DIFFERENTIAL DISCOVERIES

- Syed Hussain Ali Razvi

To give a complete simplification of the 4 years here at MJCET, both academically and professionally, Computer Society of India MJCET held its first event for the academic year 2022-23 on 9th December 2022, at the Microsoft Lab, MJCET from 2:00 to 4:00 pm by the special guests and CSI alumni's – Syed Zohaib & Md Imran Khan and the governing body of CSI.

This event gave valuable insights to more than 70+ attendees, and offered them the perfect plan to make the most out of their 4 years here at MJCET. Straight-forward & constructor, this event provided a simple but effective approach for undergrads.

Chief Coordinators Samiyah Arshi and Rashaad Mirza initiated the event with a small introduction of CSI followed by event plans & motive behind this event. The stage was then taken up by the Brand Strategist Deenaz Fathima, who spoke about the best strategy to tackle your exams, followed by Chief Coordinator Ayesha Abdul Qadeer who spoke about the importance of maintaining a good GPA, Projects & Internships. Then, our Tech Captain Md. Habeebullah Tabrez hypothesized the Four-Year Plan, followed by our other Tech Captain Md. Ikram Uddin who gave a little insight on the biggest event of CSI – Hackathon. Later, the General Secretary Masrath Sultana spoke about why & how you should maintain a good LinkedIn profile and how it can affect your career.

The stage was then given to the guest speaker Mr. Syed Zohaib, Software Developer at Apple, who spoke about his

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> ### FROM THE DIRECTOR'S DESK…
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> *All of these would guide them towards one goal – excellence.*
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> …more on page 9 ❞

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> ### FROM THE DEAN'S DESK…
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> *Software engineer, are you industry-ready?*
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> …more on page 10 ❞

experience in college, software engineering and answered some of the general queries of the audience. The next speaker Mr. Mohammed Imran Khan, Senior Consultant at Deloitte took the stage on an online platform and spoke a few words.

A fun quiz was also organized for the young audience. They participated in the quiz with enthusiasm and raced against the clock to get their hands on the winning prize. The event was concluded with the announcement of the winners for the quiz & with a vote of thanks by Rashaad Mirza.

FULL STACK EXPERIENCE

-Maliha Zia

Computer Society of India has organized a two-day hands-on workshop named "Full Stack Experience", which was held on 24th & 25th December at Microsoft Lab, MJCET from 11 AM to 4 PM. This workshop intended to provide an in-depth knowledge of Full Stack Development.

Whether you are a beginner looking to enter the world of web development or an experienced developer looking to expand your skill set, valuable insights and resources will help you succeed into the world of Full Stack Web Development. Full stack web development is the practice of developing both the front-end and back-end components of a web application. A full stack web developer is proficient in a range of technologies and tools, including HTML, CSS, JavaScript and server-side technologies MongoDB, NodeJS. In this workshop the participants explored the skills and knowledge required to become a full stack web developer, as well as the various career opportunities available in the field.

Day 1 was taken up by the guest speaker Ms Juveria Khatoon, Web Application Developer at Deloitte USI. The session gave a detailed rundown of front-end development.The audience engaged in a hands-on session with the guest speaker, which helped them get equipped with relevant skills of HTML, CSS & basics of JavaScript.

The audience gave an overwhelming response and engaged enthusiastically throughout the hands-on session. Later, Ms Juveria Khatoon was presented with a Memento of Appreciation by Dr. Maniza Hijab, the Associate Head of CSE Department. The day ended with a vote of

thanks by Chief Coordinator Ms Ayesha Abdul Qadeer.

Day 2 was taken up by Mr Mohammed Habeeb Ullah Tabrez, Tech Captain. This session covered all about back-end development. The session began at 11:00 AM with an introduction to backend development. The Tech Captain engaged the audience with a hands-on session. This session included the basics of JavaScript and MongoDB and introduction to NodeJS.

The audience was then taught to make a project. The audience engaged in enthusiasm by integrating front-end with back-end development.

A competition was also organized for the young audience by Maaz Ahmed and Ahmed Khan .The audience participated with zeal and raced against the clock to win the cash prizes. The winners of this competition were handed prizes by Samiyah Arshi, the Chief Coordinator.

The two-day workshop was concluded with a vote of thanks by Cheif Coordinatore Ms Ayesha Abdul Qadeer.

The workshop proved to be an insightful one for the 60+ attendees, & offered them an opportunity to have a gateway into the world of web development. Also this two-day workshop presented an opportunity to the students to enroll themselves in different certified courses available online making them capable of handling every field in a corporate world.

