Multi-User Calendar Manager

The Multi-User Calendar Manager(MCM) program is an appointment-scheduling tool for multiple users. MCM consists of a console-based server program and a client with graphic user interface.

MCM functionalities:
1. **Register/Unregister a user.**
   - A registered user has an email address and an identity name.
2. **Logon/Logoff the MCM program.**
   - Only registered users can log on the program.
   - A user cannot log on the program if another user has logged on it.
   - A user will be automatically logged off if the logged-on user is unregistered himself/herself.
3. **Create/Remove a group.**
   - A group has an identity name defined by the user that creates it.
   - When a user creates a group, the user will automatically be a member of the group. Also,   the user is the leader of the group.
   - Only the leader of a group can remove the group.
   - A group will be automatically removed if its leader is unregistered.
4. **Insert/Delete an appointment.**
   - An appointment has starting time, ending time and a description of the appointment.
   - Durations of different appointments of an individual user must be non-overlapping.
   - Each appointment is identified by its initiator plus its starting time. An initiator of an   appointment is the user that inserts it.
   - The appointment will be automatically deleted if its initiator is unregistered.

   - Some appointment is a group appointment, which belongs to a group.
     i.   A group appointment can only be initiated by a member of the appointment's group.
     ii.   The insertion of a group appointment is successful only if the duration of the group appointment does not overlap with the durations of any other appointment in every group member's calendar.
     iii. Only the initiator of a group appointment can delete the appointment.
     iv.   Once a group appointment is successfully inserted, it appears in every group member's calendar.
     v.   A group appointment will be automatically deleted if its corresponding group is removed.
5. **Join/Withdraw group membership.**
   - A non-member (member) of a group can join (withdraw) its membership from the group.

- The leader of a group cannot withdraw its membership from the group.
- A user cannot join a group if the duration of any appointment in the user's calendar   overlaps with the duration of any group appointment in the group.

- A user will be automatically withdrawn from a group if the group is removed or the user is   unregistered.
- A group appointment will be automatically deleted if its initiator withdraws from the group.

Input for the server:
The input of the MCM server program is a command file with each line in one of the formats as listed in the following table.
When processing the command file, any line of invalid format will be ignored. Any line violating any abovementioned functionality constraint will also be ignored.

Valid input formats:

- **register** *username email*
- **unregister** *username*
- **logon** *username*
- **logoff**
- **create/remove/join/withdraw** *groupname*
- **insert** *starttime endtime description [groupname]*
- **delete** *starttime*

(Note 1: Bold indicates fixed strings; italic indicates variable strings; [ ] indicates optional)
(Note 2: The format of starttime and endtime should be "dd-MM-yyyy HH:mm")