ICT:
Emerging Technological Trends and Society

TuK

Btech IT/CT/CCN Year IV term 3

002: COMPUTER H/W & S/W EMERGING TRENDS AND TECHNOLOGICAL ADVANCES

SUBJECT CODE: ECII/ECSI/ECCI 4204

AIMS & OBJECTIVES

- **AIMS & OBJECTIVES**

1) To study present and future **TRENDS** in traditional, current and future memory, **storage, processor** and **internet connectivity technology**

2) To learn present and future trajectories of growth projected **for** emerging **trend in memory, storage, processors and internet connectivity technology**

3) To identify and explain the present and future characteristics, **advantages and disadvantages** of computing growth trends for **memory, storage, processors and internet connectivity technology**

4) To discuss the social and ethical implications on society related to **trends in memory, storage, processors and internet connectivity technology**

LECTURE OUTLINE

1) introduction to topic:- why study **computer h/w & s/w & internet connectivity emerging trends and technological advances?**
2) Present & future computer software trends
3) Present & future computer memory & Data storage trends
4) Present & future computer Processor trends
5) Q & A

COMPUTER AND I.T. TRENDS

http://elearning.tukenya.ac.ke

RECOMMENDED READING CHAPTER FROM RECOMMENDED BOOK

1. Fawad A Khan, Jason M Anderson "Digital Transformation Using Emerging Technologies:- A CxO's Guide To Transform Your Organization" Independently Published 2021

2, Sarah Pink "Emerging Technologies/Life at the Edge of the Future" Routledge 2022

3. Kelly and Zach Weinersmith "Soonish: Ten Emerging Technologies That'll Improve and/or Ruin Everything" Penguin Press 2017

4. Schwab,Klaus "The Fourth Industrial Revolution", 2018.

5. Rotolo, D., Hicks, D., Martin, B. R., "what is an emerging technology?" Research Policy 44(10): 1827-1843.

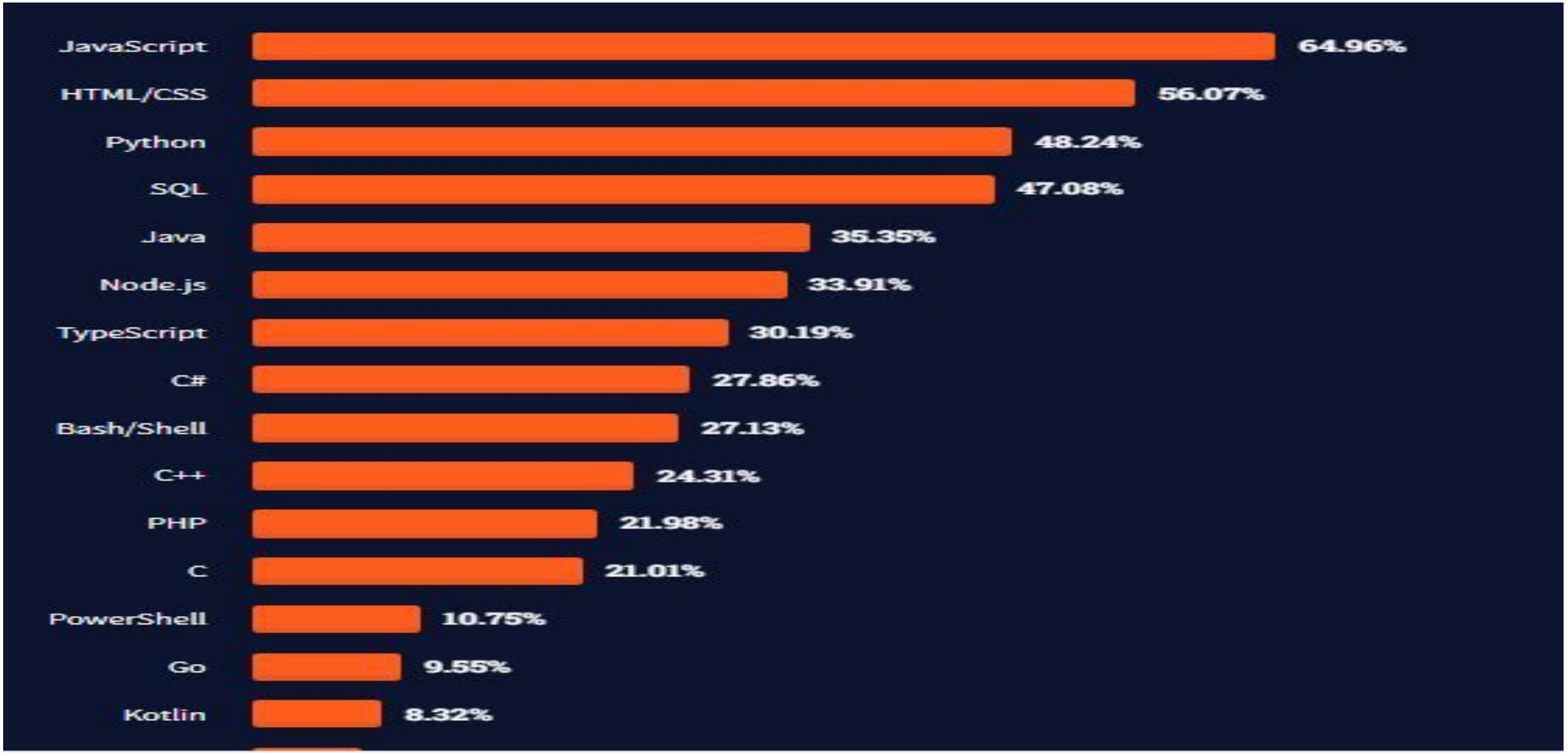
6. Joy, Bill, "Why the future doesn't need us", Bill Joy, Wired Magazine", 2000

