

My dearest dear Students,

The God may give us heart
Magnanimously to feel,
Not to hurt anybody
But, all hurts to heal.

To help an helpless
In the hour of need,
More than the money
Mother's love we need.

It is in the loving heart
Reveals the Lord,
"The God is love
The love is God."

The God may give us head
Judiciously to think,
How to float when
The life-boat is about to sink.

To discover the gravity
From the apple's fall,
To invent the "micky-mouse"
From the mice small.

Intelligently to sow
Wisely to reap,
The act of wisdom
Is the God's worship.

The God may give us hands
To do, that we should,
From the heart and head
To accomplish the good.

Now and here
Down to the earth,
Life is short
Precious is the human birth.

When with our small hands
Many we serve,
Work becomes worship
The worship of love.

The God may give us Honesty
Rightfully to guide,
When, from the righteous path
We are about to slide.

The need can be satisfied
Not the Greed,
If the life is a tree
The honesty should be its seed.

The God has gifted the life
Not to act fraud,
"Honesty is the best policy"
The worship of God.

Ever yours
P K Hazra

Message from the Faculty Advisor

It is a matter of great pleasure that the students of our department are launching the second edition of the magazine 'Srijan' both online and in print in the 8th year of Sankalan. Our students have received a number of awards at various national and international events. M.Sc. and MCA students of the department have been highly placed in Industry in India and abroad, including research companies of international repute, ever since the first batch of MCA students came out in 1985.

Having already established themselves in industry, the students of the department are now making effort to reach out to the external world by way of Srijan. It serves as a platform of expression for their ideas and thoughts. I would like to congratulate the editorial team for putting in a lot of hard work and wish the magazine a grand success.

Naveen Kumar

Message from the Editorial Board

"There is nothing more difficult to take in hand, more perilous to conduct or more uncertain in its success than to take the lead in the introduction of a new order of things"

This is the learning that we have inherited from our seniors here at the Department Of Computer Science, who took the lead and came out with the first ever edition of 'Srijan'. We can only hope and pray that our efforts stand close to what they've already accomplished.

The continuum of this magazine wouldn't have been possible without the support and guidance of our faculty advisor, Dr. Naveen Kumar. He took personal interest in every aspect of the magazine, spending his valuable time and giving suggestions to help make this issue a special one.

Special word of thanks to all the students who have helped us with the material and photographs

Hope you all appreciate the initiative and find the articles interesting.

Editorial Board

Abhigya Jain

Isha Aggarwal

Stuti Chawla

Swati Parmar

Co-ordinators

Abhigya Jain

Samarth Gupta

Stuti Chawla

Swati Parmar

Designer

Abhishek Santra

Dhruv Chaudhary

LIFE AT DUCS

At Delhi University Computer Science Department (DUCS) we learn to do, not only *hardwork* but *smartwork*, which is the mantra for success in today's world.

Students at DUCS have come from the most prestigious colleges and universities from all over India, having diverse backgrounds, through a rigorous selection procedure. Each one of us brings variety of thoughts and new approaches to the way problems can be dealt with, which in turn prepares us to work in a diverse life culture at the companies.

Studies, periodic tests, rigorous assignments and high standard projects polish the brains of the selected few into Diamonds. Winning competitions organized by other reputed institutions and displaying our talent beyond the academic curriculum has become our tradition. DUCSiites undertake competitive projects like Microsoft's IMAGINE CUP, SUN's REVIEW CONTEST and IBM's THE GREAT MIND CHALLENGE where young minds get a chance to explore the unimagined world of IT. Also DUCSiites have reached the pinnacle by working at an international level and ensuring success of their projects in other countries as well.

Apart from all this, the pride of our department is SANKALAN—an event that is looked forward to by all the leading institutes across the country every year. This is the annual Computer Science Department fest, which is organized by students at a very large scale in association with several brand names. This is the time when everyone works together as a team and is dedicated towards just one thing – to bring pride and honour to the Department. "Division of labour" is being followed here at every step. This keeps the students mentally prepared to perform well in the companies & prepares them to take responsibilities & live up to the

expectations. Teamwork and group dynamics get instilled in them helping tremendously at their work place.

Regular Seminars are conducted in the department by people renowned both at national and international level, so as to keep the students updated with the latest trends in the IT sector. This in turn makes DUCSiites more confident to enter any reputed company.

Apart from regular activities, various get-togethers, outings and tours are organized by DUCSiites. This makes them socially active and it also acts as a stress buster for them. Moreover, a different culture is being followed at DUCS on weekends. When all other colleges are closed in search of a break after their hectic week, we DUCSiites get involved in innovative and creative activities. A chunk of people from recent alumni of our department visit the campus and share their experiences with the current batch. They help us in understanding the current scenario of the industry and guide us towards a better future. This is the best thing for DUCSiites where they can relate with the PAST, PRESENT & FUTURE; with experience, reality and dreams.

