DATA GLIMPSE

A Newsletter of Data Science Program, Department of Computer Science and Engineering, SOE, DSU, Bangalore

VISION AND MISSION

DSU

Vision

To be a centre of excellence in education, research & training, innovation & entrepreneurship and to produce citizens with exceptional leadership qualities to serve national and global needs.

Mission

To achieve our objectives in an environment that enhances creativity, innovation and scholarly pursuits while adhering to our vision

VISION AND MISSION

Data Science

Vision

To develop pool of high calibre professionals, researchers and entrepreneurs in the areas of Computer Science & Engineering and Information Technology with exceptional technical expertise, skills and ethical values, capable of providing innovative solutions to the national and global needs.

Mission

- To create a robust ecosystem where academicians, concept developers, product designers, business incubators, product developers, entrepreneurs, mentors and financial institutions are brought together under one platform of the department.
- To establish Project Environment in the Department with open source tools, provide hands-on experience to students by establishing a process to channelize their effort towards acquiring relevant competencies and skills in their chosen technology areas and domains.
- To create continuous learning environment for faculty and establish Research Centres in collaboration with Industries and Institutions of National/International repute and conduct research in emerging areas as well as socially relevant technical and domain areas through funded research projects.

Dayananda Sagar University, Innovation Campus, School of Engineering
Kudlu Gate, Hosur Road, Bengaluru - 560 068

DEAN'S MESSAGE

Dr. Udaya Kumar Reddy K R
Dean - School of Engineering
Professor, Dept. of Computer Science and Engineering
DSU

I am delighted that the Data Science Program, Department of Computer Science and Engineering is bringing out the newsletter that can provide wonderful insights for students and faculty fraternity.

A lot has been happening in the school of computing sciences over the years, and one of the significant changes involves this newsletter.

Our graduate students are doing amazing things in many different areas in different ways. In the current issue, you'll meet some remarkable students and faculty who are making a difference in the technical aspects and otherwise. We are hoping to build this endowment with your support, to afford even more opportunities for students to take part in this important component of their graduate education.

I hope this magazine provides the reader a wonderful insights and I thank the editorial team for their wonderful effort in bringing out this newsletter.
Wish you all the best.

CHAIRPERSON'S MESSAGE

Dr. Shaila S G
Professor & Chairperson
Data Science Program
Department of CSE
SOE,DSU

It gives me immense pleasure and pride to introduce the first volume of the Newsletter **DATA GLIMPSE** from the Data Science Program, Department of Computer Science & Engineering. The Data Science program is designed to bridge the industry gaps in terms of research and development using cutting-edge technologies. The program aims to meet the requirements of various job roles in Data Science.

The students and faculty members of the program have contributed technologically to solving real-world challenges through projects, hackathons, and quizzes. The program has offered various workshops and webinars for the students to develop their skills and knowledge in various domains. These events are effectively captured in the newsletter in the form of articles and achievements. I hope the Data Science newsletter motivates and encourages the students and faculty members with ample opportunities and exposure.

I thank the students, faculty members, and the editorial team for their wonderful efforts in bringing out this newsletter.

"Data science isn't about the quantity of data but rather the quality." — Joo Ann Lee

ABOUT THE PROGRAM

B.Tech CSE (Data Science) is a 4-year undergraduate degree programme. Data Science teaches the students how to combine Machine Learning techniques, algorithms, tools, business acumen and mathematics and apply on raw data to extract insight information from it. In short, technology algorithm development and data inference are blended together to solve complex problems analytically in Data Science.

Throughout the entire duration of the programme, the students are taught how to amalgamate business knowledge, tools and statistics to generate business value in creative ways.

The four-year undergraduate curriculum includes a detailed delivery of Basic Sciences, Mathematical Foundations, Statistical Foundations, Artificial Intelligence, Machine Learning, Data Science, Deep Learning, and Data Visualization.

The curriculum imparts 21st century skills having the following components: Liberal education aspects for all round development, courses that trigger new age skills, project based learning, special topics (hands-on sessions on multiple topics with mentoring from expert), option for MOOC, UG Research Project/Product Development/Internships.

The curriculum focuses on Liberal Art Courses, Foundation Courses, Professional Courses, and Electives that helps them build expertise in some specialized areas. Curriculum developed also emphasis on Design oriented thinking, Communication, Collaboration and Creativity right from 1st year.

A degree in Computer Science (Data Science) can lead to the following job roles in a variety of industries such as Retail, Finance, E-commerce, Healthcare, IT services:

- Data Scientist
- Data Analyst
- Business Analyst
- Data Engineer
- Senior Data Engineer
- Senior Data Analyst
- Data Director

What's inside...

- Articles
- Programme Events
- Staff Achievements
- Student Achievements
- Result Analysis

And more....

