SRMS
College
Engineering,
Technology &
Research, Bareilly

October, 2019

E-NEWS LETTER

SRMSCET & R

Inside this Issue:

Latest Updates in SRMS CET&R

Nukkad Natak

"The Best Way To Find Yourself Is To Lose Yourself In the Service Of Others."

"Keep your thoughts positive
Because your thoughts
Become your words.
Keep your words positive
Because your words
Become your behavior.
Keep your behavior positive
Because your behavior
Becomes your habits.
Keep your habits positive
Because your habits
become your values.
Keep your values positive
Because your values
Becomes your destiny."

--->**Mahatma Gandhi**

On Tuesday, October 1, 2019 Exprimo club of SRMS CET&R, organized a series of Nukkad Natak "Bapu Ke Adarsh ". The play began at 3:30 pm in the campus of SRMS CET&R with the special tribute to Gandhiji.

"Satya Ahinsa Ka Tha Voh Pujari, Kabhi Na Jisne Himmat Hari, Saans Di Humein Azaadi Ki, Jan Jan Jiska Hai Balihaari"

Street play are an integral part of Indian Tradition. The idea of street play is to propagate social and political message in a humorous and sarcastic way and create awareness among the masses. Passion, energy, creativity, freedom to perform under the open skies without the constraints of a stage, and a platform to voice your concerns and spread awareness, that's what "Nukkad Natak" or Street play is all about. The students made concerned to the efforts to realize us the values of "Bapu" & encourage to think about the simple livings of Gandhi ji. The play enlightened the students about the struggles, efforts, ideas, success and the phases faced by Mahatma Gandhi in his life. Now in the recent days how the new generation had forgotten the ideal principle given by Mahatma Gandhi and this notion has led to the devastation in the society and spread of violence among the citizens of the nation.

BIRTH ANNIVERSARY OF Dr. A. P. J. Abdul Kalam

On 15 October 2019 Shri Ram Murti Smarak College of Engineering, Technology & Research, Bareilly celebrated the 88th birthday of Dr. A.P.J Abdul Kalam. The garlanding ceremony as the mark of respect to Dr. A.P.J Abdul Kalam was done by Academic coordinator Dr. M.M Jha, Dean Student Welfare Er. Shailesh Saxena, Principal Law College Dr. S. K. Khandelwal, HOD's of various departments and faculty members.

"Leadership is about vision and responsibility, not power."

These words from Seth Berkley seem to stand true when we talk about the former President and Missile man of our country Dr. A.P.J. Abdul Kalam.

Students thrown the light on whole life of Dr. APJ Abdul kalam. They mentioned that **Dr. A. P. J. Abdul Kalam** have provided a vision for life to the students and to inculcate the fundamentals of values, which should be practice in the years to come". In honour of the man who always wished to be remembered as a teacher and who has made himself approachable to more than 18 million youngsters over the last 15 years of his life, **United Nations** recognized Dr. APJ Abdul

Kalam's 88th birthday as the World Student's Day, in the year 2019.