So undoubtedly, the tradition and culture of DUCS makes its students identifiable among thousands of IT aspirants. Fulfilling all requirements, we offer the companies, some of the most amazing brains with well-rounded and matured personalities for the most dynamic industry of today's world. This further goes on to show the confidence the industry has in us and the relationship we share with them. The list of Companies where our alumni are placed in the IT industry includes giants like Microsoft, Aricent, Grapecity, Adobe, Make My Trip, Nagarro, Sapient, Samsung, HCL and IBM to name a few.



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EXPRESSIONS

DUCS through the eyes of a Sophomore

In my last article in Volume 1 of Srijan, I discussed the life in DUCS from the perspective of a freshman. I emphasised on DUCS being a one big family where the teachers are our mentors and the seniors, our guiding angels. I anticipated Sankalan 2011 to be a great success. How true I was! We DUCSiites, with our hard work and dedication, presented a great show. We had participation from 92 teams from 8 states across India, setting new benchmarks of success.

Once Sankalan got over, we began the preparations for the farewell ceremony of our beloved seniors. The theme was 'Casino Royale v/s Kaake da Dhaba'. The seminar room had a sudden transformation overnight. One half was decorated like a modern Casino and the other half resembled a desi Dhaba. The spirit of our batch can be judged from the fact that we were working on The day of the World Cup final so that we could put up a decent show the very next day. It was a great ceremony. The farewell speeches by our seniors had a numbing effect on us. It was hard to see them go as it was for them to say goodbye. We had laughed, we had cried, we had leaped together, we had fallen, we had felt the thrill of success and the agony of failure. And now it was all getting over. The atmosphere was filled with sadness. Nevertheless, we wished them the best for their future and finally bid them goodbye.

Soon, we got busy with our assignments and exams. But the bigger tension was awaiting us- our Placements were about to start after two months!!! We were nervous and unsure of how to revise everything that we had studied in our four years in computer science stream in just a matter of two months. But here our alumni and their experience came in handy. They helped us in organising our studies, took sessions to teach us important concepts and even conducted our mock interviews to help us

get accustomed to what actually happens at the time of interviews. We will be thankful to them, forever.

Someone has rightly said that every beginning has an end and every end is a new beginning. This new beginning was in the form of our juniors. Yes, the new session had started and we got a promotion from being a junior to becoming a senior! The roles had reversed and the feeling of responsibility had started to seep in. As much as we wanted to interact with them, we were bound by our placements that were beginning that very week. Nervousness was in the air. In a few days, we were to decide our future. It was unarguably the most critical time of our lives. And we passed it with flying colours! Most of the students are placed in reputed IT companies and we are close to achieving the 100% placement target for this year as well.

Now that we were placed, we had ample time to get along with our juniors and tell them what our seniors had told us- the real meaning of and worth of being a DUCSiite. At the same time, we used to feel nostalgic remembering the times we spent with our seniors. They had become busy with their lives, so we couldn't meet them frequently. But that's what Saturdays are meant for- reunions of our alumni with the current students. We have amazing fun on Saturdays at the department. The whole cycle (junior skits, Fresher's Party, exams) was repeating this year too. Just that the roles had reversed. We have a great bunch of juniors who, I'm sure will keep the flag of DUCS rising high. We guide them whenever they need us; try to motivate them as and when they feel low.

DUCSiites are the dominant forces in the technical fests of other Universities as well. Year after year, it is the students of DUCS who notch up top prizes in various fests. This year was no different. It was great to see our juniors participating and winning at the fests. This shows the never ending talent in the DUCSiites. Time is money for us. Even during

the vacations, many of us engage in projects under the teachers of the department.

The eighth edition of our annual technical festival, SANKALAN 2012 is round the corner. Preparations are going on in full swing. This year we have managed to get industry's big-wigs like DRDO, IBM, Microsoft, Aricent and Nagarro as our sponsors. The onus is on us (the DUCSiites) this time again to make it a success. I hope we succeed in our endeavour and take Sankalan to heights that one has never thought of. At the end, I would say that we may get busy with our careers after Sankalan, but the spirit of DUCS will breathe within us forever.

Sumit Sharma
M.Sc. 2nd Year

KHUBSURAT HAI ZINDAGI...

Kyu hum ye shikwa hai karte...

Adhuri si ye zindagi hai, har pal hai kehte...

Hoton ki muskaan ke piche, unkaha sa dard hai rakhte...

Apne har lafz mein, unsune zazbaat hai sahejte...

Kuch kehna bhi hai, kuch sunna bhi hai...

Kuch samajhna bhi hai, kuch samjhana bhi hai...

Kyu man ki udaan, khuli aankhon ke sapne se hai lagte...

Shayad tabhi hum har dam, yu shikwa hai karte...

Adhuri si ye zindagi hai, har pal hai kehte...

Kyu khwahisho ki dor mein, ulajh kar hai reh jate...

