COSC2429 Intro to Programming

Lab 8: Lists

Objective: At the end of this lab, you will be able to use lists and its functions effectively to solve problems.

1. Draw a reference diagram for a and b before and after the third line of the following Python code is executed:

   a = [1, 2, 3]
   b = a[:]
   b[0] = 5

2. Write a function called **maximum** that takes a list of integers as a parameter and returns the maximum integer in that list. You are **not allowed** to use the built-in method **sort** or **max** in this question.

3. Write a function that takes a list of integers as a parameter and returns the sum of all the even numbers in that list.

4. Implement the following functions.
   a. **count(list, item)**: return the number of occurrences of item in list.
   b. **in(list, item)**: return True if item is in list and False otherwise.
   c. **reverse(list)**: reverse the order of items in list.
   d. **index(list, item)**: return the index of the first occurrence of item in list. If item is not found, return -1.
   e. **insert(list, index, item)**: insert item into list at position index.

5. Write a function called **replace(s, old, new)** that replaces all occurrences of **old** with **new** in **s**, where **s**, **old** and **new** are strings. Here are some examples of calling the function once it's completed:

   print(replace('Mississippi', 'i', 'I') == 'MIssIssIppI')

   s = 'I love spom! Spom is my favorite food. Spom, spom, spom, yum!'
   print(replace(s, 'om', 'am') == \
       'I love spam! Spam is my favorite food. Spam, spam, spam, yum!')
   print(replace(s, 'o', 'a') == \
       'I lave spam! Spam is my favarite faad. Spam, spam, spam, yum!')

   Hint: use the split and join methods.