COMPUTER SCIENCE ENGINEERING

newsletter

THE Leaflet

Principal's Message

Dear Parents and Students,

It is with great pleasure that I welcome you to our College (DIET) Newsletter. As Principal I am hugely impressed by the commitment of the college and the staff in providing an excellent all-round education for our students with our state of the art facilities. We, as a team working together, strongly promote the zeal towards academic achievement among our students. The cultural, sporting, and other successes of all our students and staff are also proudly celebrated together. I congratulate the staff and students who brought the latest technologies and concepts onto the day-to-day teaching-learning platform. As long as our ideas are expressed and thoughts kindled we can be sure of learning, as everything begins with an idea.

I appreciate every student who shared the joy of participation in co-curricular and extracurricular activities along with their commitment to the curriculum. That little extra we do is the icing on the cake. 'Do more than belong – participate. Do more than care – help. Do more than believing – practice. Do more than be fair – be kind. Do more than forgive – forget. Do more than dream – work.' With a long and rewarding history of achievement in education behind us, our DIET community continues to move forward together with confidence, pride, and enthusiasm. hope you enjoy your visit to the website and should you wish to contact us, please find details at the www.diet.ac.in

Yours in Education

Dr.Ravi Kadiyala

Principal

HOD'S MESSAGE

Dr. S. Suresh Professor & HOD, Computer Science and Engineering

It gives me a great pleasure to congratulate the staff and students of the Department of Computer Science and Engineering for the publication of the newsletter "Tech Vivids -Insights of CSE". This newsletter mirrors the professional and academic achievements of faculty and students which would lead them to the overall development of their personality in the globalised world. Our effort would definitely create an impact in the minds of readers, by providing larger visibility and dimension. "Perseverance will always lead to diligence", with this in mind the department aims at quality teaching by exploring divergent events. The department motivates the students to improve their knowledge by organizing and participating in various events. This is only a small step towards a long journey to achieve progress. On our way towards reaching the objectives we may have face numerous milestones. I hope "Tech Vivids- Insights of CSE" would enlighten us with hope, confidence and faith in the journey ahead I congratulate the editorial board for the publication of the newsletter.

STUDENTS ARTICLES
Coding Nanotechnology

For many decades, nanotechnology has been developed with cooperation from researchers in several fields of studies including physics, chemistry, biology, material science. engineering, and computer science. We explore the nanotechnology development community and identify the needs and opportunities of computer science research in nanotechnology. In particular we look at methods for programming future nanotechnology, examining the capabilities offered by simulations and intelligent systems. This is intended to benefit computer scientists who are keen to contribute their works to the field of nanotechnology and also nano-technologists from other fields by making them aware of the opportunities from computer science.

MIT biological engineers have created a programming language tha allows them to rapidly design complex, DNA-encoded circuits tha give new functions to living cells. Using this language, anyone ca write a program for the function they want, such as detecting an responding to certain environmental conditions. They can the generate a DNA sequence that will achieve it.

It is a text-based language, just like programming a computer. The you take that text and you compile it and it turns it into a DNA sequence that you put into the cell, and the circuit runs inside th cell. Nanotechnology as defined by size is naturally broad, includin fields of science as diverse as surface science, organic chemistry molecular biology, semiconductor physics, energy storage engineering, micro fabrication, and molecular engineering.

The associated research and applications are equally diverse, ranging from extensions of conventional device physics to completely new approaches based upon molecular self- assembly, from developing new materials with dimensions on the nanoscale to direct control of matter on the atomic scale.

Scientists currently debate the future implications of nanotechnology. Nanotechnology may be able to create many new materials and devices with a vast range of applications, such as in nanomedicine, nanoelectronics, biomaterials energy production, and consumer products. On the other hand, nanotechnology raises many of the same issues as any new technology including concerns about the toxicity and environmental impact of nanomaterials, and their potential effects on global economics, as well as speculation about various doomsday scenarios. These concerns have led to a debate among advocacy groups and governments on whether special regulation of nanotechnology is warranted

Nanotechnology is the engineering of functional systems at the molecular scale. This covers both current work and concepts that are more advanced. In its original sense, nanotechnology refers to the projected ability to construct items from the bottom up, using techniques and tools being developed today to make complete, high-performance products.

