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Github: <https://github.com/iyas311/UST-Assignments/tree/main/Assignment3>

MAP

Q1: Write a Python program using map() to convert a list of integers into their squares.

```
nums = [1, 2, 3, 4, 5]
squares = list(map(lambda x: x * x, nums))
print(squares)
```

Q2: Write a program using map() to convert all strings in a list to uppercase.

```
words = ["python", "map", "function"]
upper_words = list(map(lambda x: x.upper(), words))
print(upper_words)
```

Q3: Given a list of temperatures in Celsius, use map() to convert them to Fahrenheit.

```
celsius = [0, 20, 30, 40]
fahrenheit = list(map(lambda c: (c * 9/5) + 32, celsius))
print(fahrenheit)
```

Q4: Write a program using map() to calculate the length of each word in a list of strings.

```
words = ["python", "coding", "map"]
lengths = list(map(len, words))
print(lengths)
```

Q5: Use map() to add 10 to each element of a given list of numbers.

```
nums = [5, 10, 15]
added = list(map(lambda x: x + 10, nums))
print(added)
```

FILTER

Q1: Write a Python program using filter() to extract all even numbers from a list.

```
nums = [1, 2, 3, 4, 5, 6, 7, 8]
evens = list(filter(lambda x: x % 2 == 0, nums))
print(evens)
```

Q2: Write a program using filter() to select all words from a list that start with a vowel.

```
words = ["apple", "banana", "orange", "umbrella", "grape"]
vowel_words = list(filter(lambda w: w[0].lower() in "aeiou", words))
print(vowel_words)
```

```
# Q3: Given a list of integers, use filter() to remove all negative numbers.  
nums = [-10, -5, 0, 5, 10, 15]  
non_negative = list(filter(lambda x: x >= 0, nums))  
print(non_negative)
```

```
# Q4: Write a program using filter() to find numbers greater than 50 from a list.  
nums = [10, 45, 60, 80, 30, 100]  
greater_than_50 = list(filter(lambda x: x > 50, nums))  
print(greater_than_50)
```

```
# Q5: Use filter() to extract all palindromic strings from a list.  
words = ["madam", "python", "level", "code", "radar"]  
palindromes = list(filter(lambda w: w == w[::-1], words))  
print(palindromes)
```