

COGNITIVE ERGONOMICS

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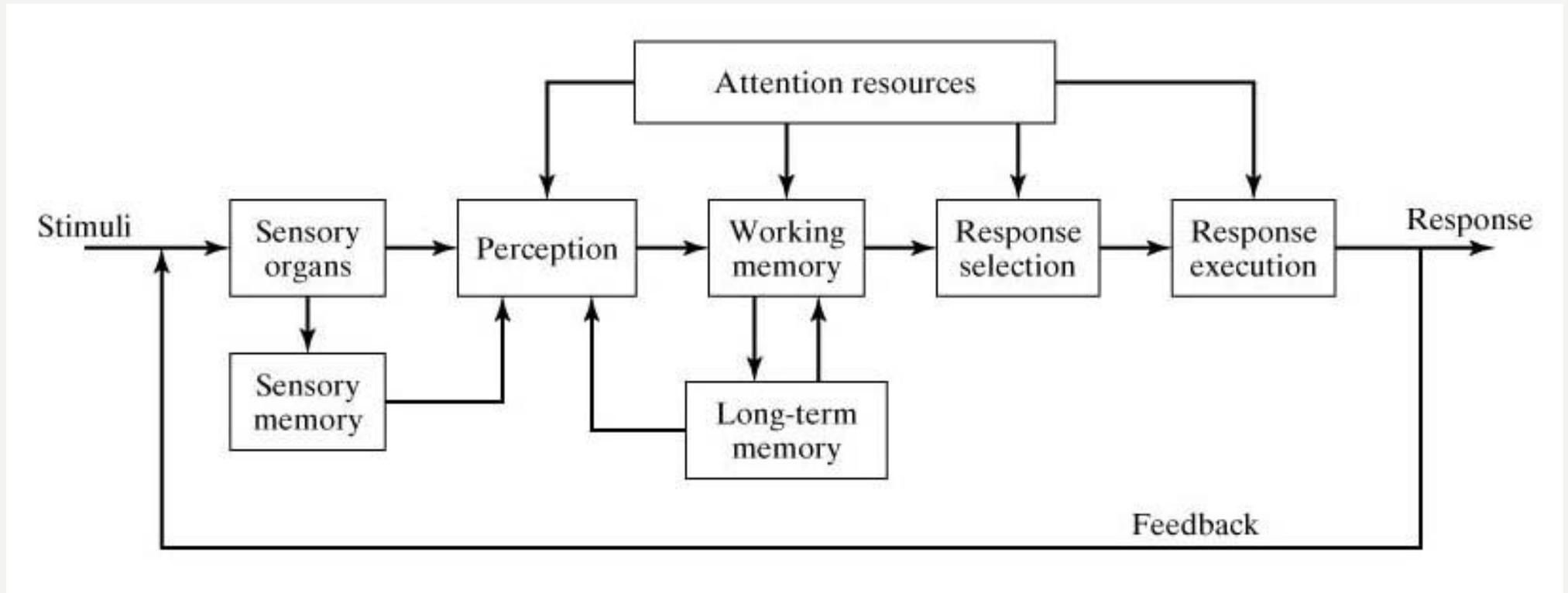