Kyu kisi ke kuch kehne se, zindagi ke nazariye badal jate...

Kyu bina kisi baat ke, bewajah hi gungunate...

Kyu kisi ke paigam, is dil ki chahat hai ban jate...

Phir bhi apne khwabon ke rang se, khud berang hai ho jate...

Choti choti baaton se, zindagi ke saaz bigad jate...

Kyu kinaare ki aas mein, kashtio ke baandh toot jate...

Kyu har dam, hum yu shikwa hai kar jate...

Adhuri si ye zindagi hai, har pal hai kehte...

Inhi sawaalo ke bhawar mein, kyu suljhe huye ulajh jate...

Zindagi khubsurat hai, wo kyu ye nahi samajh pate...

Kyu gamo ki dastak par, khushio ki sargam hai bhul jate...

Ashko ka sahara le, umeed ke anchal se mehroom ho jate...

"Rang bikhre hai hawaaoon mein, bas dhoondne ki zarurat hai...

Phool khil jayenge fizaaon mein, bas seenchne ki zarurat hai...

Khushiya mil jayegi is jahan mein, bas nazariya badalne ki zarurat hai...

Khubsurat hai zindagi... khubsurat hai zindagi... khubsurat hai zindagi...

Bas use pure dil se zeene ki zarurat hai..."

Sheetal Taneja

M.Sc. 1st Year

iAspire

'Stay hungry, stay foolish' – these were the exact words of a college dropout as he addressed students at the 2005 Stanford convocation ceremony. Few would have guessed that this 1972, reed college dropout would one day go on to pioneer the field of computers and be a living inspiration to thousands across the globe who are just 'surviving' through life, playing it safe – scared to follow their instincts and test their risk appetite.

Frankly speaking, I am one of those thousands. For me it started out with listening to jobs' highly motivational speeches, be it at the 1997/98 MacWorld meet or his 1999 MacWorld New York introduction speech to mark the first iBook launch. And as a young student, with your physics books in front of you as you listen through his speech; you think to yourself – if Newton can, Jobs can, then even iCan! ☺ (sic.). Such was the power of his words.

When I talk Steve jobs, I talk about a man, who in his own words 'wasted' the initial years of his life, lying on the floor of his friend's dorm room; heading off to a spiritual retreat in India in search of tranquillity and returning a Buddhist with his head shaved, wearing traditional Indian clothes. And then one fine day in the year 1976(jobs all of 21), along with his friend Steve Wozniak, unveiling the first Apple computer costing \$700.

And the rest as they say is History! ☺

Here I talk about a man who has dedicated his life to giving the power of technology to the masses. Jobs has literally pioneered the 'Silicon' revolution (as I call it) with path-breaking inventions like that of the original Apple II and the classy yet user friendly Macintosh to name the earliest few.

The desktop publishing revolution is literally synonymous with this Man. Here is someone whose company, Apple, is innovation and elegance personified. Apple products inspire the whole high-tech world, and those who claim to be competing with this market giant have nothing but praise and admiration for him. His fan following can be described as nothing short of being termed as 'cult'. Steve Jobs changed the way we listen to music by iPod, the music business was shook up with the launch of iTunes and the iPhone took the phone industry by surprise.

Here is a man without whom *3D animation* would never have had the same meaning and essence that it has today, thanks to Pixar. Jobs has reached out to those millions of lives out there by simplifying technology and making it exciting and beautiful instead of dull, complicated and ugly.

The iCon said iResign on 24th August 2011 as the CEO of Apple Inc., handing over the working of his 'baby' to Tim Cook.

When in times of trouble that is when the heart is at unrest and uncertainty and confusion cloud my mind, I without fail happen to recall these words by the Man himself – he said,

"If you live each day as if it were your last, then someday you'll most certainly be right. Ask yourself that if today were the last day of my life, would I wanna do, what I am about to do today? And whenever the answer has been NO, for too many days in a row, you know you need to change something.

You are already naked; there is no reason not to follow your heart."

So, don't be afraid to take that leap of faith. Trust yourself and take your chances ;) ☺

Abhigya Jain
MCA 1st Year

यही है जिंदगी

कहता है दिल रुक जा ज़रा,
कहता है दिल थम जा ज़रा,

तेरे भी कुछ सपने हैं जो पूरे होंगे कभी,
पर उन सपनों को अभी कहीं खोने दे ज़रा..

हज़ार आँसू अभी गिरे हैं फिर भी अभी एक मुस्कुराहट बाकी है,
दिल अभी बेचें है पर अभी एक सुकून बाकी है,

दर्द अभी बहुत हैं पर अभी एक खुशी बाकी है..