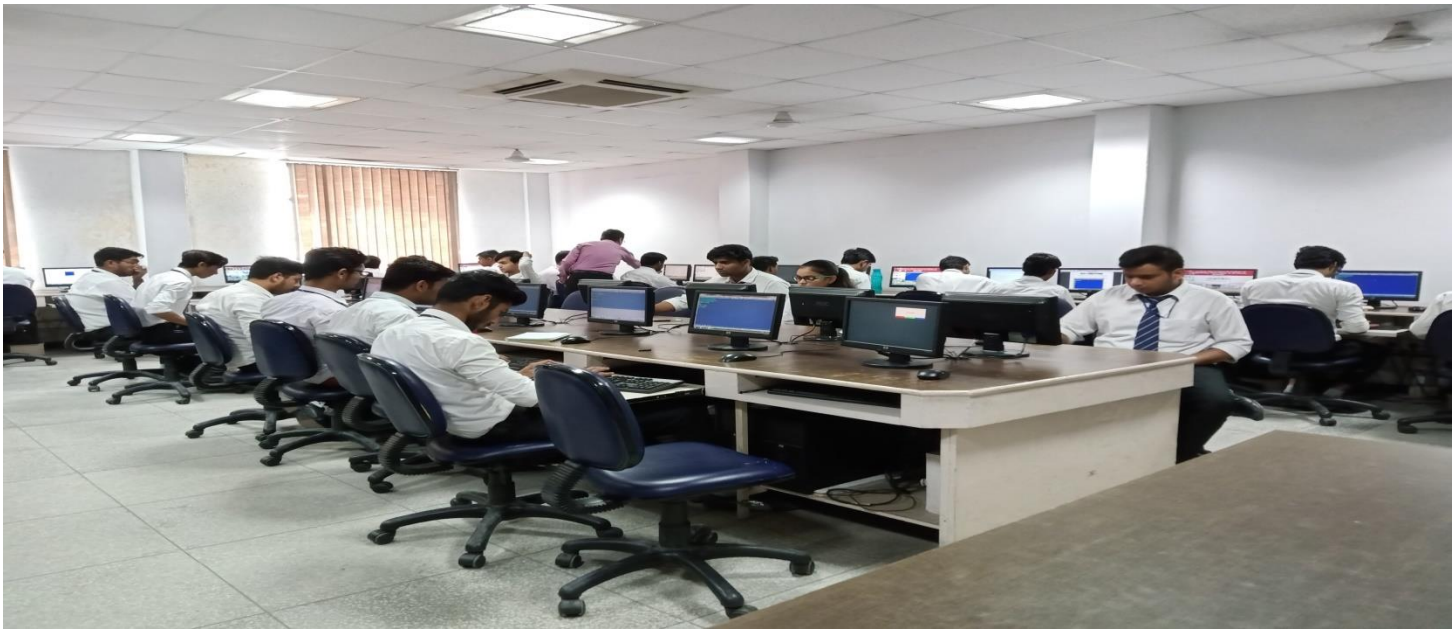
B. Tech second year student, Ankit Sharma enriched us about **Dr. A. P. J. Abdul Kalam's** experience and knowledge as the president of India. He told that Dr A.P.J. Abdul Kalam was our 11th president on 10 July 2002 succeeding K. K. Narayan. He was the third President of India who had been honoured with Bharat Ratna, India's highest civilian honour before becoming the President. Dr Sarvepalli Radhakrishnan and Dr Zakir Hussain was the earlier recipient of Bharat Ratna who have later became the President of India. Even, he was the first scientist and the first bachelor to occupy Rashtrapati Bhavan during his tenure as the President.

In the end of the event, Academic Coordinator Dr. M.M Jha enlightened and told us that Dr. A.P.J. Abdul Kalam's role in teaching, researches and project work. His dedication can't be explained in words. The person who was passionately dedicated toward his. While teaching only in Shillong IIM College, he had a cardiac arrest. This showed his dedication towards teaching. In 2006, in the President's address at the presentation of National Award to Teachers, he said that," Teachers have to realise that they are the builders of the society. With these golden words the entire event was concluded.

TECHNICAL EVENT SOFTMARATHON 2k19

October 17, 2019, one-day tech fest 'SOFTMARATHON 2019' was organized at SRMS CET & R. The tech fest started with the inaugural session in the auspicious presence of the Dean Academics Dr. Prabhakar Gupta, Academic coordinator SRMS CET&R Dr. M.M. Jha, Director pharmacy SRMS CET Dr. Lalit Singh, Heads of various departments from SRMS CET and CET & R and tech fest coordinator MR. Shailesh Saxena.

It all started with the lightening of the ceremonial lamp by all the dignitaries present in the session. Mr. Shailesh Saxena welcomed all the dignitaries and participants. He also shared the event's objective and the different events of the fest. Dr. M.M. Jha motivated the students in the fest's favour and told that how important it was for the students. Dr. Prabhakar Gupta in his address focused on being a world-class engineer and advised the students to participate in all the opportunities coming on their way and ready to face every challenge.



The tech fest comprised of 5 events where a total of 250 students participated from SRMS CET and SRMS CET&R. The students participated with their entire zeal and enthusiasm out of which the best competitors emerged out as winners.