7. Messerly, John G. "I'm glad the future doesn't need us: a critique of Joy's pessimistic futurism" ACM SIGCAS Computers and Society, Volume 33, Issue 2, 2003

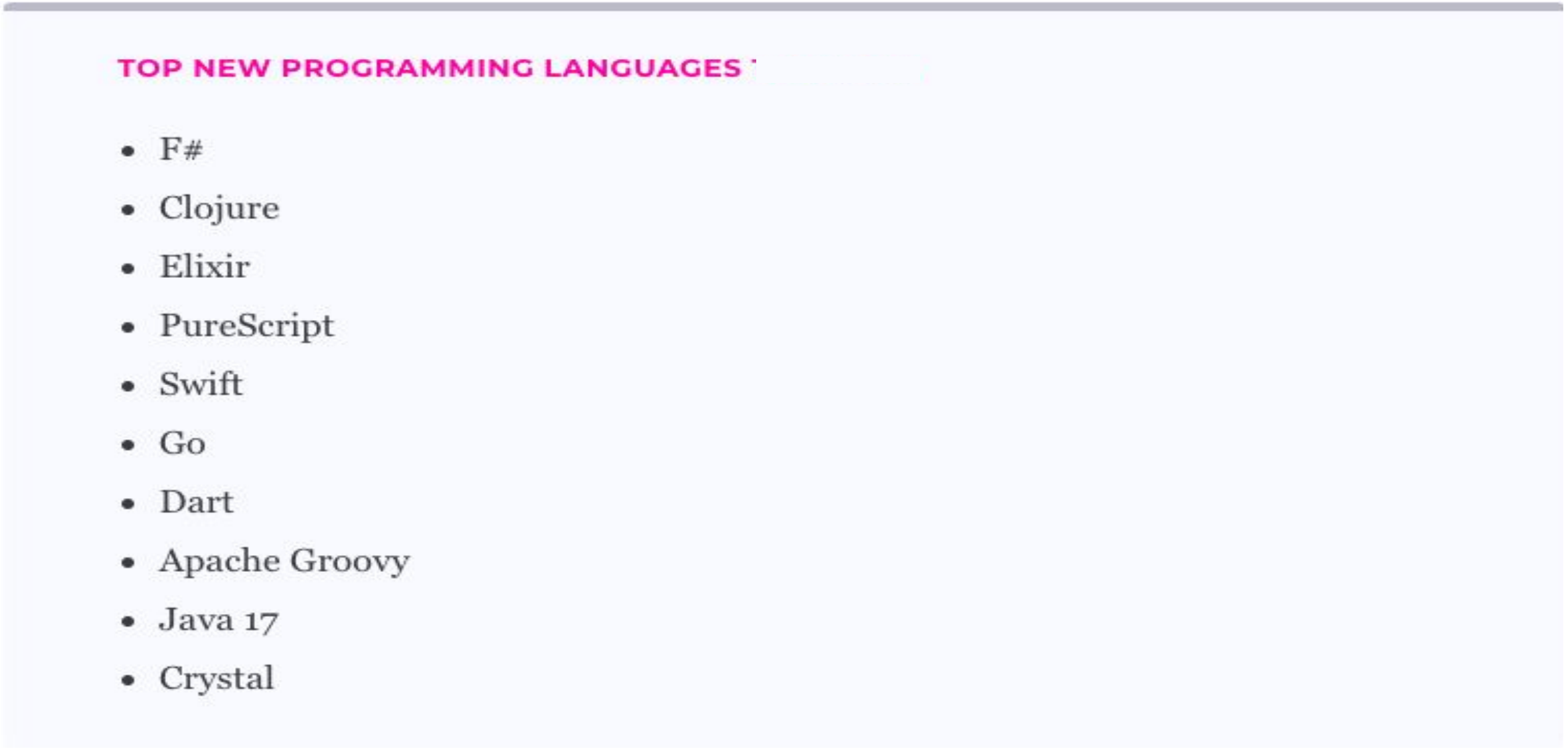
LECTURE OVERVIEW

1. Lecture Aims & Objectives
2. Lecture Outline
3. Recommended chapter from recommended reading list
