

Name : swetha.K

Roll no : 235229143

labsheet_8

Managing Contacts Using Files and Sorting Algorithms

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In [2]: class Contact:
        def __init__(self, name, phone):
            self.name = name
            self.phone = phone

        def __str__(self):
            return f"Name: {self.name}, Phone: {self.phone}"

def load_contacts (file_name):
    contacts = []
    with open(file_name, "r") as file:
        for line in file:
            name, phone = line.strip().split(",")
            contact = Contact (name, phone)
            contacts.append(contact)
    return contacts

def save_contacts(file_name, contacts):
    with open(file_name, "w") as file:
        for contact in contacts:
            file.write(f" {contact.name}, {contact.phone}\n")

def display_contacts(contacts):
    for contact in contacts:
        print(contact)

def bubble_sort(contacts):
    n = len(contacts)
    for i in range(n):
        for j in range(n - i - 1):
            if contacts[j].name > contacts [j+1]. name:
                contacts[j], contacts[j + 1] = contacts [j+1], contacts[j]

def insertion_sort (contacts):
    for i in range(1, len(contacts)):
        current_contact = contacts[i]
        j = i - 1
        while j >= 0 and current_contact.name < contacts[j].name:
            contacts [j+1] = contacts[j]
            j -= 1
        contacts [j+1] = current_contact

def selection_sort(contacts):
    n = len(contacts)
    for i in range(n - 1):
        min_index = i
        for j in range(i + 1, n):
            if contacts[j].name < contacts [min_index].name:
                min_index = j
        contacts[i], contacts [min_index] = contacts[min_index], contacts[i]

contacts_list = load_contacts("contacts.txt")

print("Unsorted Contacts:")
display_contacts(contacts_list)

bubble_sort(contacts_list)
print("\nContacts after Bubble Sort:")

```

```
display_contacts(contacts_list)

insertion_sort(contacts_list)

print("\nContacts after Insertion Sort:")
display_contacts (contacts_list)

selection_sort(contacts_list)

print("\nContacts after Selection Sort:")
display_contacts (contacts_list)
selection_sort(contacts_list)

#Sort contacts using selection sort selection_sort(contacts_list)
save_contacts("sorted_contacts.txt", contacts_list)
```

Unsorted Contacts:

Name: swetha, Phone: 639-695-5846
Name: navee, Phone: 954-592-4896
Name: santho, Phone: 758-589-5896
Name: sri, Phone: 965-485-2563
Name: reshu, Phone: 954-456-1235

Contacts after Bubble Sort:

Name: navee, Phone: 954-592-4896
Name: reshu, Phone: 954-456-1235
Name: santho, Phone: 758-589-5896
Name: sri, Phone: 965-485-2563
Name: swetha, Phone: 639-695-5846

Contacts after Insertion Sort:

Name: navee, Phone: 954-592-4896
Name: reshu, Phone: 954-456-1235
Name: santho, Phone: 758-589-5896
Name: sri, Phone: 965-485-2563
Name: swetha, Phone: 639-695-5846

Contacts after Selection Sort:

Name: navee, Phone: 954-592-4896
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Name: swetha, Phone: 639-695-5846

In []:

