National Education Society ®, Shivamogga
JAWAHARLAL NEHRU NATIONAL COLLEGE OF ENGINEERING
(Approved by AICTE, New Delhi, Certified by UGC 2f & 12B, Accredited by NAAC –'B',
Recognized by Govt. of Karnataka and Affiliated to VTU, Belagavi)
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Department of Computer Science and Engg.

COSMOS

Bringing up the Excellence

Department of Computer Science and Engineering

COSMOBYTE

Code Storm is Roaring

COSMOS 2019

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Bringing up the Excellence

MESSAGE FROM HOD

Dr. Nirmala Shivanand

Dear Graduates, life is like a large piece of marble and you are the sculptor. The mind, will and skill of a sculptor decide the shape of this marble. Likewise, your mind, will and skill will help shape your life. Do not allow circumstances to restrict your dreams! Learning does not end when one leaves college. We must all strive to improve and excel, no matter which pathway we are going to take. With the advantage of having your education at this College, coupled with hard work, positive attitude and knowledge, your dreams will take you as far as you can imagine. Do look for the opportunities that hide behind adversities, as there is always another way of looking at the world.

It is always nice to be with young people. Apart from making us feel younger ourselves, it also allows us to share the joy, energy and spirit that are commonly associated with youth.

I would like to end with the words of Albert Einstein – "Imagination is more important than knowledge, for while knowledge defines all that we currently know and understand, imagination points to all we might yet discover and create."

VISION

To be one of the pre-eminent departments to provide technical and knowledge based education, utilizing the potential of Computer Science & Engineering to meet the ever changing needs of industry and society.

MISSION

* Mould the students to meet the emerging challenges of industry and society.
* Emphasizing on research.
* Effective industry interaction for the development of state of the art technological infrastructure and faculty component.

PROGRAM EDUCATIONAL OBJECTIVES GRADUATES OF THE PROGRAM :	
PEO -1	Would be able to identify real world problems and solve them effectively using comprehensive knowledge of computer science.
PEO -2	Would be able to become entrepreneur, pursue higher education and carry out research.
PEO -3	To work in changing environment with ethical and social responsibilities.

PROGRAM SPECIFIC OUTCOMES	
PSO -1	Apply concepts in the core areas of Computer Science & Engineering – Networking, Data Structures, Computer Architecture, Mathematical Modeling and System Programming to address technical issues.
PSO -2	Design and develop computer based systems by applying standard practices and principles using appropriate tools and programming languages for real world problems.

Bringing up the Excellence

STUDENT ARTICLES

BLOOM FILTER: A PROBABILISTIC DATA STRUCTURE

- K Suhas Bharadwaj – 6th B
- Abhay K P – 6th B

Big Data is the most popular emerging trends. Every person involves with producing data either directly or indirectly. Thus, Big Data is a high volume of data with exponential growth rate that consists of a variety of data. In order to query such a high volume of data, there should be algorithms implemented with powerful data structures. One such powerful randomised data structure is Bloom Filter. It tells us whether a given record is present in given high volume of data in *O (1)* amortised time. Bloom Filter is also space efficient data structure as it only uses a bit vector to store data item unlike other data structures like hash maps which stores entire data as key and its hash as the value. Bloom Filters can be used to design any systems that are associated with membership problem. One such example is that of checking availability of username, where the set is the list of all the registered usernames. Another example includes predicting the address that has to be stored in the local cache of the browser. Local browsers maintain *LRU* caches to store the recently searched items. Suppose one search for a trending keyword in the social media. Probably that search will be made only once. But this searched item replaces an entry in the *LRU* cache of local browser which is more useful than this trending keyword. This could be avoided using counting bloom filters where we maintain multiple bit vectors. The idea is to insert the entry into the cache only when it is searched for multiple times. Once the element is searched, we see whether the bits corresponding to the hash value are set in all bit vectors we have maintained. If so, we insert this entry into the cache. Otherwise we set the bits in the first bit vector we encountered where corresponding bits were not set. By doing this *LRU* caches can be made efficient in real time.

