

October '24 Edition

THE BYTE

Technophiles
Bharati

BYTE BY BYTE, WE IGNITE
TECH INSIGHT

**Bharati
College**

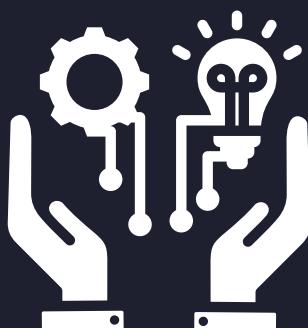
University
of
Delhi

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
Bharati College, University of Delhi

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TECHNOPHILES: THE COMPUTER SCIENCE DEPARTMENT

Welcome to Technophiles, the student-led center for innovation and exploration within the Department of Computer Science at Bharati College. Established in 2023, Technophiles aims to nurture a passion for technology and innovation.



Technophiles is a vibrant, student-run initiative by the Department of Computer Science at Bharati College, University of Delhi. Founded in 2023, our name embodies our mission: 'Fostering a love for technology (as technology enthusiasts are often called "Technophiles"). We believe learning extends beyond textbooks, offering a platform for students to dive deeper into the exciting world of

computer science, experiment with innovative ideas, and connect with a passionate community of fellow tech enthusiasts.

"Technology is just a tool. In terms of getting the kids working together and motivating them, the teacher is the most important."

- Bill Gates



MEET OUR TEAM



Riti Gupta
(President)



Niharika Jain
(Vice-President)



Archita
(Secretary)



Aditree R
(Managing Editor)



Priyanshi Gupta
(Publishing Editor)



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(Treasurer + Project
Head)



Adya Mishra
(Research and
Innovation Head)



Ayushi Singh
(Technical Program
Manager)



Tisha Gola
(Chief HR Officer)



Harshita Gupta
(Director of Corporate
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Jasmeet Kaur
(Head of Sponsorship
Liaison)



Riya Pandey
(Social Media Lead)



Bhavya Jain
(Chief Communication
Officer)



Priyanka Devi
(Director of Public
Relations)



Divyanshi Singh
(Event Producer)



Abhilasha Bhattacharya
(Event Coordinator)



The byte

OUR AIM: Empowering Future Tech Leaders

We aim to create a dynamic and collaborative environment where students can develop their technical skills through hands-on experiences. By going beyond the curriculum, we offer workshops and events featuring industry experts, fostering a deeper understanding of computer science concepts and their real-world applications. We encourage students to explore their creative potential by providing opportunities to experiment with new technologies and participate in coding competitions.

Technophiles empowers students to confidently lead and drive innovation in the ever-evolving tech industry, equipping them with the skills and vision to shape the future.

"The most important thing about technology is how it changes people."

-Jaron Lanier



VISION: Shaping the Future of Tech Education



The Future of Tech Education: Empowering Minds, Inspiring Innovation, and Transforming Tomorrow.

Our vision is to make Technophiles synonymous with excellence in Computer Science education at Bharati College. We strive to be a leading force in fostering a culture of innovation and exploration within the department. We envision a future where Technophiles provides students with the resources and support they need to excel academically and translate their knowledge into practical solutions.

We believe in nurturing a diverse and inclusive community where students from all backgrounds feel comfortable exploring their interests. We are committed to helping them develop their technical expertise. By providing a platform for collaboration and knowledge sharing, Technophiles aims to empower the next generation of tech leaders who will shape the future of the industry.

"The art of debugging is figuring out what you really told your program to do."
- Andrew Singer



The Double-Edged Sword of Technology: Balancing Convenience and Dependence

Contributor

Priya Chaudhary

B.A (Hons) English

Bharati College, University of Delhi



In today's digital age, technology has become an integral part of our daily lives. We wake up to smartphone alarms, scroll through social media, and rely on Google for answers. While technology has increased convenience and connectivity, it also raises concerns about our growing dependence.

Research suggests that excessive tech use can lead to:

- Decreased attention span and cognitive skills (University of California, 2020)
- Increased stress, anxiety, and depression (Harvard Health Publishing, 2019)
- Sleep deprivation and physical inactivity (National Sleep Foundation, 2022)
- Social isolation and decreased face-to-face interaction (Pew Research Center, 2020)

To avoid the pitfalls of tech dependence, consider:

- Setting screen-free zones and times
- Engaging in offline activities (reading, exercise, hobbies)
- Prioritizing face-to-face interactions
- Implementing digital detoxes and breaks

A study by Digital Information World (2022) found that:

- 60% of adults check their phones within 5 minutes of waking up
- 40% of teens feel anxious when separated from their phones

While technology enhances our lives, it's crucial to recognize the risks of over-reliance. By striking a balance between tech use and offline activities, we can harness the benefits of innovation while preserving our mental and physical well-being.

