

INTRODUCTION TO ARTIFICIAL INTELLIGENCE

21GNP301L - COMMUNITY CONNECT REPORT 2024-2025

Submitted by

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in partial fulfillment of the requirements for the

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE ENGINEERING



DEPARTMENT OF COMPUTING TECHNOLOGIES

COLLEGE OF ENGINEERING AND TECHNOLOGY

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KATTAKULATHUR – 603203

SEPTEMBER 2024

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BONAFIDE CERTIFICATE

Certified that 21GNP301L Community Connect report titled “Introduction to Artificial Intelligence” is the bonafide work of “**Roshni Banerjee (RA2211003010836)** who carried out the community work at **HIJLI HIGH SCHOOL, IIT KHARAGPUR**. Certified further, that to the best of my knowledge the work reported herein does not form any other report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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COMPLETION/ATTENDANCE CERTIFICATE

To whomsoever it may concern

This is to certify that **Ms. ROSHNI BANERJEE**, 2nd Year B. Tech student in Computer Science and Engineering in the Department of Computing Technologies (C-Tech), SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu, as a part of her 'Community Connect' activity has taught the children of classes XI and XII of the Hijli High School, IIT Campus, Kharagpur-2, Paschim Medinipur, West Bengal, during the summer vacation, 2024. The classes were taken on 'Introduction to Artificial Intelligence', which is an important and technologically relevant topic for high school children. The student participants were highly benefited from Ms. Banerjee's teaching. We wish her the very best for future carrier.

(Signature with Seal)
RABI SANKAR CHATTERJEE
Headmaster & Secretary
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21GNP301L COMMUNITY CONNECT

Academic Year 2024-25 5th Semester

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OBJECTIVES OF THE COMMUNITY CONNECT

My objective in teaching "Introduction to AI" at HIJLI HIGH School was to share my passion for artificial intelligence and its potential to transform various sectors and everyday life. During my visit, I delivered interactive lectures, and demonstrated practical AI applications such as chatbots, image recognition, and basic machine learning models, aiming to ignite curiosity and interest in technology among the students. These services were complemented with access to online resources and materials for further exploration. I chose this organization because of my commitment to educational equity and my desire to provide every student with the opportunity to engage with advanced technological concepts, regardless of their socio-economic background. West Bengal Government High School serves a diverse student population, making it an ideal environment to foster inclusive education and bridge the digital divide. By bringing AI education to these students, I hoped to contribute to their holistic development and inspire them to pursue careers in STEM fields, thereby preparing them for a future driven by technological advancements

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CHAPTER 1

INTRODUCTION OF THE ORGANIZATION

About the Organization: HIJLI HIGH SCHOOL, IIT Kharagpur

The Hijli High School was setup in 1951 under the aegis of IIT Kharagpur. At this point the contribution of the Hijli Co-operative Society and some enthusiastic local educationists needs to be recalled. The School was set up primarily to provide educational facility to the children of the IIT employees and to children residing in the immediate neighborhood. In course of time, the School made an academic impact that extended well beyond Kharagpur. Presently, the School imparts education to students from quite a few neighbouring districts. In the formative years, the Hijli High School consisted of Hijli Primary School and the Hijli Tech. School. Later, in conformity with Govt. orders, the Hijli Primary and Hijli Tech. School separated as full-fledged Institutions.

Presently, Hijli High School caters to the students of the Secondary and the Higher Secondary levels. In the course of last Sixty Two years, this Institution has been able to provide the kindling spark to the inherent creative faculties that remain nascent in most students. The ignited minds have left a mark on every walk of life.

Nature of Activities of the Organization

HIJLI High School engages students in a wide array of academic and extracurricular activities. Academically, the school offers a robust curriculum in sciences, mathematics, humanities, and languages, utilizing innovative teaching methods and technology to enhance learning outcomes. Regular assessments and feedback help students continuously improve and achieve their academic goals.

Beyond academics, the school emphasizes co-curricular activities such as sports, arts, music, and cultural programs, encouraging students to explore and develop their talents. Inter-house and inter-school competitions foster healthy competition and teamwork. Additionally, the school conducts workshops and seminars on contemporary issues and emerging technologies, often facilitated by experts from IIT Kharagpur. Community service and environmental awareness activities promote social responsibility and sustainability among students.

Need for Choosing the Organization

The decision to choose HIJLI High School, IIT Kharagpur for teaching "Introduction to AI" was driven by several compelling reasons. Firstly, the school's proximity to IIT Kharagpur, a premier institute of technology, makes it an ideal location to introduce advanced concepts such as Artificial Intelligence (AI). The students at HIJLI High School are already in an environment that values and promotes scientific inquiry and innovation, which aligns perfectly with the objectives of an AI education initiative.

The nature of the services provided during this initiative included interactive lectures, and demonstrations of practical AI applications. These services were designed to make AI accessible and engaging for the students. The interactive lectures covered the basics of AI, its history, and its various applications in real-world scenarios. Hands-on workshops allowed students to experiment with simple AI models and understand the underlying principles through practical experience. Demonstrations showcased the capabilities of AI in areas such as image recognition, natural language processing, and robotics.

Choosing HIJLI High School for this initiative also stemmed from a desire to leverage the existing academic environment and resources available through its connection with IIT Kharagpur. The students are well-prepared and likely to benefit significantly from an introduction to AI, which could spark their interest in pursuing further studies or careers in this cutting-edge field. Additionally, the school's emphasis on holistic education ensures that students are encouraged to integrate their technical knowledge with ethical considerations and social responsibility, which are crucial aspects of AI development and application.

In conclusion, this session at HIJLI High School aimed to inspire and equip students with the knowledge and skills necessary to navigate and contribute to a world increasingly influenced by artificial intelligence. By providing a structured and engaging learning experience, the initiative sought to prepare the students not only for academic success but also for meaningful contributions to society through technology.

CHAPTER 2

WEEK-WISE REPORT

WEEK-1 (Class 12)

Activities Rendered

I conducted a comprehensive session on "Introduction to AI," which was carefully structured to maximize student engagement and learning within a limited timeframe of two hours. The session comprised the following activities:

1. Introduction and Overview :
 - Brief introduction to AI, its history, and its importance.
 - Discussion on various applications of AI in everyday life, such as virtual assistants, recommendation systems, and self-driving cars.
2. Interactive Lecture :
 - Explanation of key AI concepts, including machine learning, neural networks, and natural language processing.
 - Use of visual aids and real-world examples to illustrate these concepts.
 - Encouraging questions and discussions to ensure student engagement and understanding.
3. Demonstrations and Applications :
 - Live demonstrations of advanced AI applications, such as image recognition and voice assistants.
 - Explanation of how these applications work and their impact on various industries.
 - Discussion on future possibilities and potential careers in AI.
4. Ethical Considerations and Q&A :
 - Brief discussion on the ethical implications of AI, including data privacy and algorithmic bias.
 - Encouraging students to think critically about the responsible use of AI.
 - Open floor for students to ask questions and share their thoughts.

Time Spent

The total time spent on the session was two hours, meticulously divided into the activities mentioned above to ensure a balanced mix of theoretical knowledge, practical experience, and interactive discussions.

Outcome

The outcomes of this two-hour session were highly positive and multifaceted:

1. Enhanced Understanding of AI:
 - Students gained a clear understanding of fundamental AI concepts and their practical applications.
 - The interactive lecture and real-world examples helped demystify AI and made it accessible to high school students.
2. Increased Interest and Engagement:
 - The session sparked genuine interest in AI among students, many of whom expressed a desire to learn more about the field.
 - The group activities and collaborative projects fostered a sense of teamwork and mutual support.
3. Awareness of Ethical Considerations:
 - The brief discussion on ethical issues encouraged students to think critically about the implications of AI technology.
 - Students were introduced to the importance of responsible AI development and usage.
4. Positive Feedback and Continued Curiosity:
 - Feedback from students and faculty indicated that the session was both informative and inspiring.
 - Many students showed interest in pursuing further studies and projects related to AI, demonstrating the lasting impact of the initiative.



Fig 1
Taking class for class 12 students



Fig 2
Taking class for class 12 students



Fig 3
Taking class for class 12 students



Fig 4
Taking class for class 12 students

WEEK-2 (Class 11)

Activities Rendered

I conducted a comprehensive session on "Introduction to AI," which was carefully structured to maximize student engagement and learning within a limited timeframe of two hours. The session comprised the following activities:

5. Introduction and Overview :
 - Brief introduction to AI, its history, and its importance.
 - Discussion on various applications of AI in everyday life, such as virtual assistants, recommendation systems, and self-driving cars.
6. Interactive Lecture :
 - Explanation of key AI concepts, including machine learning, neural networks, and natural language processing.
 - Use of visual aids and real-world examples to illustrate these concepts.
 - Encouraging questions and discussions to ensure student engagement and understanding.
7. Demonstrations and Applications :
 - Live demonstrations of advanced AI applications, such as image recognition and voice assistants.
 - Explanation of how these applications work and their impact on various industries.
 - Discussion on future possibilities and potential careers in AI.
8. Ethical Considerations and Q&A :
 - Brief discussion on the ethical implications of AI, including data privacy and algorithmic bias.
 - Encouraging students to think critically about the responsible use of AI.
 - Open floor for students to ask questions and share their thoughts.