4. Lecture Topic
5. Q&A

- STACK OVERFLOW 10 most Popular languages of 2022:-



- 10 Net Emerging Trend Programming languages 2023:-



EMERGING COMPUTER S/W PROGRAMMING TRENDS

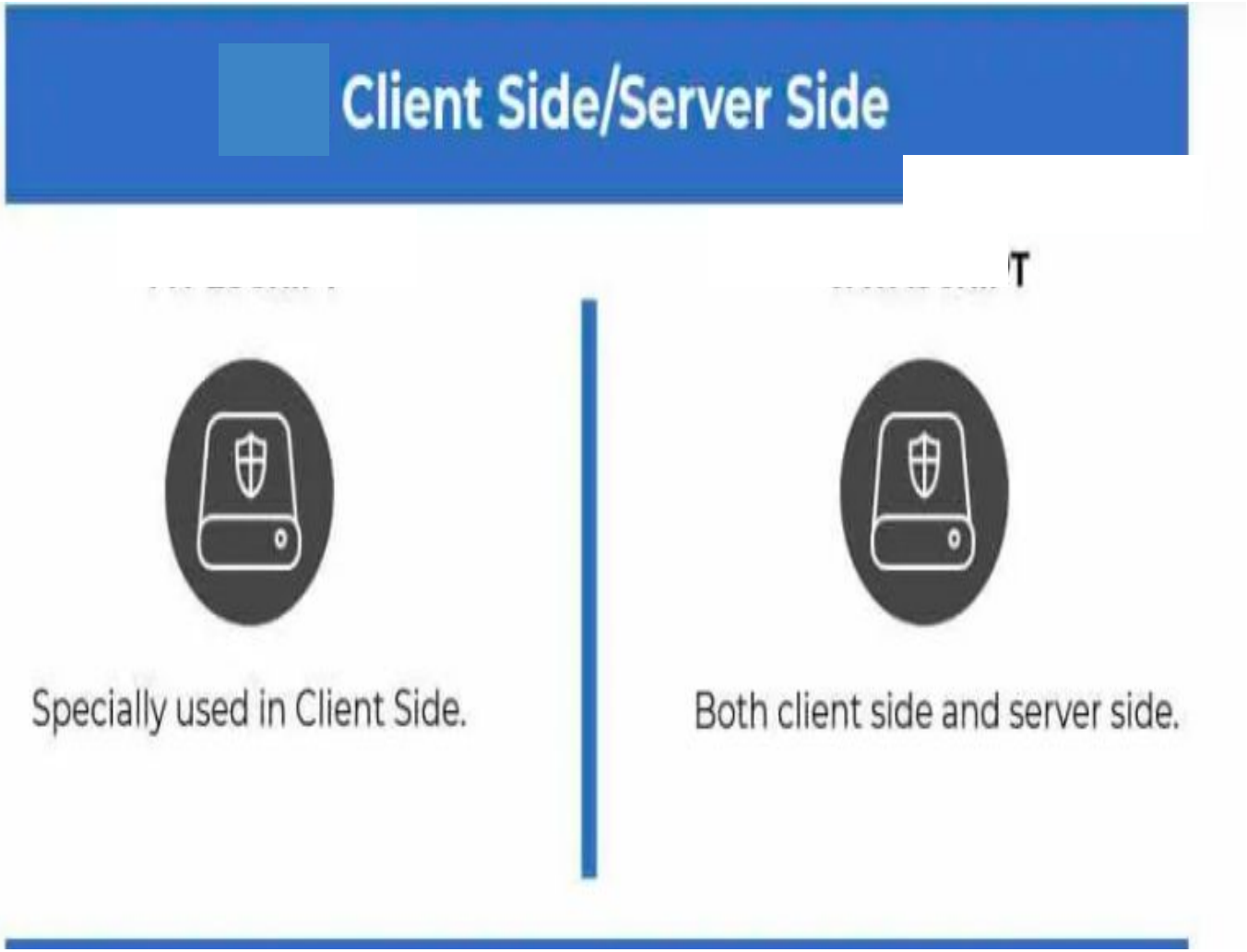
SOFTWARE TRENDS:- WHY ARE THEY CONSIDERED ETT's