Sources:

- University of California. (2020). The Impact of Technology on Cognitive Skills.
- Harvard Health Publishing. (2019). The Risks of Excessive Screen Time.
- National Sleep Foundation. (2022). Sleep and Technology.
- Pew Research Center. (2020). Mobile Technology and Home Broadband.
- Digital Information World. (2022). Mobile Phone Addiction Statistics.

TECH TRIVIA

1. Which company first introduced the concept of "Object-Oriented Programming" (OOP)?
 - a) Xerox PARC
 - b) IBM
 - c) Microsoft
 - d) Apple
2. In the context of cloud computing, what does the acronym "FaaS" stand for?
 - a) Fault as a Service
 - b) Function as a Service
 - c) File as a Service
 - d) Framework as a Service
3. What is the purpose of the "CAP theorem" in distributed computing?
 - a) To ensure high availability in a network
 - b) To balance consistency, availability, and partition tolerance
 - c) To determine the best storage solution
 - d) To optimize data transmission speed

1. a) Xerox PARC
2. b) Function as a Service
3. b) To balance consistency, availability, and partition tolerance

4. Which of the following protocols is primarily used for sending encrypted emails?

- a) IMAP
- b) SMTP
- c) PGP
- d) HTTP

5. In the blockchain world, what does the term "51% attack" refer to?

- a) A hacker gaining control over 51% of the network's mining power
- b) A flaw in the blockchain's codebase
- c) A failed blockchain consensus
- d) A security breach in the digital wallet

6. What is "Moore's Law" in the context of computer hardware?

- a) The observation that processing power doubles every year
- b) The prediction that computer storage will become cheaper over time
- c) The statement that the number of transistors on a chip doubles approximately every two years
- d) The forecast of faster internet speeds in future generations

7. Which programming language was developed by Bell Labs and is known for its contributions to UNIX development?

- a) C
- b) Java
- c) Perl
- d) Go

4. c) PGP

5. a) A hacker gaining control over 51% of the network's mining power

6. c) The statement that the number of transistors on a chip doubles approximately every two years

7. a) C

What does the term "Zero-Day Exploit" refer to in cybersecurity?

- a) A vulnerability that is fixed before any attack can occur
- b) A type of attack that takes advantage of a previously unknown vulnerability
- c) A kind of phishing attack
- d) A security loophole found on the first day of a product's launch

In the field of machine learning, what does "Overfitting" mean?

- a) The model is too simplistic and cannot generalize
- b) The model has too many features
- c) The model performs excellently on training data but fails to generalize to new data
- d) The model is under-optimized

Which cryptographic technique does Bitcoin's proof-of-work algorithm rely on?

- a) RSA encryption
- b) SHA-256 hashing
- c) Elliptic Curve Cryptography
- d) AES encryption

8. b) A type of attack that takes advantage of a previously unknown vulnerability
9. c) The model performs excellently on training data but fails to generalize to new data
10. b) SHA-256 hashing

Virtual Reality: Exploring a New Dimension

***IMMERSIVE
DIGITAL
EXPERIENCE
REDEFINED.***



Virtual Reality (VR) is a technology that immerses users in a computer-generated environment, designed to simulate real or imagined experiences. VR typically requires a headset that covers the user's eyes and uses sensors to track head movements, creating a 360-degree view that changes as the user looks around, providing a sense of presence within a virtual world. This cutting-edge technology has transformed how people interact with digital environments and opened up new possibilities across industries, including entertainment, healthcare, education, and beyond.

Virtual Reality (VR) technology creates an immersive experience through several key components. The headset, the primary interface, includes screens and lenses that create a stereoscopic effect, simulating depth and perspective for a realistic experience. Motion tracking sensors track the user's head and body movements, allowing the virtual environment to adjust in real-time, making the user feel part of the scene. VR applications also require significant computing power to render detailed environments and process motion data. Additionally, audio and haptic feedback, such as touch sensations from gloves or controllers, engage multiple senses, further enhancing the immersion.

Virtual Reality (VR) offers immersive learning and training, enhancing skill development through hands-on experiences. It also improves accessibility, enabling people to experience distant or physically challenging activities. VR can save costs by eliminating the need for physical resources or travel in training and simulations. However, challenges include high equipment costs, motion sickness during prolonged use, and potential psychological impacts like social isolation. Advancements in lightweight headsets and better tracking could address these issues. Future VR applications, combining AI and mixed reality (MR), could lead to more realistic and interactive experiences.

