
# CSE 6040/x Bootcamp

Nested Data

NBA Data Example

# Nested Data

- Why so much emphasis on nested data structures?
- Let's look at the notebooks leading up to MT1
  - NB 1 – Intro to variables and nesting (student grades)
  - NB 2 – Association rule mining (in a nested data structure)
  - NB 4 – Underlying number data storage (numbers as strings in a complex data structure)
  - NB 5 – String manipulation/regex (in a complex and nested HTML data structure)
- What is the common theme here?
  - We are doing more complex coding, within the framework of the data structure.
  - So, we must understand how to address the underlying data structures, to perform the required operations/manipulations.
  - With practice, directly addressing each element of the data structure should become "2nd nature", so that you can focus on the data manipulations of the exercise requirements.

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# Nested Data – 2

- As we move forward in the course, the emphasis will go from basic data manipulations to applying these techniques to solve “real world” data scenarios.
- You will need to understand which data structures are being used and how to manipulate them.
- With practice, directly addressing each element of the data structure must become “2nd nature”, so that you can focus on the algorithmic/logic requirements of the exercises.
- So, what we want to do is provide you with some tools and techniques to help understand how to read, understand, and work with nested data structures.

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# Nested Data – 3

- We will use the NBA data as an example to work through.
- All of this is in Google Colab (links in Canvas/edX)
- For those interested, the below are links to the data and NBA API:
  - https://github.com/swar/nba_api/blob/master/docs/table_of_contents.md
  - https://www.playingnumbers.com/2019/12/how-to-get-nba-data-using-the-nba_api-python-module-beginner/
  - https://pypi.org/project/nba-api/
- This was the data source for a project in CSE6242.

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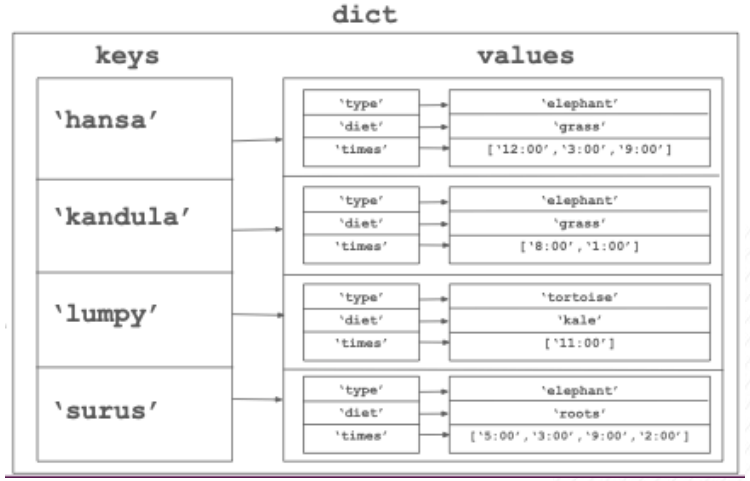
# Troubleshooting Nested Data

- Don’t try to print the whole data (it might be large)
- Use diagnostic functions like **len(), type()** to understand the structure of the nested data
- Usually, the nested data is logically structured. We recommend you create a mental map of how the data is organized - It will enable you to write code and extract the required data easily
- Drop it into Python Tutor to visualize.
- Develop the syntax of addressing each individual element of the data structure.

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# Open Discussion / Q&A

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