I know…

- the difference between integer, string, float, list, tuple, set, dictionary, range, boolean and custom data types (in the context of OOP) and can explain the properties of each data type, i.e. what we can do with it
- what OOP is and why it is important
- why we use functions
- the default return value when no keyword 'return' is present
- how I can check the datatype of a variable: type() and isinstance()
- how to declare mandatory and optional parameters in functions
- how to use list comprehensions
- the difference between = and ==
- what function-lifecycle-mgmt is (how long variables inside a function are accessible)
- all kind of mathematical operations such as /, //, &, +, -, *, <, >
- how to use modulo to check if number is even or not
- how if, elif and else work
- how to read and interpret boolean expressions (TRUE & FALSE in combination with AND and OR)
- when we must use a for and when a while loop
- what CONTINUE and BREAK do in a loop
- what classes, methods, constructors and class variables are
- how to define, raise and catch custom exceptions and why exception handling is important when writing software
- what special methods like __str__(), __bool__() etc. do
- the functions, map(), reduce() and filter()
- how to declare and use lambda functions and how to use them in combination with other functions like map(), reduce(), filter()
- what an Entity Relationship Model is
- difference between primary and foreign key
- difference between 1:n, n:1, 1:1 and n:n relationships
- why we must insert an extra table in case of an n:n relationship (mapping-table)
- how to extract, update and delete data from a database using SQL statements
- how to load data from .csv and .txt files into a pandas dataframe
- how to access rows, columns and single cells in a pandas dataframe
- difference between .loc() and .iloc()
- how to delete empty cells in a dataframe, i.e. NaN values
- how to sort a dataframe based on a specific column
- how to change the column labels in a dataframe
- how to drop a column or rows from a dataframe based on a boolean condition
- why we use numpy when we deal with loads of data (difference to normal python lists)
- how to plot a line, scatter and bar diagram
- difference between supervised and unsupervised machine learning
- trade-off between supervised and unsupervised in terms of time (why can we no use a supervised approach for self-driving cars?)
- how deep learning works, particularly convolutional neural networks (CNNs) for extraction of image features
- how we train a classifier
- how we evaluate a classifier
- the evaluation metrics TP, FP, TN, FN and accuracy, precision, recall and f1-score
- why accuracy is often bad metric to use
- when to look more at precision and when to look more at recall
- why we can not optimise precision and recall simultaneously
- how to calculate accuracy, precision, recall and f1-score
- how kNN and Naive Bayes classifier works
- how to merge two dataframes using different kinds of joins (INNER, OUTER, LEFT, RIGHT)
- what a REST API is and how I can access ressources of a server using HTTP methods
- the differences between HTTP methods like GET, POST, PUT, DELETE and when to use which method
- the protocols HTTP, TCP, IP
- what a frame is
- how payload is put on the carrier (from the top to bottom in the networking stack)
- how to convert decimal numbers to binary and hexa numbers