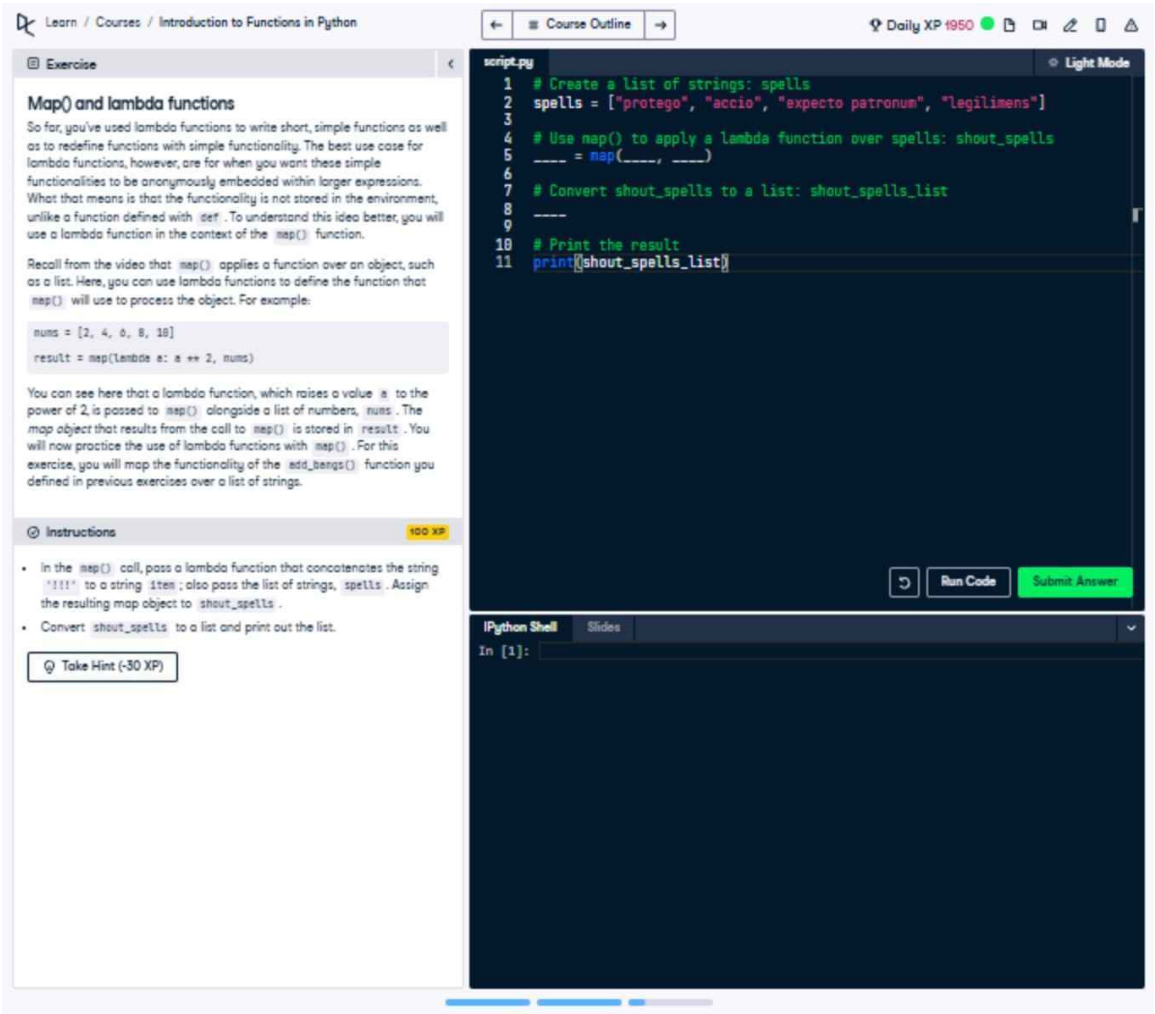
Filter() and Lambda Functions



Question:

In the previous exercise, you used lambda functions to anonymously embed an operation within `map()`.
You will practice this again in this exercise by using a lambda function with `filter()`, which may be new to you!
The function `filter()` offers a way to filter out elements from a list that don't satisfy certain criteria.

Your goal in this exercise is to use `filter()` to create, from an input list of strings, a new list that contains only strings that have more than 6 characters.

Instructions:

1. In the `filter()` call, pass a lambda function and the list of strings, `fellowship`.
   The lambda function should check if the number of characters in a string member is greater than 6 (use the `len()` function to do this).
   Assign the resulting filter object to `result`.
2. Convert `result` to a list and print out the list.

Answer:

```
# Create a list of strings: fellowship
fellowship = ['frodo', 'samwise', 'merry', 'pippin', 'aragorn', 'boromir', 'legolas', 'gimli', 'gandalf']

# Use filter() to apply a lambda function over fellowship: result
result = filter(lambda member: len(member) > 6, fellowship)

# Convert result to a list: result_list
result_list = list(result)

# Print result_list
print(result_list)
```

Explanation:

1. **List of Strings:**
   The input list `fellowship` contains names of characters from "The Lord of the Rings".
   Example: `['frodo', 'samwise', 'merry', 'pippin', 'aragorn', 'boromir', 'legolas', 'gimli', 'gandalf']`.

2. **Lambda Function:**
   A lambda function is used to check whether the length of each string is greater than 6.
   Syntax: `lambda member: len(member) > 6`.

3. **filter():**
   The `filter()` function applies the lambda function to each element of the list.
   Only elements for which the lambda function returns `True` are included in the result.
   For example, `"samwise"` and `"aragorn"` satisfy the condition `len(member) > 6`, so they are included.

4. **Convert to List:**
   The `filter()` function returns a filter object, which is then converted to a list using `list()`.
   Example Output: `['samwise', 'aragorn', 'boromir', 'legolas', 'gandalf']`.

5. **Print Result:**
   The resulting list is printed to verify the output.
   The expected output is: `['samwise', 'aragorn', 'boromir', 'legolas', 'gandalf']`.