"Playing with Data - Towards Data Science." — Shaila S G

FACULTY LIST

Dr. Shaila S G
Professor & Chairperson

Dr. Shaila S G has earned her Ph.D in Computer Science from NIT, Trichy, Tamil Nadu for her thesis on Multimedia Information Retrieval in Distributed System. She has 17 years of experience in teaching & research in the concerned field. She has worked for CPRI, Bangalore as a Trainee Engineer. Later, she worked as a Research Fellow for a DST project, India for a period of 3 years. She has also worked in Indo-US collaborated project for "Obama-Singh Knowledge Initiative Program" in the University of Nevada (UNLV), Las Vegas, United States. She is a certified IBM trainer for the Business Intelligence. Her research areas are Data mining, Information Retrieval, Image Processing and Computational Neuroscience. She has published more than 50 research articles in reputed Journals and Conferences, books and book chapters. She has 11 Indian Patents and 2 Australian Patents.

Dr. Sanjeev Kumar
Professor as Practice

Sanjeev Kumar with more than 25 years of industrial research in various positions at Motorola, Philips, Texas Instruments, Honeywell, Hindustan Aeronautics and as entrepreneur foundering CEO of start-up BioCOS Life Sciences (www.biocosls.com) has experience in wide areas of interdisciplinary research of machine and intelligent statistical data learning for healthcare, computational biology, big intelligent genomics data processing (high throughput genomics and bioinformatics NGS data), applied mathematics, expert in software and algorithms developments, image/video/speech processing with demonstrated performance in the form of various research publications in journals of repute like Nucleic Acid Research(NAR), Nature Scientific Report, Febs Letters, Journal of Biological Chemistry and Epigenetics & Chromatin. He has granted USA patents in areas of speech and image processing from execution of several research projects and products in the industry.

Prof. Shivamma D
Assistant Professor

Prof. Shivamma D has completed her M.Tech in CSE from Birla Institute of Technology and Science (BITS), Pilani (Rajasthan). She has an extensive experience of 7 years in the field of Teaching and Research. She has worked as an IT Officer/IT Programmer/Data Analyst at NIMHANS, Bengaluru. Her research interests are in the area of Technology Enabled Digital Learning, Machine Learning, Image Processing, Computational Neuroscience, Big Data Analytics and Data Science.

Prof. Monish L
Assistant Professor

Prof. Monish L has completed M.Tech from Dayananda Sagar University, Bangalore. He has 1 year of industrial experience in ADAS. His areas of interest are Machine Learning and Artificial Intelligence. He has published 3 Book chapters in 1 international journal.

"Data is the language of the powerholders." — Jodi Petersen

ARTICLES

Emerging trends and techniques of Data Science in the Real-time Environment.

The new trending technologies, big data and cloud computing, are in line with social media applications due to their fast growth and usage. The characteristics of big data make data management difficult. The term data refers to an immense collection of both organised and unorganised data from various sources. Nowadays, cloud computing supports storing and processing such huge amounts of data. Analytics are done on huge data sets that help decision makers take decisions. Approximately every day, two billion emails are sent, and the number of Google searches is around one billion per day. The number of Instagram photos posted every minute is around 65,972 and 4,48,800 tweets are composed. By the end of 2020, the number of mobile users could reach some 1 billion.

The Accenture study performed a survey and revealed that the cooperative executives may lose their position if they are not focused on big data. Further analysis said that most of the companies take projects on big data to increase their profit. Thus, the data within the enterprise is increasing exponentially, which creates a huge impact on storage. One of the surveys conducted by Forrester research in 2017 revealed that the solutions of big data along with cloud computing have increased about 7.5 times. However, merging two conflicting design principles brings a challenge, but it has its own advantage in various fields. Big data analytics in the cloud places rigorous demands on networks, storage, and servers. Converging big data and cloud technologies allows organisations to make faster decisions in order to maximise profits and adapt to future trends and behaviour. Analytics on the cloud helps businesses stay competitive.

Dr. Shaila S G
Professor & Chairperson
Data Science Program
Department of CSE
SOE, DSU

"Big data isn't about bits, it's about talent." — Douglas Merrill

Data Science and its Applications in IoT

Big Data and the Internet of Things (IoT) are two major ruling domains in today's world. It is observed that there are 2.5 quintillion bytes of data created each day. Big data defines a very large amount of data in terms of both structured and unstructured formats. Business intelligence and other application domains that have high information density use big data analytics to make predictions and better decisions to improve the business.