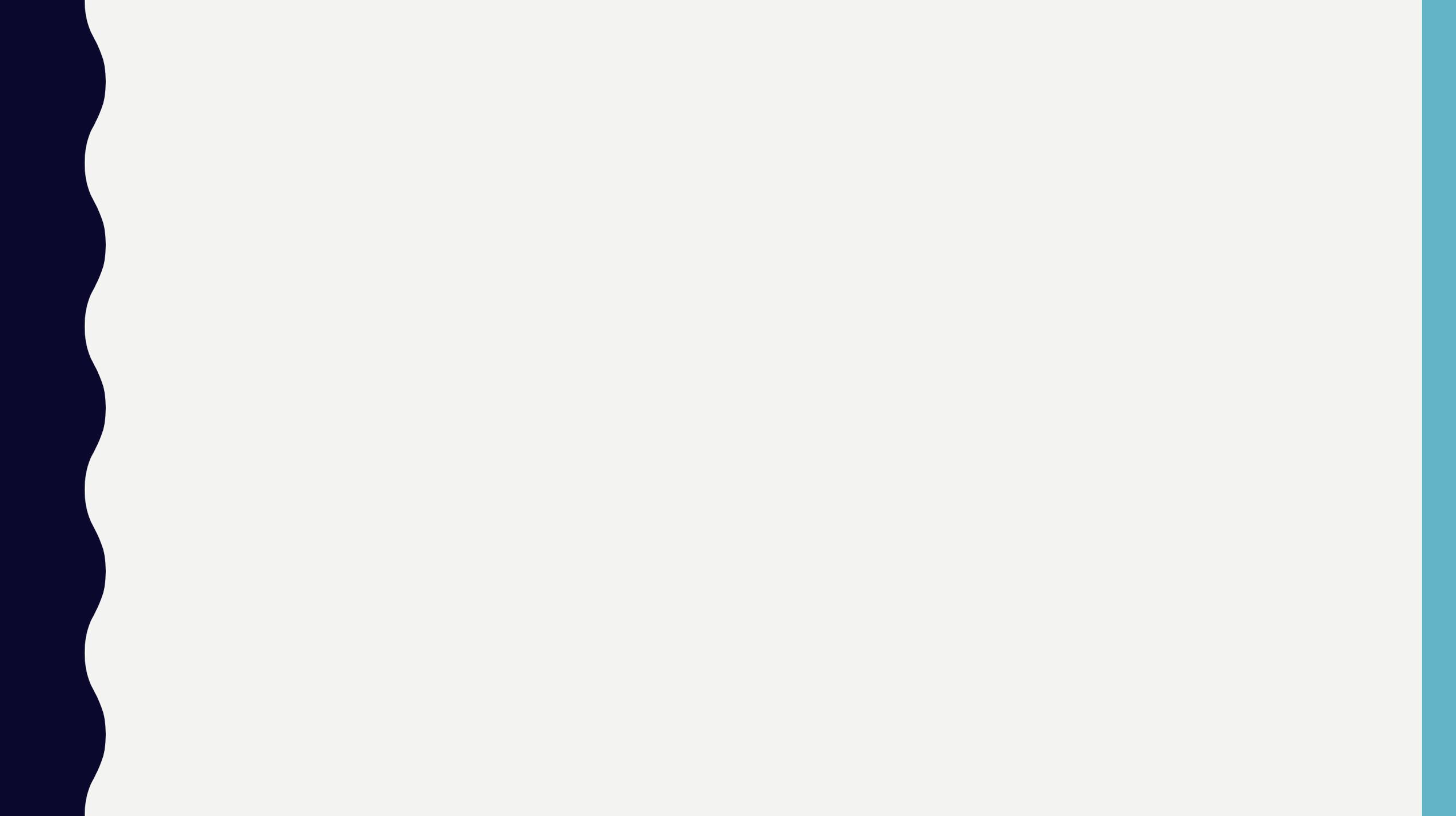
ATTENTION RESOURCES

SUMMARY OF PREVIOUS LECTURE

- **Perception**
- **Types of perception**

HUMAN INFORMATION PROCESSING MODEL





ATTENTION RESOURCES

Attention means keeping one's mind on something

- Involves mental concentration and readiness for such concentration
- Types of attention:
 - Selective attention
 - Focused attention
 - Divided attention
 - Sustained attention
 - Lack of attention, sometimes caused by boredom



TYPES OF ATTENTION RESOURCES

SELECTIVE ATTENTION

Refers to a situation in which a person needs to monitor multiple sources of information in order to perceive irregularities or opportunities

- Involves filtering out certain channels of information in order to focus on one channel that is deemed important
- Examples:
 - Pilot checking gauges, looking for readings that might explain airplane's erratic behavior
 - Football quarterback watching other team's defensive line to exploit weaknesses

