Scientific Computing with Python Lab

11th Session(April 9th)

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Things to do today

- Lambda function for sorting
- Give some approaches to the problems

Lambda function

- For the function of really simple form, we can define function with one line

```
f = lambda a,b,c: a+b+c
f(1,2,3)
```

- We can use it by using the rubric : filtering, mapping, sorting

Lambda function

- You can assign the entry as a rubric(descending order)

```python
people = [('Alice', 25), ('Bob', 20), ('Charlie', 30)]
sorted_people = sorted(people, key=lambda x: x[1])  # Sort by age
print(sorted_people)

```

```
[('Bob', 20), ('Alice', 25), ('Charlie', 30)]
```

- You can assign the entry as a rubric(descending order)

```python
people = [('Alice', 25), ('Bob', 20), ('Charlie', 30)]
sorted_people = sorted(people, key=lambda x: -x[1])  # Sort by age
print(sorted_people)

```

```
[('Charlie', 30), ('Alice', 25), ('Bob', 20)]
```

Lambda function

- You can assign multiple entries as a rubric
- You can apply it also to alphabetical order

```
people = [('Alice', 25), ('Bob', 20), ('Charlie', 30),('Randy', 30),('Kathy', 20)]
sorted_people = sorted(people, key=lambda x: (x[1],x[0]))  # Sort by age
print(sorted_people)

```

```
[('Bob', 20), ('Kathy', 20), ('Alice', 25), ('Charlie', 30), ('Randy', 30)]
```

```
people = [('Alice', 25), ('Bob', 20), ('Charlie', 30),('Randy', 30),('Kathy', 20)]
sorted_people = sorted(people, key=lambda x: (x[1],[-ord(i) for i in x[0]]))  # Sort by age
print(sorted_people)

```

```
[('Kathy', 20), ('Bob', 20), ('Alice', 25), ('Randy', 30), ('Charlie', 30)]
```

Lambda function

For Dictionary

- After itemizing the dictionary, you can apply the lambda sorting

```
1 dictionary = {'Alice': 25, 'Bob': 20, 'Charlie': 30,'Randy': 30,'Kathy': 20}
2 sorted_people = sorted(dictionary.items(), key=lambda x: (x[1],x[0]))  # Sort by age
3 print(sorted_people)
4
```

```
[('Bob', 20), ('Kathy', 20), ('Alice', 25), ('Charlie', 30), ('Randy', 30)]
```

Problem 8

Strategy: Just one idea among various options!

- Read the file and organize them

- Make dictionary of the form by iterating the data

  {name: [total_hour, project, percent_hour]}

- Sort the dictionary with 2 rubrics : 1. total_hour, 2. Alphabet

- Write the file sequentially