Time Spent

The total time spent on the session was two hours, meticulously divided into the activities mentioned above to ensure a balanced mix of theoretical knowledge, practical experience, and interactive discussions.

Outcome

The outcomes of this two-hour session were highly positive and multifaceted:

5. Enhanced Understanding of AI:

- Students gained a clear understanding of fundamental AI concepts and their practical applications.
- The interactive lecture and real-world examples helped demystify AI and made it accessible to high school students.

6. Increased Interest and Engagement:

- The session sparked genuine interest in AI among students, many of whom expressed a desire to learn more about the field.
- The group activities and collaborative projects fostered a sense of teamwork and mutual support.

7. Awareness of Ethical Considerations:

- The brief discussion on ethical issues encouraged students to think critically about the implications of AI technology.
- Students were introduced to the importance of responsible AI development and usage.

8. Positive Feedback and Continued Curiosity:

- Feedback from students and faculty indicated that the session was both informative and inspiring.
- Many students showed interest in pursuing further studies and projects related to AI, demonstrating the lasting impact of the initiative.



Fig 5
Taking class for class 11 students



Fig 6
Taking class for class 11 students



Fig 7
Taking class for class 11 students



Fig 8
Taking class for class 11 students

WEEK-3 (Class 10)

Activities Rendered

I conducted a comprehensive session on "Introduction to AI," which was carefully structured to maximize student engagement and learning within a limited timeframe of two hours. The session comprised the following activities:

9. Introduction and Overview :

- Brief introduction to AI, its history, and its importance.
- Discussion on various applications of AI in everyday life, such as virtual assistants, recommendation systems, and self-driving cars.

10. Interactive Lecture :

- Explanation of key AI concepts, including machine learning, neural networks, and natural language processing.
- Use of visual aids and real-world examples to illustrate these concepts.
- Encouraging questions and discussions to ensure student engagement and understanding.

11. Demonstrations and Applications :

- Live demonstrations of advanced AI applications, such as image recognition and voice assistants.
- Explanation of how these applications work and their impact on various industries.
- Discussion on future possibilities and potential careers in AI.

12. Ethical Considerations and Q&A :

- Brief discussion on the ethical implications of AI, including data privacy and algorithmic bias.
- Encouraging students to think critically about the responsible use of AI.
- Open floor for students to ask questions and share their thoughts.

Time Spent

The total time spent on the session was two hours, meticulously divided into the activities mentioned above to ensure a balanced mix of theoretical knowledge, practical experience, and interactive discussions.

Outcome

The outcomes of this two-hour session were highly positive and multifaceted:

9. Enhanced Understanding of AI:

- Students gained a clear understanding of fundamental AI concepts and their practical applications.
- The interactive lecture and real-world examples helped demystify AI and made it accessible to high school students.

10. Increased Interest and Engagement:

- The session sparked genuine interest in AI among students, many of whom expressed a desire to learn more about the field.
- The group activities and collaborative projects fostered a sense of teamwork and mutual support.

11. Awareness of Ethical Considerations:

- The brief discussion on ethical issues encouraged students to think critically about the implications of AI technology.
- Students were introduced to the importance of responsible AI development and usage.

12. Positive Feedback and Continued Curiosity:

- Feedback from students and faculty indicated that the session was both informative and inspiring.
- Many students showed interest in pursuing further studies and projects related to AI, demonstrating the lasting impact of the initiative.



Fig 9
Taking class for class 10 students



Fig 10
Taking class for class 10 students



Fig 11
Taking class for class 10 students



Fig 12
Taking class for class 10 students

WEEK-4 (Class 9)

Activities Rendered

I conducted a comprehensive session on "Introduction to AI," which was carefully structured to maximize student engagement and learning within a limited timeframe of two hours. The session comprised the following activities:

13. Introduction and Overview :

- Brief introduction to AI, its history, and its importance.
- Discussion on various applications of AI in everyday life, such as virtual assistants, recommendation systems, and self-driving cars.

14. Interactive Lecture :

- Explanation of key AI concepts, including machine learning, neural networks, and natural language processing.
- Use of visual aids and real-world examples to illustrate these concepts.
- Encouraging questions and discussions to ensure student engagement and understanding.

