How your mind learns [to program]

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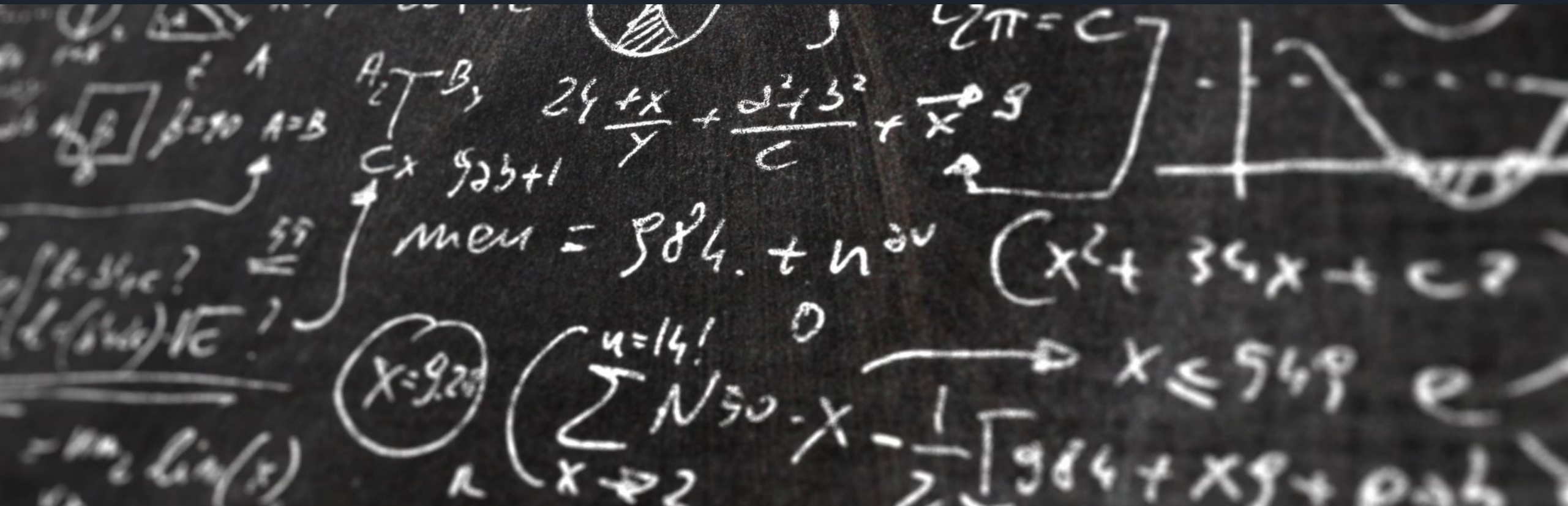
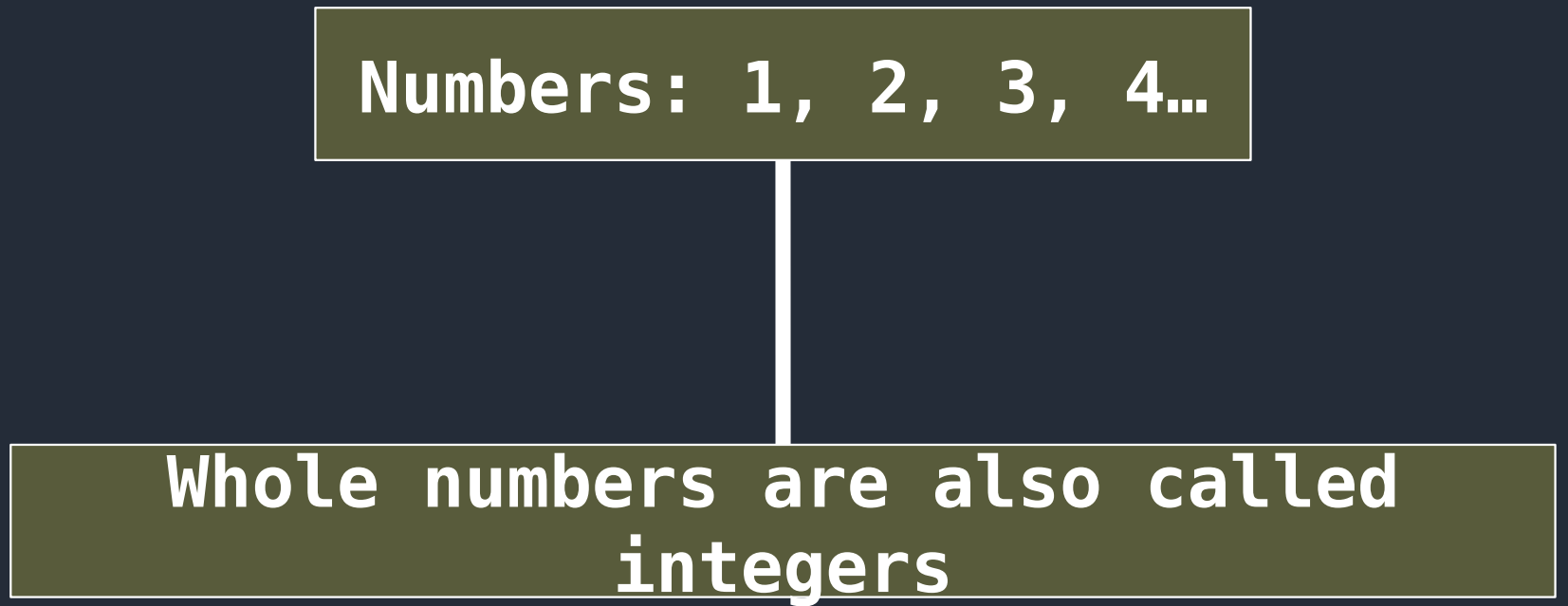