Scientists are now turning to nanotechnology in an attempt to develop diesel engines with cleaner exhaust fumes. Platinum is currently used as the diesel engine catalyst in these engines The catalyst is what cleans the exhaust fume particles. First a reduction catalyst is employed to

take nitrogen atoms from NOx molecules in order to free oxygen. Next the oxidation catalyst oxidizes the hydrocarbons and carbon monoxide to form carbon dioxide and water. Platinum is used in both the reduction and the oxidation catalysts. Using platinum though, is inefficient in that it is expensive and unsustainable

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Graphical Password Authentication

Abstract:

A graphical password is an authentication system that works by having the user select from images, in a specific order, presented in a graphical user interface (GUI). For this reason. the graphical-password approach is called graphical user authentication (GUA).

Introduction

Password is a secret that is used for authentication. Passwords are the commonly used method for identifying users in computer and communication systems. It is supposed to be known only to the user. A graphical password is an authentication system that works by having the user select from images, in a specific order, presented in a graphical user interface (GUI) For this reason, the graphical-password approach is sometimes called graphical user authentication (GUA).

Existing System:

Graphical password schemes can be divided into three major categories based on the Type of activity required to remember the password: recognition, recall, and cued recall Recognition is the easiest for human memory whereas pure recall is most difficult since the information must be accessed from memory with no triggers. Cued recall falls somewhere between these two as it offers a cue which should establish context and trigger the stored memory. Among existing graphical passwords, CCP most closely resembles aspects of passfaces, Story, and Passpoints.

Proposed system:

Graphical passwords allow users to click on certain areas of the screen that are then converted by the computer to be used for authentications.

Picture Password:

User is presented with a grid of pictures (photographs) or segments of a single picture, user clicks on a sequence of pictures each segment of the picture grid is associated with a value matrix. Current authentication methods can be divided into three main areas

LiFi multiplies the speed and bandwidth of wifi, 3G and 4G. The latter have a limited capacity and become saturated when the number of users surfing increases, causing them to crash, reducing speeds and even interrupting the connection. With LiFi, however, its band frequency of 200,000 GHz, versus the maximum 5 GHz of the wifi, is 100 times faster and can transmit much more information per second. A 2017 study by the University of Eindhoven obtained a **download rate of 42.8 Gbit/s with infrared light with a radius of 2.5 metres,** when the best wifi would barely reach 300 Mbit/s.

ROLLING OUT LIFI WORLDWIDE

LiFi technology emerged thanks to the German physicist Harald Haas, a professor and director of the LiFi Research and Development Centre at the University of Edinburgh, and it could reach our homes in just a few years. It is currently being tested with LED luminaires in offices around the world and the **aeronautical industry is already working on solutions to integrate it into commercial aircraft.** Airports, hospitals and city streets are other spaces where LiFi technology could become popular. The boom in mobile devices and the growing demand for higher bandwidth systems are expected to drive the development of this social chnology in the next decade, as noted in the Global Market for LiFi Technology Analysis and Forecast 2018- 2028.

This report estimates that **the global market will reach a value of nearly $36 billion in 2028,** and that over the next 10 years the compound annual growth rate will rise to 71.2%. The Asia-Pacific region will lead the global growth in LiFi technology up to 2028, overtaking Europe, which remained at the forefront in 2017.

LIFI VS, WIFI: WHO GETS TO WEAR THE WIRELESS NETWORKS CROWN?

LiFi technology is faster, cheaper and even more secure than wifi. Its main advantages include:

Faster: the current speed of wifi oscillates between 11 and 300 Mbit/s, while that of LiFi is also highlyvariable according to the last studies carried out. The most widely accepted speed is 10 Gbit/s, but it has been proven that it could reach 224 Gbit/s and that a 1.5 Gbit film could be downloaded in thousandths of a second.

Cheaper and more sustainable: it is up to 10 times cheaper than wifi, requires fewer components and uses ess energy. All you have to do is turn on a light!

