



PCPS

Unit-4

What are Lambda Functions?

- They are anonymous functions w/o name which can take any number of arguments and have only 1 expression
- Better usage in defining in-line functions & has less code

```
1 f1 = lambda a:a*a
2
3 def f2(a):
4     return a*a
5
6 print(f1(2))
7 print(f2(2))
8
```

Both are square functions.

But only 1 line in lambda whereas 2 in f2

4

→ This is a function.
So `type(f1)` gives `<class 'function'>`

The power of lambda is better understood when using lambda function in another function

```
def f(n):
    return lambda a:n*a

x = f(3)
print(x(4))
```

→ Output : 12

What is `map()`, `filter()` and `reduce()` functions?

It is a built-in function which is used to apply a function to each element of an iterable (list, tuple) and returns new iterable

```
n = [1,2,3,4]
result = map(lambda x:2*x,n)
print(list(result))
```

Input taken

Performs Operation

OUTPUT: [2, 4, 6, 8]

Filters given sequence with the help of a function that tests if each element in sequence is true or not

```
n = [1,2,3,4]
evencheck = filter(lambda x:x%2==0,n)
print(list(evencheck))
```

Function

Sequence/
Iterable

OUTPUT: [2, 4]

Function that applies a given function to the elements of an iterable, reducing to a single value

```
from functools import reduce
n = [1,2,3,4]
sums = reduce(lambda a,b:a+b,n)
print(sums)
```

Function

Sequence/Iterable

OUTPUT: 10

What is zip function?

- A function that aggregates elements from iterables and returns zip object that contains i-th element from each of argument iterables
- The final output truncates to the length of shortest argument iterable

```
names = ('rick', 'trump', 'will')
job = ('roll', 'president', 'slap')
```

```
zipped = list(zip(names, job))
print(zipped)
```

zips the arguments
that are given

```
[('rick', 'roll'), ('trump', 'president'), ('will', 'slap')]
```

```
names = ('rick', 'trump', 'will')
job = ('roll', 'president', 'slap')
loc = ('america', 'us', 'england', 'british')
youtuber = ('ksi', 'logan', 'mr beast', 'jake', 'jacksepticeye')
```

```
zipped = list(zip(names, job, loc, youtuber))
print(zipped)
```

Have been
Truncated
as it follows the length
of shortest iterable

```
[('rick', 'roll', 'america', 'ksi'), ('trump', 'president', 'us', 'logan'), ('will', 'slap', 'england', 'mr beast')]
```

What is list comprehension?

- It is a tool for transformation of any iterable, so that elements can be conditionally included in new list

```
youtuber = ('ksi', 'logan', 'mr beast', 'jake', 'jacksepticeye')
n = [i for i in youtuber if i.startswith('j')]
print(n)
```

Required condition
to print Desired output →

```
['jake', 'jacksepticeye']
```

