

WALL FOR ALL

ChatGPT: An AI Based Model



Unlocking the Secrets of RSA Encryption



Dear Readers

The nostalgic feeling that one experiences while sifting through the dusty old pages of the college magazine cannot be expressed in words. However, very few of us have retained those copies, and most of those precious articles that we wrote during those golden days with enthusiasm are lost forever. With the advent of e-books and other online media, the days of paper-bound college magazines are gone, and the digital platform has paved way to allow retention of such publications without much effort.

Wall-for-All, the e-Magazine published by the Department of Computer Applications, is one such effort that was started with an intent to provide a chance to all students and faculty members to share their thoughts and knowledge, and hone their skills in creative writing.

I am happy to see the enthusiasm of eminent members of the department to contribute to *WallforAll*. This shows the positive and creative energy of the contributors. However, it would be really wonderful if we can see the articles contributed by more students in the next editions, for this e-Magazine is intended to be a writing pad for each member of the department.

I proudly present the current edition of *Wall for All*.

Dr. Jaiteg Singh
Professor & Dean
Department of Computer Applications
Chitkara University, Punjab

Contact Information

Dr. Jaiteg Singh

Professor & Dean

Department of Computer Applications

jaiteg.singh@chitkara.edu.in

Dr. Ruchi Mittal

Professor

Department of Computer Applications

ruchi.mittal@chitkara.edu.in

Dr. Divya Khanna

Assistant Professor

Department of Computer Applications

divya.khanna@chitkara.edu.in

Ms. Puninder Kaur

Assistant Professor

Department of Computer Applications

puninder.k@chitkara.edu.in

Mr. Akarsh Anand Sinha

Student – MCA-1st Semester

Department of Computer Applications

akarsh.sinha@chitkara.edu.in

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Unlocking the Secrets of RSA Encryption: From Safes to Prime Numbers

Dr. Ruchi Mittal

Professor

Department of Computer Applications

Chitkara University, Punjab, India

Imagine having a secret message that you want to send to a friend, but you are concerned that someone might intercept and read it. How can you ensure the security of your message? Welcome to the world of RSA encryption, a fascinating and essential concept in the realm of computer science and cryptography. Today, we will embark on a journey that combines fun analogies with deep mathematical principles to unravel the secrets behind RSA encryption.

Let us begin with a relatable analogy: the lock on a safe. Just as a safe requires a key to unlock its contents, RSA encryption uses two keys: a public key and a private key. Think of the public key as a lock that anyone can use to secure their message, while the private key acts as the unique key that can unlock the encrypted message. This dual-key system forms the foundation of RSA encryption.



Figure 1: Adi Shamir, co-inventor of RSA (The others are Ron Rivest and Leonard Adleman) (Source: Wikimedia commons)

Now, let us delve into the mathematics that powers RSA encryption. At the heart of this technique lie prime numbers—those indivisible numbers greater than one that can only be divided evenly by one and themselves. Just like the building blocks of a complex structure, prime numbers play a crucial role in securing our messages.

To understand RSA encryption, we need to explore a concept known as the "modulus." The modulus is the product of two distinct prime numbers, typically referred to as p and q . This product, denoted as N , forms

a part of the public key. The larger the value of N , the stronger the encryption.

Once we have N , the public key also includes another number, denoted as ' e '. This number must be relatively prime to the product of $(p-1)$ and $(q-1)$. In simpler terms, ' e ' should have no common factors with $(p-1)$ and $(q-1)$ other than 1. This is a crucial requirement for the encryption process.

Now comes the exciting part—encryption and decryption. Suppose Alice wants to send a secret message to Bob using RSA encryption. Bob generates his public and private keys by selecting two prime numbers, p and q , and calculating N (the modulus) and e (the exponent). Bob keeps his private key a secret while sharing the public key with Alice.

Alice takes Bob's public key, represented by N and e , and uses them to encrypt her message. The encryption process involves converting each character in the message into a number, raising it to the power of e , and then taking the remainder when divided by N . This encrypted message is sent to Bob.

Upon receiving the encrypted message, Bob uses his private key, consisting of N and a different exponent, d , to decrypt the message. Decryption involves raising the encrypted number to the power of d and taking the remainder when divided by N . Bob's private key is the only key capable of unlocking the encrypted message.

The magic behind the RSA encryption lies in the relationship between e , d , and N . By carefully selecting prime numbers and calculating the appropriate exponents, we create an encryption system that is highly secure. The computational complexity involved in factoring large numbers makes it extremely challenging for an unauthorized party to determine Bob's private key.

For those acquainted with the classes NP, NP-Completeness, and co-NP this is a beautiful blog shining some light on why integer factorization is looked upon as a HARD problem to solve but still is not believed to be NP-Hard.

<https://blog.computationalcomplexity.org/2002/09/complexity-class-of-week-factoring.html>

For practical purposes modern public private keys are usually 2048-bit integers and as notoriously tough integer fraction presumably is, it would take even a powerful modern computer thousands of years to factorise N . This would be the only possible way to break the encryption method.

But a looming threat to this presumed impossibility to get around this algorithm lies in quantum computing and Shor's algorithm which uses mathematical theorems like the Euclid's lemma for finding the Greatest Common Divisor, Fermat's Little Theorem etc. The discovery of this algorithm was also crucial in reviving interest in quantum computing itself.

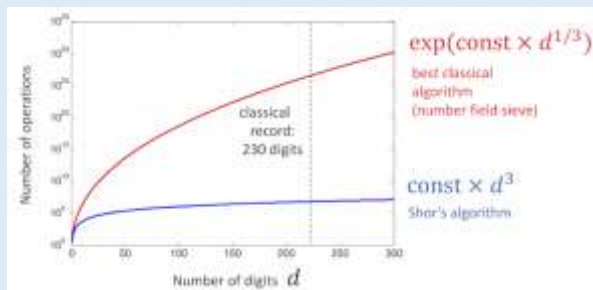


Figure2: Computational time of Shor's algorithm as compared to the best-known non-quantum computing method. (Source – IBM Quantum)

Understanding the inner workings of RSA encryption reveals the beauty of mathematics and its practical applications in safeguarding our digital communications. So, the next time you send a private message or conduct online transactions securely, remember the ingenious techniques of RSA encryption that protect your data.

