# Assignment 1 — Information Architecture, Fall 2019

## Due : 10:00 AM Saturday, September 28

**Problem 1.** We want to write a program that takes a list and makes a new list of only the first and last elements of the given list. Please complete the commented line.

```python
def extract_first_and_last(L):
    first = 0
    last = # please complete this line
    return [L[first], L[last]]
```

**Problem 2.** Write a short Python function, `is_odd(n)`, that takes one integer value and returns `True` if `n` is an odd number and `False` otherwise.

**Problem 3.** Write a short Python function, `sum_of_squares(n)`, that takes a positive integer `n` and returns the sum of the squares of all the positive integers smaller than `n`.

**Problem 4.** Write a short Python function that generates a dictionary that contains a number between 1 and `n` in the form $(x, x^3)$. For example, if $n = 5$, the expected output will be $\{1 : 1, 2 : 8, 3 : 27, 4 : 64, 5 : 125\}$.