MACHINE LEARNING IN NETWORK SECURITY

- Ramya K T 4th A

1. Introduction

The term “Machine learning” is coined by Arthur Samuel in1959 which is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. It focuses on the development of computer programs that can access data and use it learn for themselves. The primary aim is to allow the computers learn automatically without human intervention or assistance and adjust actions accordingly.

2. Network security

Network security consists of protecting the network against cyber-threats that may compromise the network's availability, or yield unauthorized access or misuse of network-accessible resources. Attackers are constantly finding clever ways to attack networks, while security experts are developing new measures to shield the network from known attackers, most importantly zero-day attack. Example of such security measures include: Encryption of network traffic, Authorization using credentials, Access control, Anti viruses, firewalls. The second line credential for security is by machine learning.

3. Machine Learning helps security

Machine learning recognize patterns and predict threats in massive data sets, all at machine speed. By automating the analysis, cyber teams can rapidly detect threats and isolate situations that need deeper human analysis. The machine learning helps in:

- **Find threat on a network :** Machine learning detects threats by constantly monitoring the behaviour of the network for anomalies. It's engines process to discover critical incidents. These techniques allow for the detection of insider threats, unknown malware and policy violation.

- **Keep people safe when browsing :** Machine learning can predict “bad neighbourhoods” online to help prevent people from connecting to malicious websites. It analyses internet activity to automatically identify attack infrastructures staged for current and emergent threats.

- **Provide endpoint malware protection:** algorithms can detect never before-seen malware that is trying to run on endpoints. It identifies new malicious filers and activities and behaviours of known malware.

- **Protect data in the cloud :** Machine learning can protect productivity by analysing suspicious cloud app login activity, detecting location-based anomalies and conducting IP reputation analysis to identify threats and risks in cloud apps and platform.

- **Detect malware in encrypted traffic :** Machine learning can detect malware in encrypted raffic by analysing encrypted traffic data elements in common network telemetry. Rather than decrypting, machine learning algorithms pinpoint malicious patterns to find threats hidden with encryption.

