**DSA Python Tasks**

**Selection Sort Questions**

1. **Basic Selection Sort Implementation:**  
   Implement a function to perform selection sort on a given list of integers.  
   **Example Input:** [29, 10, 14, 37, 14]  
   **Expected Output:** [10, 14, 14, 29, 37]
2. **Sorting Strings Using Selection Sort:**  
   Write a program to sort a list of strings alphabetically using selection sort.  
   **Example Input:** ["apple", "orange", "banana", "kiwi"]  
   **Expected Output:** ["apple", "banana", "kiwi", "orange"]
3. **Descending Order Selection Sort:**  
   Modify the selection sort algorithm to sort the list of integers in descending order.  
   **Example Input:** [12, 4, 45, 23, 18]  
   **Expected Output:** [45, 23, 18, 12, 4]
4. **Selection Sort with Custom Comparators:**  
   Implement a selection sort that can handle custom comparator functions to sort a list.  
   **Example:** Sort based on the second character of each string.  
   **Example Input:** ["cat", "bat", "apple", "car"]  
   **Expected Output:** ["bat", "cat", "car", "apple"]
5. **Count the Number of Swaps:**  
   Modify the selection sort algorithm to count the total number of swaps performed during sorting. Return the sorted list along with the count of swaps.

**Insertion Sort Questions**

1. **Basic Insertion Sort Implementation:**  
   Implement insertion sort to sort a list of integers.  
   **Example Input:** [12, 11, 13, 5, 6]  
   **Expected Output:** [5, 6, 11, 12, 13]
2. **Insertion Sort for Linked Lists:**  
   Implement insertion sort to sort the elements of a singly linked list in ascending order.
3. **Binary Insertion Sort Optimization:**  
   Implement insertion sort using binary search to find the appropriate position for inserting each element, thereby reducing the number of comparisons.
4. **Sort a List of Tuples Using Insertion Sort:**  
   Write a program that sorts a list of tuples based on the second element of each tuple using insertion sort.  
   **Example Input:** [(1, 3), (4, 1), (2, 2)]  
   **Expected Output:** [(4, 1), (2, 2), (1, 3)]
5. **Insertion Sort with Reverse Sorting:**  
   Modify the insertion sort to sort the given list of integers in descending order.  
   **Example Input:** [5, 2, 9, 1, 5, 6]  
   **Expected Output:** [9, 6, 5, 5, 2, 1]
6. **Count Shifts During Insertion Sort:**  
   Track and print the number of shifts performed while sorting the list using insertion sort.
7. **Insertion Sort in Matrix Sorting:**  
   Sort each row of a 2D matrix using insertion sort.  
   **Example Input:**

[[5, 1, 4],

[3, 9, 2],

[8, 6, 7]]

**Expected Output:**

[[1, 4, 5],

[2, 3, 9],

[6, 7, 8]]