F#

- **WHAT IS IT:-** open-source,cross-platform
- **WHAT DOES IT DO:**Hybrid:- web, cloud, data-science, apps etc
- **WHY IS IT ETT?** simple, succinct, correct, robust, compatible
- **UNIQUE FEATURES:-.**avoid clutter, tasks, strong type system etc.

THE CURRENT COMPUTER SOFTWARE TRENDS

S/W TRENDS:-WHAT MAKES A LANGUAGE POPULAR AND EMERGING TECH?

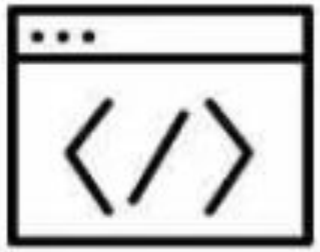


- **Is the language usable both at the frontend and backend?**
- **Does the language use the same code for both the client and the server?**

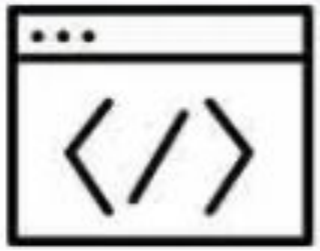
THE CURRENT COMPUTER SOFTWARE TRENDS

S/W TRENDS:-WHAT MAKES A LANGUAGE POPULAR AND EMERGING TECH?

- **Is the Language easy to read, write, fast to code in, have a small % of bugs and open source?**



Readability is not good.

