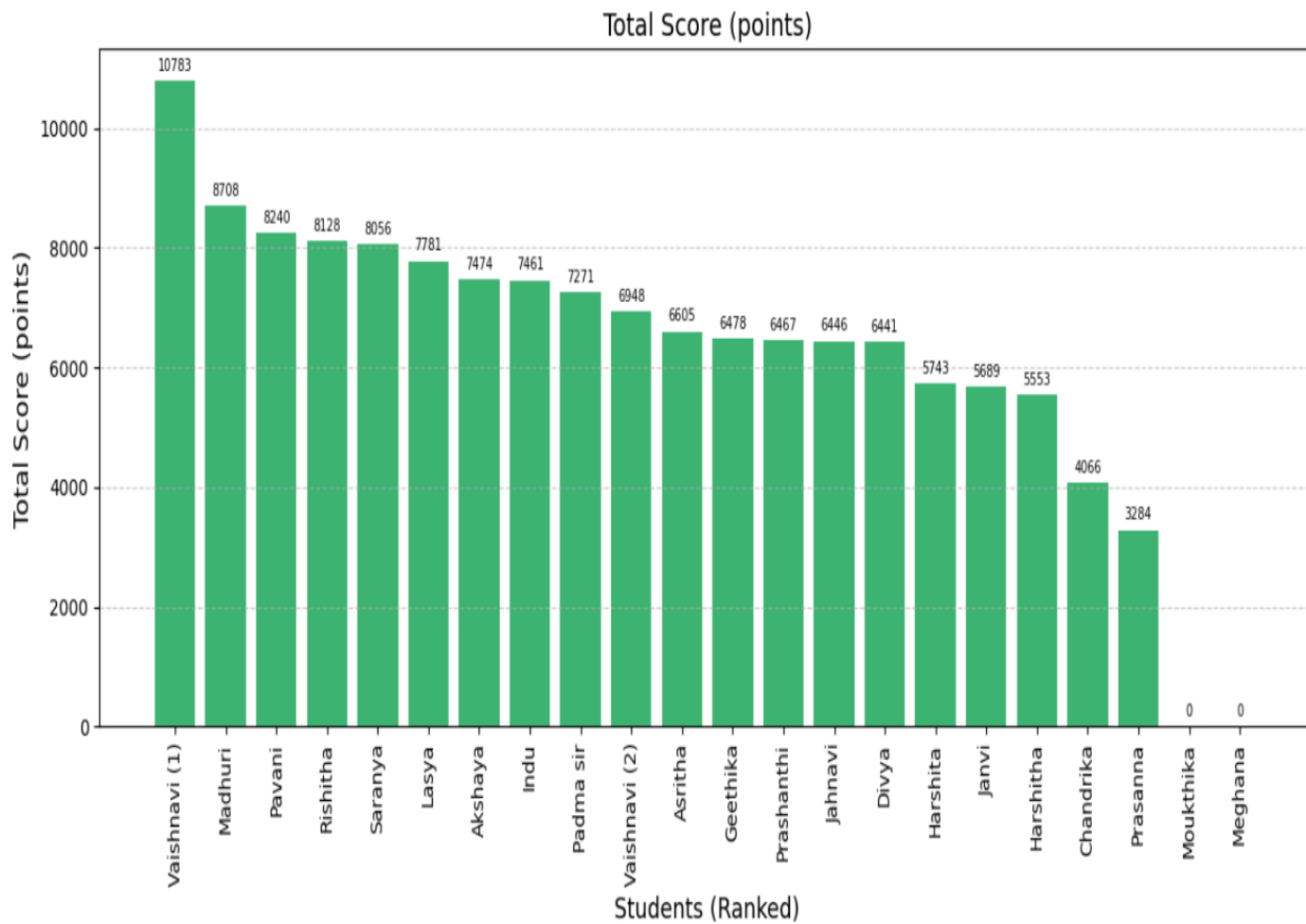
Impact of Student Learning:

In the Java programming context, students demonstrated increased confidence in developing basic object-oriented programs, such as class definitions, method usage, and constructor logic. Collaborative learning through group activities and peer programming helped weaker students better grasp abstract concepts like inheritance and polymorphism. Tasks focusing on control structures, array manipulation, and string handling showed higher success rates, whereas more complex topics like exception handling and file I/O required additional support and practice sessions.

Mid Marks analysis on CO1 and CO2:

Performance on CO1 (Java syntax and basic structure) was consistently higher across all student groups, indicating a solid understanding of static components such as class declarations, method definitions, and basic data types. In contrast, **CO2 (application of Java constructs)** showed a broader range of scores, particularly in tasks involving object instantiation, method overloading, and control flow, suggesting the need for more targeted hands-on sessions and real-world problem-solving activities to reinforce conceptual clarity.

Reflection of Teaching:

The hands-on and group-based coding activities helped improve student engagement and interest in learning. Working together made it easier for students to understand programming logic and fix errors with confidence.

In future sessions, we plan to include real-time compilation and step-by-step walkthroughs to help students better understand loops and conditional statements.

TEXT BOOKS:

1. Java the complete reference, 7th edition, Herbert schildt, TMH.

2. Understanding OOP with Java, updated edition, T. Budd, Pearson education.

REFERENCE BOOKS:

1. An Introduction to programming and OO design using Java, J.Nino and F.A. Hosch, John wiley & sons.

2. An Introduction to OOP, third edition, T. Budd, Pearson education.

Name of the Activity: Kahoot
Faculty Name: B LakshmiPraveena
Class: II – I / AIML
Academic Year: 2024– 25
Subject Name: Object Oriented Programming through Java