Learning is an essential part of being a software developer…

… but how does learning work?

Learning involves storing and linking concrete facts…

Storing and linking concrete facts



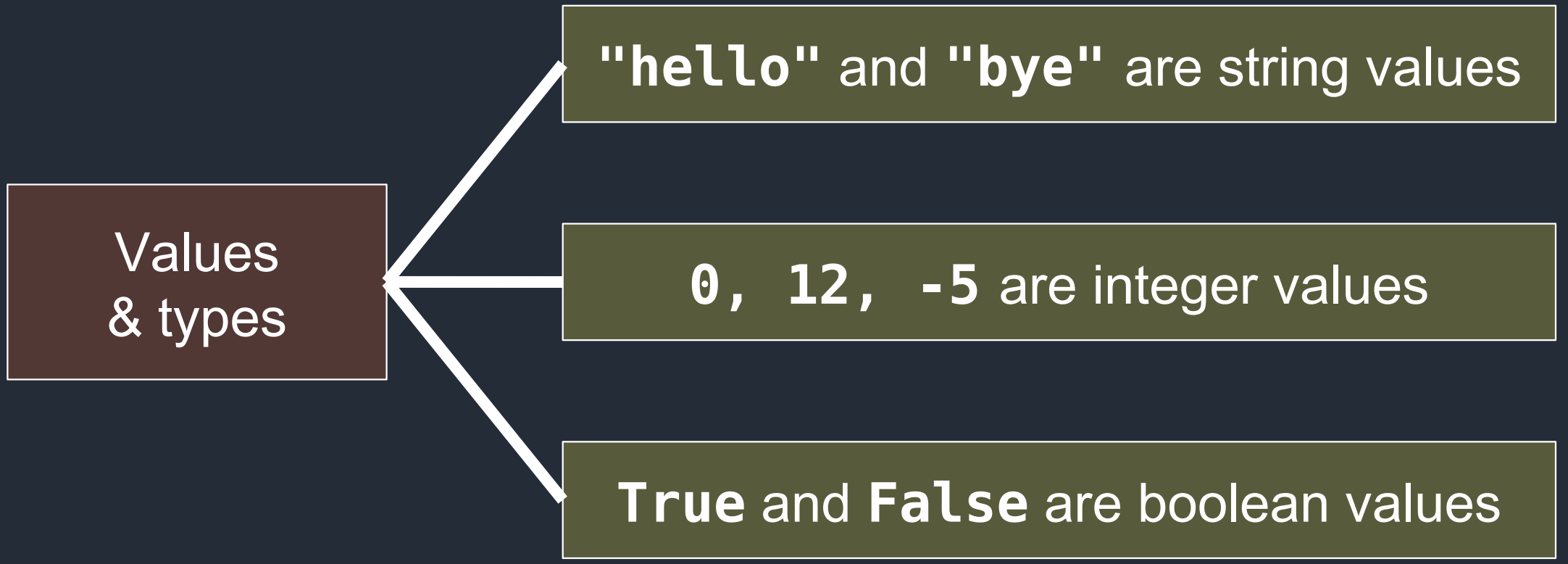
Learning abstract concepts

Values
& types

“A value is the representation of some entity that can be manipulated by a program. The members of a type are the values of that type.”