Big data analytics is used to analyse a large range of data at a time. On the other hand, IoT is assisting in the establishment of interconnections between machines, humans, and machines. IoT is helping people gain real-time solutions to complicated problems. In general, big data and IoT were built on different technologies, but over time, they became intertwined to create a better world. Companies are not able to achieve maximum benefit just because the data produced by the applications is not utilised and analysed effectively as there is a shortage of big data analysts.

For real-time IoT applications, synchronisation among hardware, programming, and interfacing is needed to a greater extent. Big data and IoT have interdependencies on each other. When they come together to achieve a particular goal, we are able to provide a much more efficient and reliable application. Sensors that collect 1,000 readings per second at 1 KB of data per reading grow to 1 MB of data per second per sensor. At 10,000 sensors, we are streaming a GB/second of data. Looking at these statistics, we can easily understand what level of impact the advent of big data is having on IoT (and vice versa). The combination of IoT and big data is the perfect union for innovation to flourish, driving businesses. Big data is about large chunks of data being assimilated in organizations. IoT is about interconnecting devices. IoT and big data as a single unit have provided numerous benefits to both organisations and end-users.

Prof. Monish L
Assistant Professor
Data Science Program
Department of CSE
SOE, DSU

"It's easy to lie with statistics It's hard to tell the truth without statistics."— Andrejs Dunkels

Fusion of Big Data, IoT and Cloud technologies for solving Real Time problems

The Internet of Things (IoT), Big Data, and Cloud Computing have become the most prevalent technologies in recent years, thanks to advances in computation power and the internet revolution. The convergence of these three technologies has led to the development of new opportunities and applications that solve real-time problems in the most efficient way. This contributes to the profound transformation of the socioeconomic system. Machine learning, deep learning, and artificial intelligence are key technologies that are used to provide value-added applications along with IoT and Big Data. Though Cloud Computing and Big Data have an inherent connection between them, the IoT plays a major role as a data source unit. Cloud Computing is playing a significant role in the storage and management of data. However, the main concerns that accompany the IoT are the issues related to privacy, security, power efficiency, computational complexities, etc.

Misinterpretation of data and security limitations are the bottlenecks of Big Data. Whereas, the limitations of cloud computing involve network connection dependency, limited features, technical issues, and security. Every large business depends on a growing set of data sources and entrenched enterprise applications. The key tenets of IoT, Cloud Computing, and Big Data are to ingest the data and react to it in real time. Some real-time examples of this are smart cities, industry revolution 4.0, healthcare, supply chain management, agriculture, smart waste management, transportation and logistics etc.

Prof. Shivamma D
Assistant Professor
Data Science Program
Department of CSE
SOE, DSU

"The data speaks for itself. That's the easiest measure of success." — Caitlin Smallwood

Trends: The new lifestyle of this generation

Figuring out what the next big trend is; tells us what we should focus on today. Necessity is the mother of invention, with these new inventions, there is always place for growth. Science has advanced so much in the years that today there is always an easy and fun way to learn and develop. Educational trends are paving a whole new path for learning. Game-based learning is one of the most popular emerging trends in educational technology. With game-based learning, students play (digital or non-digital) games that teach or reinforce specific concepts or skills. Immersive learning is an approach that leverages augmented reality (AR), virtual reality (VR), mixed reality (MR), and 3D simulations to create highly interactive, virtual learning environments. In recent years, VR solutions from vendors like ClassVR, Oculus, and RobotLAB have become more common in classrooms for lessons in everything from STEM to history. While less futuristic than AR/VR/MR, digital textbooks are also playing a similar role in changing how education is delivered. Physical textbooks are expensive, hard to distribute and collect from remote students, impossible to update, and, as we saw in 2021, subject to supply chain challenges. Digital textbooks address these challenges, can integrate with e-learning platforms, and help create an interactive learning experience and because it's 2022, a National Literary Trust survey has shown that most students prefer eBooks. Downloading content, updating devices, streaming video content that may complement digital textbooks, and interacting in dynamic virtual environments can significantly increase the amount of network bandwidth a classroom uses. With wired connections often being a non-starter, Wi-Fi access points can quickly become a bottleneck. They need to ensure that they have the access and visibility required to assess learner performance. To enable e-learning, many schools now try to provide a platform which is easily accessible to the students. This approach to e-learning aims to deliver the same learner experience to all students, help ensure device compatibility, simplify monitoring, and makes network security easier and consistent. While specific requirements will vary from school to school, the network is a key enabler of modern education. In a world of online classes and blended learning, students and teachers pay the price if network resources aren't available (or can't meet performance requirements).

To ensure the network is up to par, we need to invest in network security, visibility, and proactive performance monitoring. Even when you get capacity management and network design right, bottlenecks and performance issues can occur. The right network monitoring tools can help you drill down and quickly assess and correct minor issues before they have a significant impact on learners.