RANK HOLDERS:

1) CODESENSE

First Position	Mohd. Yaman Ansari	(CET&R)
Second Position	Mr.Tushar Saxena	(CET)
Third Position	Mohd. Uves	(CET&R)

2) Let's Code in C/C++

First Position	Mr. Jasleen Singh	(CET&R)
Second Position	Mr. Sumit Bhatt	(CET)
Third Position	Mr. Praveen Kashyap	(CET)

3) FB HUNT

First Position	Mr. Akshit Goyal	(CET&R)
Second Position	Ms. Shreya Agrawal	(CET&R)
Third Position	Mr. Roshan Pathak	(CET&R)

4) Tech Buzz

First Position	Mr. Prashant Giri	(CET)
Second Position	Mohd Yaman Ansari	(CET&R)
Third Position	Mohd Manal Khan	(CET&R)

5) Doshmarjan

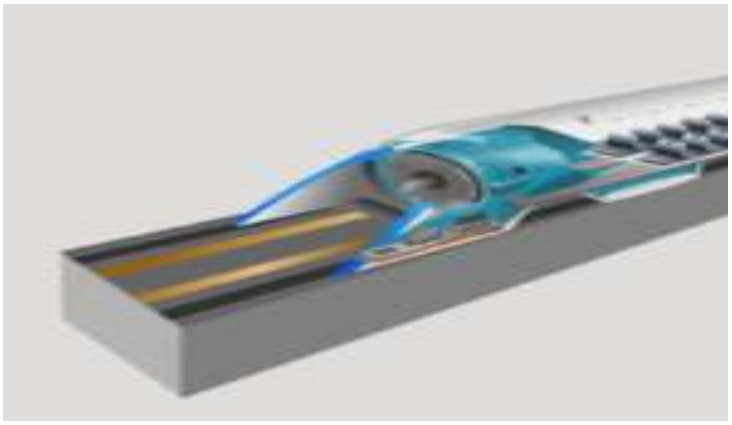
First Position	Mr. Mayank Maurya	(CET&R)
Second Position	Mr. Jotirmaya Vasaniwal	(CET)
Third Position	Mr. Yash Kushwaha	(CET&R)

Then after Mr. Ankur Kumar proposed the vote of thanks to the dignitaries and finally the winners were felicitated with trophies and certificates.

STUDENT CORNER

HYPERLOOP

A Hyperloop is a proposed mode of passenger and/or freight transportation, first used to describe an open-source vactrain design released by a joint team from Tesla and SpaceX. Drawing heavily from Robert Goddard's vactrain and the Swiss research project Swissmetro, a hyperloop is a sealed tube or system of tubes through which a pod may travel free of air resistance or friction conveying people or objects at high speed while being very efficient, thereby drastically reducing travel times over medium-range distances.



Elon Musk's version of the concept, first publicly mentioned in 2012, incorporates reduced-pressure tubes in which pressurized capsules ride on air bearings driven by linear induction motors and axial compressors.

The Hyperloop Alpha concept was first published in August 2013, proposing and examining a route running from the Los Angeles region to the San Francisco Bay Area, roughly following the Interstate 5 corridor. The Hyperloop Genesis paper conceived of a hyperloop system that would propel passengers along the 350-mile (560 km) route at a speed of 760 mph (1,200 km/h), allowing for a travel time of 35 minutes, which is considerably faster than current rail or air travel times.

Hyperloop is a new form of ground transport currently in development by a number of companies, It could see passengers travelling at over 700 miles an hour in floating pod which races along inside giant low-pressure tubes, either above or below ground.

There are two big differences between Hyperloop and traditional rail. Firstly, the pods carrying passengers travel through tubes or tunnels from which most of the air has been removed to reduce friction. This should allow the pods to travel at up to 750 miles per hour. Secondly, rather than using wheels like a train or car, the pods are designed to float on air skis, using the same basic idea as an air hockey table, or use magnetic levitation to reduce friction.

Supporters argue that Hyperloop could be cheaper and faster than train or car travel, and cheaper and less polluting than air travel. They claim that it's also quicker and cheaper to build than traditional high-speed rail. Hyperloop could therefore be used to take the pressure off gridlocked roads, making travel between cities easier, and potentially unlocking major economic benefits as a result.

In his Hyperloop Alpha paper, Musk set out the case for a service running between Los Angeles and San Francisco, which would be cheaper and faster than a proposed high-speed rail link. He argued that his Hyperloop could be safer, faster, more affordable, weather-proof, self-powering -- and less disruptive to people living along the route. Musk said that a Hyperloop service could be the answer to travel between cities less than about 1500 km or 900 miles apart; beyond that, supersonic air travel would be more efficient, he said.