बहने दे इन हवाओं को जिधर बहती हैं ये,

कुछ पल के लिए ही सही लेकिन एक पल ज़रूर आएगा,

जब वो एक मुस्कुराहट उन हज़ार आँसुओं पर भारी पड़ेगी,
जब वो एक राहत उन सारी बेचेनियों को सेमेट लेगी,

जब वो एक खुशी पल पल के दर्द को मिटा देगी,

क्युनिक जीना उसे ही कहते हैं, जिसमे पल पल मरने का एहसास है,
और जिसमे पल पल मरने के बाद भी जीने का अपना अंदाज़ है.....!!!!

LAW OF ATTRACTION

Have you ever thought why some faces attract us more than the others? Well, it's not because of any "Chemical-Locha" in our hearts and minds; in fact there is a definite amount of mathematics involved in this concept of Attraction.

Phi or the golden number is a mysterious number which appears in many proportions of human body, including face. It has been called "Natural-Beauty maker" as its contribution is seen in most of the objects, both natural and man-made, that appeal to human eyes.

Phi (Φ), an irrational number which is mathematically equal to $\frac{1+\sqrt{5}}{2}$, approximately equal to 1.618 is an aesthetically pleasing ratio and the human face abounds with examples of the golden ratio or the Divine proportion, such as the ratio of:

- Length of our face and width of our face
- Length of our mouth and width of our nose
- Distance between pupils and distance between our eye-brows
- Length of face and distance between tip of the jaw and where our eyebrows meet

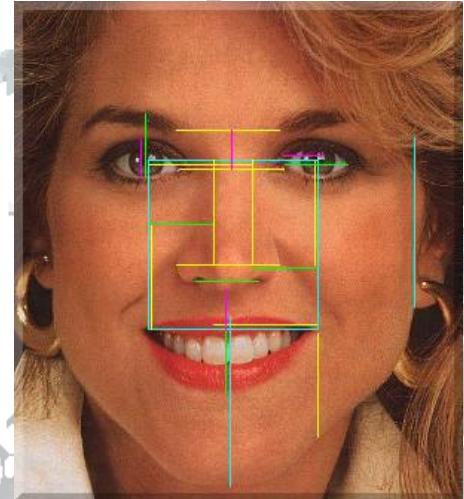
Based on the validity of these ratios, and many more, it was concluded that the faces conforming perfectly to the golden ratio attracts us more than others. No wonder, celebrities like Jessica Simpson, Angelina Jolie, Aishwarya Rai are universally voted and accepted as the most beautiful women, irrespective of their age or race. What's common between these celebrities is that their faces have ideal facial proportion, which is

1 : 1.618.

Not just the living beings, the face of Mona Lisa in the famous painting of Leonardo Da Vinci has this divine proportion. No doubt her smile is considered to be very mysterious and enticing. The book The Da Vinci Code by Dan Brown also mentions the presence of phi in many spheres of our lives.

If you closely observe the ratio of the consecutive terms of the Fibonacci series:

- $1/1=1.$
- $1/2=0.5.$
- $2/3=0.666.$
- $3/5=0.6.$
- $5/8=0.625.$
- $5/13=0.615.$
- $13/21=0.619$



<http://www.goldennumber.net/face.htm>

As you can see, the ratios converge to 0.618, Phi.

Beauty may lie in the eye of the beholder, but one can't deny the contribution of the Golden Ratio in beautify us and our many of the creations, both natural and man-made in our surroundings.

FUN FACT: To see how much your face conforms to the golden proportion, log on to facebeautyrank.com and download the Face Beauty Rank software. Upload your facial picture and follow some simple steps to take the desired measurements. It will give you a percentage which indicates how perfect your face is, according to the Golden Proportion.

? Did you know ??

TYPEWRITER is the longest word that can be made using the letters only on one row of the keyboard.

Bill Gates' house was designed using a Macintosh computer

On an average work day, a typist's fingers travel 12.6 miles.

If you opened up the case of the original Macintosh, you will find 47 signatures. One for each member of Apple's Macintosh division as of 1982.

There are approximately 1,319,872,109 people on the Internet.

While it took the radio 38 years, and the television a short 13 years, it took the World Wide Web only 4 years to reach 50 million users.

Hewlett Packard was started at a garage in Palo Alto in 1939.



BRAINWAVE

AAKASH TABLET

Reaching out for the skies

In the times when extravagant tablets like the iPad, Samsung Galaxy Pro and the likes are creating headlines every second, comes a reasonable masterpiece and that too, made in India. AAKASH, it is! The Nano of the tablet family, as it is popularly being nicknamed, is the world's cheapest tablet.

Aakash, an Android tablet has been developed by a London-based company DataWind in collaboration with the Indian Institute of Technology, Rajasthan. It is being manufactured by Quad, a new production centre in Hyderabad. Mr. Kapil Sibal, the Minister of Human Resource Development, India, officially launched the tablet in New Delhi on Oct 5, 2011.

Mr. Kapil Sibal unveiled the prototype named, Sakshat, on July 22, 2010. The device aims to integrate students of thousands of colleges and hundreds of universities, from all over the country. If successful, it may become the most powerful tablet affordable to students of all levels.