Ayesha Malaika
5th Sem, H sec
Data Science Program
Department of CSE SOE, DSU

"The goal is to turn data into information, and information into insight." — Carly Fiorina

PROGRAMME EVENTS

5 DAYS VALUE-ADDED COURSE ON DATA SCIENCE SKILLS ON DIGITAL TRIBE

Under the Data Analytics and Visualization (DAV) Club, Data Science Program, Department of Computer Science and Engineering Organized a 5 days value-added course on "Data Science Skills for Digital Tribe" from 24th - 31st January 2022 Organized by Dr. Shaila S G. Professor and Chairperson Data Science Program, Dept. of CSE and Prof. Shivamma D, Assistant Professor, Data Science Program, Dept. of CSE.

The targeted audience was B.Tech and M.Tech students of the Department of CSE. The workshop consisted of several sessions on a multitude of topics supported by practical sessions, handled by faculty experts from Computer Science and Engineering. Around 100+ students were registered. All students were trained on both theoretical and practical knowledge of the present technologies in the Data Science domain.

The course started with Introduction to Data Science given by Dr. Shaila S G, and Introduction to Business Intelligence by Dr. Basavaraj N Hiremath. The next day Dr. Revathi V explained Mathematics for Data Science followed by Data Pre-processing and Feature extraction given by Dr. Kiran B Malagi.

On Day 3, Dr. Pramod Naik gave an Introduction to Modern Tools and Libraries. Machine Learning Algorithms were explained by Dr. Rajesh T M and Business tools and Self-service dashboards by Dr. Basavaraj N Hiremath.

on day 4, Forensic Investigation by Machine Learning approaches by Dr. Renuka Devi M, BI - Retail Market Case study was demonstrated by Dr. Basavaraj N Hiremath in the next session Dr. Pramod Naik gave a demonstration on Netflix recommender system.

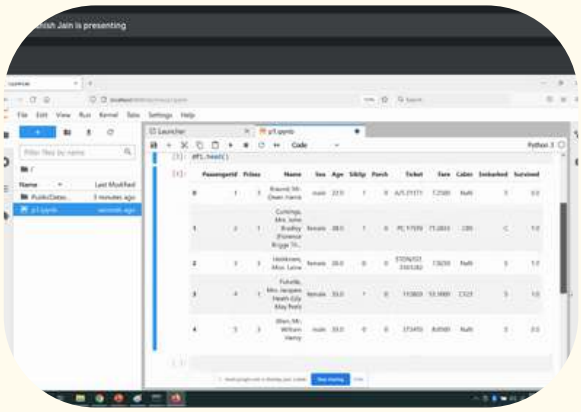
At the end of the course an evaluation was carried out and the students performed satisfactorily.

"Data will talk to you if you are willing to listen". — Jim Bergeson

WEBINAR ON "PRIMER ON DATA SCIENCE TOOLS AND TECHNIQUES"

Resource Person

Mr. Ashish Jain
Data Scientist @ Infosys Ltd.



Under the Data Analytics and Visualization Club, Data Science Program, Department of Computer Science & Engineering conducted a Webinar on "Primer on Data Science Tools and Techniques" on 09th April, 2022. The organizers for the webinar were Dr. Shaila S G, Chairperson, Data Science Program, Dept. of CSE, Prof. Shivamma D, Assistant Professor, Data Science Program, Dept. of CSE. and Dr. Basavaraj N Hiremath, Professor, Dept. of CSE.

The main objective of the Webinar was to provide an insight into real-world industry experience. The students were exposed to applications in the Finance domain. Understanding fraud detection patterns, applying Techniques and Tools for Data mining and Data Transformation, and applying Machine Learning Techniques. The webinar discussed various performance and parameters adopted in Data Science, Data Visualization, Optimization Tools, and Techniques.

The targeted audience was B.Tech and M.Tech students of the Department of CSE. The course was organized in virtual mode. Around 100+ students were registered for the course and 90+ students attended the webinar.

The session was introduced by Dr. Shaila S G, Chairperson, Data Science Program, Dept. of CSE, and then Dr. Basavaraj N Hiremath introduced the speaker of the session Mr. Ashish Jain, Data Scientist @ Infosys Ltd. The speaker in the webinar covered practical exposure to statistics and visualization techniques along with Mining approaches. The webinar showcased various algorithms in ML training on various datasets like Iris etc. All students were trained on both theoretical and practical knowledge of the present technologies in the Data Science domain.

At the end of the course an evaluation was carried out and the students performed satisfactorily, feedback was taken from the students and it is found to be satisfactory. Finally, the vote of thanks was delivered by Prof. Shivamma D.