– Wikipedia’s page on “Value (Computer Science)”

Learning abstract concepts… use examples!



…abstraction is learned by linking examples

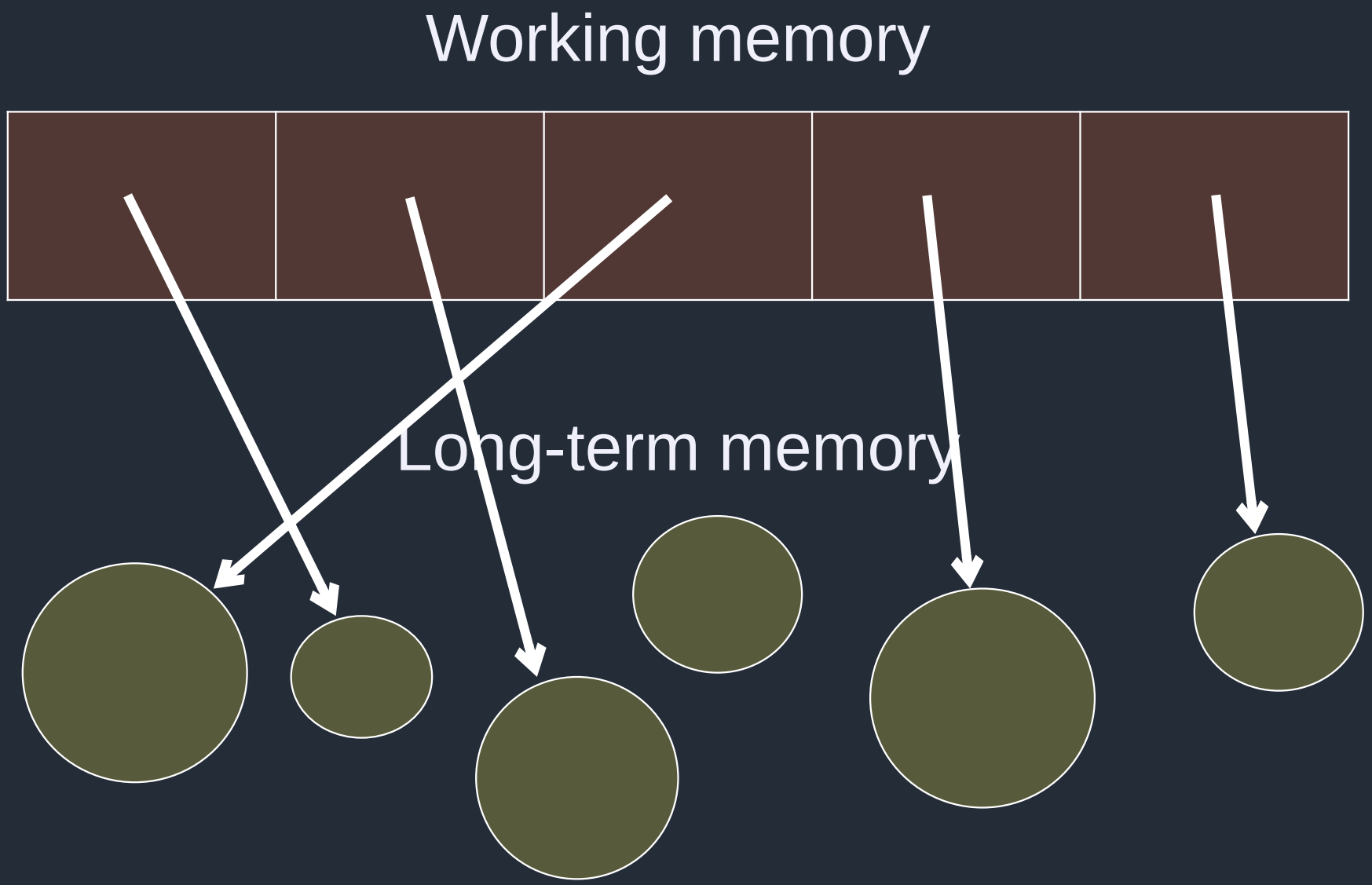
Lesson #1:

Study varied examples
to learn abstract concepts

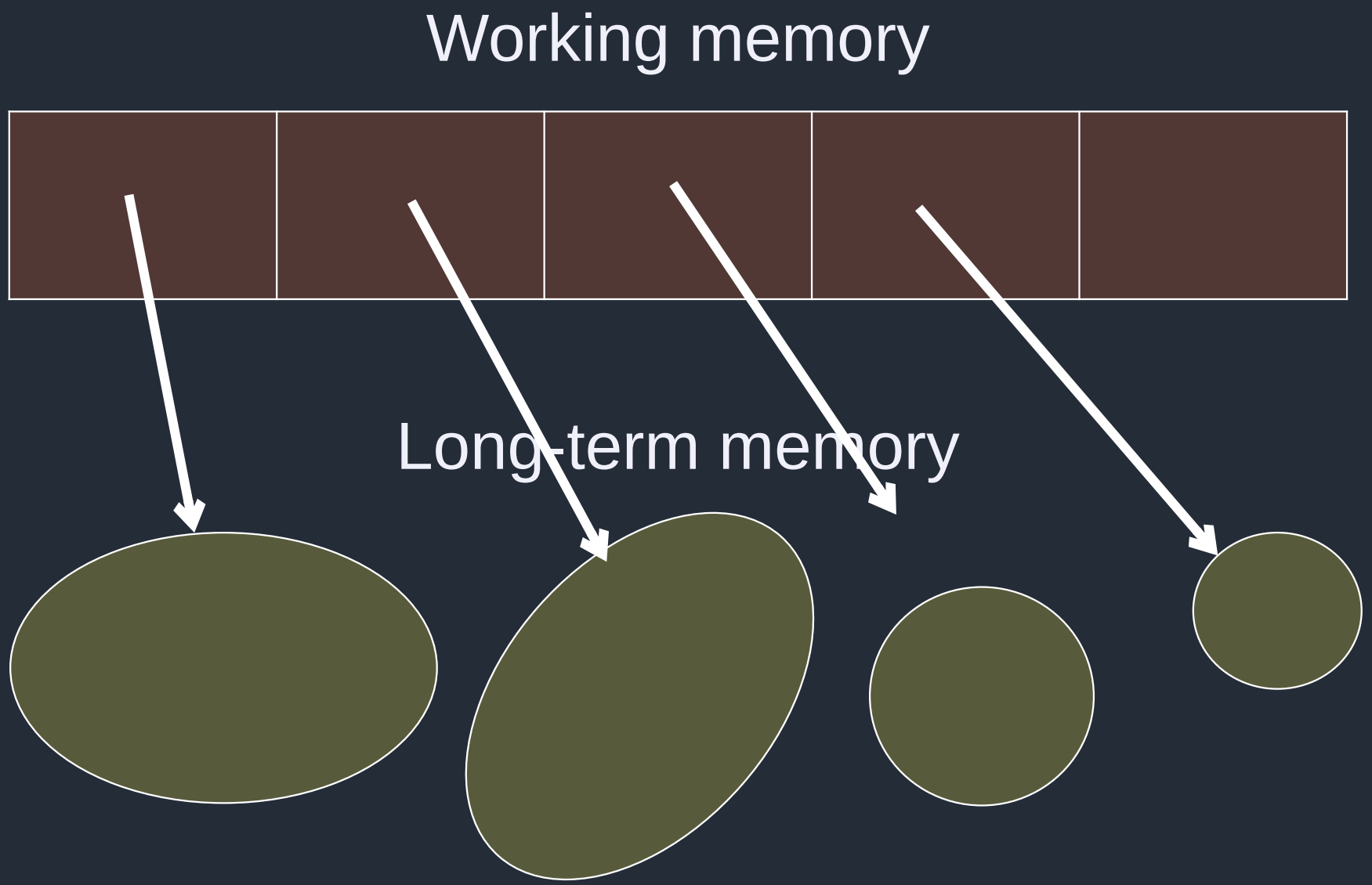
AND

Give examples when