Originally projected as a "\$35 laptop", the device will be sold to the Government of India at \$50 (Rs. 2,500) and will be distributed at a government subsidized price of \$35 (Rs. 1,750). On December 16, 2011, DataWind started Aakash online booking on their official website at Rs. 2,500 with guaranteed delivery in a week and facilitating cash on delivery. On December 19, 2011, DataWind claimed to have sold out the first phase of Aakash tablet, completely.

Size	: 190.5 x 118.5 x 15.7 mm
Screen	: 7" Resistive Screen 800 x 480 pixel resolution
Weight	: 350 gms
Operating System	: Android 2.2 Froyo
Processor	: Arm11 - 366 Mhz, Graphics Accelerator and HD video Co-Processor
Memory	: 256 MB RAM
Storage (Internal) (External)	: 2GB flash : 2GB to 32GB supported (Micro SD card slot provided)
Peripherals	: 2 Standard USB Ports 3.5mm audio input and output jack
Camera	: Not inbuilt, USB Camera can be used
Network Facility	: Wi-Fi
Battery	: 2100 mAh Power consumption of 2 watts with a solar charging option Device charged by a dedicated DC in [Battery backup : 1.5 – 2 hours (watching HD videos) : 3 hours (mixed use)]
Document Formats supported	: .doc, .docx, .pdf, .xls, .xlsx, .ppt, .ppsx, .odt, .opd
Image Viewer Formats supported	: .png, .jpg, .bmp, .gif
Audio Formats supported	: .mp3, .ac3, .wma, .aac, .wav
Video Formats supported	: .mpeg2, .mpeg4, .avi, .flv
Web Browser	: DataWind Accelerated Browser Modem [Standards Compliance : XHTML 1.1 compliant]

Craters exist on the Moon too, and criticism stands tall always. In this case as well, some experts have cited problems like low RAM, frequent system freeze and poor sound quality. Camera and stylus exclusion from the price bracket, also has also been pointed at.

Over 500 users from IITs and other institutions beta-tested the early release model, and gave their feedback. DataWind, following the same, announced the upgraded version, which claims to overcome the existing problems. 'UbiSlate 7', was released in early 2012.



DataWind started accepting pre-orders for the UbiSlate 7, at "<http://www.ubislate.com/prebook.html>". Mr. Suneet Singh Tuli, the CEO of Datawind said, "The Rs. 2,999 figure is the maximum suggested retail price of the commercial version of the product which we will offer with an embedded cellular modem and SIM."

Both, Aakash and UbiSlate 7, are expected to change current market dynamics. Markets have started comparing them with market controllers - Reliance 3G Tab and Beetel Magiq. Positive reviews have come from tech magazines and NDTV's tech guru Mr. Rajeev Makhni. So, not far should be the time when students across India would move around with tablets in their bags - the Tech way!

Abhishek Santra
M.Sc. 1st Year

Intel steps ahead to propel itself into the mobile market

Nowadays, the greatest threat for the processing giant Intel is mobile computing which is dominated by the ARM processors. Considering the pace with which, today's, users are switching to tablets, the market share of Intel is decreasing. All the smartphones and tablets are run on ARM processors, as of now. Hence, it's time Intel steps ahead. Recently, the two IT giants, Intel and Google have formed a partnership that is sure to see future releases of Google's Android OS, optimized for Intel's Atom E series. The partnership between Intel and Google was revealed at the Intel Developers Forum by Intel's Chief Executive, Paul Otellini and Google's senior VP of mobiles, Andy Rubin. They indicated that the future versions of the Android won't necessarily focus on the Atom SOC, but will support X86 architecture along with the one already existing in the mobile market.

"Every time we collaborate with Google, good things come out" Otellini said. "I'm excited and have high expectations around this as well". He expects Intel to enter the Smartphone sector with a bang.

Samarth Gupta
MCA 2nd Year

Multimedia Encryption

With the advancements in the field of Information Technology especially in Computer Science and Telecommunications, Multimedia data has gained a lot of importance in various numbers of applications. Multimedia applications have the distinguishing characteristics like high data rate, power hungry, real-time constraint, synchronous, continuous and may have Different distribution channels-Internet, TV, Satellite and Wireless. With the ease of hacking and illegal capturing of this channel, major challenge arises to protect the content of media from eavesdropper while sending it over a public or private network. This article introduces a new scheme.

The Advanced Encryption Standard (AES) algorithm is one of the symmetric key cryptosystem that processes 128-bit data blocks using cipher keys with lengths of 128, 192, or 256 bits. AES cipher has number of transformation rounds that convert the input plaintext into the final output known as cipher text. In order to get back the plaintext, set of reverse rounds have to be applied on cipher text using the same encryption key.

