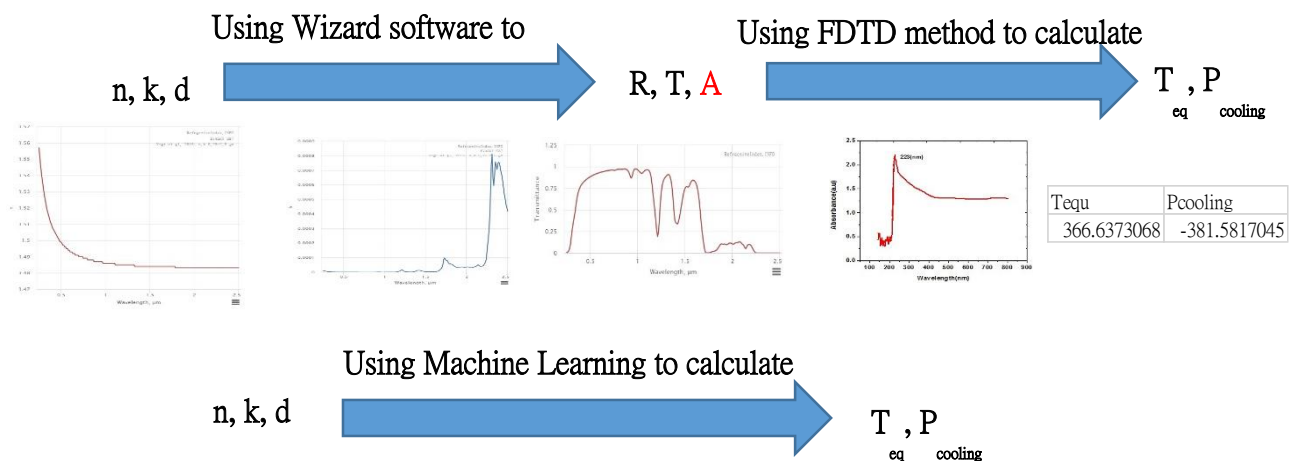
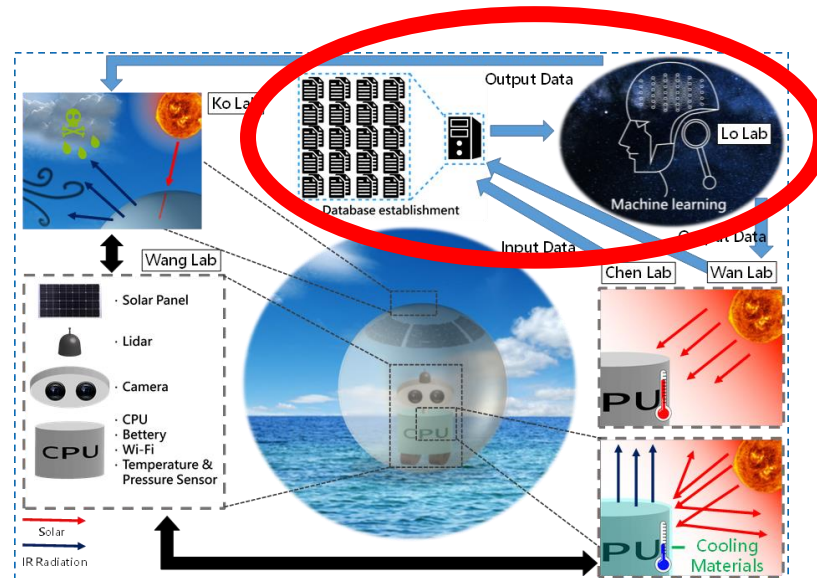


**Machine Learning on Material Informatics**  
**Development Environment For Machine Learning**  
**20190305-Homework 01**

**SOLUTION**

**Summary**

1. Project Name:  
Application of intelligent bionic materials to spherical surface robots
2. Subproject name:
  - MGI database and optimization of material properties aims:
  - Use the simulated data to train the AI to complete the material database.
  - Establish and give the best parameters for a spherical surface robot



**- Number of data:**

A total of 30 kinds of materials (30 kinds of  $n, k$ ) \* 10 thicknesses each  
300 groups in total

**Note:**

**n** : Refractive index

**k** : Extinction coefficient

**d** : Test piece thickness

**R** : Reflectivity

**T** : Penetration rate

**A** : Absorption rate

**Teq** : Equilibrium temperature

**Pcooling**: Cooling power

**Machine Learning on Material Informatics**  
**Development Environment For Machine Learning**  
**20190305-Homework 02**

**TASK**

**Ex 1: call random function 10 times only to generate 10 random numbers between 0~9**

**SOLUTION**

```
import random
```

```
N = 10
```

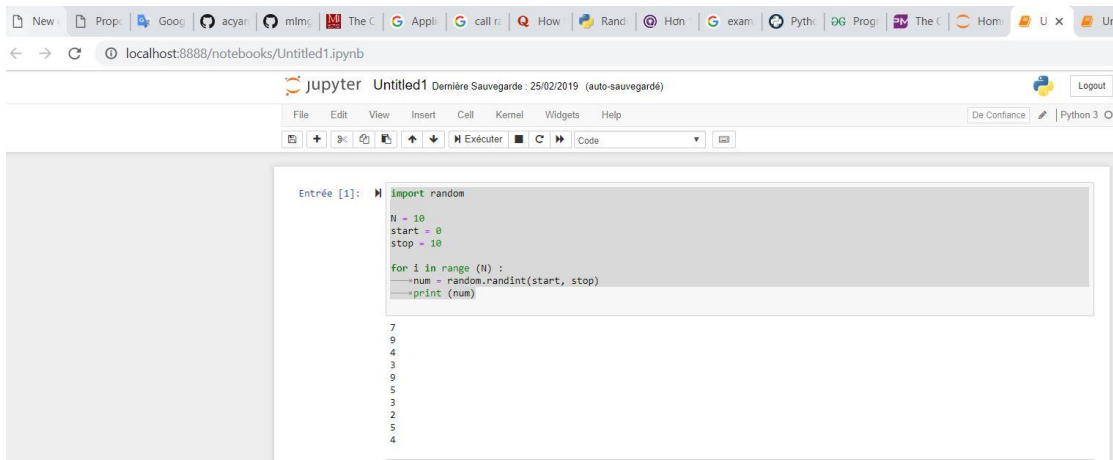
```
start = 0
```

```
stop = 10
```

```
for i in range (N) :
```

```
    num = random.randint(start, stop)
```

```
print (num)
```



The screenshot shows a Jupyter Notebook interface in a web browser. The browser's address bar shows the URL 'localhost:8888/notebooks/Untitled1.ipynb'. The Jupyter interface includes a menu bar (File, Edit, View, Insert, Cell, Kernel, Widgets, Help) and a toolbar with icons for file operations, running the cell, and other functions. The code cell contains the following Python code:

```
Entrée [1]: import random  
  
N = 10  
start = 0  
stop = 10  
  
for i in range (N) :  
    num = random.randint(start, stop)  
    print (num)
```

Below the code cell, the output of the script is displayed as a list of 10 random numbers:

```
7  
9  
4  
3  
9  
5  
3  
2  
5  
4
```