"We are surrounded by data, but starved for insights."— Jay Baer

DSU E-SPORTS

Under the Data Analytics and Visualization (DAV) Club, Data Science Program, Department of Computer Science and Engineering organized E-Sports Event "Valorant" and "FIFA" on 23rd April, 2022 by RUSHByKIRA.com in collaboration with Data Science inhouse faculties.

The event started with Kickoff Event followed by Valorant and FIFA Tournament. Around 60+ students attended the event. Mr. Sahil Singh, Founder of KIRA E-Sports addressed the participants on careers in E-Sports.

All students were gaming enthusiasts who ranged from amateur to professional backgrounds in gaming. At the end of the event, the statistics were evaluated and the students were awarded on the basis of performance in terms of certain categories for both the games conducted.

Winners List

FIFA 22 Tournament

- 1st Place : Abhijith JK (₹500)
- 2nd Place : Aryan Kumar (₹300)
- 3rd Place : Arham Asif Syed (₹100)
- Top Goal Scorer : Aryan Kumar (₹100)
- Top CleanSheet : Aryan Kumar (₹100)

Valorant Tournament

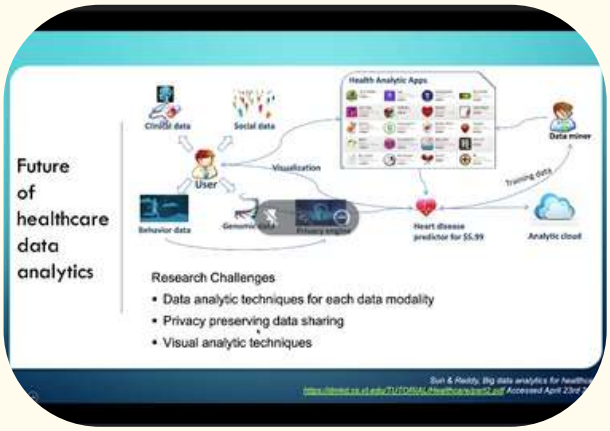
- 1st Place : Team NoRNG (₹2500, ₹500 per player)
- 2nd Place: Team CarryUsFTW (₹1500, ₹300 per player)
- 3rd Place: Team E X A L E (₹500, ₹100 per player)
- Most Valuable Player : Raj Utso Bhattacharya {Exclusive RUSHBYKIRA Hoodie}

"Where there is data smoke, there is business fire."—Thomas Redman

WEBINAR ON "DATA ANALYTICS IN HEALTHCARE"

Resource Person

Dr. Eesha Sharma
Assistant Professor
Dept. of Child and Adolescent Psychiatry
NIMHANS, Bengaluru



Under the Data Analytics and Visualization Club, Data Science Program, Department of Computer Science & Engineering has successfully organized a webinar on "Data Analytics in Healthcare" on 23rd April, 2022 in virtual mode.

The main objective of the Webinar was to provide Data collection methods in Mental Health Research, Understanding the Challenges in data banking from the end-user perspective, and Cross-sectional and longitudinal data analysis methods. Dr. Eesha Sharma, Assistant Professor, Dept. of Child and Adolescent Psychiatry, NIMHANS Bengaluru was the resource person of the webinar organized by Dr. Shaila S G, Professor and Chairperson, Data Science Program, Prof. Shivamma D, Assistant Professor, Data Science Program, Dr. Basavaraj N Hiremath, Professor, Prof. Monish L, Assistant Professor, Data Science Program, Dept. of CSE.

The targeted audience was B.Tech and M.Tech students and Research Scholars of all the programs of the Department of CSE, ECE, and Mech. The course was organized in virtual mode. Around 90+ students attended the webinar. The session was introduced by Dr. Basavaraj N Hiremath and then Prof. Shivamma D introduced the speaker of the session Dr. Eesha Sharma.

The speaker addressed the participants and highlighted focus points of acquiring healthcare data and their pre-processing, with significance to maintaining the privacy of the patient data. As the speaker has expertise in the domain of mental health research, she has discussed the results of demographic data and challenges in data banking with the importance of longitudinal and cross-sectional analysis of the data. She has actively guided a few clarifications and queries of the participants. All students were trained on both theoretical and practical knowledge of the data analysis in the healthcare domain and technologies in the Data Science area. At the end of the course an evaluation was carried out and the students performed satisfactorily, feedback was taken from the students and it is found to be satisfactory.

"Data's just the world making noises at you."— Erin Shellman

FACULTY ACHIEVEMENTS

Dr. Shaila S G
Professor and Chairperson
Data Science Program
Department of CSE

Resource Person

- **Dr. Shaila S G**, Professor and Chairperson, Data Science Program, Department of CSE was the resource person for 7 days of National Level FDP on "Big Data Analytics and Machine Learning" conducted by the Department of Information Science and Engineering, East Point College of Engineering, Bangalore from 26th March to 1st April 2022.