AES became very popular as it was very difficult to decipher within a short time span and thus provided high security. However, AES could not be used directly to encrypt the multimedia images due to the intrinsic characteristics of images such as bulk data capacity, high correlation among the pixels and high redundancy. This way multimedia data's encryption via AES remains a big challenge for everyone unless redundancy is removed. Therefore, researchers have moved towards Chaos based Encryption Techniques for multimedia encryption. This is due to the fact that this set of schemes has the features that fulfill the requirements of cryptography, such as aperiodicity, sensitive dependence on initial conditions, ergodicity and random-like behaviors. The mix of all these features helped the chaos based encryption techniques to provide a good combination of speed, complexity, high security and less overhead.

In recent years, Many security models and crypto-systems based on number theory and chaotic map have already been used.

Keeping in mind the advantages of Standard AES algorithm and Chaos based encryption technique, a new scheme has been designed which aims at combining together these two algorithms for the development of efficient and secure multimedia encryption scheme. In this scheme original image is first transformed into cipher image with the help of AES algorithm. User will provide 16 byte long (4×4 matrix of byte) secret key to AES. This key will be expanded by AES and then it will be used for encryption. After obtaining the cipher image and expanded key from AES, the cipher image will be used as an original image into chaotic encryption. Moreover, the initial condition x_0 and the parameters k_1 , k_2 , k_3 , which acts as a secret key for chaotic encryption and are used in circle map for generating chaotic sequences, will get their values from the expanded key provided by the AES algorithm. The final encrypted multimedia image is obtained after applying chaotic encryption. This new scheme is more robust and secured in terms of key usage. It is quite difficult to break this scheme as it is using the secret key only after applying different mathematical operations on the user defined 16 byte long key. This scheme can be used effectively in various applications like that of Image Encryption, Digital Watermarking and Steganography.

Pooja Gupta

M.Sc. 2nd Year

Budding Researcher's delightful day @ Bangalore

We could not have imagined a better start of the year as this one proved for us. We were amongst the few counted ones who got the privilege to attend the "India Theory Day", held on 5th January 2012 at the Indian Institute of Science (IISC) campus in Bangalore. It was a one day workshop on Theoretical Computer Science jointly organized by Microsoft Research (MSR), India and IISC, Bangalore. We, along with our fellow classmates, got this opportunity under the guidance of Dr. Neelima Gupta, Associate Professor University of Delhi (DU) to attend this kind of workshop.

We reached the Bangalore city a day before the start of the event. All of us were very excited for the day ahead and our excitements were equally matched on 5th January as the day comprised of research talks by eminent Researchers in Theoretical Computer Science. The talks were intended to expose the audience to recent research advances and inspire young researchers, as well as stimulate new directions for research in this field. The workshop started at 9 am and went on till 5 pm on the given day. Among the eminent researchers present during the workshop, some of the speakers for the day were: [Eva Tardos](#), [Amit Kumar](#), [Muthu Muthukrishnan](#), [Michael Saks](#).

Eva Tardos, Professor with Department of Computer Science, Cornell University talked about ***Welfare and Revenue in Ad Auctions***. She started with the most common auction format that is *Vickrey Games*. A *Vickrey game* is a truthful, efficient and simple algorithm which works well in basic single item auctions. It says choose the highest paid person and make him pay the second highest auctioned price. It also has various

applications in today's world where we might need to analyze some existing auctions or to design good and simple auctions.

Amit Kumar, Associate Professor with Department of Computer Science and Engineering, Indian Institute of Technology (IIT), Delhi discussed the popular heuristic for the ***k-Means clustering problem***, the *Lloyd's algorithm* and kept a point that one could get a good approximation algorithm if the initial centers are chosen from a special distribution, which we call *D²-sampling*. He showed that ideas based on *D²-sampling* lead to a very simple linear time *PTAS*.

S. Muthu Muthukrishnan, Professor with Rutgers University having area of interest in Database and Algorithms discussed about common examples in his field of Research. Muthukrishnan discussed *Count-Min sketching algorithm* for a basic indexing problem. In this algorithm, we imagine a virtual array $F[1\dots n]$ and constantly update its value for indexing. Actual Space used in this algorithm is $O(\log n)$. He also explained the offline negotiations between the Advertisers and Publishers for Ads and prices diagrammatically.

Michael Saks, a Mathematician discussed ***Two Highly Efficient Algorithms for Approximating the Longest Increasing Subsequence (LIS)***. In his talk, he discussed about his recent work with **C. Seshadhri** in which they obtained very efficient algorithms for approximating the *LIS* within two different models of computation. He discussed about two types of access. Firstly, *Random access* with limited time in which algorithm should run in time much less than the size of the array. Secondly, *Streaming access* in which algorithm should see each array location exactly once. Both algorithms used $O(\log(n)^2/c)$ of memory.

These talks were followed by a High Tea networking in which we talked to number of researchers who have been doing exceptionally well in this field. We also asked them for their views and suggestions on our current academic research projects with DU. As a whole it was a pleasurable experience for budding researchers like us and it did inspired us to follow the direction of research in the respective fields. We thank our supervisor for giving us this wonderful opportunity to attend such an eventful day at Bangalore.