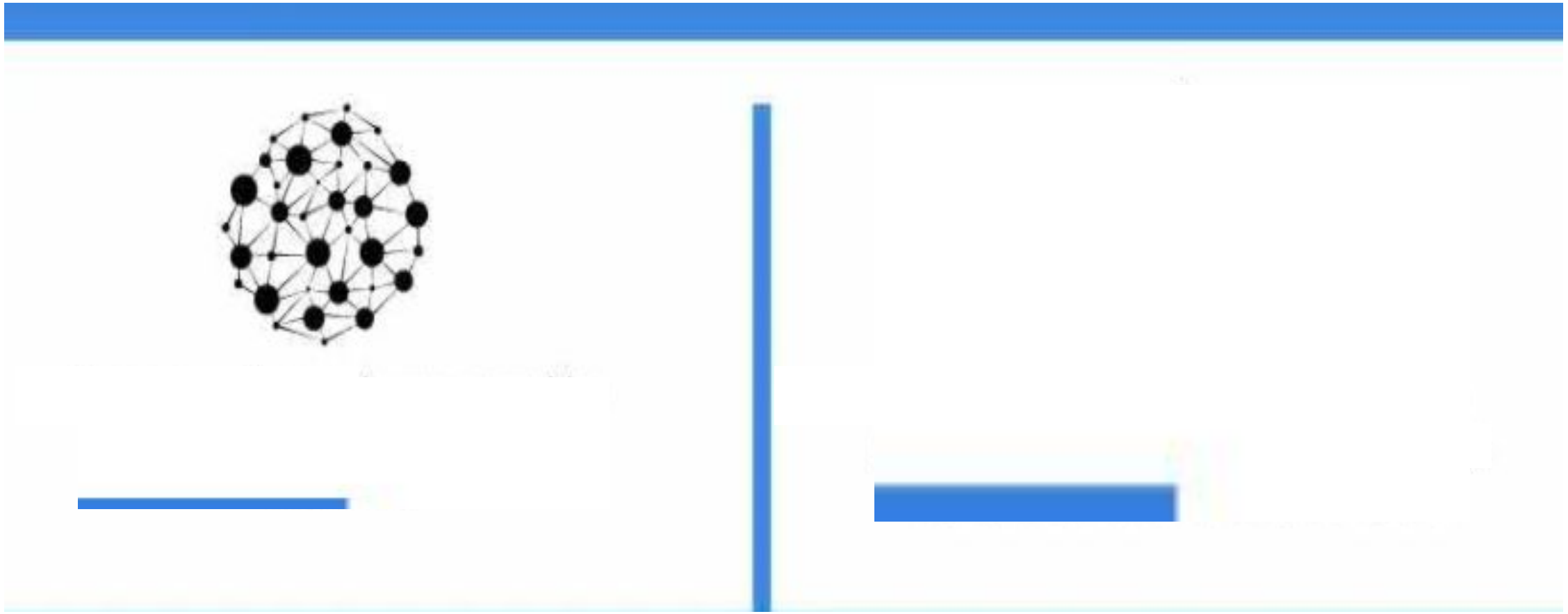


Readability is better

THE CURRENT COMPUTER SOFTWARE TRENDS