MORE ON SELECTIVE ATTENTION

- Person must select which channels to give attention to and which to ignore
- Factors that influence this selection process:
 - *Expectancy* - the person expects a certain channel to provide the information and pays more attention to it
 - *Saliency* - stimulus that stands out among the other channels
 - *Value* - if the channel is deemed important, more attention will be paid to it

FOCUSED ATTENTION

Refers to situations in which a person must cope with multiple input channels but focus on only one channel for a sustained period of time

- Person pays attention to one stimulus and is not distracted by others ("noise")
- Examples:
 - Conversing with a friend in a crowded room full of people who are also talking
 - Reading a book in an airport lobby
 - Fighter pilot landing an airplane on the deck of an aircraft carrier during rough seas

MORE ON FOCUSED ATTENTION

- Factors affecting one's ability to focus attention on one stimulus
 - Proximity - distance of the stimulus source from the person trying to focus attention
 - Separation - refers to stimuli arriving from different directions
 - Easier to focus attention on a source directly in front of a person
 - Background noise - (e.g., visual clutter, auditory noise) affects one's ability to focus on a desired stimulus

DIVIDED ATTENTION

Refers to situations in which there are multiple stimuli, but multiple tasks must be performed together

- Examples:
 - Driving a car while talking on a cell phone with someone
 - Doing income tax return while watching television
 - Machine operator attending several machines in a machine cluster

SUSTAINED ATTENTION

Refers to situations in which a person must watch for a signal of interest over a relatively long period of time, and it is important to avoid missing the signal

- Also known as *vigilance*
- Examples:
 - Inspector looking for defective products moving along a conveyor line
 - Radar operator monitoring a radar screen for incoming aircraft

LACK OF ATTENTION AND BOREDOM

- Lack of attention - not concentrating on task
- Usually caused by boredom - state of being weary and restless due to lack of interest
- Factors leading to boredom on the job:
 - Short cycle times
 - Low requirements for body movements
 - Warm environment
 - Lack of contact with other workers
 - Low motivation
 - Low lighting levels in workplace



**LECTURE
CLOSING**

DID YOU KNOW.....?????

- People with anxiety perceive the world differently, their brain lumps both safe and unsafe things together and labels them all unsafe



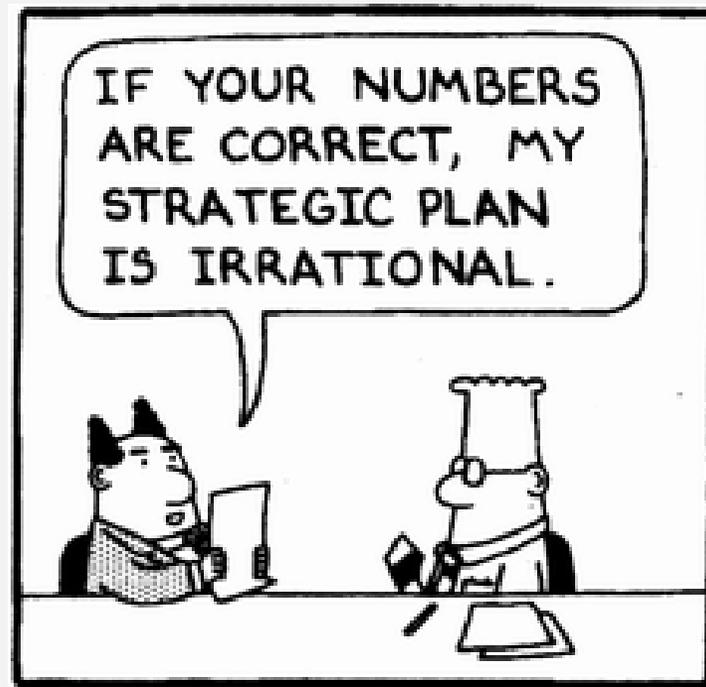
A BRIEF HISTORY OF COGNITIVE PSYCHOLOGY & ERGONOMICS

19th CENTURY

William James (1842-1910)

