

BEFORE DIVING INTO REAL  
DATABASES OR QUERY  
LANGUAGES YOU NEED TO  
BE ABLE TO THINK OF DATA  
IN A LOGICAL MANNER

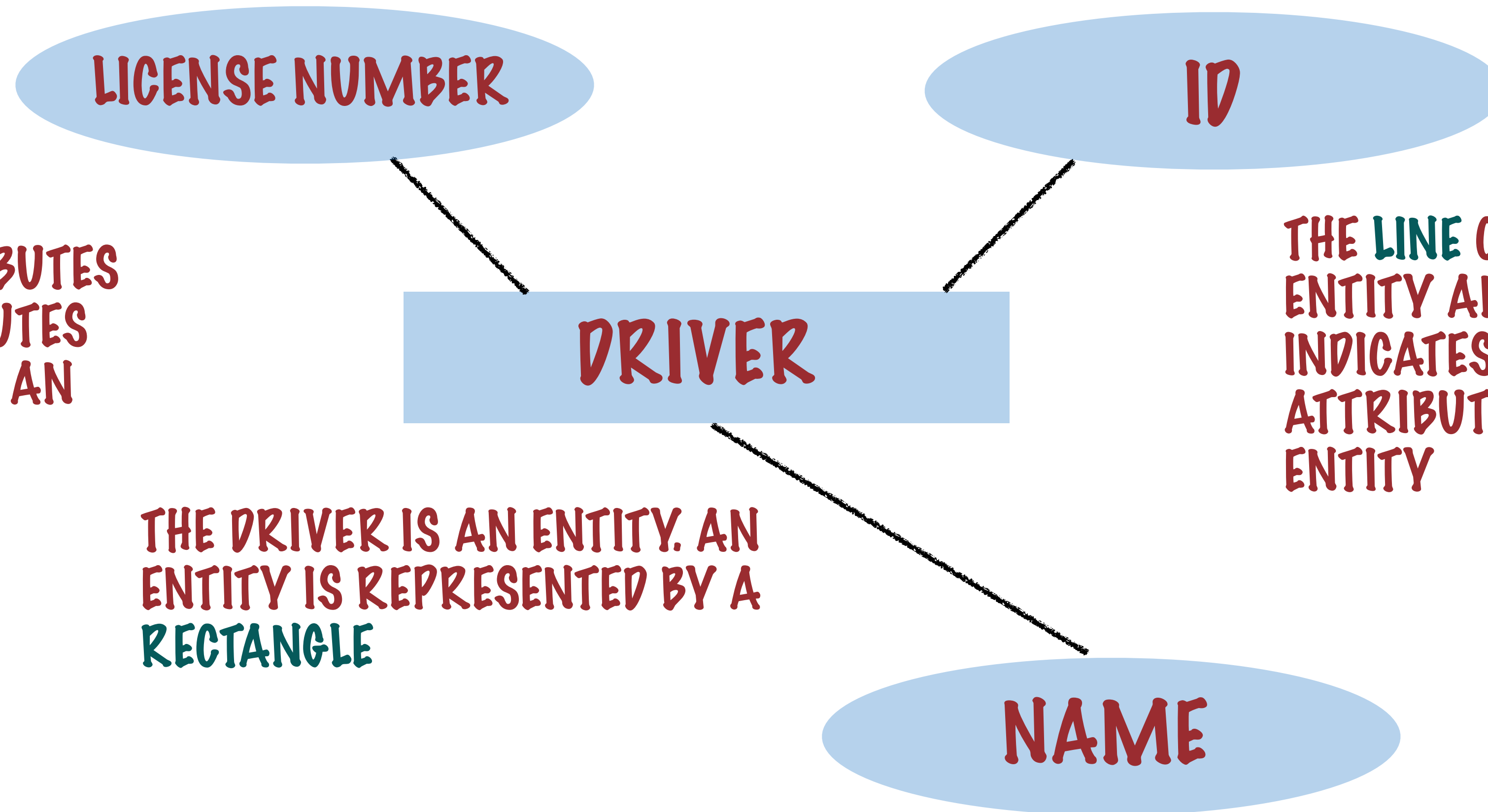
AND VISUALIZE AND  
IMAGINE THE STRUCTURE  
OF THE DATA BEFORE  
DESIGNING PERMANENT  
STORAGE FOR IT