Stay curious and secure!

Reference

[1] Watch this video from Numberphile that beautifully explains the RSA algorithm briefly: <https://youtu.be/M7kEpw1tn50>

[2] A video by Veritassium for those of you whose interest was piqued by the looming quantum computing threat: <https://youtu.be/-UrdExQW0cs>

[3] For further reading on integer factorization: https://en.wikipedia.org/wiki/Integer_factorization.

DO YOU KNOW?

- 1). If you look into the etymology of "robot," it comes from the Czech word "robota," which translates to forced labor or work.
- 2). Back in 1964, Doug Engelbart invented the first-ever computer mouse! Back then, it was made out of wood.
- 3). In 2010, the United States Air Force used 1,760 PlayStation 3 consoles to build a supercomputer for the Department of Defense.
- 4). Motorola produced the first-ever portable mobile phone in 1983.
- 5). Japan has the fastest Internet speed of 319 terabits per second.
- 6). Facebook was originally a directory of freshmen with their names and pictures.
- 7). No one yet has verified the identity of Bitcoin's founder. Satoshi Nakamoto is the only the pseudonym of the most popular cryptocurrency in the world, the bitcoin.
- 8). Xerox is not a verb for photocopying but is a name of a company that creates and sells xerographic technology.

ChatGPT: An AI Based Model

Dr. Rajesh Kumar Kaushal
Professor
Department of Computer Applications
Chitkara University, Punjab, India

A language model called ChatGPT was created and is held by OpenAI, an artificial intelligence research facility and its non-profit organization. Elon Musk, Sam Altman, Greg Brockman, Ilya Sutskever, John Schulman, and Wojciech Zaremba all contributed towards the organization's founding. Elon Musk, however, resigned from the OpenAI board in 2019 because of a potential conflict of interest with his work at Tesla and SpaceX. Currently, co-founders Greg Brockman and Ilya Sutskever, as well as CEO Sam Altman, are in charge of OpenAI.

To promote artificial intelligence and natural language processing, ChatGPT was created. A branch of artificial intelligence called "natural language processing" aims to make it possible for machines to comprehend and produce human language. ChatGPT was primarily designed with the goal of building a language model that could comprehend and produce human-like answers to textual cues, like chat messages or text input.

One of the objectives of developing ChatGPT was to show the potential of large-scale language models and their aptitude for a variety of language tasks, including question-answering, text summarization, language translation, and text completion. The creation of ChatGPT stimulated the creation of other expansive language models and resulted in notable advancements in the field of natural language processing. By enabling more effective and efficient communication between humans and machines, these models have the potential to revolutionize a wide range of industries, including healthcare, finance, education, and customer service [1][2].

ChatGPT cannot do specific tasks as an AI language model, for example:

Experience emotions: Being an artificial intelligence model, ChatGPT is unable to feel emotions.

Have a physical presence: ChatGPT doesn't have a physical location; it just exists as a piece of software.

Provide medical or legal advice: ChatGPT is unable to give medical or legal advice because it is not a certified practitioner in those fields.

Predict the future with certainty: While ChatGPT can analyse data and draw conclusions from patterns, it is unable to make exact predictions about the future.

Make decisions on its own: Although ChatGPT can offer advice and information, it cannot decide on a user's behalf.

Guarantee complete accuracy: When faced with confusing or incomplete data, ChatGPT is prone to errors and can give incorrect information.

Have personal opinions: ChatGPT is designed to stay objective, present factual data without expressing any personal thoughts or beliefs.

Several potential advantages of ChatGPT for society include:

Enhancing communication: ChatGPT offers natural language processing capabilities that allow robots to comprehend and produce human language, enabling people and organizations to communicate more effectively. This can result in improved communication across a variety of sectors, such as healthcare, finance, education, and customer service.

Enabling access to information: ChatGPT can facilitate information access for users by answering queries and summarizing text. People with impairments or those with restricted access to resources may find this to be of particular use.

Improving decision-making: Decision-making processes can benefit from the insights and suggestions that ChatGPT can offer. For instance, ChatGPT can aid in the diagnosis of illnesses by medical professionals, the selection of investments by financial analysts, or the development of successful marketing strategies.

Reducing workload: Task automation with ChatGPT can decrease the pressure on human operators. This can free up time for more difficult jobs that call for creativity and analytical thinking.

Advancing research: Large amounts of text data can be analysed using ChatGPT and other natural language processing models, allowing researchers to learn more about complicated social, economic, and political topics. New discoveries and solutions to societal problems may result from this.

Overall, ChatGPT has the potential to dramatically improve information availability, communication, and decision-making, among other advantages that could have a favorable effect on society.

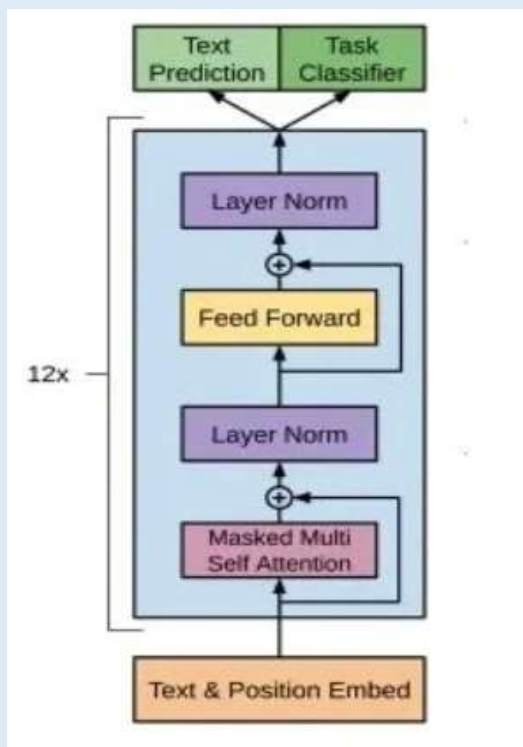


Figure 1. GPT Flow

GPT-3 (Generative Pre-trained Transformer 3) is a language model that was created by OpenAI. The 175-billion parameter deep learning model is capable of producing human-like text and was trained on large text datasets with hundreds of billions of words. Its flow is illustrated in the Figure 1 [3].