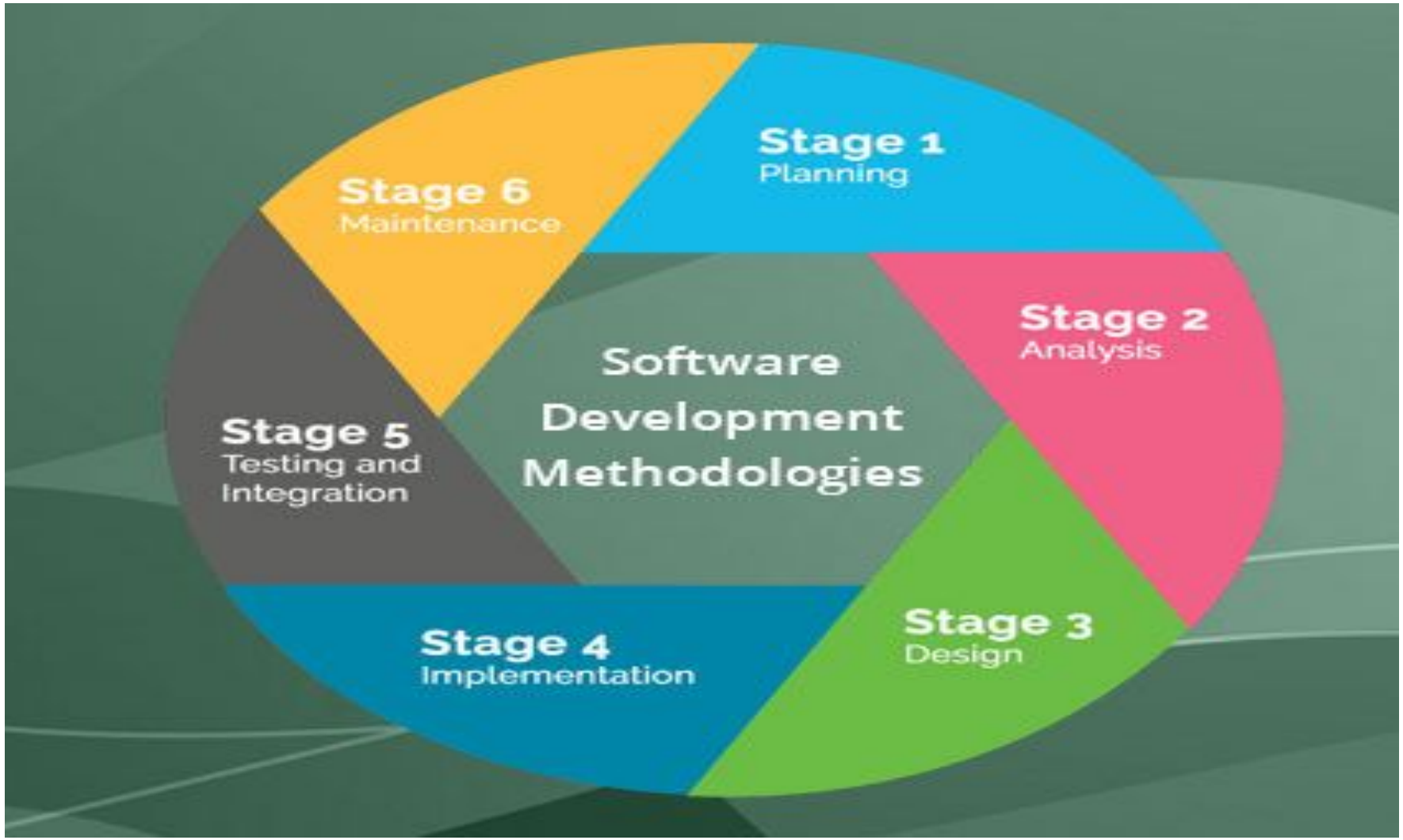
S/W TRENDS:-WHAT MAKES A LANGUAGE POPULAR AND EMERGING TECH?