Bringing up the Excellence

ನನ್ನ ಪರಿಕಲ್ಪನೆಯಲ್ಲಿ ಸ್ನೇಹ

ಸ್ಫೂರ್ತಿ ಎಸ್.ಆರ್.
8ನೇ ಸೆಮಿಸ್ಟರ್, ಎ' ವಿಭಾಗ,

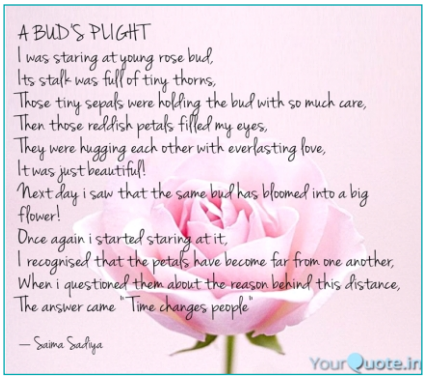
ಆಕಾಶಕ್ಕಿಂತ ಎತ್ತರ, ಭೂಮಿಗಿಂತ ಆಳವಾದುದು ಸ್ನೇಹ, ಸಮುದ್ರದೊಳಗೆ ಅಲೆಗಳ ಆರ್ಭಟ ಮನದೊಳಗೆ ಪ್ರೀತಿ, ವಿಶ್ವಾಸ, ನಂಬಿಕೆಯ ಸೆಣೆಸಾಟ. ಸಮುದ್ರದಲ್ಲಿನ ಅಲೆಗಳು ಮರಳನ್ನು ಸೋಕದೆ ಇರಲಾರವು, ಹುಣ್ಣಿಮೆಯ ಚಂದಿರನು ಬೆಳಕನ್ನು ಹಾಯಿಸದೆ ಇರಲಾರನು, ಮೋಡಗಳಿಲ್ಲದೆ ಮಳೆಹನಿಯೂ ಬರಲಾರದು, ಮಳೆಯೂ ಇಲ್ಲದೆ ಬೆಳೆ ಬೆಳೆಯಲು ಸಾಧ್ಯವಾಗದು, ಬಾಯಾರಿದಾಗ ನೀರೇ ಬೇಕು, ಉಸಿರಾಡಲು ಗಾಳಿಯೇ ಬೇಕು, ಪ್ರೀತಿಸಲು ಒಂದು ಹೃದಯ ಬೇಕು, ಹೃದಯಗಳೆಲ್ಲಾ ಸೇರಿ ಸ್ನೇಹವಾಗಬೇಕು. ಒಳ್ಳೆ ಗುಣ ಮನಸ್ಸಿನ ಹೃದಯದ ಆಸ್ತಿ, ಒಳ್ಳೆ ಸಂಬಂಧ ಜೀವನದ ಆಸ್ತಿ ಹಾಗೆಯೇ ಒಳ್ಳೆ ಸ್ನೇಹ ದೋಸ್ತಿಗಳ ಆಸ್ತಿ. ಇಂತಹ ಸ್ನೇಹವು ಒಂದು ಬಿಡಿಸಲಾರದ ನಂಟಾಗಬೇಕು. ಅಪರಿಚಿತರನ್ನು ಪರಿಚಿತರನ್ನಾಗಿಸಿ ಎಲ್ಲರನ್ನೂ ನಮ್ಮಂತೆ ಕಂಡು ಪ್ರತಿ ಹೆಜ್ಜೆಗೂ ಒಬ್ಬನ್ನೋಬ್ಬರು ಹಿಂಬಾಲಿಸುತ್ತ ಮುಮದೆ ಸಾಗುವರು. ಹಾರುವ ಹಕ್ಕಿ ನಿರಿನಲ್ಲಿ ಈಜಬಹುದು, ಈಜುವ ಮೀನು ಯಾವತ್ತು ಹಾರುವುದಿಲ್ಲ. ಅದೇ ರೀತಿ ಮಾಡಿದ ಸ್ನೇಹ ದೂರ ಆಗಬಹುದು, ಆದರೇ ಸ್ನೇಹದ ನೆನಪು ಮಾತ್ರ ದೂರ ಆಗುವುದಿಲ್ಲಾ. ಅಂತೆಯೇ ಈ ಸ್ನೇಹದ ಬುತ್ತಿ ಎಂದೆಂದಿಗೂ ಕೊನೆಗಳ್ಳದೆ ನಿರಂತರವಾಗಿ ಹರಿಯುವ ತಿಳಿನೀರಿನಂತೆ ಹರಿದು, ನಿರಂತರವಾಗಿ ಬಡಿಯುವ ಹೃದಯದಂತೆ ಬಡಿದು, ಜೊತೆ ಜೊತೆಯಾಗಿ ಸಾಗುವ ಬಂಧವಾಗಬೇಕು. ಇಲ್ಲಿ ವಯಸ್ಸಿಗೆ ಮಿತಿ ಇಲ್ಲ ಜಾತಿಮತಗಳ ಅಂತರವಿಲ್ಲ, ಸಂಬಂಧದ ಕುರುಹಿಲ್ಲ, ನಗುವಿನೊಳಗೆ ಜೊತೆಯಾಗಿ ನಗುವ, ಅಳುವಿನಲ್ಲೂ ಜೊತೆಯಾಗಿದ್ದು ಸಂತೈಸುವ, ಏನನ್ನು ಮುಚ್ಚಡದೇ ಹೇಳಿಕೊಳ್ಳುವ ಇಂತಹ ಅಮೂಲ್ಯವಾದ ಸ್ನೇಹ ಬಂಧನಕ್ಕೆ ಸ್ನೇಹವೇ ಸಾಟಿ. ಸ್ನೇಹವೆಂಬುದು ಒಂದು ದೊಡ್ಡ ಪ್ರಪಂಚ. ಇಲ್ಲಿ ಆಪತ್ ಕಾಲದಲ್ಲಿ ಕೈ ಹಿಡಿದು ನಡೆಸುವವರೇ ನಮ್ಮ ಆತ್ಮೀಯ ಸ್ನೇಹಿತರು, ಬುಜಕ್ಕೆ ಬುಜ ಕೊಟ್ಟು ಆಧಾರ ಸ್ಥಂಭದಂತೆ ಸದಾಕಾಲ ಜೊತೆಗಿದ್ದು ಕಷ್ಟ ಸುಖದಲ್ಲಿ ಭಾಗಿಯಾಗುವರು. ಶುದ್ಧ ಸ್ನೇಹದಲ್ಲಿ ಜಗಳ ಜಾಸ್ತಿ, ಇದನ್ನು ಅರಿತರೆ ಬಾಳಿನಲ್ಲಿ ಸವಿ ಜಾಸ್ತಿ, ಸ್ನೇಹಕ್ಕೆ ಬೆಲೆ ಕಟ್ಟಲು ಸಾಧ್ಯವಿಲ್ಲ.