GPT uses an unmodified Transformer decoder, except that it lacks the encoder attention part. We can see this visually in the above diagrams. The GPT, GPT2, GPT 3 is built using transformer decoder blocks. BERT, on the other hand, uses transformer encoder blocks. GPT-

3 was trained with huge Internet text datasets — 570GB in total. When it was released, it was the largest neural network with 175 billion parameters (100x GPT-2). GPT-3 has 96 attention blocks that each contain 96 attention heads

References

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- [2] <https://en.wikipedia.org/wiki/ChatGPT>
- [3] <https://medium.com/nerd-for-tech/gpt3-and-chat-gpt-detailed-architecture-study-deep-nlp-horse-db3af9de8a5d>

DO YOU KNOW?

Different AI-based tools

1. Chatfuel
2. IBM Watson
3. Google Cloud AI
4. Azure Cognitive Services
5. H2O AI
6. RapidMiner
7. TensorFlow
8. PyTorch
9. Grammarly
10. Amazon Rekognition
11. Amazon Rekognition
12. OpenAI GPT-3
13. DataRobot

Revolutionizing Education: The Impact of AR and VR Technologies on Learning

Dr. Naveen Kumar
Associate Professor
Department of Computer Applications
Chitkara University, Punjab, India

Due to the introduction of cutting-edge technologies like augmented reality (AR) and virtual reality (VR), the educational industry has experienced a paradigm shift in recent years. The way that students learn and teachers teach has been revolutionized by these technologies, which have also changed traditional learning techniques. Due to its capacity to deliver an immersive learning experience, augmented reality and virtual reality have grown in popularity in the education industry.

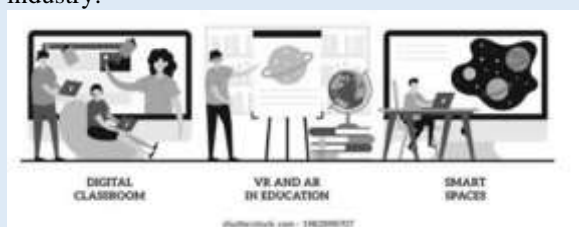


Figure 1: Use of AR and VR in Education [1]

This technology has made learning more dynamic and enjoyable for pupils, increasing the effectiveness of instruction. Using these technologies, students can investigate and learn about a range of topics in a more practical and experiential way [2][3].



Figure 2: Applications of AR and VR in E-learning [4]

Teachers may create virtual classrooms and simulations to help pupils learn and understand challenging material [5]. There are several advantages of AR and VR in teaching. First, by increasing students' motivation and engagement, these technologies can

make learning more pleasurable and efficient. Second, AR and VR can help with information recall and retention. Students are more likely to retain information and be able to recollect it later when they have an interactive and immersive learning experience. AR and VR technologies have a plethora of diverse applications. These technologies have been applied to a variety of fields, including education, healthcare, and the gaming and entertainment sectors.

Here are some of the primary industries where AR and VR are being used:

1. **Gaming and entertainment:** AR and VR have been heavily utilized in the gaming and entertainment industries, which offer an immersive and interactive experience.

2. **Education and Training:** To provide a more interactive and interesting learning experience, AR and VR are being used more and more in education and training. With the aid of these technologies, students may engage and explore virtual worlds, which improves learning and makes it more engaging.

3. **Healthcare:** This is another sector which is get benefitted with the invention of AR and VR. For instance, using VR to imitate medical procedures and surgeries enables medical personnel to hone their abilities in a secure setting.

4. **Architecture and real estate:** To give clients a more engaging and immersive experience, AR and VR are applied in these fields. With the aid of these technologies, clients may visualize structures and areas in three dimensions, assisting them in making wise design and purchase choices.

5. **Retail and e-commerce:** To provide a more interactive and interesting shopping experience, AR and VR are being employed more and more in retail and e-commerce

While technologies like AR and VR have the potential to completely transform the education industry, there

are also a number of obstacles [4], which are outlined below:

1. **Cost:** The first challenge associated with this technology is the cost for implementation in the education sector as it requires expensive hardware and software.

2. **Technical Challenges:** The implementation and upkeep of AR and VR technologies require a high level of technical know-how.

3. **Content Development:** Another challenge of AR and VR in education is the development of high-quality educational content.

4. **Limited Access:** Due to lack of resources, there are still many schools and universities that do not have access to these technologies.

5. **Safety Concerns:** Especially for younger kids, the immersive aspect of AR and VR technologies might raise safety questions. Schools and colleges must make sure that these technologies are utilized responsibly, under the right supervision, and with the necessary security measures in place.

6. **Curriculum Integration:** Lastly, incorporating AR and VR technologies into the curriculum can be difficult. Teachers must make sure that these technologies are used in a way that advances rather than hinders the learning process. In conclusion, there are many different industries where AR and VR technology can be applied. Future developments are anticipated to include even more creative applications due to rapid advancement in it.