15. Demonstrations and Applications :

- Live demonstrations of advanced AI applications, such as image recognition and voice assistants.
- Explanation of how these applications work and their impact on various industries.
- Discussion on future possibilities and potential careers in AI.

16. Ethical Considerations and Q&A :

- Brief discussion on the ethical implications of AI, including data privacy and algorithmic bias.
- Encouraging students to think critically about the responsible use of AI.
- Open floor for students to ask questions and share their thoughts.

Time Spent

The total time spent on the session was two hours, meticulously divided into the activities mentioned above to ensure a balanced mix of theoretical knowledge, practical experience, and interactive discussions.

Outcome

The outcomes of this two-hour session were highly positive and multifaceted:

13. Enhanced Understanding of AI:

- Students gained a clear understanding of fundamental AI concepts and their practical applications.
- The interactive lecture and real-world examples helped demystify AI and made it accessible to high school students.

14. Increased Interest and Engagement:

- The session sparked genuine interest in AI among students, many of whom expressed a desire to learn more about the field.
- The group activities and collaborative projects fostered a sense of teamwork and mutual support.

15. Awareness of Ethical Considerations:

- The brief discussion on ethical issues encouraged students to think critically about the implications of AI technology.
- Students were introduced to the importance of responsible AI development and usage.

16. Positive Feedback and Continued Curiosity:

- Feedback from students and faculty indicated that the session was both informative and inspiring.
- Many students showed interest in pursuing further studies and projects related to AI, demonstrating the lasting impact of the initiative.



Fig 13

Taking class for class 9 students



Fig 14

Taking class for class 9 students



Fig 15

Taking class for class 9 students



Fig 16

Taking class for class 9 students

CHAPTER 3

TANGIBLE LEARNING

Summary of the Student's Learning

During the "Introduction to AI" initiative at HIJLI High School, students gained a comprehensive understanding of Artificial Intelligence, its foundational concepts, and real-world applications. The program began with interactive lectures that introduced the history and evolution of AI, highlighting its significance in contemporary technology and various industries.

Demonstrations of advanced AI applications further enriched the learning experience. Students witnessed AI in action through examples like voice assistants, and recommendation systems. These demonstrations illustrated the impact of AI on daily life and various professional fields, emphasizing the relevance of AI skills in the modern workforce.

The initiative also included discussions on the ethical considerations and societal implications of AI. Students explored topics such as data privacy, algorithmic bias, and the importance of responsible AI development. These discussions aimed to instill a sense of ethical responsibility and critical thinking in students as they navigate the AI landscape.

Overall, the students' learning was multifaceted, combining theoretical knowledge, practical skills, and ethical considerations. This holistic approach ensured that students not only understood AI concepts but also appreciated their real-world applications and the importance of responsible AI usage.

Benefits of the End Users

The benefits of this initiative extend beyond the immediate educational experience, influencing the students, the school, and the broader community.

1. Empowered Students: Students who participated in the AI program are now equipped with foundational knowledge and practical skills in AI, positioning them for future academic and career opportunities in technology and related fields. This early exposure to AI fosters a sense of curiosity and ambition, encouraging students to pursue further studies and careers in STEM (Science, Technology, Engineering, and Mathematics).

2. Enhanced Academic Environment: The initiative contributes to the academic enrichment of HIJLI High School. The integration of AI education aligns with the school's commitment to providing a modern and comprehensive curriculum. It enhances the school's reputation as a forward-thinking institution that prepares students for the challenges and opportunities of the digital age.

3. Increased Technological Literacy: Introducing AI concepts to students at a young age increases technological literacy within the community. As students share their knowledge with peers and family members, the understanding and appreciation of AI technology spread, fostering a more informed and tech-savvy community.

4. Encouragement of Critical Thinking and Ethical Awareness: The ethical discussions included in the program encourage students to think critically about the implications of AI. This awareness is crucial as AI technology becomes more integrated into various aspects of life. Students learn to approach technology with a balanced perspective, considering both its potential benefits and ethical challenges.

5. Inspiration for Future Innovation: Exposure to AI and its possibilities inspires students to think creatively about how they can contribute to technological advancements. This inspiration can lead to innovative projects, further studies, and potentially groundbreaking contributions to the field of AI and beyond.

6. Bridging the Digital Divide: By bringing AI education to HIJLI High School, the initiative helps bridge the digital divide, ensuring that students from diverse backgrounds have access to cutting-edge knowledge and skills. This equitable approach to education promotes inclusivity and equal opportunities for all students, regardless of their socio-economic background.