Virtual Reality is transforming our interaction with digital environments, offering vast potential across various industries. From reshaping entertainment and training to broadening access to new experiences, VR continues to push innovation. As the technology evolves, it is poised to become increasingly integrated into daily life, potentially revolutionizing the digital landscape in ways yet to be fully realized.

DATA AND GEN AI NEXUS 4.0

DATE: 5 OCTOBER, 2024
VENUE: ECOSPHERE,
NOIDA
TIME: 10 AM - 2 PM

STUDENT REPRESENTATIVES

Riti Gupta (President)

Riya Pandey (Media Head)



SPEAKERS

Tomaz Bratanic
Shubham Shardul
Nisha Aggarwal
Vajratiya Vajrobo
Shivay Lamba

VISION

The vision for attending Data & AI Nexus 4.0 aligns with Technophiles' mission to empower students at Bharati College by immersing them in cutting-edge AI advancements. At this event, we sought to bridge the gap between academic knowledge and real-world AI applications, providing our team with invaluable insights into the future of AI and Data Science. Through expert-led discussions on topics like LLMs, GraphRAG, and Delta Lakehouse solutions, our goal was to absorb innovative concepts, engage with industry leaders, and bring those learnings back to our community, shaping tomorrow's tech leaders through exposure and collaboration.

OBJECTIVES

The objectives of Technophiles at Data & AI Nexus 4.0 were multifold. We aimed to enhance our members' understanding of emerging technologies like Large Language Models (LLMs), Knowledge Graphs, and Delta Lakehouse architecture. By interacting with industry experts, we sought to foster knowledge exchange on AI security, multimodal data integration, and practical AI implementations. Another key objective was to network with professionals and innovators to build collaborations that can inspire future workshops and hands-on projects within our society.

Ultimately, our goal was to equip our members with insights to drive future research and tech leadership in AI and data science.

ACHEIVEMENTS

The Data & AI Nexus 4.0 covered a wide array of AI innovations and implementations, essential for future tech leaders. Key topics included GraphRAG technology to enhance Large Language Models (LLMs) with knowledge graphs, creating multimodal knowledge graphs from text and images, and Delta Lakehouse enterprise solutions for streamlined data storage and analysis. Additionally, discussions focused on LLM security through Natural Language Processing (NLP) and strategies for building RAG-ready applications. These varied insights provided Technophiles with a deep dive into AI's multifaceted applications across business, security, and technology, fostering a comprehensive grasp of the rapidly evolving AI landscape.

ASPECTS COVERED

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GraphRAG technology to enhance Large Language Models (LLMs) with knowledge graphs, creating multimodal knowledge graphs from text and images, and Delta Lakehouse enterprise solutions for streamlined data storage

and analysis. Additionally, discussions focused on LLM security through

Natural Language Processing (NLP) and strategies for building RAG-ready applications. These varied insights provided Technophiles with a deep dive into AI's multifaceted applications across business, security, and technology, fostering a comprehensive grasp of the rapidly evolving AI landscape.

SPEAKERS

Tomaz Bratanic captivated the audience with his presentation on "GraphRAG: Powering Up LLMs with Knowledge Graphs." He showcased the tremendous potential of using knowledge graphs to improve the performance and accuracy of large language models. His expertise and insights sparked new ideas among attendees, making it one of the standout moments at Data & AI Nexus 4.0.

Shubham Shardul delivered groundbreaking insights on multimodal knowledge graphs, illustrating how text and images can be combined to build richer, more comprehensive knowledge systems. His presentation emphasized the importance of data versatility in AI, inspiring attendees to explore beyond single modalities and engage with complex, integrated data solutions.

Nisha Aggarwal provided valuable insights into the enterprise landscape with her presentation on Delta Lakehouse enterprise solutions. She highlighted the importance of optimizing data storage, processing, and analysis, showcasing how modern businesses can enhance their data workflows. Nisha's deep knowledge of streamlining enterprise solutions made her session both technically rich and highly relevant to the intersection of AI and business.

Vajratiya Vajroboi addressed the critical issue of LLM security using Natural Language Processing (NLP), highlighting the vulnerabilities of language models and the necessary steps to protect them.

His presentation on prompt security sparked important discussions, emphasizing the need to safeguard AI technologies amid the growing complexity of cyber threats.

Shivay Lamba concluded the event with an engaging session on strategies for developing RAG-ready applications. His expertise in creating effective, reliable, and secure retrieval-augmented generation apps offered a practical guide to developers. Shivay's session left the audience equipped with actionable insights for the development of future AI applications.