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Call for Articles

At Chitkara University, the endeavor has always been to hone the skills of learners. Keeping in line with this tradition, the Department of Computer Applications, Chitkara University, Punjab had come up with an online magazine titled **Wall for All**. This magazine was proposed to provide a platform to the budding learners to share their knowledge and general information pertaining to the computing field. **Wall for All** is available for free download in PDF format from CA departmental website: ca.chitkara.edu.in.

The students and faculty members are invited to be a part of this venture and contribute their articles to the magazine. The students may forward the articles through their respective mentors while faculty members may send the same directly to the editors of **Wall for All**.

Mindfulness Meditation: An Art to Relax Mind and Body

Dr. Divya Khanna
 Assistant Professor
 Department of Computer Application
 Chitkara University, Punjab, India

From thousands of years, humans are practicing the meditation. It is basically used to help in depth to understand the mystical and threatened forces in life. Nowadays, meditation becomes a common practice to reduce stress and for relaxation. We can also call meditation as a kind of mind-body complementary medicine. Meditation helps to produce profound sense of relaxation and peaceful state of mind. While meditation, we concentrate on our thoughts and eliminate the pool of random thoughts that is blocking our mind and causing stress. The result of this entire process is to enhance the physical and emotional well-being [1].

Meditation helps to be clam and concentrated throughout the day. It doesn't only help in relaxing mind, but also helps to regularise the symptoms of many diseases. Meditation is of various types which is detailly mentioned in below section.



Figure 1: Meditate to relax mind and body [2]

Types of Meditation

Under the umbrella of Meditation, there are many different ways to get the relaxed state of mind. Each type of meditation gives the inner peace and happiness. The various types of meditation may include

- 1 **Guided Meditation:** In this type of meditation, we are guided to imagine or visualize the images of places or situation which gives pleasure to mind. We can also use sights, sounds, fragrance and textures. A guide or instructor will be there in entire journey.
- 2 **Mantra Meditation:** In this type of meditation, we quietly repeat the words or mantra, phrase or thoughts to prevent distracting thoughts.
- 3 **Mindfulness Meditation:** In this type of meditation, we practice to accept and live in the present moment. It helps to increase our conscious awareness. We concentrate on our experiences during meditation, which includes flow of breath. We also scan our emotions and thoughts and learn to let them go without making any judgment.
- 4 **Qi Gong:** In this type of meditation, we focus on relaxation, meditation, breath and physical activities to restore and maintain balance.
- 5 **Tai Chi:** This is one of the moderate types of Chinese martial arts training. In which we do self-learned series of movements or postures in a slow and rhythmic manner and also focus on deep breathing.
- 6 **Transcendental Meditation:** It is a natural and easy type of meditation. We just silently repeat a personally assigned mantra, such as sound, word or phrase. It may help our body to adjust into a state of deep rest and also relax our mind to get the state of inner peace, without much efforts.
- 7 **Yoga:** In this type of meditation, we exercise number of postures and regularize the breath which results a flexible body and a calm mind.

Each type of meditation will provide relaxed mind and healthy body. From all these types of meditation, mindfulness meditation allows us to be live in the present moment. In this type of meditation, we need not to imagine any place or situation. We just have to be fully aware of our current moment without any exercise or even no need to spare time for meditation. In the

below sections, mindfulness meditation is detailly discussed.



Figure 2: Difference between Meditate and Mindfulness [3]

Mindfulness Meditation

The key focused area of mindfulness meditation is to enhance the self-regulation which includes attention control, self-awareness and regulation of emotions. There are many good changes are seen in brain structure after practicing mindfulness meditation because it increases the power of attention. The anterior cingulate cortex is the region associated with attention in which changes in activity or structure in response to mindfulness meditation are most consistently reported. Mindfulness practice also helps to reduce stress and improve emotion regulation. While practicing mindfulness meditation, self-referential processing and present-moment awareness are enhanced. It also has potential to treat clinical disorder and provide development of healthy mind and body [4].

In healthcare centres, hospitals, stress reduction programs, prisons, sports and defence academy practices mindfulness meditation. Healthcare professionals prefer Mindfulness-based stress reduction (MBSR) evidence-based program which facilitates secular and intensive mindfulness training to help people with anxiety, stress, anxiety, pain and depression [5].

According to the American Psychological Association, mindfulness meditation decreases amygdala reactivity and improves emotional regulation in the brain. Fight or Flight responses are controlled by amygdala which is the part of brain. You can limit anxiety, improve self-control and reduce depression by regulating stress responses. The learning of mindfulness meditation is very simple as we do our the basic act of being aware

or mindfully we should do the present task For example, to practice mindfulness be aware while brushing teeth, washing hands, washing clothes, walking your dog or doing any daily chores [6]. If you are mindfully doing any activity, it means that you are 100% involved in the activity. While concentrating on current moment, you are not thinking about any distractions. Meditation helps to save time which we drain while doing planning, problem-solving, daydreaming, or thinking negative or random thoughts.

Different Ways to Practice Mindfulness Exercises

The simple ways to do mindfulness meditations includes:

1. **Pay Attention:** It is difficult to analyse the activities in this busy world. Try to pay attention to experience your environment with all the senses like touch, sight, sound, sight, taste and smell.
2. **Live in the Moment:** Try to find joy in simple pleasures by participating in each activity.
3. **Accept Yourself:** Accept yourself and treat yourself as you treat your good friend.
4. **Focus on Your Breathing:** To handle your negative thoughts just sit down, close your eyes and take a deep breath. Concentrate on inhale and exhale process of your breath. This technique will help to the get rid from negative thoughts.
5. **Body Scan Meditation:** Lying on your back, relax your body and focus from toe to head or head to toe. Try to concentrate on each emotion, thought or sensations in your body.
6. **Sitting Meditation:** Sit straight comfortably, take deep breath through your nose and concentrate on each exhale and inhale. If you feel any distraction, note it and keep on your focus on your breath.
7. **Walking Meditation:** Try to choose a peaceful place for walk. Start a slow walk and focus on each activity while walking but keep your mind calm [7].