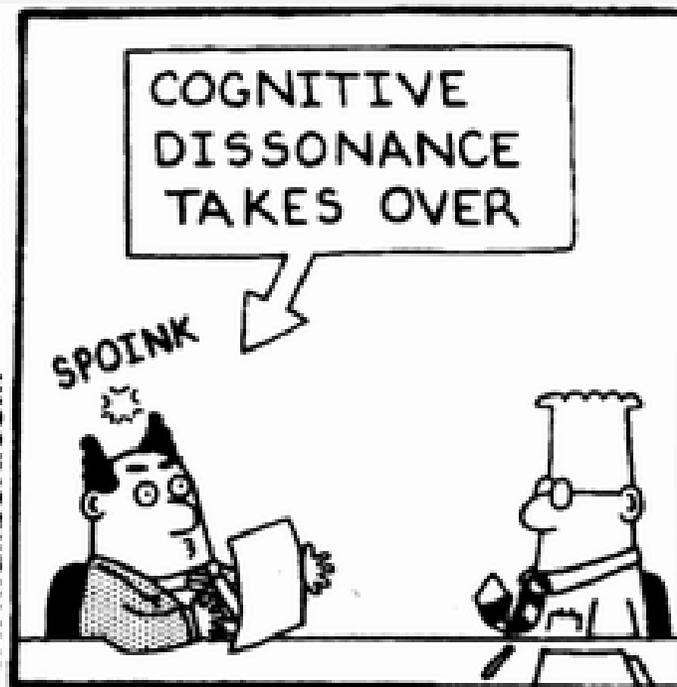
- William James wrote the first psychology textbook, *Principles of Psychology*, which was the central work of his career. The concept of functionalism is expressed in James' psychology which he treats as a natural science. Functionalism is the adaptation of living persons to their environment. James also contributed to the James-Lange theory. This theory states that we feel an emotion because of the action in which we choose to engage. For example, we infer we are afraid because we run.

GRAFFITI

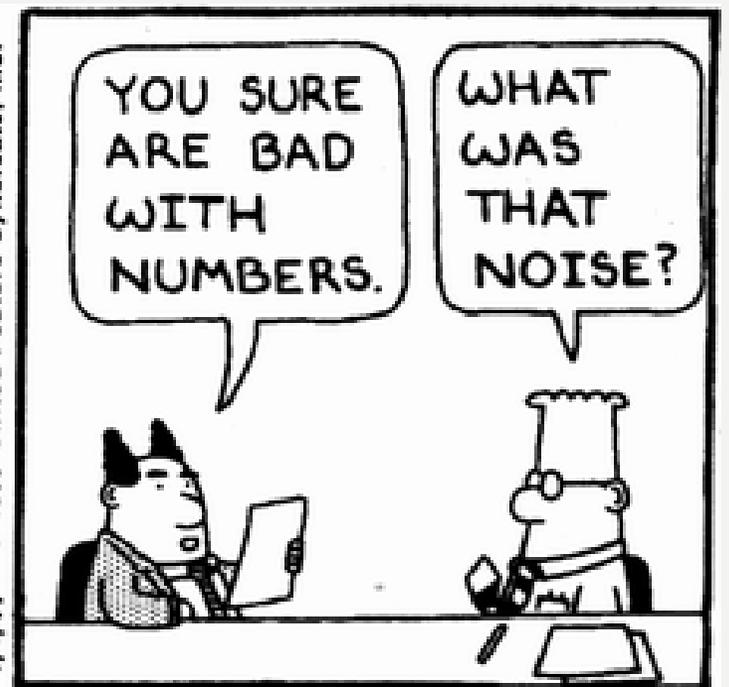


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THANK YOU ...



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FROM RECOMMENDED REFERENCE BOOKS
FOR A BETTER UNDERSTANDING OF NEXT
LECTURE