

**Linked list phoonebook project**

Work Division: we all worked on the classes together

CSC 212

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addContact(): This method inserts a new contact into the linked list, and it involves searching for the contact (by name or phone number) in the list. The time complexity of adding a contact is O(n) in the worst case because it may have to search through the entire list.

searchCriteria(): This method searches for contacts based on different criteria, such as name, phone number, email address, address, or birthday. The time complexity for searching depends on the specific criteria, but in the worst case, it would be O(n) because it may involve iterating through the entire contact list.

searchName(String name): This method searches for a contact by name. The time complexity is O(n) in the worst case because it may have to iterate through the entire contact list to find the desired contact.

searchPhone(String phone): This method searches for a contact by phone number. Like searchName(), it has a time complexity of O(n) in the worst case.

searchEmail(String email): This method searches for a contact by email address. It iterates through the list and has a time complexity of O(n) in the worst case.

searchAddress(String address): This method searches for a contact by address. Like previous search methods, it has a time complexity of O(n) in the worst case.

searchBirthday(String birthday): This method searches for a contact by birthday. The time complexity is O(n) in the worst case.

deleteContact(): This method deletes a contact, and its time complexity is O(n^2) and it also call the method search which has a time complexity of O(n) because it may need to find the contact in the list before deleting it.

is\_conflict(String d, String t, String cn): This method checks if there is a scheduling conflict for a new event. The time complexity for this method depends on the number of events in the list and is O(n) in the worst case, where n is the number of events in the list.

addEvent(Event e, Contact c): This method adds an event to the event list and associates it with a contact. The time complexity depends on searchTitle() and can be O(n) in the worst case if it needs to iterate through the entire event list.

scheduleEvent(): This method schedules an event, and the time complexity depends on the is\_conflict() method and can be O(n) as described above.

printEventDetails(): This method prints event details based on certain criteria, and its time complexity depends on the specific criteria. In the worst case, it would be O(n) if it needs to iterate through the entire contact or event list.

printFirstName(): This method prints contacts with a specific first name. It has a time complexity of O(n) because it may need to iterate through the entire contact list to find matching names.

printEvents(): This method prints all events in the event list. The time complexity is O(n), where n is the number of events in the list.