Ph.D. Awarded

Mr. Prasanna MSM, Research Scholar completed his Ph.D. defense Under the supervision of **Dr. Shaila S G** Professor and Chairperson, Data Science Program, CSE on "Sentiment Analysis and Polarity Classification of Sarcastic and Non-Sarcastic Sentences Using Phrase and Clause Patterns" on 14th May 2022.

Research Publication

- Gurudas, V.R., **Shaila S.G**. & Vadivel, A. Breast Cancer Detection and Classification from Mammogram Images Using Multi-model Shape Features. SN COMPUT. SCI. 3, 404 (2022). https://doi.org/10.1007/s42979-022-01290-y
- Kumar Bhadra, A., **Shaila S.G**., Banga, M.K. (2022). Review on Sentiment Analysis and Polarity Classification of Sarcastic Sentences using Deep Learning in Social Media. In: Bhateja, V., Khin Wee, L., Lin, J.CW., Satapathy, S.C., Rajesh, T.M. (eds) Data Engineering and Intelligent Computing. Lecture Notes in Networks and Systems, vol 446. Springer, Singapore. https://doi.org/10.1007/978-981-19-1559-8_24

1. **Shaila S.G**. et al. (2022). Analysis and Prediction of Breast Cancer using Multi-model Classification Approach. In: Bhateja, V., Khin Wee, L., Lin, J.CW., Satapathy, S.C., Rajesh, T.M. (eds) Data Engineering and Intelligent Computing. Lecture Notes in Networks and Systems, vol 446. Springer, Singapore. https://doi.org/10.1007/978-981-19-1559-8_12

- **Shaila S.G**., Gurudas, V.R., Hithyshi, K., Mahima, M., PoojaShree, H.R. (2022). CNN-LSTM-Based Deep Learning Model for Early Detection of Breast Cancer. In: Bhateja, V., Khin Wee, L., Lin, J.CW., Satapathy, S.C., Rajesh, T.M. (eds) Data Engineering and Intelligent Computing. Lecture Notes in Networks and Systems, vol 446. Springer, Singapore. https://doi.org/10.1007/978-981-19-1559-8_9
- **Shaila S.G**., Prasanna, M.S.M., Shazia, Bhavya Shree, C., Arya, S., Deshpande, K.P. (2022). Polarity Classification of Sarcastic Sentence Patterns Based on N-Gram Technique for Twitter Dataset. In: Bhateja, V., Khin Wee, L., Lin, J.CW., Satapathy, S.C., Rajesh, T.M. (eds) Data Engineering and Intelligent Computing. Lecture Notes in Networks and Systems, vol 446. Springer, Singapore. https://doi.org/10.1007/978-981-19-1559-8_25

"Data is a precious thing and will last longer than the systems themselves." – By Tim Berners-Lee

FACULTY ACHIEVEMENTS

Contd.

- **Shaila S.G.**, Lavanya, S., Rajesh, T.M., Bhuvana, D.S., Deshpande, K. (2022). Early Detection of Diabetic Retinopathy Using Multimodal Approach. In: Bansal, J.C., Engelbrecht, A., Shukla, P.K. (eds) Computer Vision and Robotics. Algorithms for Intelligent Systems. Springer, Singapore. https://doi.org/10.1007/978-981-16-8225-4_8

- **Shaila S.G.**, Gurudas, V.R., Rakshita, R., Shangloo, A. (2022). Music Therapy for Mood Transformation Based on Deep Learning Framework. In: Bansal, J.C., Engelbrecht, A., Shukla, P.K. (eds) Computer Vision and Robotics. Algorithms for Intelligent Systems. Springer, Singapore. https://doi.org/10.1007/978-981-16-8225-4_4

- **Shaila S.G.**, Rajesh, T.M., Lavanya, S., Abhishek, K.G., Suma, V. (2022). Music Therapy for Transforming Human Negative Emotions: Deep Learning Approach. In: Mahapatra, R.P., Peddoju, S.K., Roy, S., Parwekar, P., Goel, L. (eds) Proceedings of International Conference on Recent Trends in Computing . Lecture Notes in Networks and Systems, vol 341. Springer, Singapore. https://doi.org/10.1007/978-981-16-7118-0_9

- Prasanna, M.S.M., **Shaila S.G.**, Vadivel, A., Mittal, M., Hithyshi, K., Pooja Shree, H.R. (2022). Sarcastic Sentiment Detection and Polarity Classification of Tweets Using Supervised Learning. In: Mahapatra, R.P., Peddoju, S.K., Roy, S., Parwekar, P., Goel, L. (eds) Proceedings of International Conference on Recent Trends in Computing . Lecture Notes in Networks and Systems, vol 341. Springer, Singapore. https://doi.org/10.1007/978-981-16-7118-0_15

Resource Person

Prof. Shivamma D, Assistant Professor, CSE (Data Science) delivered a lecture on "Data Analysis Using R in Health Care" as the resource person in the Induction Program organized by the Dayananda Sagar College of Arts, Science and Commerce, Department of Computer Applications on 17th February 2022.