ENTITY  
**THE ER MODEL**

RELATIONSHIP - MORE ABOUT THIS LATER

A WAY TO USE DIAGRAMS TO LOGICALLY  
REPRESENT DATA

# THE E-R MODEL

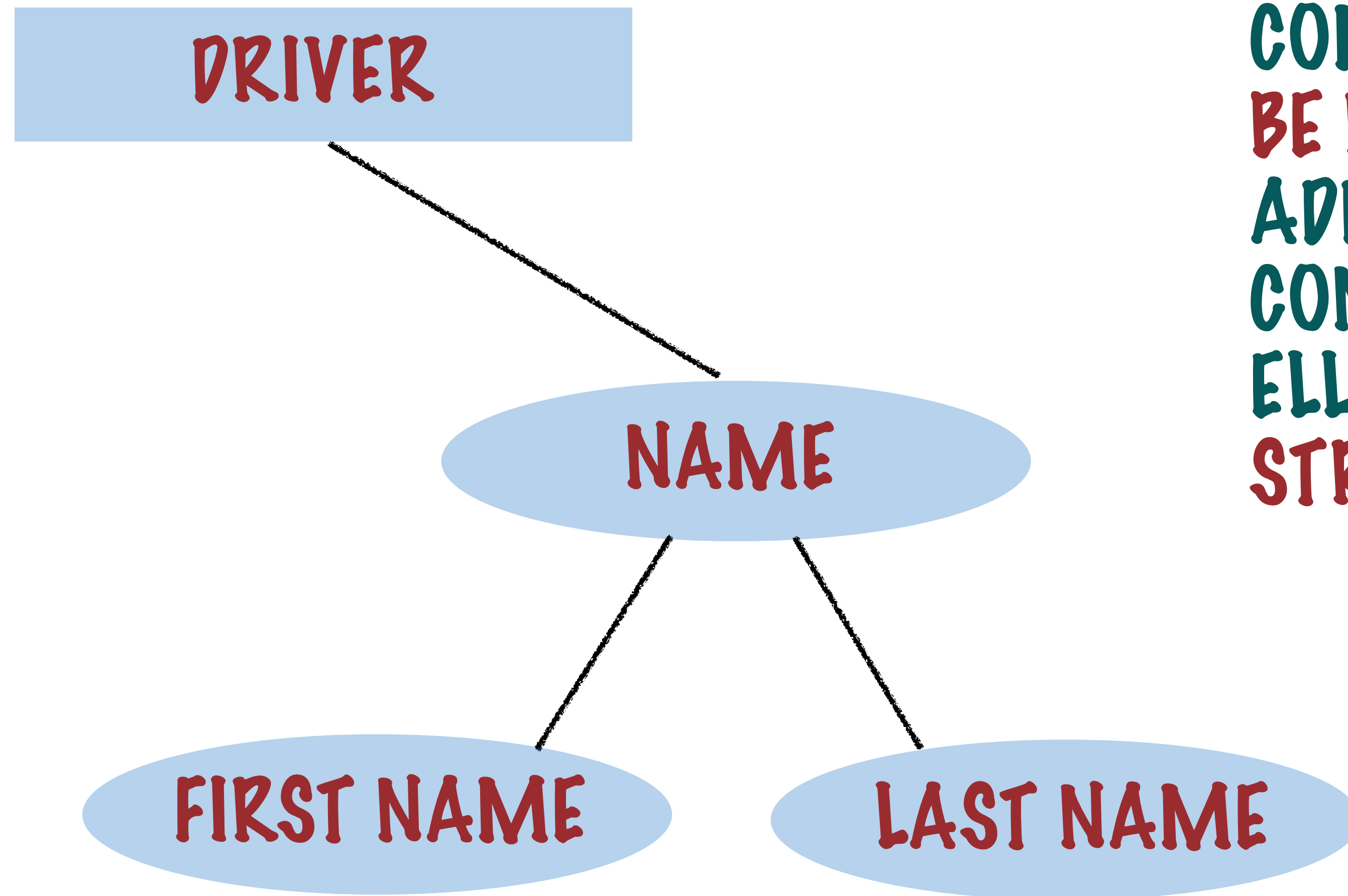


THESE ARE THE ATTRIBUTES  
OF A DRIVER, ATTRIBUTES  
ARE REPRESENTED BY AN  
ELLIPSE

THE DRIVER IS AN ENTITY. AN  
ENTITY IS REPRESENTED BY A  
RECTANGLE

THE LINE CONNECTING THE  
ENTITY AND THE ATTRIBUTES  
INDICATES THAT THE  
ATTRIBUTES ARE FOR THAT  
ENTITY

# THE E-R MODEL



COMPOSITE ATTRIBUTES CAN BE REPRESENTED WITH ADDITIONAL ELLIPSES WHICH CONNECT WITH THE ORIGINAL ELLIPSE FORMING A TREE-LIKE STRUCTURE