CONCLUSION

The Data & AI Nexus 4.0 was an extraordinary experience, equipping us with invaluable insights into LLM advancements, multimodal knowledge graph technologies, and NLP security. Engaging with industry experts expanded our understanding of AI's practical applications across various sectors. These insights have inspired our members and reinforced our commitment to integrating these learnings into future projects and workshops. The event concluded on a high note, leaving us with renewed optimism and a strong sense of purpose as we continue to explore, innovate, and share our AI journey with the larger community.



TECHNOLOGY AND ITS IMPACT ON SOCIETY

Contributor
Namita

B. Com (Hons)
Bharati College, University of Delhi



Technology has revolutionized modern society, transforming how we live, work, and interact. The internet, mobile devices, and social media have connected people worldwide, fostering communication and collaboration. This interconnectedness has opened up new avenues for education, entertainment, and economic opportunities.

However, technology's influence extends beyond benefits, with concerns about addiction, social isolation, and decreased face-to-face interaction. Cyberbullying and online harassment are significant issues, highlighting the need for responsible technology use and digital literacy.

Automation and artificial intelligence are transforming industries, displacing jobs and requiring workers to adapt. Healthcare has improved with advances in medical imaging, telemedicine, and personalized medicine. Yet, technology's environmental footprint cannot be ignored, contributing to pollution, waste, and climate change.

As technology evolves, its influence on society deepens. Virtual and augmented reality, blockchain, and IoT will reshape industries. To harness technology's potential, we must prioritize responsible innovation, digital inclusion, and sustainability.

The future of technology and society is intertwined. Our choices today will shape tomorrow's world. We must engage in ongoing conversations about technology's impact, ensuring benefits are equitably distributed and challenges addressed.

Technology's transformative power demands nuanced understanding. Acknowledging benefits and drawbacks, we can harness technology to build a brighter, sustainable future. By addressing challenges and leveraging opportunities, we can create a future where innovation serves humanity's greatest needs.

Technology's impact on society is complex and multifaceted. Embracing responsible innovation, we can navigate this landscape, ensuring technology enhances human well-being and promotes equitable growth. The time to shape our technological future is now.

THINK LOCAL

Business Solution Challenge

Date : 23rd October
2024

Time : 12-4pm

Venue : Seminar
Room, Bharati
College

MAJOR PARTICIPANTS

Convener : Ms.
Sheetal Mavi

TIC : Dr. Sarita Kadian
All technophiles team
300+ Registration
20+ Live Participants

JUDGES

- Ansh Sehdeva
- Abhishek Dubey
- Bhavna Singh



ROUND 1

- Participants submit a write up (under 500 words) relevant to the 2nd vendor.
- Pitch the idea to the 2nd vendor
- Vendor scores and provides feedback

ROUND 2

- Participants submit a write up (under 500 words) relevant to the 2nd vendor.
- Pitch the idea to the 2nd vendor
- Vendor scores and provides feedback

VISION

The vision of the Think Local competition is to empower individuals and communities by fostering innovation and sustainable development at the grassroots level. By encouraging participants to focus on local challenges, the competition aims to inspire creative solutions that address real-world issues in their immediate surroundings. It seeks to promote self-reliance, enhance economic opportunities, and improve the quality of life through community-driven ideas. Think Local believes that the key to global progress lies in strengthening local ecosystems, fostering collaboration, and supporting projects that have a direct, positive impact on local communities and environments.

OBJECTIVE

The objective of the "Think Local" competition is to inspire participants to develop innovative solutions that address local community challenges. By focusing on issues faced in their neighborhoods, participants are encouraged to leverage local resources, culture, and knowledge to create sustainable and impactful solutions. The competition aims to foster a sense of social responsibility, empowering individuals to think creatively and collaboratively. It seeks to promote local entrepreneurship, support grassroots innovations, and generate practical ideas that can improve the quality of life within communities. Ultimately, "Think Local" encourages participants to drive positive change and contribute meaningfully to their surroundings.

— ACHIEVEMENTS —

The "Think Local" competition has achieved significant success in empowering communities to address local issues through innovative solutions. It has fostered a culture of grassroots problem-solving, inspiring participants to develop practical ideas that positively impact their surroundings. By promoting collaboration, the competition has united diverse groups, from students to entrepreneurs, driving meaningful change. Numerous projects launched through the competition have gone on to secure funding, expand operations, and create sustainable solutions for local challenges. The initiative has also heightened awareness of social responsibility, equipping participants with skills to tackle real-world problems and contribute to the long-term development of their communities.

HOST OF EVENT

The event was hosted by Jasmeet Kaur and Harshita Gupta, with a lively and respectful approach.