NAVIGATING THE WORLD OF COMPUTER SCIENCE: INDUCTION PROGRAM AT MJCET

-Masrath Sultana

Muffakham Jah College of Engineering and Technology conducted an induction program for the newbies of the MJCET at the Ghulam Ahmed Hall. The program, which was organized by the faculty members, and seniors of the club, aimed to introduce the freshers to the various activities and initiatives of the MJCET.

The event began with Ayesha Abdul Qadeer, the Chief Coordinator of CSI-MJCET, and Masrath Sultana, the General Secretary, introducing the club and discussing its history and achievements. Maheen Tayyaba Siddiqui, the Tech Captain, and Mehveen Fatima, the Associate Chief Coordinator, then presented on the technical projects being undertaken by CSI-MJCET. Hania Ghouse, the Deputy General Secretary, provided information about the annual hackathon hosted by CSI-MJCET. Finally, Samiyah

Arshi, the Chief Coordinator, highlighted CSI-MJCET's commitment to serving the community through various humanitarian events.
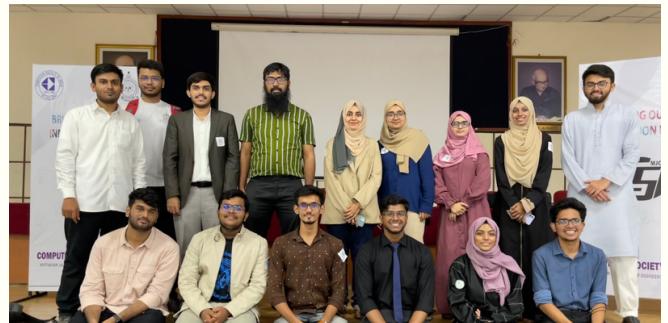
The program was held from 3rd to 5th November and was attended by over 800 students. It featured a series of talks by industry experts, faculty, dean, principal and senior members of various clubs, as well as interactive sessions.

The interactive sessions of the event included a coding session called "Pizza or Pasta?" led by Rashaad Mohammed Mirza, the Chief Coordinator, and Mohammed Adnan Ahmed Yousuf, the Chief Representative. This was an opportunity for many of the freshers to try their hand at writing code for the first time. To wrap up the event, Aleem, the Marketing Head at CSI-MJCET, organized a quiz competition for the attendees.

The induction program received positive feedback from the attendees, with many of them expressing their appreciation for the informative and engaging sessions. The new members felt that the program had provided them with a better understanding of the student chapter and MJCET, and helped them feel more connected to the community.

The induction program was a success, thanks to the efforts of the seniors and the support of the faculty and administration. It not only provided a platform for the freshers to learn and engage with their peers and mentors, but also contributed to the overall development of the club and its members.

The CSI-MJCET club looks forward to organizing more such events in the future, to continue building a strong and vibrant community of computer science students at the college.

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THE METAVERSE: A JOURNEY THROUGH VIRTUAL REALITY AND BEYOND

-Masrath Unnissa

The term Metaverse has several different definitions depending on where you look, which makes the term itself, and the ideas around it a bit perplexing. A definition from Oxford languages defines it as "a virtual-reality space in which users can interact with a computer-generated environment and other users." This definition isn't very specific, but we will get down to the bottom of exactly what Metaverse entails, the ideas that surround it, and what the future of this particular idea looks like. The first use of the term "metaverse" was in Neal Stephenson's novel Snow Crash in 1992.

Nowadays, nobody knows exactly what the metaverse will look like, but its basic characteristics are established. It spans physical as well as virtual worlds and centres around a fully functioning economy. Moreover, it allows users to travel through its different "places" with relative ease, maintaining their purchased goods and avatars.

Even if the metaverse fails to achieve phenomenal results, it could fundamentally change the world. A collective virtual experience could bring new opportunities to gamers, creators, as well as artists. The virtual world of the metaverse could transform into a trillion-dollar industry.

The metaverse provides a shared space where people can interact with each other and objects. It's an immersive environment that can be accessed through multiple gadgets such as headsets, goggles, or screens.

Will the world completely turn to avatars that virtually work, socialize, go to events, and shop full-time? This may seem absurd, but if you think about it, we are already halfway there. The world already does all of these things online. Creating a virtual world that incorporates augmented reality and virtual reality (also known as XR or Extended Reality) will only enhance these experiences making the world more likely

to be even more immmersed in this future metaverse. The world has turned into a culture that relies heavily on technology, social media, and online connectivity. Again, we are already halfway there. Combining these aspects shouldn't seem so impossible.