# THE E-R MODEL

DRIVER

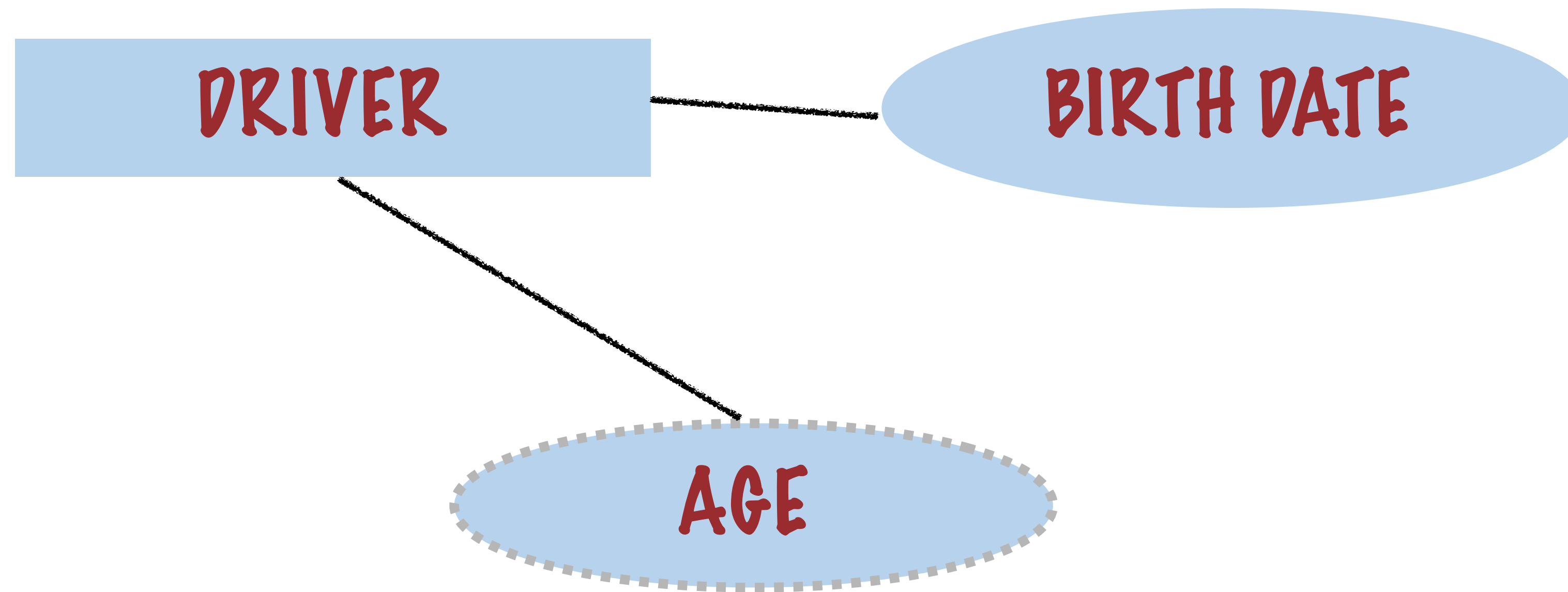


PHONE NUMBER

The diagram illustrates an entity-attribute relationship. A light blue rectangular box labeled 'DRIVER' is connected by a thin black line to a light blue oval labeled 'PHONE NUMBER'. The oval has a double border, indicating it is a multi-valued attribute.

MULTI-VALUED ATTRIBUTES  
CAN BE REPRESENTED WITH A  
DOUBLE ELLIPSE

# THE E-R MODEL



**DERIVED** ATTRIBUTES CAN BE  
REPRESENTED WITH A **DASHED**  
OUTLINE OF THE ELLIPSE