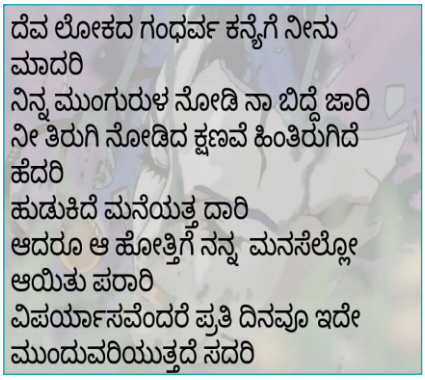
ರಕ್ತ ಸಂಬಂಧಗಳನ್ನು ಮೀರಿರುವ ಬಂಧವೇ ಸ್ನೇಹ. ಈ ಸ್ನೇಹಾ ಅಮೃತದ ಜಲದಂತೆ ಪರಿಶುದ್ಧವಾಗಿದ್ದು ಅದಕ್ಕೆ ಯಾವ ಸೊಂಕು ತಗುಲದಿರಲಿ ಎಂಬುದು ನನ್ನ ಮನದಾಳದ ಹೆಬ್ಬಯಕೆಯಾಗಿದೆ.

Art Zone

Vignesh 6th B

Vivek Kini 6th A





By Shashank T P 6th B

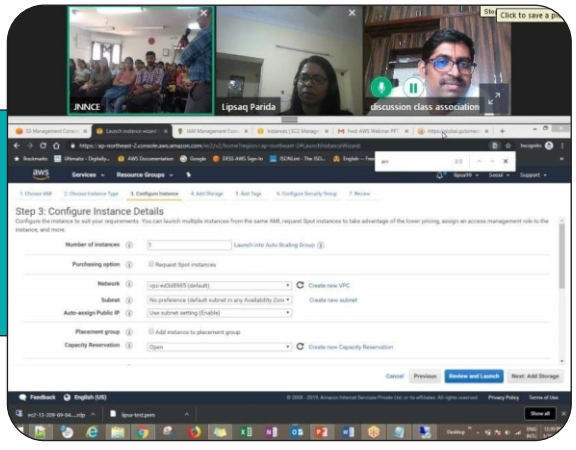
Teachers Day Celebration from COSMOS 2018-19

COSMOS 2018-19 Inaugural Function

Expert Talk By Mr. Shankar Shastry on "Learning From building a high Scale distributed Storage System on Cloud", COSMOS 2018-19.

A Two day workshop on "Developing Android Application with Kotlin" was organized by Department forum COSMOS 2K19, 16.3.2019 and 17.3.2019 coordinated by Mr. Narendra Kumar S and Ms. Sreedevi S. and the resource person being Mr. Chetan K. R.

COSMOS hosted a Technical Webinar on "Cloud Computing with AWS" on 30.03.2019 for pre-final year students, delivered by Mr. Dhananjaya Padmanabhachar, head in IT Company Bangalore and Mrs. Lipsa Parida, AWS Certified IT Specialist



RANK HOLDER

Congratulations

Rashmi V
5th Rank
M. Tech-Computer Science & Engg.,

EVENTS

RANGOLI, MEHANDI AND TATTOO COMPETITION

SPORTS EVENT

TECHNICAL QUIZ

TWINS DAY

SINGING

LAZY DANCE

Department of Computer Science and Engg

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OUTGOING STUDENTS
2015-2019 BATCH

Snehamillana Graphics SMG - 9480959222