Conclusion

Meditation is practiced to relax our mind and body. Mindfulness meditation helps us to enjoy and live in the present moment with full awareness. This technique of meditation is simple to learn. Because of its effective results, it is adopted in many areas like healthcare centres, hospitals, stress reduction programs, prisons, sports and defence academy.

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Facts about Technology

- The founders of Microsoft, Apple, Facebook, and SpaceX have one thing in common—they are all dropouts!
- Combining all the bitcoin mining operations worldwide is equivalent to the computing power of 3.7 million supercomputers.
- Amazon's Alexa listens to your conversations.
- Google receives more than 99,000 searches every second.
- Dial-up connection persists in 2022.
- In 1936, Water Integrator, a computer run on water, was created in Russia.
- Reading from a screen slows your reading time.
- There are 4000 luxury cars sunken in the Atlantic Ocean in 2022.
- Elon Musk, the founder of SpaceX, has 264 billion dollars of net worth.
- Peugeot has been making cars for more than

Ms. Rashim Bindal
Student (BCA 2nd Sem)
Department of Computer Applications
Chitkara University, Punjab, India

India is a great nation and great is its culture. Indians have shown that they can tackle any unfortune whatever may come to them by showing unity and caring others. What so, if it is a land of diverse religions, it has faced so many attacks on it, but faced them with huge valour . May it be Islamic attacks, may it be Mumbai attacks, Kashmir attacks and recently happened covid-19. During covid, everyone on this planet underwent a very serious time. People of every age faced horrors in their life , not even a single soul was untouched by these shock waves of terror . Humanity was compromised too in many cases, but still we the part of that supreme had shown great courage to subdue these faces of devil. It is said that “Good and Bad, both exist in side every one”. But that is not a case when a person is aware of him being a part of the divine being. Our doctors selflessly worked day and night to care those in pain, our policemen stood at their sides to protect us from the evil minds, the workers worked hard to fulfil the needs of the people who can never understand, what is given to them. We humans are gifted with many resources, but are they enough to give us the most appropriate virtue? Where is the true living? where is the happiness which at the times of death one seeks? does everyone desires to face death with a happy face? Are people contended with what they have? Are they grateful for whatever is given to them or do they want to snatch what does not belong to them? Where are the true values and true ethics which are necessary for better living.

There are many virtues for better living which when brought to life and utilized well can make living better and purposeful. Some of these are as follow:

will. Faith can dust out mountains of sadness, grief and negativity. One does not have to blind faith in anything, but should have faith in the things happening around, because this nature is so powerful that the good toy do to others that come back to you in some other discrete form. People panic when something bad happens to them or their loving and their belongings. The panic and anger should never be the cause of else destruction. Krishna says

“He who is full of faith and zeal and has subdued his senses obtains Knowledge; having obtained Knowledge, he soon attains the Supreme Peace”. (4.39)

“But the man who is ignorant and without faith and always doubting goes to ruin. Not this world nor the world beyond nor happiness is for the doubting soul”. (4.40)



Love: love to other has no importance unless you love yourself. one can always love to the material verse but when it comes to loving self that is Your body as well as soul, you achieve extreme happiness. In India the yogis and rishis concluded saying “Love to yourself is worship to the Divine and Service to humanity is far better than a simple but non forgiving crime”. Here one virtue of “Karma” also enters. once someone said “Do your work as it is meant to be done either it is not appreciated now but you will be rewarded in time that will come in near future”. But this work you do should be scaled on the virtue of righteousness.

Wisdom: The knowledge of righteousness should prevail in everyone. the epitome of wisdom in legends is said to be have been of Maharaja Yudhishtir the King of Indraprastha and eldest among the five pandavas. His wisdom had discussions among the courts of heavens and that of the Holy Trinity in Indian legends. one can always learn all the attributes and virtues from Him.

Goals of Human Life According to Santtan Dharma



Figure 3: Goals of Life

Arth: The first and for most is the arth ie. Security, sustainability. We human are given the resources to sustain our living, but this does not mean that we are free to abuse these resources according to our wishes and to satisfy our luxuries. It does not mean to live like a poor but the important is to not exhaust the precious resources we are gifted with, we do not know how much time it will take this planet to replenish all the resources human has wasted on stupid funny experiments and just to fulfil the greed. The Sanatan culture has always told that “greed is the untameable feature of human mind whereas ‘Arth’ all about the basic needs of a human”. Don’t live a primitive cave lifestyle but also don’t become habitual of the small precious helps of nature. Today we have come to the point of using the precious resources for the purpose of filling our temporary pockets with wealth, the shining glitter gold. Just ask a question to yourself “can you take this wealth away with you when you die?”. If the answer is a no, you are wise and a satisfactory life will give you more happiness.

Kama: If you want to achieve the goal of ‘Arth’ that to be done through the process of kama that is also called karma, action. Don’t be lazy and be just keep lying on your luxurious facilities, stand up and work till you are unable to do the task. Krishna says “no being can escape from performing karma (action)”. what has to be done has to be done no matter what circumstances occur. If you will

not do it the nature will and that will obviously affect you in mere time. If you get a chance just grab it otherwise you will feel guilty of not doing it when you had your chance. just do it, you will feel happy. karma is done with an intension, it matters on you what intension you keep, it will be paid back in some form or other.

Dharma: It is also called righteousness. There is no reference to any religion but to the fulfilment of the divine action but by the means of trueness. If you are right then you should not hold any fear. If you fear that means you either had doubt about being right or you have messed up something. What Krishna did was dharma as he stood up for righteousness, good and virtues when you follow this, you find immense internal peace and a thought will come “I have done nothing wrong as it was needed according to the situation and circumstance. Being Dharmic and religious are two different things, but today when so many other ideologies have come up, to make it simple for people, both the meanings have become the same.