Sakshi Arora & Manish Dawar
M.Sc. 2nd Year

ALUMS SPEAK

I CAN DO IT

They say that eyes don't lie. No wonder it's true. In my 90 minutes of interview with him, I couldn't help but notice the confidence, compassion and ambition that reflected through his eyes. It is only a few who have the power to capture the listener in their talk with sheer honesty and simplicity. Sandeep Jain is one of them. I must say I was nervous going into this interview in the very first place, but he made me at ease from the word go, opening up and sharing with me much more than I had expected.

Here are a few excerpts from the interview.



Tell me something about your formative years. How were you as a child?

I hail from Patna, Bihar. Ours is a Joint family and I am the eldest among 3 brothers and 4 sisters. Being the eldest, I always had my priorities set right for me from the very beginning. I was always interested in computers and knew that this was something that I would want to do in my life for the years to come. I remember starting off by learning simple commands like change directory and make directory on a TV programme launched by Zee TV when I was in my 6th grade. *Uss time Patna mein ek centre khula tha- Zee point, Zed Education,* and I remember enrolling myself there for a course in MS office. These things were relatively new and untouched back then at my place. I started off by working on the DOS prompt wherein I had to type in commands like *win* to actually launch Windows.

So your family knew and supported you with your obsession with computers?

When I was in my 7th grade, I did a course in DBMS which at that time costed me some 2000 bucks. I remember my father wondering *ki poore din computer mein ghusa rehta hai, patta nahi kya time waste kar raha hai* (smiles), because I always was a sincere student, but never really could score that well.

Continue...

Once I saw an automation software that was being sold in Patna and was developed in FoxPro. When I saw that, I thought- 'I can do it, it's in FoxPro, and I can create it!' (And this precise moment, I see his eyes light up). And then I created a menu box with some 3000 lines of code, but when I finished with my database course I realized that what I had done with 3000 lines of coding could easily be done with just 5 lines of coding thru APIs, but I guess that's how one learns.

Tell me something about having to come to Delhi, all of 17, to study at BIT Noida. How was the transition like? How did Delhi treat you?

The switch seemed sudden. As I said, I was always a sincere kid, but never really worked towards any goals up till now. I think that that gestation period, between the conformations of my admission to actually leaving for Delhi, is the time when my attitude towards my life and studies changed. I remember all my relatives calling me up and saying "we know you'll do something big, and make us proud" I think that was the turning point in my life(pauses), I secured a 92.4% in my BCA(smiles).

I vividly remember my best friend calling me up before I left to say-
"Sandeep itna door jaa rahe ho,
kuch karke zaroor dikhaana"

Were you ever the subject of any rough behaviour or faced any prejudices here in Delhi, because of where you were from?

Not really, being from Bihar was considered a taboo back then but I never was the subject of any prejudices. I remember my hostel roommate's reaction when he first saw me. He said "tum gore ho, Bihar ke nahi ho sakte, tum Punjabi ho ya yahi kahin ke ho..." But these are just misconceptions and plain ignorance on peoples' part. My father and my sister happen to be far fairer than me (smiles.).

Tell me something about your learnings here at DU MCA

Well I have seen this attitude in most people I see here, it's that- now that we're in DU MCA, we're placed, *ab to kuch karna nahi hai*. I feel that's where they go wrong. I remember claiming that I could solve any damn problem in C/C++. But this misconception came crashing down when we went to IIC for a fest its then that I realized that there is a huge ocean of knowledge that I've not even been anywhere close to! So always keep learning. You think you know it, but in actually you really don't.

You had an Aricent, Nagarro and Trilogy in your kitty. From having three jobs in hand, from being the highest package holder of your batch to being jobless. How tough was that phase for you?

5th January 2009, I started with my internship with Trilogy and the economy had already started showing signs of being crippled by recession. 2 months into it and we come to know that Trilogy is to lay off and terminate the internship. We somehow completed 4 months of the internship at Trilogy, before it finally shut down. But now the question at hand was - what next!? And then started the frantic job search. After many efforts and a few rejections, I landed in Decho.

Decho was superb. After my probation period ended in Decho, I landed myself a job in Adobe. And the rest as they say is history!

So finally Adobe and you had to shift back to Delhi. Were you happy with it?

It was actually very painful to leave Decho. We were a team of 12 developers and I loved working there. But I had to shift to Delhi as I wanted to bring down my family to live with me in North India.

Bangalore can be boring at times. I remember having maggi for dinner for 1 complete month

There is a lot of pressure during Placement time. I remember calling up my father 2 days before Aricent came and telling him – “mujhse nahi hoga” and then i switched off my phone for the entire day.

You are young, conventionally good looking; successful and well settled in your professional life. Is marriage on the cards?