The basic idea of Hyperloop as envisioned by Musk is that the passenger pods or capsules travel through a tube, either above or below ground. To reduce friction, most -- but not all -- of the air is removed from the tubes by pumps. Overcoming air resistance is one of the biggest uses of energy in high speed travel. Airliners climb to high altitudes to travel through less dense air; in order to create a similar effect at ground level, Hyperloop encloses the capsules in a reduced-pressure tube, effectively allowing the trains to travel at airplane speeds while still on the ground.

Uttakarsh baranwal
CS-17

QUANTUM COMPUTING:A NEW GENERATION OF TECHNOLOGY

A quantum computer is any device for computation that makes direct use of distinctively quantum mechanical phenomena, such as superposition and entanglement, to perform operations on data. In a classical (or conventional) computer, information is stored as bits; in a quantum computer, it is stored as qubits (quantum bits).

The basic principle of quantum computation is that the quantum properties can be used to represent and structure

data, and that quantum mechanisms can be devised and built to perform operations with this data.Although quantum computing is still in its infancy, experiments have been carried out in which quantum computational operations were executed on a very small number of qubits.

Research in both theoretical and practical areas continues at a frantic pace, and many national government and military funding agencies support quantum computing research to develop quantum computers for both civilian and national security purposes, such as cryptanalysis.If large-scale quantum computers can be built, they will be able to solve certain problems exponentially faster than any of our current classical computers (for example Shor's algorithm).Quantum computers are different from other computers such as DNA computers and traditional computers based on transistors.

Some computing architectures such as optical computers may use classical superposition of electromagnetic waves, but without some specifically quantum mechanical resources such as entanglement, they have less potential for computational speed-up than quantum computers.The power of quantum computers Integer factorization is believed to be computationally infeasible with an ordinary computer for large integers that are the product of only a few prime numbers (e.g., products of two 300-digit primes).By comparison, a quantum computer could solve this problem more efficiently than a classical computer using Shor's algorithm to find its factors.

This ability would allow a quantum computer to "break" many of the cryptographic systems in use today, in the sense that there would be a polynomial time (in the number of bits of the integer) algorithm for solving the problem. In particular, most of the popular public key ciphers are based on the difficulty of factoring integers, including forms of RSA.These are used to protect secure Web pages, encrypted email, and many other types of data. Breaking these would have significant ramifications for electronic privacy and security.The only way to increase the security of an algorithm like RSA would be to increase the key size and hope that an adversary does not have the resources to build and use a powerful enough quantum computer.It seems plausible that it will always be possible to build classical computers that have more bits than the number of qubits in the largest quantum computer.

Quantum computers promise to perform certain tasks much faster than ordinary (classical) computers. In essence, a quantum computer carefully orchestrates quantum effects (superposition, entanglement and interference) to explore a huge computational space and ultimately converge on a solution, or solutions, to a problem. If the numbers of quantum bits (qubits) and operations reach even modest levels, carrying out the same task on a state-of-the-art supercomputer becomes intractable on any reasonable timescale — a regime termed quantum computational supremacy. However, reaching this regime requires a robust quantum processor, because each additional imperfect operation incessantly chips away at overall performance. It has therefore been questioned whether a sufficiently large quantum computer could ever be controlled in practice.

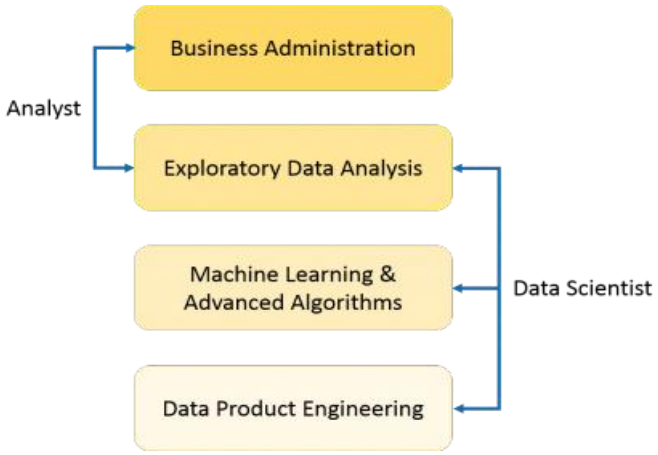
Aniket Sharma
CS-17

DATA SCIENCE

Data Science is a blend of various tools, algorithms, and machine learning principles with the goal to discover hidden patterns from the raw data.