The idea of the metaverse is still quite new and trying to define exactly what it will be in the future is almost impossible, but the idea of the metaverse is still quite new and trying to define exactly what it will be in the future is almost impossible, but the metaverse is more than just virtual reality. We do know that it will be a combination of many things. It may be an amalgamation of a computer-generated virtual reality space, with a large user base taken from social media platforms, and at the same time utilizing all XR platforms including virtual reality, augmented reality, and more.

It will be a way to interact with each other, the world, and all the data we can already find online. Metaverse could potentially be the immersive virtual world that brings everything together making it one solitary entity. Metaverse could be the future of online gaming, social media, the internet, and connected devices. It can most likely be a combination of all of these things.

SUPER SUPERVISED LEARNING

-Masrath Unnissa

Supervised learning is the most common sub-branch of machine learning today. Typically, new machine learning practitioners will begin their journey with supervised learning algorithms. Therefore, the first of this three post series will be about supervised learning.

Supervised machine learning algorithms are designed to learn by example. The name "supervised" learning originates from the idea that training this type of algorithm is like having a teacher supervise the whole process.

When training a supervised learning algorithm, the training data will consist of inputs paired with the correct outputs. During training, the algorithm will search for patterns in the data that correlate with the desired outputs. After training, a supervised learning algorithm will take in new unseen inputs and will determine which label the new inputs will be classified as based on prior training data. The objective of a supervised learning model is to predict the correct label for newly presented input data.

Supervised learning can be split into two subcategories: Classification and regression. Classification : During training, a classification algorithm will be given data points with an assigned category. The job of a classification algorithm is to then take an input value and assign it a class, or category, that it fits into based on the training data

provided.

The most common example of classification is determining if an email is spam or not. With two classes to choose from (spam, or not spam), this problem is called a binary classification problem.

Regression is a predictive statistical process where the model attempts to find the important relationship between dependent and independent variables. The goal of a regression algorithm is to predict a continuous number such as sales, income, and test scores. The equation for basic linear regression can be written as so: $y=wx+b$

There are many different types of regression algorithms. The three most common are listed below:
- Linear Regression
- Logistic Regression
- Polynomial Regression

Supervised learning is the simplest subcategory of machine learning and serves as an introduction to machine learning to many machine learning practitioners. Supervised learning is the most commonly used form of machine learning, and has proven to be an excellent tool in many fields.

CONTINUOUS GLUCOSE MONITOR - MEDICALLY INCLUSIVE TECHNOLOGY

-Masrath Unnissa

Technology has contributed in many aspects to the medical field as well. One such example is in the branch of diabetes.
The readings required to interpret the blood sugar in specific cases for a diabetic individual can now be obtained without having to prick the finger to get a blood sample every time and having to wait for the glucometer to display the levels.
How is that? One may ask.
With a little more innovation, technology has come up with a more convenient solution to this very important process, which involves the usage of a sensor.
An invasive monitor called libre (which is the CGM), is inserted through a needle in the blood which interprets the sugar levels and it is provided with a reader called MiaoMiao.
The MiaoMiao reader is a revolutionary transmitter designed to provide continuous glucose reporting automatically to the smartphone or smartwatch.
It has been designed for ultimate convenience for users with features like waterproof build for usage while showering, so that the process of removing and reattaching can be eliminated, easily rechargeable and also compatible with different models of the CGM.
The users will get a statistical reading of the

rising or falling levels through an app at all times as long as the device is connected and it can be accessed very easily compared to the method which has been used before this, which is the finger prick testing method.

The main question is, how does this work?

A CGM works through a tiny sensor inserted under your skin, usually in the arm or in the belly. The sensor measures the interstitial glucose level, I.e., the glucose found in the fluid between the cells. The sensor tests the glucose every few minutes. A transmitter (MiaoMiao) wirelessly sends the information to the monitor it is connected to.

The first glucose metre was used in the 1970s with the Dextrostix, but its precision and accuracy was poor. By the mid 1970s, the concept of patients using blood glucose data at home was contemplated and by 1980, the Dextrometer was launched, which uses the finger pricking test method. To modify this technology and to make it more convenient for its users, the concept of this sensor came to light.

The first disposable glucose sensor was launched in 2014 as a way for people with diabetes to get access to high quality, accurate and affordable technology. The models continue to get advanced as more features and updates are to be added to make the lives of these brave people just a little easier.