Research Publication

Prof Monish L, Assistant Professor, CSE (Data Science) has published 3 Book chapters in a Book "Challenges and Opportunities for the Convergence of Big Data, IOT and Cloud Computing" IGI global Publications, 2022.

"Good Big Data teams will be very tolerant of failure".— Graham Oakes

STUDENT ACHIEVEMENTS

Ms. Amrin Bushra Taj and **Mr. R D Lohith**, 4th Semester Data Science Program secured the first prize in the Python Quiz organized by the AI & ML club of CSE on 16th March 2022.

Ms. Yashna Karkera and **Mr. Pranav S S** of the 4th Semester, Data Science Program secured the second prize in the python Quiz organized by the AI & ML club of CSE on 16th March 2022.

Ayesha Malaika of 4th Semester Data Science Program secured the first prize in the technical debate organized by the Electroblitz club of EC on 26th March 2022

R D Lohith, Rudra Narayan Chetty, Maheep Singh Shaan, Nupur Rajan Naik & Bharanidharan N have successfully presented the paper entitled "Gene Expression Analysis Using Particle Swarm Optimization and Machine Learning Algorithms for Diagnosing Liver & Breast Cancer" at the 3rd International Conference on Electronics and Sustainable Communication Systems (ICESC 2022) organized by Department of ECE, Hindusthan Institute of Technology, Coimbatore, India during 17-19, August 2022.

Dhanusha R, Hritikka N, P.Vanavee of 4th semester from the Data Science Program participated in Art exhibition,where the students presented their Drawings, Paintings and Photography organized by Fine Art club at SOE on 14th may 2022.

"The most valuable commodity I know of is information."— Gordon Gekko

RESULT ANALYSIS

3RD SEMESTER TOPPERS (2020 BATCH)

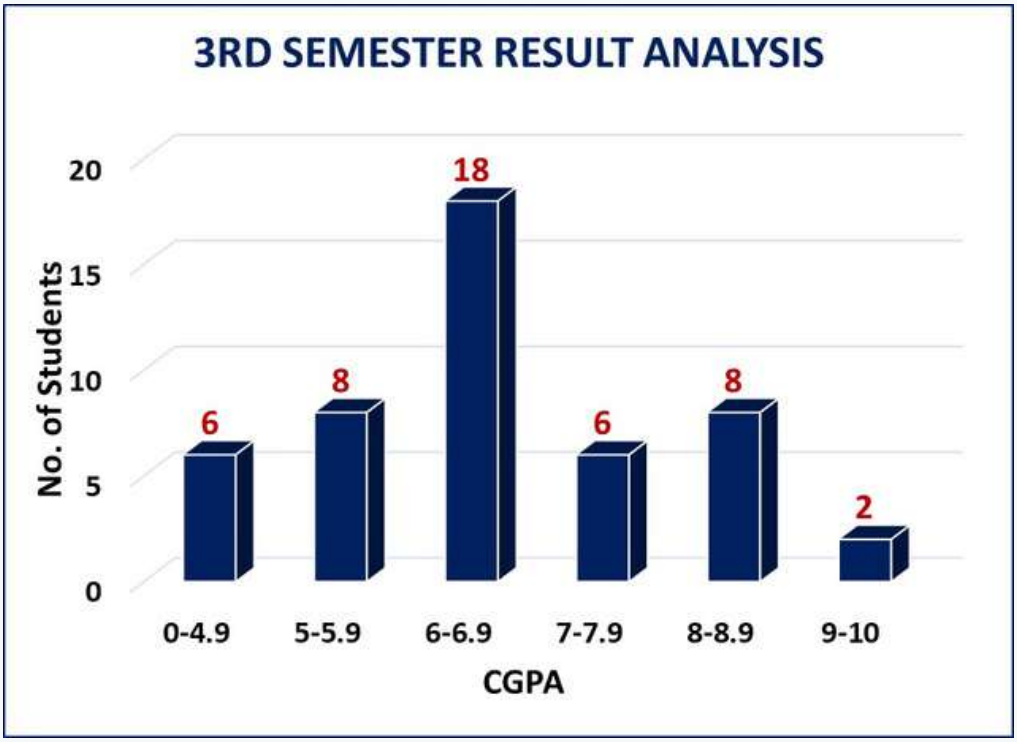
USN	Name	CGPA
ENG20DS0048	YASHNA KARKERA	9.33
ENG20DS0044	VEDANTH V BALIGA	9.26
ENG20DS0026	NANDINI HAZARIKA	8.82
ENG20DS0040	SUKRUTHA G	8.79
ENG20DS0015	DHANUSHA R	8.77

