Unit 3 Practical Sheet

3.1.1 Lambda Functions and Their Utility

1. Add 10 to a number  
Create a lambda function that adds 10 to a given number.  
Input: 5  
Expected Output: 15

2. Multiply two numbers  
Create a lambda function that multiplies two numbers.  
Input: 4, 5  
Expected Output: 20

3. Get length of a string  
Create a lambda function that returns the length of a given string.  
Input: "Python"  
Expected Output: 6

4. Sort a list of tuples by the second element  
Sort a list of (key, value) tuples based on the second value using a lambda as the key.  
Input: [(1, 4), (2, 1), (3, 7)]  
Expected Output: [(2, 1), (1, 4), (3, 7)]

5. Filter and sort names by last character  
Filter names with more than 3 characters and sort the result by the last letter.  
Input: ["Asha", "Neha", "Ravi", "Meera"]  
Expected Output: ["Asha", "Meera", "Neha", "Ravi"]

* + 1. Map, Filter, and Reduce Functions

1 . Square numbers using map  
Use map to square all numbers in a list.  
Input: [1, 2, 3, 4]  
Expected Output: [1, 4, 9, 16]

2. Filter even numbers using filter  
Use filter to return only even numbers from a list.  
Input: [1, 2, 3, 4, 5]  
Expected Output: [2, 4]

3. Sum all numbers using reduce  
Use reduce to calculate the sum of all elements in a list.  
Input: [1, 2, 3, 4]  
Expected Output: 10

4. Capitalize names that start with “a”  
Filter names starting with 'a' and capitalize each.  
Input: ["asha", "ravi", "ankit", "neha"]  
Expected Output: ['Asha', 'Ankit']

5. Product of all odd numbers  
Filter out the odd numbers and compute their product using reduce.  
Input: [1, 2, 3, 4, 5]  
Expected Output: 15

* + 1. Preprocessing Tasks Using Lambda, Map, Filter, Reduce

1. Strip whitespace from strings  
Remove leading and trailing whitespace from each string in a list.  
Input: [" apple", "banana ", " cherry "]  
Expected Output: ['apple', 'banana', 'cherry']

2. Convert list of strings to uppercase  
Convert all strings in a list to uppercase.  
Input: ["python", "java", "c++"]  
Expected Output: ['PYTHON', 'JAVA', 'C++']

3. Remove empty strings  
Remove all empty strings from a list.  
Input: ["hello", "", "world", ""]  
Expected Output: ['hello', 'world']

4. Clean and sum valid integers from mixed input  
Filter and sum all numeric strings in a mixed list.  
Input: ["1", " 2", "a", "3", " "]  
Expected Output: 6

5. Normalize a list of dictionaries  
Strip and title case the name, convert age to integer.  
Input: [{"name": "asha", "age": " 20 "}, {"name": "neha", "age": "21"}]  
Expected Output:  
[{'name': 'Asha', 'age': 20}, {'name': 'Neha', 'age': 21}]