1. Token based authentication
2. Biometric based authentication
3. Knowledge based authentication

CONCLUSION:

The past decade has shown a growing interest in using graphical passwords as an alternative to the traditional text based passwords. Although the main use for graphical passwords is that people are better at memorizing graphical passwords than text-based passwords, the existing user studies are very limited and there is not yet convincing evidence to support this argument. Our preliminary analysis suggests that it is more difficult to break graphical passwords using the traditional attack methods such as brute force search, dictionary attack, or spyware.
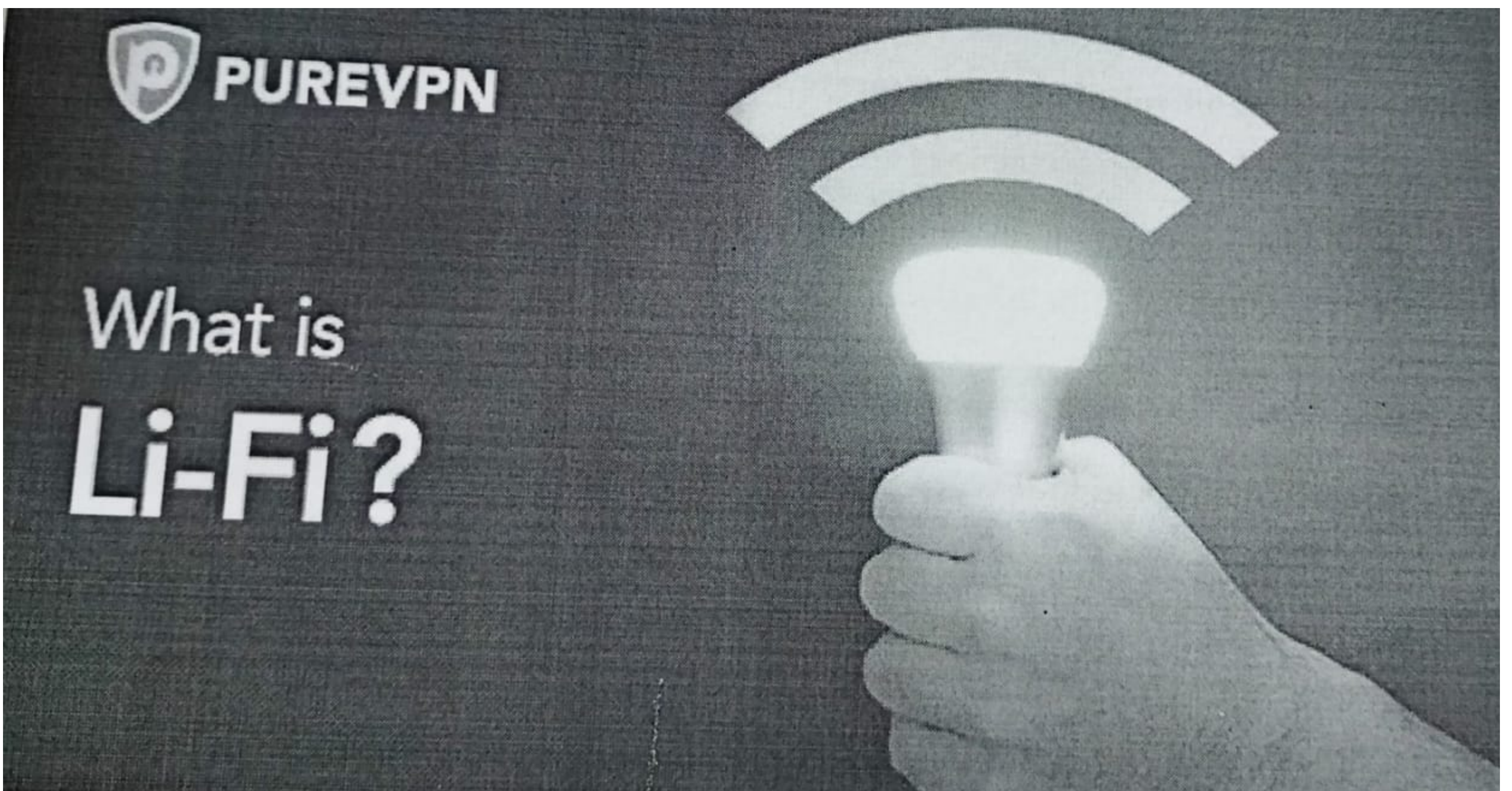
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Li-Fi Technology