Moksha: Also called liberation. It means free from all the worldly desires and union with your supreme divine. One can always follow the other three goals but this one is the toughest as one needs to follow:

- Gratitude
- Self -love
- Belongingness
- Truth
- True emotions
- Forgiveness
- Wisdom
- Dedication
- Courage
- Ethics
- Respect

Levels of Happiness

Aristotle gave 4 levels of happiness. These are as follow:

Level 1: Laetus in his language but in layman words it is called “happiness from material objects”. We humans are so found of gifts that if we get it, we are happy but if we don’t get it we get sad. we can’t even imagine that this is far away from the reality and we get sad due to unnecessary things and forget that these won’t go with us, these will stay here and after we leave these will no longer exist too. We are gone then these are of no value. The jewels that kings and queens wore at those times are of no use these days. the out for exhibition and a talisman on then saying “This king or queen died fighting for it, and many more wars were fought for it later. Now it stays here for you all to see it”. aren’t we humans so sophisticated

that the things which are just a decoration that also temporary, is so valuable but the object that can fill someone's stomach is so cheap and we waste it in different ways.



Figure 4: Levels of happiness

Level 2: Felix is happiness from comparison. It is a human nature to compare with others that is why today there is so much competition in every field. It is mostly talked topic for the women but men are not less-worse. they need gorgeous girls, high salaries, great luxurious life and a great standard in the society. Happiness from continuous comparison with others is unstable because no one can win in all the domain. In case of failure, focusing too much on this level can lead to frustrations and a sense of worthlessness.

Level 3: Beatitudo is happiness from doing good for others. This level of happiness is based on the desire to do something good for others and having a feeling of compassion and it longs lasting than other two levels. In case one is unable to fulfil the unrealistic hopes one may give to others at some point of time, one is free to feel disappointment, guilt, hopelessness and jealousy. But one can say it is a part of life. Just be happy in what you do for good of others. There is great line whatsoever you do to the least of my people, that you do unto me.”

Level 4: Sublime Beatitudo is the ultimate happiness. It is actually a feeling of fullness. Just like a wave of the ocean, if it has ego that it is a wave not the ocean itself then it is not worse than us normal humans but if it says that is a part of it. It reaches the shores for some time and return back to where it came from, that feeling of completeness is what the ultimate happiness is! we humans are a part of that complete divinity is true as if we are a part of it, that means we are also the complete whole. This is what Krishna, Rama, Shiva, Jesus Christ, Guru Nanak with all the ten Gurus and Pai Gambar Mohammad felt and attained that level of peace. By attaining this knowledge about themselves they also received the powers to do impossible.

Conclusion

The ultimate goal of human is to submerge in the union of the divine. Both the words sublime beatitude and liberation mean the same. We human have the ability to do anything but our monkey minds make us do what is not meant to be. Being creative is good but using it for wrong intension is bad. I hereby conclude that

“Human goals are based on the virtues it is meant to be followed, fun is best but only in good gestures and the best gesture is to attain ultimate happiness”. RASHIM BINDAL

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Fun Facts about Technology

- Nokia's first product is toilet paper.
- The 'fox' in the Mozilla Firefox logo is a red panda.
- Google's name was the fruit of a spelling mistake.
- The world's first computer mouse was wooden, not plastic.
- For every 12 million email spams, only one gets a reply.
- Wi-Fi doesn't stand for Wireless Fidelity.
- The first video camera recorder was as big as a grand piano!
- Nintendo was established as a playing card business.terabits per second.

Knowledge Engineering: Creating Intelligent Systems through Expertise and Data

Mr. Saket Pandey
Student (BCA 2nd Sem)
Department of Computer Applications
Chitkara University, Punjab, India

Knowledge engineering is a branch of artificial intelligence that involves creating intelligent systems that can reason and solve problems using domain-specific knowledge. This field focuses on developing techniques for acquiring, representing, and manipulating knowledge, which is used to develop intelligent software applications.

Definition:

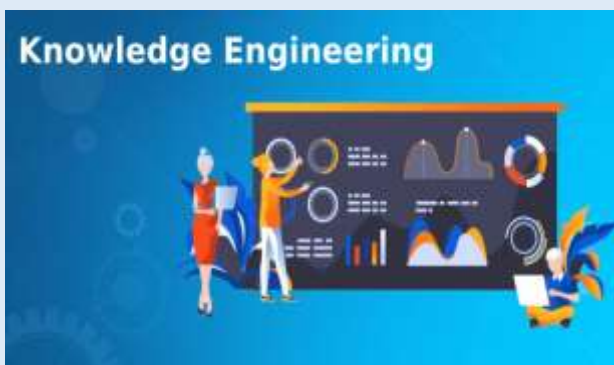


Figure 1: Knowledge Engineering

Knowledge engineering is the process of designing and developing intelligent systems that can use domain-specific knowledge to solve problems. This involves the acquisition, representation, and manipulation of knowledge, as well as the integration of this knowledge into software applications.

Need of Knowledge Engineering:

The need for knowledge engineering arises from the increasing complexity of systems and the need to automate decision-making processes. With the growth of big data and the internet of things, there is an overwhelming amount of information that needs to be processed and analyzed. Knowledge engineering provides a way to extract meaning from this data and turn it into actionable knowledge.

Components:

The components of knowledge engineering include knowledge acquisition, knowledge representation, and knowledge-based systems. Knowledge acquisition involves extracting knowledge from domain experts and

other sources. Knowledge representation involves creating a formal representation of this knowledge, such as a rule-based system or a semantic network. Knowledge-based systems are software applications that use this knowledge to solve problems and make decisions.

History:

Knowledge engineering has its roots in the development of expert systems in the 1970s and 1980s. These systems used rule-based systems to solve problems in specific domains, such as medical diagnosis or financial planning. Since then, knowledge engineering has evolved to include a wide range of techniques and applications, including natural language processing, machine learning, and data mining.