- **Does the language offer a wide range of application usage?**



THE CURRENT COMPUTER S/W TRENDS -S.D.L.C

Software development methodology:- frameworks to structure, plan, and control develop



CURRENT SDLCs: DISADVANTAGES

1. **Too much work on software than documentation**
2. **Difficult to assess effort ?**
3. **Speed and security achievable?**
4. **Good for small, fast projects**
5. **A lot of time rather than coding**
6. **Too much client involvement**
7. **Work well in certain projects depending on....?**

THE FUTURE OF COMPUTER SOFTWARE TRENDS

LOW CODE (LCD) AND NO CODE (NCD) DEVELOPMENT

Type of RAD

DAD GUI (drag, drop AND connect)

mobile or web apps

No hand/hard-coding

-Visualize without writing complex;

-Easy to code(no pre-requirement expertise)

THE FUTURE OF COMPUTER SOFTWARE TRENDS

THE FUTURE OF COMPUTER SOFTWARE TRENDS

WHY LOW CODE DEVELOPMENT (LCD) AND NO CODE DEVELOPMENT

Traditional s/w development:-

-Dedicated coders required(why?)

Expensive(why?)

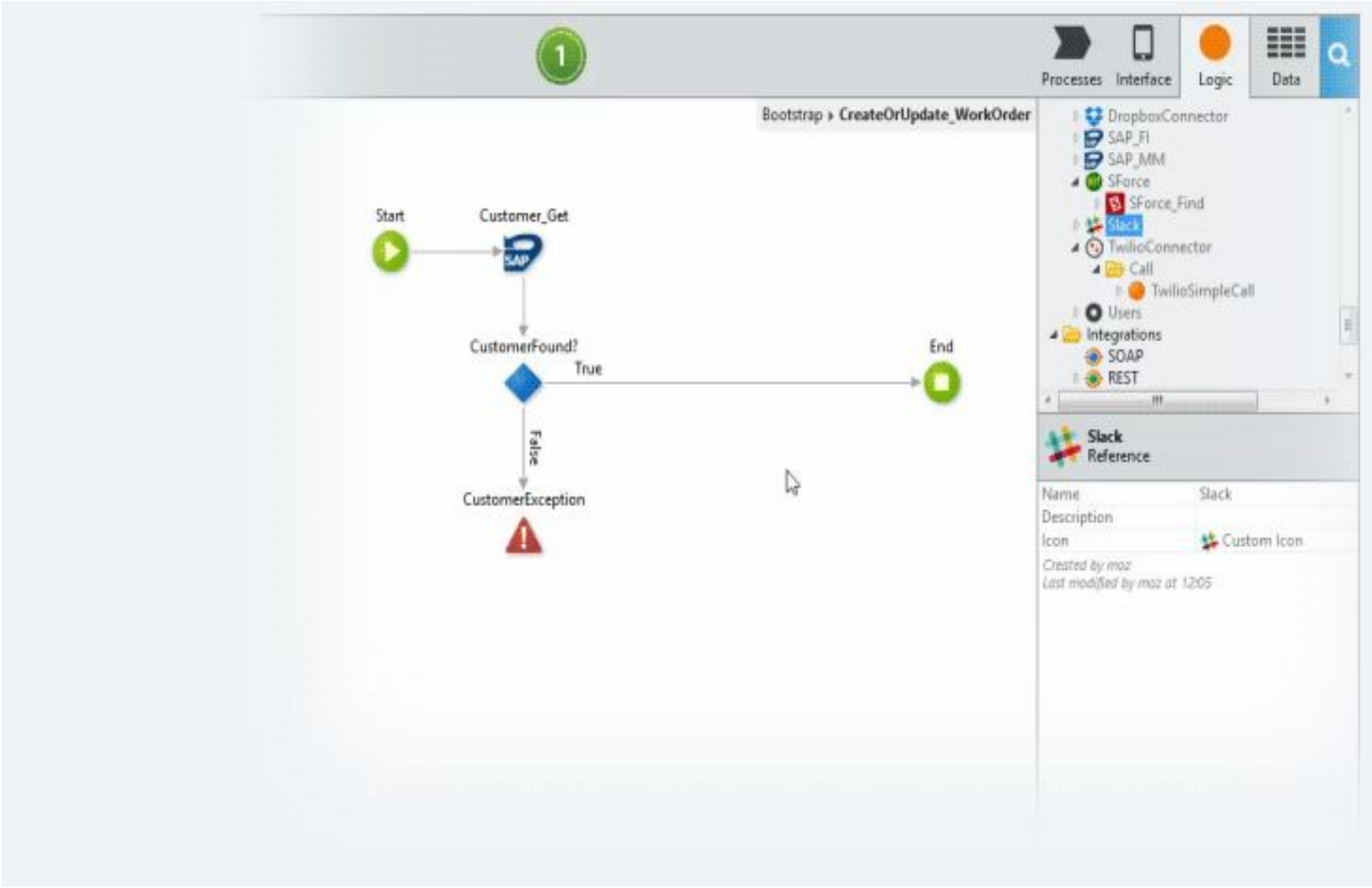
Time-consuming(why?)

THE FUTURE OF COMPUTER SOFTWARE TRENDS

ADVANTAGES OF LCD & NCD

-Quick transform

-Prototypes



THE CURRENT TRENDS OF DATA STORAGE

- **SSD Flash memory**

No moving parts

Access times- shorter(why?)

Faster than HDD(how?)

Little data transactions (meaning ??)

THE CURRENT TRENDS OF DATA STORAGE

- **SOLID STATE HYBRID DRIVE**

-Traditional HDD and Nand flash

-SATA port

- 2.5 or 3.5 FF

-Special controllers Nand flash and magnetic platters

THE CURRENT TRENDS OF DATA STORAGE

- **SOLID STATE HYBRID DRIVE**

-Quicker access

(Determines what data to store in flash and on plates)

i.e. files accessed frequently (FAF)

-No user input

THE CURRENT TRENDS OF DATA STORAGE

- **SOLID STATE HYBRID DRIVE**

Limitations-capacity

-Limitations:- Performance boosts to flash storage

- Costs (less than...?)

