

# COMP1891- Week 2 Tutorial/Lab

## Task sheet

### Task 1:

You can create Numpy arrays from ranges. For example `np.arange(5, 10)` will create an array of all number from 5 and up to but not including 10. That is, the output will be `array([5, 6, 7, 8, 9])`

Create Numpy arrays with the following attributes to the `arange` function.

1. 5
2. 6, 20, 2
3. 0, 51, 5
4. 10, 2, -2

Explain the output in each case.

### Task 2:

Create a list with a random sample of 10 numbers in the range from 1 to 15. Then convert this list into Numpy array and apply the descriptive statistics to calculate sum, min, max, mean, variance [using `var()` function] and standard deviation [using `std()` function].

### Task 3:

Write a function named 'generate' which takes 3 parameters as low, high and num representing the starting value and ending value respectively. The function creates a sample of num random numbers between low and high and then divides each number by 100 and returns the output as a list to the functional call.

Functional 'generate' should be called twice with the following arguments/input values:

1. 100, 200, 10
2. 1000, 10000, 10

Output from the function, which will be a list, should then be converted to a numpy array and displayed in each case.

### Task 4:

Create a dictionary containing the two temperature values as low and high (of your own choice) for all seven days of the week. Then use index, loc, iloc functions and DataFrame to:

1. Create index for the rows as 'Low' and 'High'
2. Display the 'low' temperature of each day of the week
3. Display low and high temperatures for Tuesday
4. Display the temperatures for a range such as Wednesday through Friday

**Task 5:**

Repeat the task 4 by creating a dictionary key value pair as shown in the table below. Try and search for the up-to-date information of the country's populations.

Key	Value
country	List of 5 countries
capital	List of 5 capitals of countries above
area	List of areas of each country in the units of your choice
population	List of current population of each country

**Task 6:**

Import the titanic dataset to create a DataFrame and perform the data analysis on this data as shown in the lecture notes.

**Task 7:**

Search GitHub and use one dataset of your choice to create a DataFrame and perform the data analysis on this data as shown in the lecture notes.