explaining to others

Human memory



Human memory

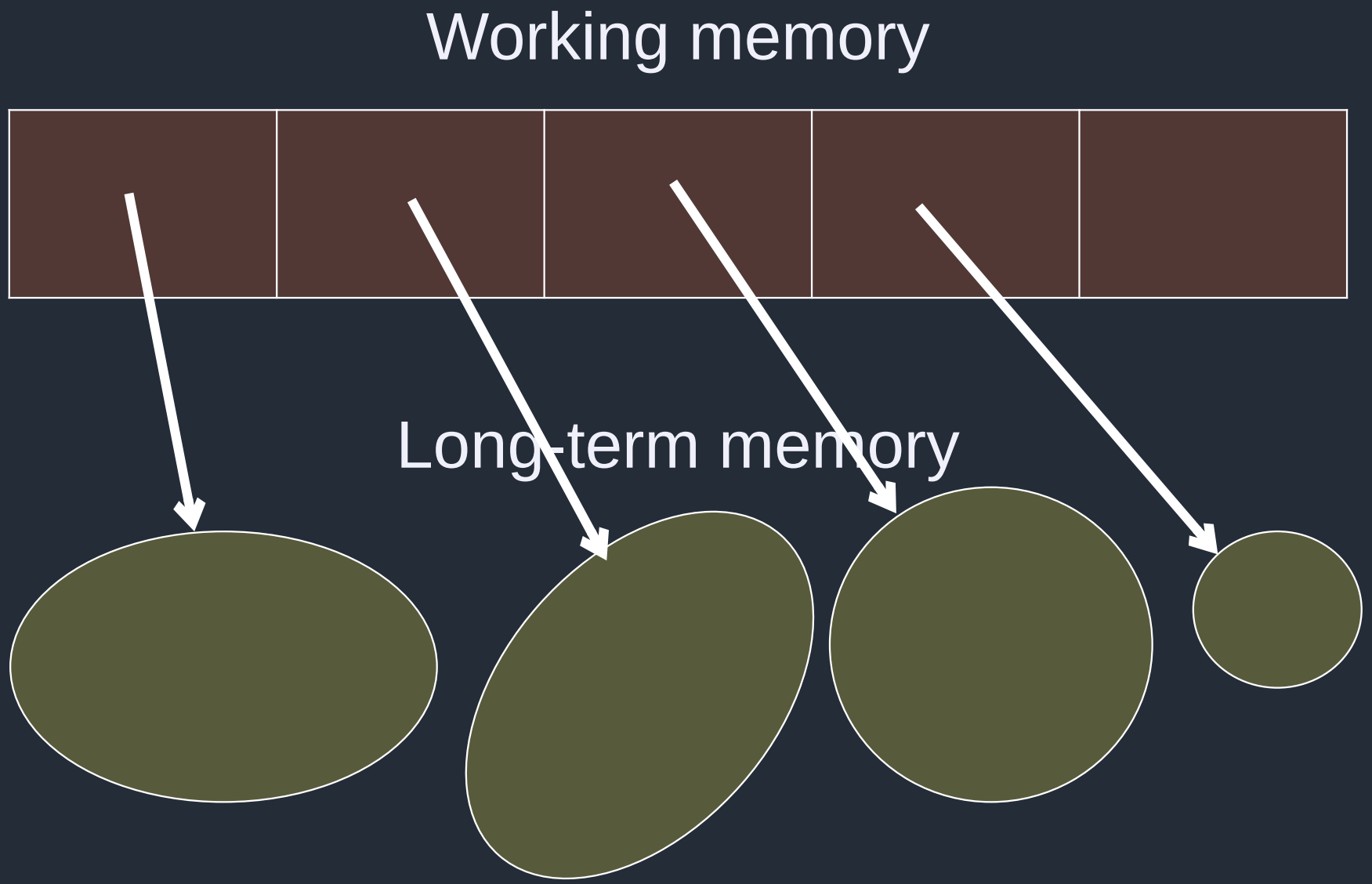


Lesson #2:

Increasing your knowledge increases your processing capacity

Your brain is eager
to link facts…

Human memory



Your brain is not a computer

Existing knowledge can sometimes trip you up: bad links

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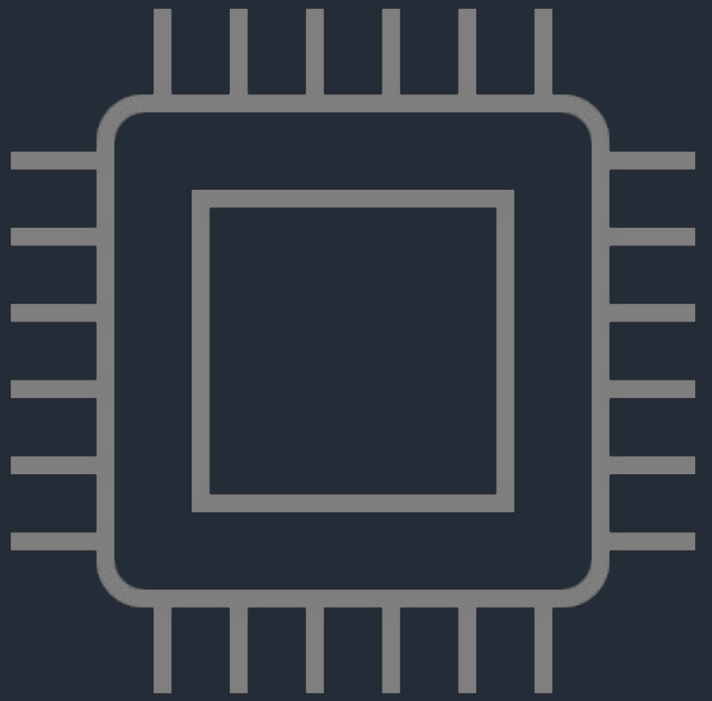
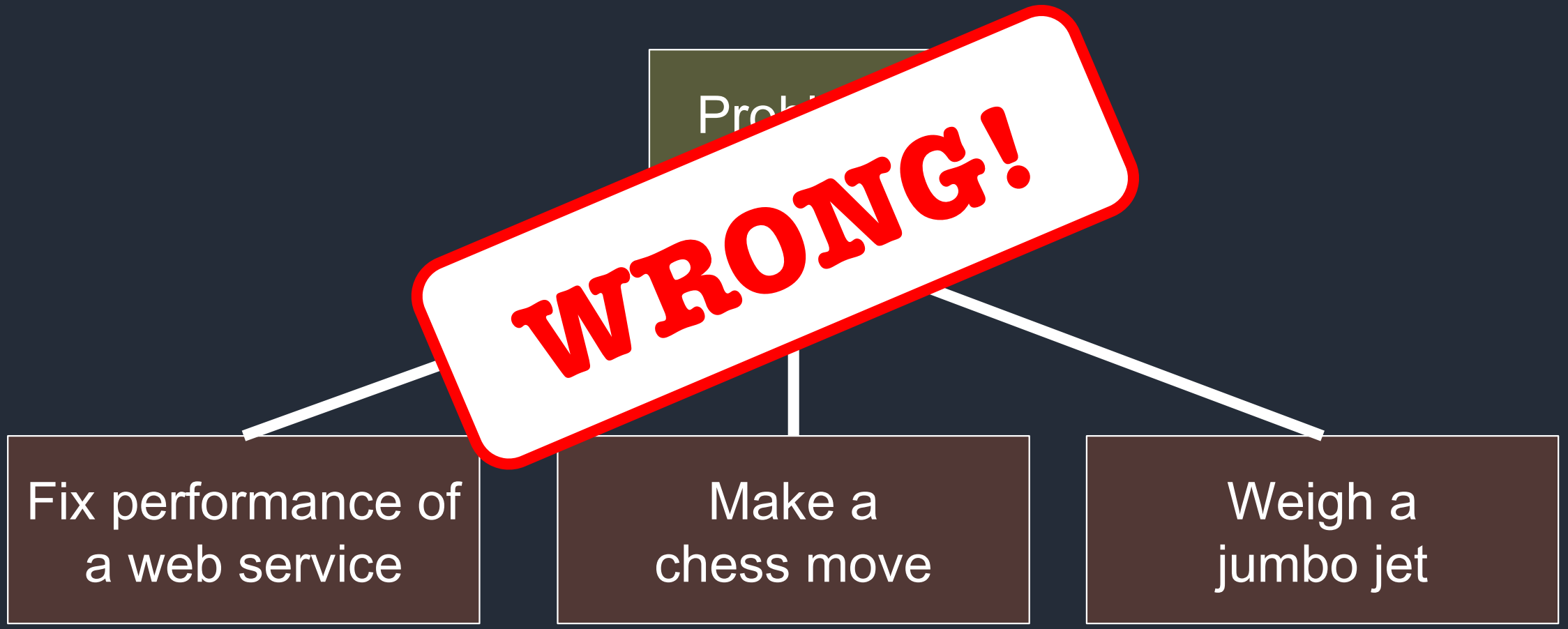
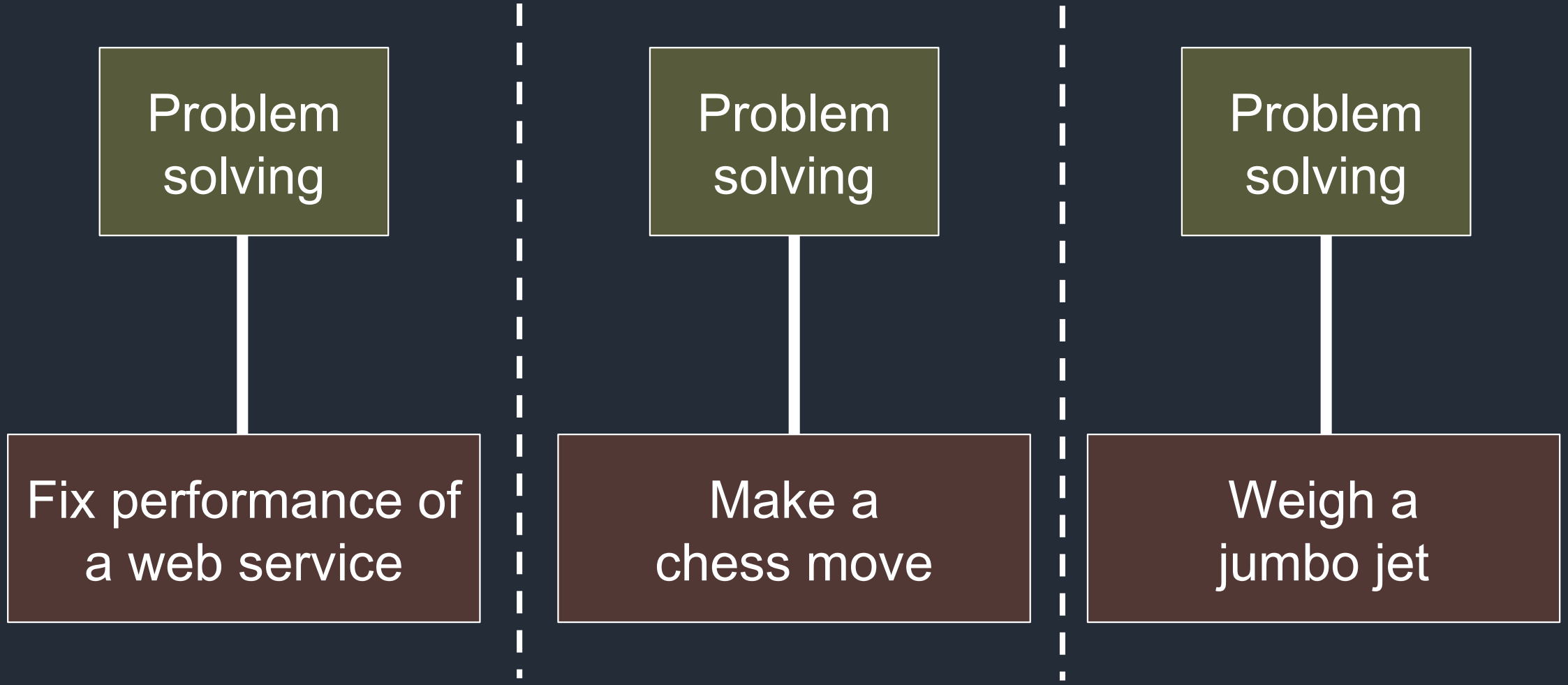


Problem solving: common misconception



Problem solving: actually per-domain



Lesson #3:

Problem-solving is not a generic skill, it is acquired per-domain

Supercharge your ability

Use varied examples to learn/explain abstract concepts

Increase processing capacity by increasing/strengthening knowledge

Improve/examine problem solving within a specific domain

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