

A blue-toned wireframe illustration of a human head in profile, facing right. Inside the head, several interlocking gears are visible, symbolizing cognitive processes. The background is a gradient of blue and teal.

# COGNITIVE COMPUTING

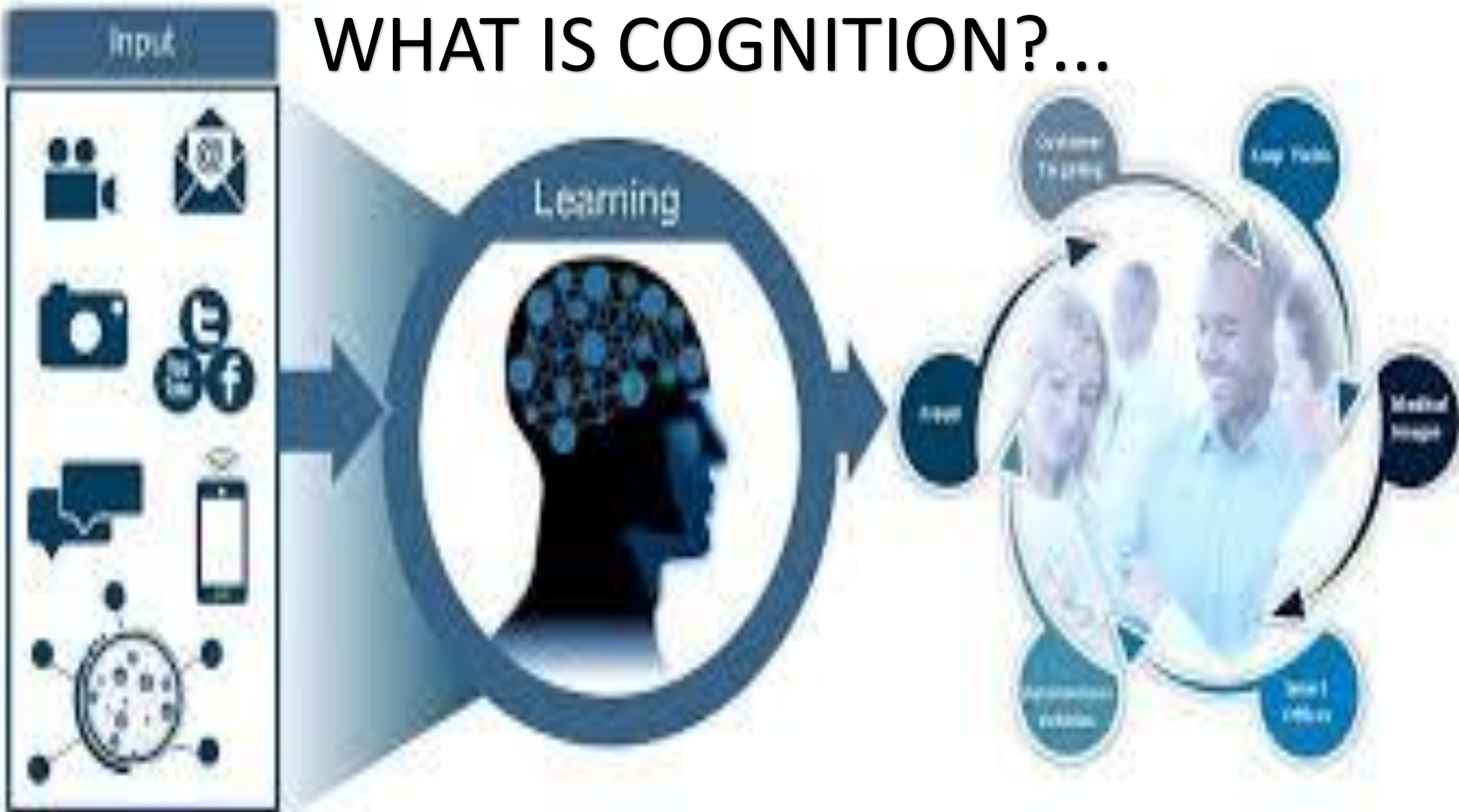
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ROLL NO:10

MCA-S5-REGULAR



# WHAT IS COGNITION?...



# COGNITION

- ❖ Cognition is "the mental action or process of acquiring knowledge and understanding through thought, experience and the senses".
- ❖ Cognitive processes use existing knowledge and generate new knowledge.
- ❖ The concept of cognition is closely related to abstract concepts such as mind and intelligence.
- ❖ Technologies -natural language processing, machine learning.




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- ❖ Cognitive technologies are products of the field of artificial Intelligence.

# So what will be a cognitive system..??

- ❖ They are able to perform tasks that **only humans** used to be able to do.

# COGNITIVE COMPUTING

- ❖ Cognitive computing (cc) describes technology platforms that, broadly speaking, are based on the scientific disciplines of artificial intelligence and signal processing.
- ❖ Mimicking the function of a human brain and handling human kind of problems.
- ❖ Combination of technologies to understand human interaction and provide answers.
- ❖ Cognitive computing systems use machine learning algorithms.
- ❖ Such systems continually acquire knowledge from the data.




# **In order to achieve this new level of computing, cognitive systems must be**

1. Adaptive
2. Interactive
3. Iterative and stateful
4. Contextual



# Three eras of computing

1. Tabulating system(1900)-adding objects.
2. Programmable system(1950)-processing numbers.
3. Cognitive computing- make sense of data, prediction



Watson is creating a new partnership between people and computers that **enhances**, **scales** and **accelerates** human expertise.

Tabulating  
Systems Era

1900

Programmable  
Systems Era

1950

Cognitive  
Systems Era

2014

# WHEN COMPUTER BECOMES BRAINS

- ❖ The human brain integrates memory and processing together
- ❖ It reacts to things in its environment
- ❖ But a computer has separate memory and processing.
- ❖ It does its work by a clock.
- ❖ For the first time in computing history, it's possible for machines to learn from experience and penetrate the complexity of data to identify associations.



# USECASES

- ❖ Speech recognition
- ❖ Sentiment analysis
- ❖ Face detection
- ❖ Risk assesment
- ❖ Individual risk assessment
- ❖ Systems risk assessment
- ❖ Fraud detection

# OTHER CHARACTERISTICS OF A COGNITIVE ANALYTICS SYSTEM INCLUDE:

- ❖ adaptability
- ❖ natural language interaction
- ❖ intel loihi chip
- ❖ unbalanced scales.svg
- ❖ ibm truenorth chip



# TECHNOLOGY



- ❖ Question answering technology.
- ❖ Deep understanding of human language.
- ❖ Software-DeepQA
- ❖ Runs on cluster of power 750 computers.
- ❖ 16 TB memory
- ❖ Hold approximately one million books

# GOAL OF COGNITIVE COMPUTING

- ❖ The goal of cognitive computing is to create automated IT systems that are capable of solving problems without requiring human assistance...

## FUTURE ASPECTS

- ❖ Augmented Virtual Reality
- ❖ Sentient Systems
- ❖ Specialized Deep Learning on Big Data sets
- ❖ Generalized Artificial Intelligence systems



# **ADVANTAGES**

- ❖ Accurate Data Analysis
- ❖ Leaner & More Efficient Business Processes
- ❖ Improved Customer Interaction

# **LIMITATIONS**

- ❖ Limited analysis of risk
- ❖ Meticulous training process

A blue wireframe head in profile, facing right. Inside the head, there are two interlocking gears and a glowing lightbulb with radiating lines. The text "THANK YOU" is written across the center of the head.

THANK YOU