You have achieved quite a lot so early on in life. What are some of the things that you've done that you're really up till now?

Well there is a long way to go. *Mujhe yaad hai*, when I got a rank 2 in DU MCA, I broke down in the cyber cafe itself. I don't cry that easy, but that day I just couldn't hold up! It was my one of the proudest moments in life. And Adobe was my dream company even before coming for MCA. Getting through Adobe would be the second such moment I guess. Next stop – Google (smiles).

Marriage is not something I bother myself with, by thinking too much about. These things tend to take their own course in life. *Jab hona hogा, ho jaayega (smiles)*.

Have you been in relationships in the past?

Well I've been in two major ones but neither seemed to have worked out at that point in time of my life. My second relationship dint end that well. I was literally heartbroken. I guess my wanting to go to Bangalore , for the period that I did , was a conscious and well planned out decision and I guess that now I've finally moved on . (He then quotes a line from the movie Rockstar), *VO kehte hain naa, ki dil tootne ke baad hi ek rockstar paida hota hai.* (smiles).

I see that you are really close to your family, especially your father. Whats the relationship that you share with him like?

My father has been a huge influence in my life. Seeing him having worked that hard and having spent my childhood the way I did, has made me respect and appreciate a lot of the small little things in life. I am never insecure regarding money because I know that money can always be earned. There used to be a time when I and my sister used to share the same eraser, just because we knew we couldn't afford a new one. My father has always taught me one thing – *ki kahin bhi jao, koi bhi kaam karo, use kuch naa kuch hamesha seekhne ko milta hai.*

Mujhe bike chalaane nahi di jaati, I wish I could ride a bike some day.

Define Sandeep Jain for me. Will you?

I am a family person. I just cease to exist without them. I am a romantic at heart (talk of appearances being deceptive!) I am a very optimistic person. My favourite quote is – the glass is always half full. And I do believe that whatever the situation may be, the glass IS half full. It's good to see the world through the eyes of optimism. Umm...What else...well I am completely self obsessed. All my programs ever since my 4th grade have a ©Sandeep Jain tag to them!

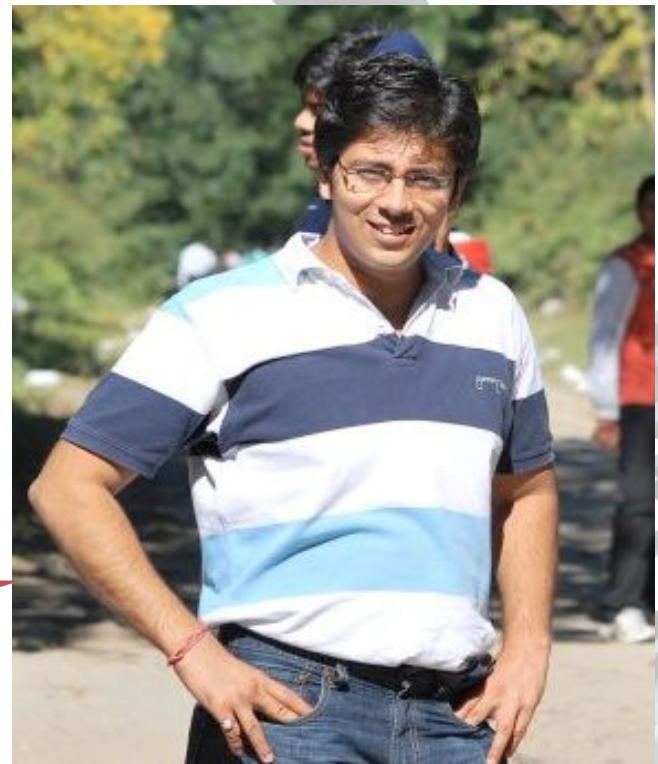
Whats your one message for your juniors at DUCS?

Well not one, rather a couple of them. First and foremost never take anything for granted because there are many a slips between the cup and the lips. Be prepared for the worst and look forward to the best in life. Secondly if you think, that you are not good at something, start teaching it. You learn more when you teach and last but not the least study together because remember that coming together is the beginning, keeping together is progress and working together is success!

Life in the fast food lane...your pick?

(Pat comes the reply) Dominos' Veg Extravaganza cheese burst Pizza! But nothing beats the regular daal-chawal with papad

I am extremely short tempered. I feel that's one of my biggest flaws. Back home, as kids, my sister's friends used to call me Hitler!



From being the boy who still cherishes the chocolate he received as a student in the 5th grade on making a remainder function, to being the employee at an American Multinational firm, Sandeep Jain has indeed come a long way. It won't be wrong to say that the quest for knowledge and self growth still pushes and motivates this fiery Leo. Those 90 minutes of a conversation with him has certainly left an impressionable mark in my mind and I hope it inspires you too to make something worthwhile of your life.

Interview conceptualized, edited and compiled by

Abhigya Jain

