MEK1300 – Introduction to Python Programming

Exercise 6 (Lists)

1. Consider the following list:
   a = [1, 2, 3, 4, 5, 4, 3, 2, 1, 0]

   what is the value of total after each of the following loops complete?

   a.
   ```
   total = 0
   for i in range (10) :
       total = total + a[i]
   ```
   b.
   ```
   total = 0
   for i in range (0, 10, 2) :
       total = total + a[i]
   ```
   c.
   ```
   total = 0
   for i in range (1, 10, 2) :
       total = total + a[i]
   ```
   d.
   ```
   total = 0
   for i in range (2, 11) :
       total = total + a[i]
   ```
   e.
   ```
   total = 0
   i = 1
   while i < 10 :
       total = total + a[i]
       i = 2 * i
   ```
   f.
   ```
   total = 0
   for i in range (9, -1, -1) :
       total = total + a[i]
   ```
   g.
   ```
   total = 0
   for i in range (9, -1, -2) :
       total = total + a[i]
   ```
   h.
   ```
   total = 0
   for i in range (0, 10) :
       total = a[i] - total
   ```

2. Write a program using a loop that fills an empty list called *values* with ten random numbers between 1 and 100.

3. Write programs using **for loops** (without the use of the range function) that iterate over the list generated in Exercise 2 (*values*) and do the following tasks.

   a. Printing all elements of the list in a single row, separated by spaces.
   b. Computing the sum of all elements in the list.
   c. Computing how many elements in the list are even numbers.

4. Consider the list generated in Exercise 2 (*values*) and separate the even and odd numbers into two different lists *even_values*, *odd_values*.

5. Consider the list generated in Exercise 2 (*values*) and remove the odd elements from the list.