SECTION 3: PYTHON OBJECT AND DATA STRUCTURE BASICS, 2 hrs 2 mins, 33 parts

- **6/36 Variable Assignments**
  - theory
    - -> variable assignments
    - **-> naming conventions (PEP8 best practice)**
      - **names can't start with a number**
      - **no spaces in the name**
      - **don't use certain symbols in the name**
      - **global variables -> upper case names, local variables should avoid lower case names**
      - **-> avoid names which are for keywords in Python (these are highlighted by the JN)**
    - -> dynamic typing
      - you can reassign variables to different data types
      - -> you can change the value of a variable (e.g it can be a number, and later it can be redefined as an array - set equal to a separate array - in C++ this wouldn't be allowed)
      - pros
        - -> not having to tell it the datatype
          - readable
          - quick
      - cons
        - -> bugs for unexpected datatypes
        - **-> type()**
  - in the JN
    - he defines a variable a and sets it equal to 5
    - **you can call the value of it by typing the name of the variable**
    - -> you can also e.g do a+a
    - -> to reassign its value
      - a=a+a
      - -> this sets the new value of a equal to two times its old value
    - -> type
      - type(a) <- this returns int
      - if you reassign a = 30.1 then call the type it's a float
    - -> to deliberately return an error
      - he's called the variable int instead of a -> **the name of the variable is highlighted because he's used int as the name of the variable, int is a Python keyword - i.e - follow naming conventions for variables**
      - -> he's restarted the kernel and is running the cells
    - -> maths example with variables
      - my_taxes = my_income + tax_rate
      - -> then he calls my_taxes