Different applications:

Knowledge engineering has a wide range of applications in various industries, including healthcare, finance, manufacturing, and transportation. In healthcare, knowledge engineering is used to develop clinical decision support systems that can assist doctors in making diagnoses and treatment decisions. In finance, it is used to develop intelligent trading systems that can analyze market data and make investment decisions.

Process of Knowledge Engineering:

Knowledge Engineering for different domains is different but it follows, the same set of procedures in order to create expert systems.

Identification: This is the first step in the knowledge engineering process where the task to be performed is defined. In a domain, a specific problem or a combination of several problems would be taken.

Acquisition of Knowledge: Once the problem is well defined then the next step is to gather relevant knowledge and information about the problem

Prepare a road map: Once the goal and knowledge base are available the next step is to get the roadmap ready by

breaking the goal down into small steps by questionnaires and relevant knowledge base.

Encode: Now it's time to convert this knowledge into computer language. Here the knowledge is encoded by using different functions as well as in some cases, for a specific task, the algorithm is used to create a model.

Evaluation and Debugging: In the process of creating an expert system, at each step, the model should be evaluated and debugged and then added to workflow. Once all small tasks are evaluated, they are assembled to create one whole expert system.

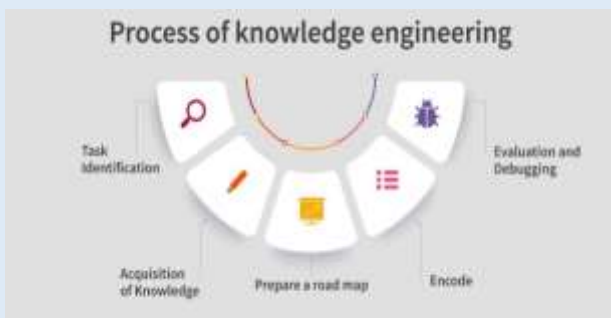


Figure 2: Process of Knowledge Engineering

Advantages:

The advantages of knowledge engineering include the ability to automate decision-making processes, improve efficiency, and reduce errors. Knowledge-based systems can also provide valuable insights into complex systems and help identify areas for improvement.

Disadvantages:

The disadvantages of knowledge engineering include the need for domain experts to provide the knowledge, the difficulty of representing complex knowledge, and the potential for errors or biases in the knowledge. Additionally, knowledge-based systems can be difficult to maintain and update as new knowledge becomes available.

Importance:

The importance of knowledge engineering lies in its ability to create intelligent systems that can solve complex problems and make decisions based on domain-specific knowledge. This has the potential to revolutionize industries such as healthcare, finance, and manufacturing, by improving efficiency, reducing errors, and providing valuable insights into complex systems.

In conclusion, knowledge engineering is a crucial field in the development of intelligent systems that can solve complex problems and make decisions based on domain-specific knowledge. While there are challenges and

limitations to this field, the potential benefits are immense, and knowledge engineering is likely to play an increasingly important role in the development of intelligent software applications.

Amazing Technology Facts

- As of 2022, there are 5.1 billion Internet users, and 4.5 billion of them access it on their mobile phones.
- In 1884, William Henry Fruen invented the "Automatic Liquid-Drawing Device" or the first vending machine.
- Some Android versions were named after desserts since Android devices make people's lives sweeter.
- The first computer virus was named 'Creeper.'
- According to statistics, Americans spend two hours and 54 minutes using their mobile phones per day.
- Nuclear energy is a zero-emission energy source.
- Your Apple product's warranty may be void if you smoke near it.
- King's Field is the world's first PlayStation game.
- The word "robot" originated from a Czech word that means "forced labor."
- Since 2016, Pokemon Go, a type of augmented reality, has become a game fad.
- You cannot access the Deep Web using Google.
- The first iPod has the capacity to store 1000 mp3 songs.
- Charles Babbage, an English mathematician, is the father of computing.
- Elon Musk has recently taken over Twitter for a whopping 44 billion dollars.
- Google has worked with a goat-herding company

Ms. Sharda Kaur
Student (BCA 4th Sem)
Department of Computer Applications
Chitkara University, Punjab, India

Women's safety in India is currently a serious concern. Significant increase in crime rates has been seen in the nation's crimes against women. Both outside and within the home, women are not safe. Women hesitate before leaving their homes, particularly at night. Other women travellers who are considering visiting India are equally unsure of their decision. Unfortunately, this is the harsh truth of our nation, which resides in continual terror. They are unable to avoid participating in any sort of social engagement, despite their phobia. Although there are rules, there should also be necessary safety precautions that we must constantly adhere to in order to safeguard the ladies from abuse. This Safety of Women in India Essay will talk about the different issues related to women safety and government initiatives.

The literacy rate for women has been attained in some Indian states, including Kerala and Mizoram. As a result, women enjoy great social and economic positions in these states.

Reasons behind increasing violence against women in India

The first and the main problem is the Patriarchal mindset has conditioned men to believe in their superiority. The males are always considered as more powerful than women, of which they take advantage.

There is a rise in the number of rape cases, of the reasons being that a lot of these cases go unreported, which gives power to those perpetrators to repeat violence against women. For every reported rape case, dozens of others go unreported because of fear and shame. Families fear getting their daughters' identities published and thus choose to remain silent on such issues.

Of all victims under 18, 2 out of 3 are ages 12-17. For girls to come out and report their problems, schools and colleges need to bring awareness about women's safety. In India, no proper counselling is provided to grown up boys and girls. This is also the reason that our youth is not aware regarding sex-related crimes.



