# Exercise 2 -- Nested Dictionaries

Containers can be nested in arbitrary ways. For example, the following data could be described as a “dictionary of dictionaries of integers and lists of strings”.

Enter the following code into a Python Shell and complete the table. If the output is longer than one line, summarize it with a few words.

movies = {

“Casablanca”: {

“year”: 1942,

“genres”: [“Drama”, “Romance”, “War”]

}

“Star Wars”: {

“year”: 1977,

“genres”: [“Action”, “Adventure”, “Fantasy”]

}

“Groundhog Day”: {

“year”: 1993,

“genres”: [“Comedy”, “Fantasy”, “Romance”]

}

}

|  |  |
| --- | --- |
| **Python code** | **Shell output** |
| movies |  |
| movies[“Casablanca”] |  |
| movies[“Casablanca”][“year”] |  |
| movies[“Casablanca”][“genres”] |  |
| type(movies) |  |
| type(movies[“Casablanca”]) |  |
| type(movies[“Casablanca”][“year”]) |  |
| type(movies[“Casablanca”][“genres”]) |  |
| len(movies) |  |
| len(movies[“Casablanca”]) |  |
| len(movies[“Casablanca”][“year”]) |  |
| len(movies[“Casablanca”][“genres”]) |  |
| for key in movies: print(key) |  |
| for key val in movies.items(): print(key val) |  |

## Questions

1. Explain the TypeError you encountered.
2. In the expression movies[“Casablanca”][“genres”], describe the purpose of the strings

“Casablanca” and “genres”.

1. When iterating a dictionary using a for loop (i.e., for x in movies), what gets assigned to the variable?
2. What is wrong with the following code that attempts to print each movie?

for i in range(len(movies)): print(movies[i])

1. Write nested loops that output every *genre* found under the movies dictionary. You should have nine total lines of output.
2. Each movie in [Model 2](#_bookmark1) has a title, a year, and three genres.
   1. Is it necessary that all movies have the same format?
   2. Name one advantage of storing data in the same format:
   3. Show how you would represent The LEGO Movie (2014) with a runtime of 100 min and the plot keywords “construction worker” and “good cop bad cop”.