WINNER

Arshiya Rattan of Bharati College, won the Challenge.

Congratulations to her!



CONCLUSION

The Think Local event successfully highlighted the importance of supporting local businesses and initiatives. With attendees and guest speaker, the event fostered meaningful connections and sparked innovative ideas. Like Local economies' impact on community development and Collaborative opportunities. The event demonstrated the power of community-driven initiatives, encouraging attendees to rethink their consumer choices and invest in local growth. We look forward to continuing this momentum, empowering local leaders, and cultivating a thriving community. Thank you to attendees, speakers, and sponsors for making this event a success! We look forward to continuing our efforts to build a vibrant, self-sustaining community.



RECODE ON CAMPUS

DATE: OCTOBER, 2024

VENUE: Central Lawn,
Bharati College

TIME:



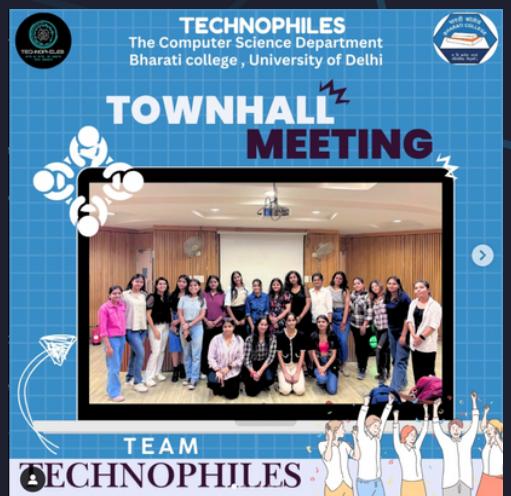
EVENT

Bharati College recently hosted an exciting event, Recode on Campus, bringing a blend of beauty and fun to the Central Lawn. Organized in collaboration with Technophiles, the event showcased Recode's premium skincare and makeup products, offering students an opportunity to explore beauty essentials and discover bold new trends.

The highlight of the day was the buzzing giveaway stall, where students engaged in live product demos, hands-on trials, and expert consultations. From skincare tips to stunning makeup looks, participants left glowing—inside and out. The event also featured exciting deals on top beauty products, adding to the energy and excitement. A big shoutout goes to the dedicated Technophiles team for their hard work in making the event an unforgettable success. Recode on Campus wasn't just about beauty but also about creativity, collaboration, and community spirit. Here's to more vibrant partnerships and memorable experiences ahead!

TOWNHALL 3.0

DATE: 23 October, 2024
VENUE: Seminar Room,
Bharati College
TIME: 4 PM Onwards



EVENT

Townhall 3.0 was more than just a celebration of achievements; it was a heartfelt recognition of the spirit and dedication that define Technophiles. The event, led by the visionary President Riti Gupta, paid tribute to the passionate members whose efforts light the way for innovation and growth.

Every story shared during the event showcased the unwavering commitment of individuals who work tirelessly to build a vibrant, thriving community. From personal milestones to collective accomplishments, Townhall 3.0 reminded everyone of the power of teamwork and the importance of every contribution.

Under Riti Gupta's inspiring leadership, Technophiles has grown into more than an organization; it's a family that hustles, learns, and evolves together. The event was a celebration of the past and a launchpad for new possibilities as the group continues to innovate and create meaningful change.

Here's to the members of Technophiles who make every step of the journey extraordinary!



Contributor B.A (Hons) English
Priya Chaudhary Bharati College, University of Delhi

THE DARK SIDE OF PROGRESS: ARE WE TOO DEPENDENT ON TECHNOLOGY?

In today's digital era, technology has become an indispensable part of our lives. We rely on smartphones, laptops, and tablets for communication, information, and entertainment. However, this growing dependence raises concerns about our well-being and societal implications.

Excessive tech use has been linked to decreased attention span, increased stress, anxiety, and depression. A study by Harvard Health Publishing found that 60% of adults experience screen-related stress. Moreover, the constant stream of information can lead to information overload, decreased critical thinking skills, and diminished creativity.

Over-reliance on technology also affects our social skills and relationships. A Pew Research Center study revealed that 40% of teens feel anxious when separated from their phones, leading to social isolation and decreased face-to-face interaction.

To avoid the pitfalls of tech dependence, consider:

- Setting screen-free zones and times
- Engaging in offline activities (reading, exercise, hobbies)
- Prioritizing face-to-face interactions
- Implementing digital detoxes and breaks

While technology enhances our lives, it's crucial to recognize the risks of over-reliance. By striking a balance between tech use and offline activities, we can harness innovation's benefits while preserving our mental and physical well-being.





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