In India, women have been granted the same rights as males, although this law is not always upheld. Despite their contribution to the expansion and advancement of our nation, they continue to live in dread. In terms of schooling, urban girls and boys are almost on par, but there is still a significant divide in rural areas. Even though women are now in respectable positions across the nation, if we look behind the scenes, we can see

Legal Loopholes

Rape is a non-bailable offense in the Indian penal code, but people get bail due to lack of evidence. Often accused are sheltered by policemen, politicians, and even lawyers. This makes the entire judicial process complex. It is said



that 'Justice delayed is justice denied. While incidents like rape and sexual harassment are happening every day, giving Justice to the victims takes time.

Challenges faced by Women

Acid attacks, child marriages, domestic violence, forced domestic work, child abuse, dowry deaths, female infanticide, sex-selective abortions, child labour killings, rape, sexual harassment, trafficking, forced prostitution, and a long list of other crimes against women exist in India.

There isn't a day that goes by that you don't hear about a crime against a woman in India in the news. There are actually at least five news pieces that describe the gruesome specifics of the individual crimes. Seeing the state of women's safety in India is incredibly upsetting, especially in a nation where women are revered as goddesses.

Violence and discrimination damage the lives of women and prevent them from engaging in any social activity. Domestic violence against women, sexual assault, and murder are all frequent types of violence in India. The most extreme kind of murder is dowry death. Indians continue to believe that dowries are customary and that fathers of young girls must sacrifice everything to pay them. One party in a relationship will physically or verbally abuse the other partner. In India, the prevalence of domestic violence is rising. Domestic abuse affects 70% of women victims. Depression and suicide are the results. Although it isn't a direct murder, it undoubtedly contributes to murder.

In addition, young girls are coerced into marriage. Even in terms of maturity, this child bride lacks the capacity to

comprehend her obligations. The life of the stunning girl is destroyed by the brutal assault known as "acid throwing."

A man can easily end his marriage to his wife and begin a new one with a new spouse. As crimes against women increase, the list keeps going. Child marriages, child abuse, rape, dowry deaths, trafficking, and many more are examples of other crimes.

One of the most important aspects of ensuring women's safety is education. Girls and women must be informed about their rights and the risks they may face. This includes knowledge of the law, what constitutes sexual harassment or assault, and how to recognize and respond to potentially dangerous situations.

Communities and families have a vital role to play in this education process, by raising awareness about women's safety and providing support and resources to help women protect themselves. Schools and universities must also ensure that women feel safe and supported, and that they have access to the resources they need in case of harassment or violence.

Example: From last month some news becoming trending in social harassment the women of America suicide with their children because her husband treats them badly.

And some more news boyfriend murders their girlfriend and chops their body into pieces and throw them in jungle. This depict that women are not save in our society.

Another crucial aspect of women's safety is the implementation of laws and policies that protect women from violence and abuse. Governments must take steps to ensure that the laws are enforced and that the justice system responds appropriately to cases of violence against women.

In addition to these legal measures, communities and organizations must work together to create safe spaces for women. This may include installing well-lit pathways, public bathrooms, and other amenities in public areas, providing

Required Measures for Women Safety

At a very young age in many families, girls are treated lesser than boys. A lot of families believe that women should not have an opinion and that they are inferior to men. In this case, the condition for the non-working class of women is worse, as they have to depend on the male family members for survival.

This patriarchal culture is the root cause of violence against women, which needs to stop. Change in the mindset of people is the step towards bringing a better future for women in India. It is saddening to know that even now, the victim is often blamed after a rape.

Repeated rape cases have angered many Indians. Some are now demanding capital punishment for rapists. And there have also been calls for authorities to publicly hang the culprits. Analysts are of the view that a low conviction rate and the flaws in the country's judicial system are giving way to vigilante justice. This shows that we are in severe need of fast courts to hear cases in a time-bound manner.

Installation of streetlights, night drop vans, better awareness at school and college level are some of the basic steps towards women safety. They were just forming laws that are not enough. Proper implementation of these laws should be the main focus. Both print and electronic media should raise voice against the crime, but at the same time, the privacy of any victim should not be compromised.

Conclusion

In other words, crimes against women impede the development of our nation. We shouldn't criticize women and demand that they exercise more caution. We must instead urge the guys to adopt new perspectives and fight to create a world that is more secure for women. We shall only genuinely prosper as a nation on the day when women in India feel secure enough to carry out even the most basic tasks, like visiting local stores, without any fear. We won't be able to fully realize the dream that our forebears had unless every citizen learns what consent is and begins to respect the women around them. But as a country, we still have a long way to go.

Safe Women Safe your Future!

Technology Facts

- Google's First Tweet was in binary.



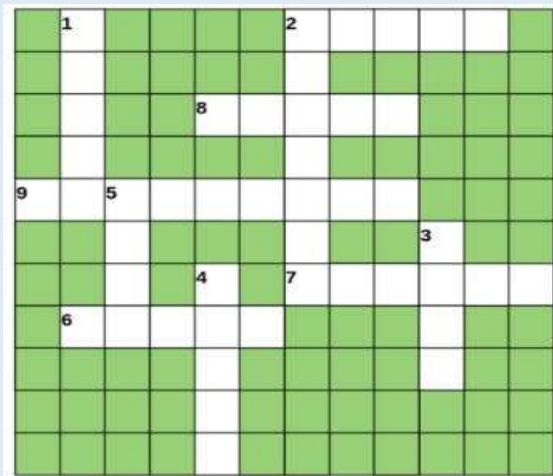
- The Firefox logo isn't a fox



- Every iPhone advertisement has the time set to 9:41. This is the time that Steve Jobs announced the very first iPhone in 2007.



Quiz



1. A process where the first person in line is the first person served.
2. Arranging data into a meaningful order.
3. Collection of distinct elements.
4. A data structure needed to remove or add elements to the ends of a linear sequence?
5. A data type used for the storage of letters in C++?
6. A collection of nodes connected to either directed or undirected.
7. An approach for selecting the best option available.
8. A collection of homogenous elements.
9. A function calls a copy of itself.

EXPLORE YOUR POTENTIAL



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