**Todays Lab:**

**1.**

Understand what a **lambda** function is and when to use it in Python.

**Task:**

* Research and explain what a **lambda** function is.
* Describe situations where using a **lambda** function would be more appropriate than defining a full function using **def**.
* Explain the following terms in relation to lambda:
  + **Anonymous function**
  + **Inline function**

**2.**

Understand how to use filter() in Python with a lambda function to select elements from a list that meet a certain condition.

**Task:**

* Explain what **filter ()** does in Python and what kind of result it returns.
* Create an example scenario where you need to filter out elements from a list.
  + For instance, you are given a list of numbers, and you need to keep only the even numbers. How would you approach this using **filter ()**?

**3.**

Learn how to use map() to apply a transformation to every item in a list.

**Task:**

* Explain the purpose of map() and how it works in Python.
* Create a real-life scenario where you need to modify every element of a list in the same way.
  + For example, you have a list of prices, and you want to apply a 10% discount to each. How would you use map () with a lambda function to achieve this?

**4.**

Learn how to combine the functionality of  filter() and map() to both select and modify elements in a list.

**Task:**

* Describe a scenario where you need to filter out unwanted elements from a list and then modify the remaining elements.
  + For example, you might first filter a list to keep only positive numbers, and then square those numbers.
* Break down the process of applying filter () first, and then using map() on the filtered result.

5.

Understand Python’s scope rules and how they affect variable lookup and access in different contexts.

**Task:**

* Explain the **LEGB** rule: Local, Enclosing, Global, Built-in.
* Describe what happens to a variable when it is defined:
  + Inside a function (local)
  + Inside a function within another function (enclosing)
  + In the main body of the program (global)
  + As a built-in function (built-in)

**Example:**

* Imagine you have a variable called **x** that exists in the global scope and is also redefined inside a function. Explain how Python resolves which value of **x** to use at different points in the  
   program.

Useful videos:

<https://www.youtube.com/watch?v=38uGbVYICwg>

<https://www.youtube.com/watch?v=cKlnR-CB3tk>

Good luck! 🙂