DATA STORAGE TRENDS FOR THE FUTURE

1) **HELIUM HDD:**

-From air to helium manufacturing (Hermetically sealing)

-Compatibility: magnetic recording

-Efficiency(20%) than air

-Data rates higher

1) **HELIUM HDD**

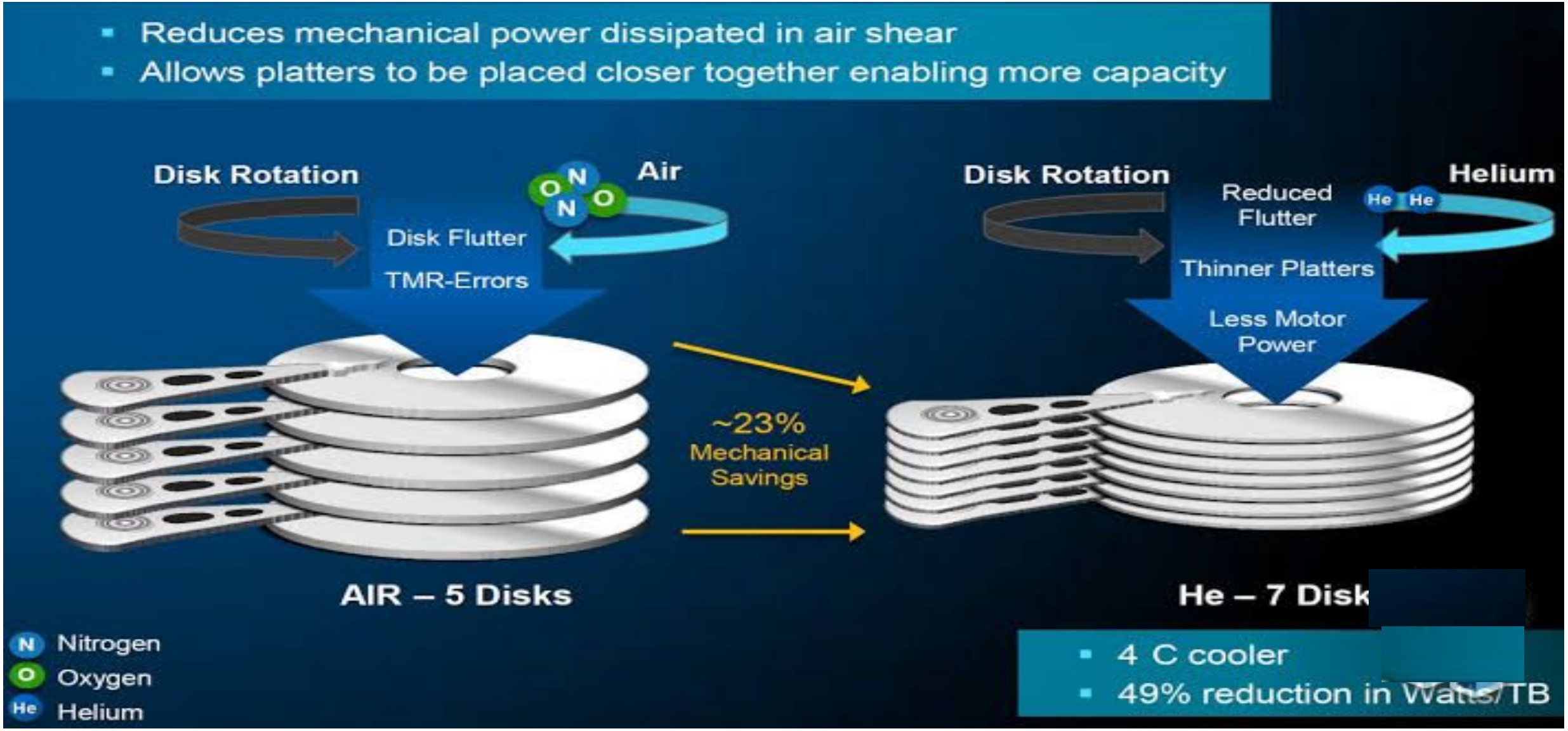
-Less power

-Spins easily

-Run cooler

-More disks.

DATA STORAGE TRENDS FOR THE FUTURE-HELIUM HDD



DATA STORAGE TRENDS FOR THE FUTURE

1) **HELIUM HDD:**

-1/7th less dense

-Drag on platters(what is it?why?how?)

-Reduced energy needs (why?how?)

QUESTION & ANSWER SESSION

ANY
QUESTIONS
?