

# ITEC-425 / SENG-425: Python Programming Lab

## Lab 8: Lists and Dictionaries

### Task 1

Write Python code to print the numbers in the list given below after removing even numbers from it.

```
num_list = [3, 1, 18, 4, 11, 10, 6, 20]
```

In [1]:

```
# method 1 using for loop

num_list = [3, 1, 18, 4, 11, 10, 6, 20]
out_list = []

for num in num_list:
    if num % 2 != 0:
        out_list.append(num)

print('num_list = ', num_list)
print('out_list = ', out_list)
```

```
num_list = [3, 1, 18, 4, 11, 10, 6, 20]
out_list = [3, 1, 11]
```

### Task 2

Rewrite the above Python code, using list comprehension method, to print the numbers in the list given below after removing even numbers from it.

```
num_list = [3, 1, 18, 4, 11, 10, 6, 20]
```

In [2]:

```
# method 2 - using list comprehension

num_list = [3, 1, 18, 4, 11, 10, 6, 20]
out_list = [i for i in num_list if i%2 != 0]

print('num_list = ', num_list)
print('out_list = ', out_list)
```

```
num_list = [3, 1, 18, 4, 11, 10, 6, 20]
out_list = [3, 1, 11]
```

### Task 3

Write Python code that takes a list of nums and displays the product of all numbers in the list.

In [3]:

```
num_list = [3, 1, 18, 4, 11, 10, 6, 20]

prod = 1
```

```
for num in num_list:
    prod = prod * num

print('num_list=', num_list)
print('product of numbers:', prod)
```

```
num_list= [3, 1, 18, 4, 11, 10, 6, 20]
product of numbers: 2851200
```

## Task 4

**Write python code to do the following, using the list given below:**

- get the smallest number
- get the largest number
- get the size or length of the list
- get the sum of all numbers in the list

```
num_list = [3, 1, 18, 4, 11, 10, 6, 20]
```

```
In [4]: # write your code here
```

## Task 5

**Write Python code to take a list of characters and convert it into a string.**

```
char_list = ['y', 'e', 'l', 'l', 'o', 'w']
```

```
In [5]: # write your code here
```

## Task 6

**Write Python code that takes the two list given below, and joins them to create a new list, sort the new list and display it.**

```
list1 = [3, 1, 18, 4]
list2 = [11, 10, 6, 20]
```

**Expected output:**

```
list1 = [3, 1, 18, 4]
list2 = [11, 10, 6, 20]
new_list = [1, 3, 4, 6, 10, 11, 18, 20]
```

```
In [7]: # write your code here
```

## Task 7

**Write Python code that asks the user to input a string message, and uses a dictionary to create a word frequency map.**

```
In [8]: msg = input("Enter your message:")

words = msg.split()

wd_counts = dict()

for w in words:
    wd_counts[w] = wd_counts.get(w, 0) + 1

print("Word frequency map for your message is: \n")
print(wd_counts)
```

Enter your message:to be or not to be  
Word frequency map for your message is:

{'to': 2, 'be': 2, 'or': 1, 'not': 1}

## Task 7

**Write Python to that uses the given dictionary and does the following:**

```
d = {'apples': 4, 'organges': 10, 'bananas': 5, 'pears': 7}
```

- print a list of all keys
- print a list of all values

```
In [9]: # write your code here
```