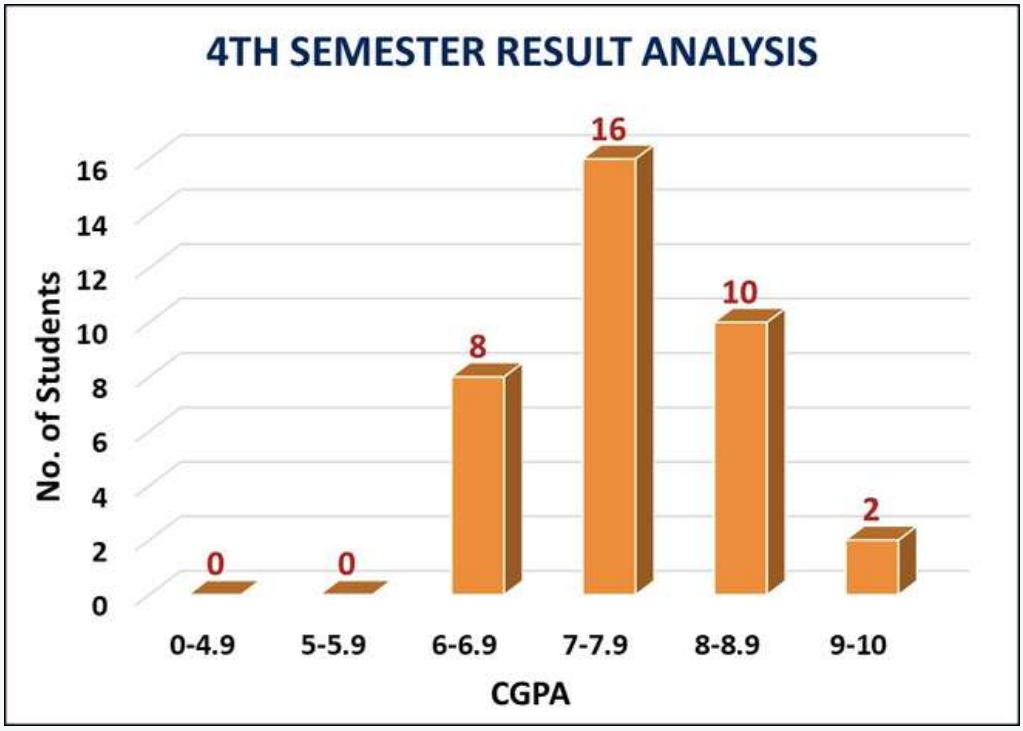
4TH SEMESTER TOPPERS (2020 BATCH)

USN	Name	CGPA
ENG20DS0044	VEDANTH V BALIGA	9.31
ENG20DS0048	YASHNA KARKERA	9.23
ENG20DS0002	AABHIRUCHI SANJA	8.8
ENG20DS0026	NANDINI HAZARIKA	8.75
ENG20DS0040	SUKRUTHA G	8.73

"Data really powers everything that we do."— Jeff Weiner

RESULT ANALYSIS (2020 BATCH)





"Who has the data has the power."— Tim O'Reilly

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"Data beats emotions." — Sean Rad

PROGRAMME OUTCOME (PO'S)

- **PO1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **PO2. Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO4. Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **PO5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- **PO6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- **PO7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **PO8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **PO9. Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **PO10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **PO11. Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **PO12. Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

"One person's data is another person's noise." — K. C. Cole

PROGRAM EDUCATIONAL OBJECTIVES (PEO'S)

- **PEO1.** Possess confident professional engineering skills to build powerful AI models to generate actionable insights, necessary for making data-driven decisions
- **PEO2.** Apply the structured statistical and mathematical methodology to process massive amounts of data in to detect underlying patterns to make predictions under realistic constraints and to visualize the data.
- **PEO3.** Promote design, research, product implementation and services in the field of Data Science and Artificial Intelligence by using modern IT tools.
- **PEO4.** Learn and advance their careers by attaining professional certification and seeking higher education

PROGRAM SPECIFIC OUTCOMES (PSO'S)

- **PSO1.** Apply the knowledge of Mathematics, Science, Big Data Analytics and AI concepts to solve real world business problems under the guidelines of principles of computational intelligence.
- **PSO2.** Inculcate the principles of Data Analysis, Data Warehouse, Analytics, Data visualization and develop predictive models.

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"Data is the new science. Big Data holds the answers." – By Pat Gelsinger