(light fidelity)

What is Li-fi technology:

LiFi **(light fidelity)** is a bidirectional wireless system that transmits data via LED or infrared light. was first unveiled in 2011 and, unlike wifi, which uses radio frequency, LiFi technology only needs a ligh Source with a chip to transmit an internet signal through light waves. This is an extraordinary advance over today's wireless networks.

More accessible: any light fitting can easily be converted into an internet connection poin, as only a simple Fi emitter needs to be fitted.

More secure: light does not pass through walls like radio waves do, and this prevents intruders from Intercepting LiFi communications through a wireless network

More bandwidth: the light spectrum is 10.000 times wider than the radio spectrum, which increases the volume of data it can carry and transmit per second.

More reliable: LiFi transmits its signal without interruptions, making communication more stable than with wifi

No interference: electronic light does not interfere with radio communications, interact with other systems of compromise transmissions from aircraft, ships, etc.

Wireless and invisible: LiFi takes advantage of lights and dispenses with the router, so it works without the need for cables. In addition, it can operate with infrared light, which is invisible to the human eye, or with visible LED light at very low intensity so as to avoid disturbance.

No saturation: internet connection via light could prevent the collapse of the radio spectrum which, according to LiFi's inventor Harald Haas, could take place by 2025.

With the emergence and development of LiFi technology, many foreshadow the obsolescence of wifi and other wireless networks. We will have to wait a few more years to see if streetlights, in addition to illuminating our streets, will connect us to the internet at the speed of light.
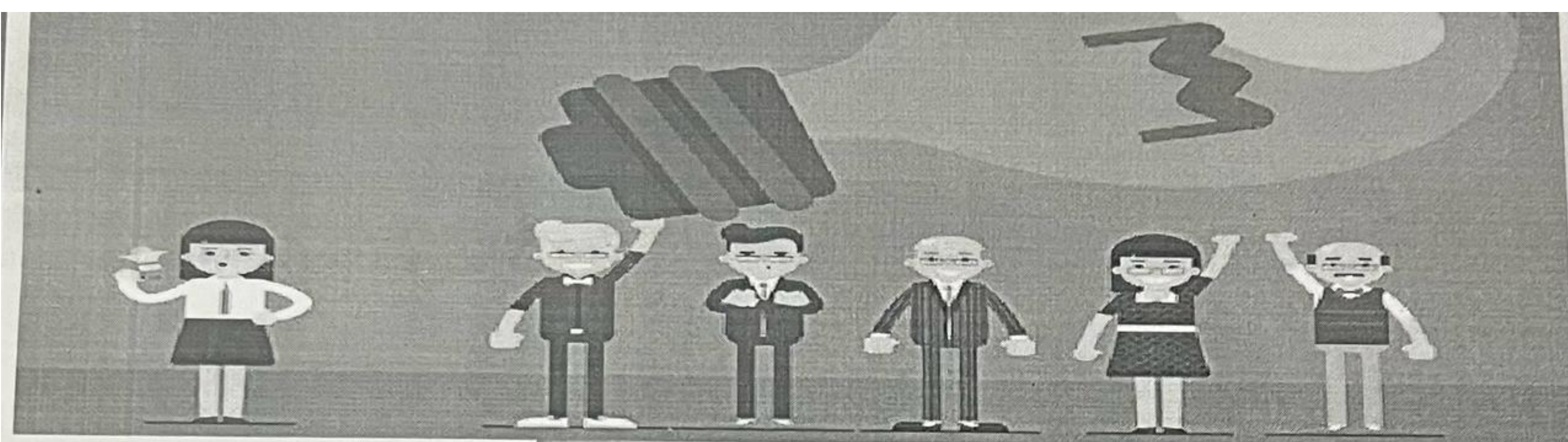

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