Then, How is this different from what statisticians have been doing for years?

The answer lies in the difference between explaining and predicting.



Data Analyst usually explains what is going on by processing history of the data. On the other hand, Data Scientist not only does the exploratory analysis to discover insights from it, but also uses various advanced machine learning algorithms to identify the occurrence of a particular event in the future. A Data Scientist will look at the data from many angles, sometimes angles not known earlier.

So, Data Science is primarily used to make decisions and predictions making use of predictive causal analytics, prescriptive analytics (predictive plus decision science) and machine learning.

- **Predictive causal analytics -** If you want a model which can predict the possibilities of a particular event in the future, you need to apply predictive causal analytics. Say, if you are providing money on credit, then the probability of customers making future credit payments on time is a matter of concern for you. Here, you can build a model which can perform predictive analytics on the payment history of the customer to predict if the future payments will be on time or not.

- **Prescriptive analytics -** If you want a model which has the intelligence of taking its own decisions and the ability to modify it with dynamic parameters, you certainly need prescriptive analytics for it. This relatively new field is all about providing advice. In other terms, it not only predicts but suggests a range of prescribed actions and associated outcomes.
  The best example for this is Google's self-driving car. The data gathered by vehicles can be used to train self-driving cars. You can run algorithms on this data to bring intelligence to it. This will enable your car to take decisions like when to turn, which path to take, when to slow down or speed up.

- **Machine learning for making predictions** - If you have transactional data of a finance company and need to build a model to determine the future trend, then machine learning algorithms are the best bet. This falls under the paradigm of supervised learning. It is called supervised because you already have the data based on which you can train your machines. For example, a fraud detection model can be trained using a historical record of fraudulent purchases.

- **Machine learning for pattern discovery** - If you don't have the parameters based on which you can make predictions, then you need to find out the hidden patterns within the dataset to be able to make meaningful predictions. This is nothing but the unsupervised model as you don't have any predefined labels for grouping. The most common algorithm used for pattern discovery is Clustering.
  Let's say you are working in a telephone company and you need to establish a network by putting towers in a region. Then, you can use the clustering technique to find those tower locations which will ensure that all the users receive optimum signal strength.

To sum it up, Data Analysis includes descriptive analytics and prediction to a certain extent. On the other hand, Data Science is more about Predictive Causal Analytics and Machine Learning.Often Data Science is confused with BI. Some concise and clear contrasts between the two will help you in getting a better understanding.

Business Intelligence (BI) vs. Data Science

- BI basically analyzes the previous data to find hindsight and insight to describe the business trends. BI enables you to take data from external and internal sources, prepare it, run queries on it and create dashboards to answer the questions like quarterly revenue analysis or business problems. BI can evaluate the impact of certain events in the near future.

- Data Science is a more forward-looking approach, an exploratory way with the focus on analyzing the past or current data and predicting the future outcomes with the aim of making informed decisions. It answers the open-ended questions as to "what" and "how" events occur.

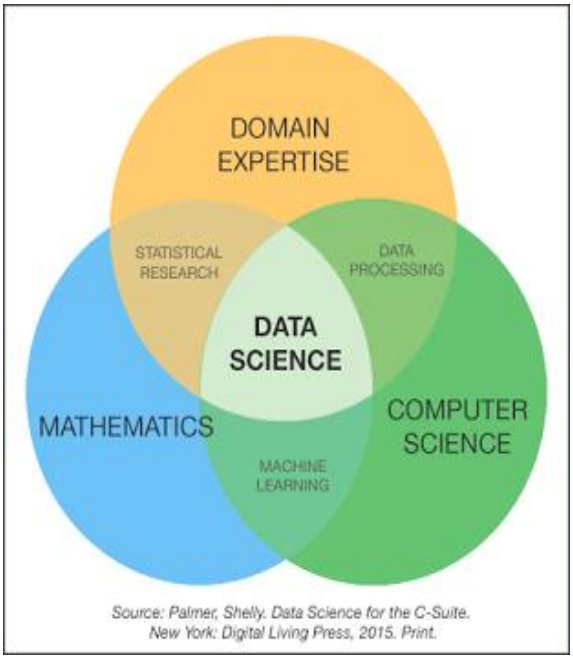
Let's have a look at some contrasting features.