7. Preparation for the Future Workforce: As AI becomes increasingly integral to various industries, the skills and knowledge gained through this initiative prepare students for the future

workforce. Understanding AI technology and its applications enhances their employability and adaptability in a rapidly evolving job market.

In conclusion, the "Introduction to AI" initiative at HIJLI High School provided students with valuable learning experiences and practical skills, while also benefiting the broader community by fostering technological literacy, ethical awareness, and inspiration for future innovation. This program not only prepared students for academic and career success but also contributed to the development of a more informed, responsible, and innovative society.

CHAPTER 4

STUDENT'S CONTRIBUTION

Engaging in community service by teaching "Introduction to AI" to students at HIJLI High School was a fulfilling and impactful experience. This initiative aimed to bridge the gap between advanced technological concepts and high school education, providing students with foundational knowledge and hands-on experience in Artificial Intelligence (AI). Through a series of structured activities and interactive sessions, I contributed to fostering a curiosity-driven and innovative learning environment.

Planning and Preparation

The success of the initiative hinged on meticulous planning and preparation. I began by designing a comprehensive curriculum that encompassed both theoretical and practical aspects of AI. This curriculum included modules on the history and evolution of AI, key concepts like machine learning and neural networks, and the ethical implications of AI technologies. I also prepared interactive lectures, and engaging demonstrations to make the learning process both informative and enjoyable.

To ensure the content was accessible to high school students, I focused on simplifying complex concepts without diluting their essence. I collaborated with the school's faculty to understand the students' current knowledge level and learning preferences, allowing me to tailor the sessions effectively. Additionally, I sourced materials and tools that would enable students to experiment with AI in a practical setting, such as online AI platforms and simple coding environments.

Interactive Lectures

The initiative kicked off with a series of interactive lectures designed to introduce students to the fundamentals of AI. These lectures covered the history of AI, its current applications, and future potential. By using real-world examples and case studies, I aimed to highlight the relevance of AI in various fields, from healthcare to entertainment.

To keep the students engaged, I encouraged active participation through Q&A sessions and group discussions. This interactive approach helped demystify AI concepts and allowed students to express their thoughts and queries. It was rewarding to see students gradually overcome their initial apprehensions and show genuine interest in the subject matter.

Demonstrations and Real-World Applications

To further inspire the students, I conducted demonstrations showcasing advanced AI applications. These demonstrations included live interactions with AI-driven virtual assistants, image recognition software, and even simple robotics. By seeing AI in action, students could better appreciate its practical implications and potential impact on society.

Ethical Discussions

A crucial component of the initiative was addressing the ethical considerations and societal implications of AI. I facilitated discussions on topics such as data privacy, algorithmic bias, and the ethical use of AI technologies. By encouraging students to think critically about these issues, I aimed to instill a sense of responsibility and ethical awareness.

These discussions were vital in helping students recognize that while AI has immense potential, it also poses significant ethical challenges. Understanding these challenges is essential for future AI practitioners who must balance innovation with ethical considerations.

Feedback and Impact

At the end of the program, I gathered feedback from students to assess the initiative's impact and identify areas for improvement. The responses were overwhelmingly positive, with students expressing increased interest in AI and a desire to pursue further studies in the field.

CHAPTER 5

CONCLUSION

The community service initiative I undertook to teach "Introduction to AI" at HIJLI High School was an enriching and impactful experience, both for the students and for myself. This program aimed to bridge the gap between cutting-edge technology and secondary education, empowering students with foundational knowledge and practical skills in Artificial Intelligence. Throughout this initiative, I meticulously planned and executed a curriculum that combined theoretical insights, practical workshops, and ethical discussions. By delivering interactive lectures, I helped students grasp the basics of AI and its evolution. Demonstrations of real-world AI applications further inspired students by showing them the tangible impact of AI technology. One of the most rewarding aspects of this initiative was observing the students' transformation. Initially hesitant, they gradually became enthusiastic participants, actively engaging with the material and expressing a keen interest in further exploring AI. The collaborative projects and teamwork enhanced their learning experience. The ethical discussions we held were crucial in shaping a balanced perspective on AI. By addressing topics such as data privacy and algorithmic bias, I aimed to instill a sense of responsibility and critical thinking in the students. These discussions are essential for nurturing future AI practitioners who are mindful of the ethical implications of their work. Feedback from students was overwhelmingly positive, highlighting the program's success in sparking interest in AI and enhancing critical thinking skills. Many students expressed a desire to continue learning about AI, indicating the lasting impact of the program. In conclusion, the community service initiative to teach "Introduction to AI" at HIJLI High School was a significant step towards equipping young minds with the knowledge and skills needed in a technology-driven world.