Technology keeps advancing at a very high rate in today's date and it is to cater to people's needs in every aspect. From trivial and everyday tasks like turning on and off an electrical appliance, to very complicated and advanced medical procedures that have been developed in very recent times and which prove to be very important revolutions in the world of technological development.

GETTING STARTED WITH CROSS-PLATFORM APP DEVELOPMENT

-Taufeeq Naumaan

App development is a well known emerging domain. The fact that there are more apps than websites says it all. As of today, developers are moving to Web apps rather than Websites. What's the difference between those two? Well, Web apps are more interactive and generally provide a great user experience on the other hand Websites are static, the client cannot manipulate the data.

That was a quick introduction about apps, but wait, how do you make an app, more importantly how do you start to make one? The answer to the first question can be

divided into two categories. The first one is called as Native development and the other is called Cross-Platform development. A little confusing for some of you. Let's try that again. Apps that run only on Android or on IOS are called as Native apps, whilst the apps that can run on both Android and IOS are called Cross-Platform apps. Here in Cross-Platform development you have only code your app once and it runs on both operating systems. This luxury is not available in the realm of Native app development. That's why the word "NATIVE".

Now, you know which is which the answer to the second question is you use a framework, or a tool. Some of the more popular and in demand frameworks or "tools" are React Native maintained by Facebook (now META), Flutter maintained by Google. Which is better you ask? It doesn't matter, just choose one and get started.

Although the demand for flutter developers is increasing by the day. In fact Zerodha: One of the largest trading platforms in India moved its entire codebase from React Native to Flutter. Now let me boast a little about flutter, it's crazy fast because it employs the usage of dart language which inturn uses a C++ engine. Everything is a widget in flutter, which makes writing front-end code a lot better. The main selling point of Flutter in my opinion is the wide area of screens that it can run on. A flutter application written once can run on Android, IOS, Linux,

Windows, MacOS, and Web. It's amazing what the flutter team has developed.

Now how to get started? First get your core programming concepts cleared. Second head on to https://flutter.dev/learn and get started. There is detailed documentation on flutter's website flutter.dev which is beginner oriented. Tons of material on YouTube on flutter is an added bonus. And that is as simple as it could get.

FROM THE DIRECTOR'S DESK

-Prof. Basheer Ahmed

Education has long been recognized as the cornerstone of society. From the earliest civilizations to the present day, education has played a crucial role in the development and advancement of communities around the world. In addition to these practical benefits, education also plays a vital role in personal and social development. By exposing individuals to new ideas and ways of thinking, education helps foster creativity, curiosity, and a lifelong love of learning. It also promotes social cohesion and understanding, as people from different backgrounds and perspectives come together to learn and grow. All of these would guide them towards one goal – excellence.

Campus placements are an effective way to identify and recruit top talent from a pool of qualified candidates. By participating in campus placements, companies can gain

access to a diverse pool of candidates from various academic disciplines, and can identify individuals who possess the skills and qualities they are looking for in their employees. With the help of efforts from Mrs. Rajini and Mr. Farooq, campus placement in many big companies is a possibility in MJCET. However, it is also up to the students to put in efforts and challenge themselves for these recruitment opportunities.

Every student needs to realize the importance of placement training programs which the college organizes for free to make it easier for the students to attempt interviews. Though it's good that there are some repetitive names in every placement drive they should also focus on helping their colleagues. Helping your colleagues in university can have numerous benefits, not only for the person being helped, but also for yourself and the overall academic community. Students can step aside and help out their not yet placed friends to prepare and make way for them. This little unselfish act will not only ensure your mutual development in this world but in the hereafter as well.

FROM THE DEAN'S DESK

-Syed Ferhathullah Hussainy

SOFTWARE ENGINEER ARE YOU INDUSTRY-READY?

Today's global economy is heading toward digital supremacy, where software-driven digital transformation is poised to increase global nominal GDP. Many industries and businesses have realized the benefits of digital transformation to generate new revenue and stay ahead of the competition. The 'Software as a Service' model is bound to make software more central in our everyday lives. While the user base for digital services grows substantially, industry-ready software engineers who can cater to this demand are extremely hard to find. Despite the recent layoffs at FAANG and other companies, the job market still remains very healthy and in need of industry-ready software engineers.

To be industry-ready software engineers one has to be good in basics, improve IQ and excel at collaboration and communication, has to be a contributor on platforms such as GitHub, Stack Overflow, etc. The top three areas in which you need to work on are augmented reality (AR), machine learning (ML), and artificial intelligence (AI).