Features	Business Intelligence (BI)	Data Science
Data Sources	Structured (Usually SQL, often Data Warehouse)	Both Structured and Unstructured (logs, cloud data, SQL, NoSQL, text)

Approach	Statistics and Visualization	Statistics, Machine Learning, Graph Analysis, Neuro- linguistic Programming (NLP)
Focus	Past and Present	Present and Future
Tools	Pentaho, Microsoft BI, QlikView, R	RapidMiner, BigML, Weka, R

Data Science as a career

Being a Data Scientist is easier said than done. So, let's see what all you need to be a Data Scientist. A Data Scientist requires skills basically from three major areas as shown below.



As you can see in the above image, you need to acquire various hard skills and soft skills. You need to be good at *statistics* and *mathematics* to analyze and visualize data. Needless to say, *Machine Learning* forms the heart of Data Science and requires you to be good at it. Also, you need to have a solid understanding of the *domain* you are working in to understand the business problems clearly. Your task does not end here. You should be capable of implementing various algorithms which require good *coding* skills. Finally, once you have made certain key decisions, it is important for you to deliver them to the stakeholders. So, good *communication* will definitely add brownie points to your skills.

Arti khanchandani
CS-17

FACULITY ARENA

POTENTIAL HURDLES FOR THE INTERNET OF THINGS ShrutiAgarwal M.Tech (CSE) Two ideas crossed my mind while reading this piece. First, Delgado makes the obvious-but-equallyimportant point that being able to take advantage of the wealth of the Internet of Things requires something we take for granted: access to the Internet. I'm not going to belabor a rural electrification analogy. Many do not have Internet connectivity, including in the developed world and the United States. It gets worse as ignorance abounds. Delgado writes: While businesses may talk excitedly about the Internet of Things, consumers are largely unaware of it. In a recent survey of 2,000 people, 87% of consumers said they had never even heard of the IOT. While hearing about the Internet of Things doesn't necessarily signify a consumer would not use an item connected to the IOT, the survey results show a lack of awareness and understanding about what can be gained from it. If this lack of knowledge about the IOT leads to lack of interest, a major driving force for widespread adoption will be missing. In one of the worst tech predictions of all time, IBM President Thomas Watson stated in 1943: "I think there is a world market for maybe five computers." Talk about punching in the mouth the possibility of disruptive innovation at IBM. Watson was misguided and incorrect, but hardly dumb. Whether we wish to believe it, Mr. Watson, I suggest, knew far more about his industry at the time than today's experts

know about the Internet of Things, which is in its infancy but growing fast. According to Gartner, there will be approximately 25+ billion sensors in the world by 2020. It's not surprising that a whopping 5 87% of consumers are unaware of the billions of sensors around the world. What would (I would hope) be surprising is if we don't follow in Google's footprints to widen Internet connection worldwide. That would be a Tragedy of the Commons with a mean twist. We're not depleting a resource. On the contrary, it grows daily because we feed it. Our "just" not sharing precludes a global race to the top of technology, which I'll restrict here for the sake of argument to non-military uses. Now that's a race we should all want to enter. Tracey Wallace over at the Umbel blog (Truth in Data) writes about data-driven cities and the Internet of Things . Wallace describes how each city is turning itself into a data treasure trove and using new technologies. Let's look at a few:

- Turning old phone booths into WiFi hot spots (NYC);

- All household waste is sucked directly from individual kitchens through a vast underground network of tunnels, to waste processing centers, where it is automatically sorted, deodorized and treated. (Songdo, South Korea);

- Wi-Fi provides city communities with hot spots that promote city services such as water meters, leak sensors, parking meter and other city services to operate on the same secure government network. (Dallas);

- There are no light switches or water taps in the city; movement sensors control lighting and water to cut electricity and water consumption by 51 and 55% respectively.

These initiatives are amazing. Think about what Masdar is doing. It's like an automatic, energy-saving Clapper ("clap on, clap off"). Consider their savings and what it would mean for energy consumption if such a program were implemented to the extent possible around the world. Wow. There's certain to be an enterprise wrapped around this as we speak. So which of you will be the first to sit on a bench at the edge of a park and use a nearby phone booth across the street as your hot spot? That's pretty cool.

ShrutiAgarwal
Assistant Professor
CSE Departmant