*"You don't need to be better than anyone else;
you just need to be better than you used to be."*

BIOMETRICS - UNIVERSALLY UNIQUE IDENTITIES

-Maria Ashfaq

Biometrics are body measurements and calculations related to human characteristics. Biometric authentication is used in computer science as a form of identification and access control. It is also used to identify individuals in groups that are under surveillance.
When most people think of biometrics, they imagine fingerprints or facial recognition, but there are many different types of biometrics used to identify and authenticate individuals. Whether it is for security, access or fraud, biometrics come in many forms, and the software needed to collect biometric data is also evolving quickly.
There are many different kinds of physical biometrics:
Fingerprints, Iris recognition, Facial recognition, Voice recognition, DNA matching, etc. to name a few.

As every individual is unique, biometric technology differentiates unique characteristics to confirm identity and also improve security. Thanks to many different types of biometrics, secure identity verification has become easier and quicker with more accuracy, thus reducing the chance of fraud and theft by a huge margin.

How does it work? Even though it might seem complicated, biometric operation systems use 3 steps: Enrolment, Storage and Comparison.
Enrolment is the recording of basic information of an individual which could be your name or identification number of any sort, or an image capturing a specific trait. Storage is the process in which the information is converted to code and stored in the system. Comparison is the encounter with the system enables a comparison between the submitted trait of the individual to the stored information, after which it decides whether to accept or reject who you claim to be.

Some of the advantages of biometrics are that they are even stronger than the strongest and most complicated passwords and hence are very difficult to steal or impersonate, they offer extreme convenience and they are universal which means everyone has them in person at all times.

However, every technology has its disadvantages and so does biometrics. It is costly to install biometric technology and maintain it, its database can be hacked which can result in a data breach. Like other systems, false rejects and false accepts can also occur. In instances like an injury or burn which might result in temporary loss of fingerprints, the sensor will not work and hence prove inconvenient.

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These are a few pros and cons of this revolutionary development in the technological world and it cannot be denied that it has proven to be extremely useful in many aspects. Infact, biometrics is only going to get more popular and increasingly accurate in the coming years. So in time, you will be more than just a face in the crowd, you will be a face in a database.

## LEARN TO LOSE, LOSE TO LEARN

- Ahmed Khan
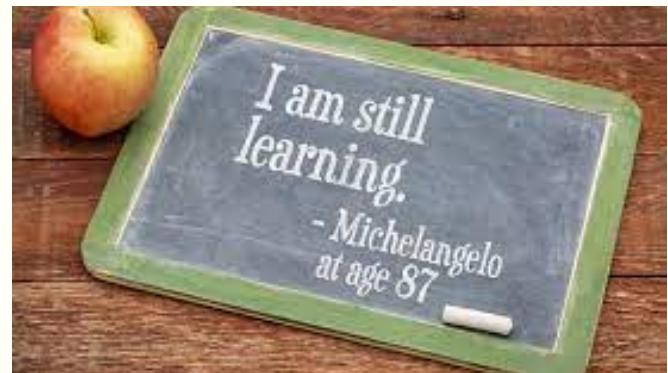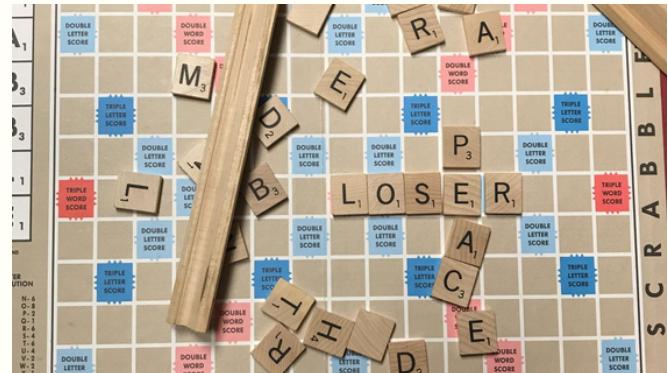
In life, you lose sometimes
Sometimes you win
So that a journey ends
For another to begin

When you look back
The path covered brightly smiles
As it has witnessed the best of you
Through the toughest miles

You carry neither regrets nor any worries
You carry instead moments and many memories

Now take a sigh
Without any hindering pressure
Because the experiences you've gained
Are no less than a treasure

So believe in yourselves
And be confident
To enjoy the beginnings
Till the end

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