Model

Model 1: User

Default User

Model 2: Contact

- User 1
- User 2

Model 3: Node

- meeting id
- Timestamp
- Sender user

Model 3.1: Remind node (inherits Node)

- Receiver user
- Message

Model 3.2: Join node (inherits Node)

- Receiver user

Model 3.3: Submit node (inherits Node)

- Calendar_id

Model 3.4: Poll node (inherits Node)

- Calendar_id (intersected)
- Four selected datetime

Model 3.5: State node (inherits Node)

- Date time
- State (ready or final)

Model 3.6: Remove node (inherits node)

- Initiator
- Kicked out user

Model 4: meeting

- meeting id
- Calendar (mutual between users)
- meeting -> List of users
- meeting -> List of nodes
- State (enum)

Model 5: Calendar

- Owner
- meeting
- Start date
- End date
- List of events
- calendar_id

Model 6: Event

- Name
- Description
- Availability (enum)
- Start DateTime
- End DateTime
- Repeat & time (extra)

Model 7: Member

- User
- Meeting
- Role

API

Root: http://localhost:8000/api/

- GET: Return API document
    - Header:X
    - Param:X
    - Body:X
    - Response:X

Accounts APP

Users: http://localhost:8000/api/accounts/

- GET: Return a list of all users
    - Header: Authorization(admin)
    - Param:X
    - Body:X
    - Response: id, username, email
- POST: X
- PUT: X
- DELETE: X

Register: http://localhost:8000/api/accounts/register/

- GET: X
- POST: Create new users
    - Header: X
    - Param:X
    - Body: username, password, email
    - Response: message
- PUT: X
- DELETE: X

Login: http://localhost:8000/api/token/

- GET: X
- POST: User login
    - Header: X
    - Param:X
    - Body: username, password
    - Response: access key
- PUT: X
- DELETE: X

Profile: http://localhost:8000/api/accounts/profile/

- GET: Return user information
    - Header: Authorization(user)
    - Param:X
    - Body:X
    - Response: id, username, email
- POST: X
- PUT: Update user information

        - Header: Authorization(user)
        - Param: X
        - Body: username, password, email
        - Response: message
- DELETE: X

Contacts: http://localhost:8000/api/accounts/contacts/

- GET: List of all contacts of user <ID>
    - Header: Authorization(user)
    - Param:X
    - Body: X
    - Response: user1, alias1, user2, alias2
- POST: Create a new contact for user <ID>
    - Header: Authorization
    - Param:X
    - Body: user2, alias2
    - Response: user1, alias1, user2, alias2
- PUT: X
- DELETE:X

Contact ID of User ID: http://localhost:8000/api/accounts/contacts/<contact_id>/

- GET: Return contact <contactID> of user <userID>
    - Header:Authorization(user)
    - Param:X
    - Body:X
    - Response: id, user_id, alias
- POST: X
- PUT: Return updated information of contact <contactID> of user <userID>
    - Header:Authorization(user)
    - Param:X
    - Body:alias2
    - Response:message
- DELETE: Delete contact <contactID> and Return an empty object
    - Header:Authorization(user)
    - Param:X
    - Body:X
    - Response:message

Meetings APP

meetings: http://localhost:8000/api/meetings/

- GET: Return a list of all meetings

    - Header: Authorization (Admin)
    - Param: X
    - Body: X
    - Response: List of meeting models
- POST: Create a new meeting
    - Header: Authorization (User)
    - Param: X
    - Body: name, description
    - Response: The new meeting model
- PUT: X
- DELETE: X

meeting ID: http://localhost:8000/api/meetings/<meeting_id>/

- GET: Return the meeting <meetingID>
    - Header: Authorization (IsMember | IsAdminUser)
    - Param: X
    - Body: X
    - Response: Meeting model of specific meeting id
- POST: X
- PUT: Return an updated meeting
    - Header: Authorization (IsMember | IsAdminUser)
    - Param:X
    - Body: name, description
    - Response: meeting model got updated
- DELETE: Return an empty object and delete
    - Header: Authorization (IsMember | IsAdminUser)
    - Param:X
    - Body:X
    - Response:message

Members in meeting ID: http://localhost:8000/api/meetings/<meetingID>/members/

- GET: Return a list of members in meeting <meetingID>
    - Header: Authorization(IsMember | IsAdminUser)
    - Param: X
    - Body: X
    - Response: List of member models
- POST: X
- PUT: X
- DELETE: X

Member ID in meeting ID:
http://localhost:8000/api/meetings/<meetingID>/members/<user_id>/

- GET: Return member
    - Header: Authorization(IsMember | IsAdminUser)

    - Param:X
    - Body:X
    - Response: Show a specific member model

- POST: Invite a new member in meetings who is a contactor
    - Header: Authorization(IsMember | IsAdminUser)
    - Param:X
    - Body: user2_id
    - Response: newly invited a member model

- PUT: Update member information of <memID>
    - Header: Authorization(IsMember | IsAdminUser)
    - Param: X
    - Body: user2_id
    - Response: updated member model

- DELETE: Return an empty object and delete member <memID>
    - Header: Authorization(IsMember | IsAdminUser)
    - Param: X
    - Body: X
    - Response: message

Calendars in meeting ID:
http://localhost:8000/api/meetings/<meetingID>/members/<user_id>/

- Authentication: Yes (Users in the meeting)
- GET: Return a list of calendars in meeting <meetingID>
    - Header: Authorization(IsMember | IsAdminUser)
    - Param:
    - Body:
    - Response: a list of calendar model
- POST: X
- PUT: X
- DELETE: X

Calendar ID in meeting ID:
http://localhost:8000/api/meetings/<meetingID>/members/<user_id>/Calendar/

- GET: Return calendar <calendarID> in meeting <meetingID>
    - Header: Authorization(IsMember | IsAdminUser)
    - Param:X
    - Body:X
    - Response: get a member's calendar model

- POST: Return a newly created calendar

        - Header: Authorization(IsMember | IsAdminUser)
        - Param:X
        - Body:X
        - Response: new calendar model

- PUT: Return an updated calendar <calendarID>
    - Header:Authorization(IsMember | IsAdminUser)
    - Param:X
    - Body:X
    - Response: Updated calendar model
- DELETE: X

Events in Calendar:
http://localhost:8000/api/meetings/<meeting_id>/members/<member_id>/calendar/events/

- Authentication: Yes (Users in the meeting)
- GET: Return a list of events of meeting <meetingID> and member <memberID>
    - Header: Authorization(IsMember | IsAdminUser)
    - Param:X
    - Body:X
    - Response:List of event model
- POST: Create a new event
    - Header: Authorization(IsMember | IsAdminUser)
    - Param:X
    - Body: name, availability, start_time, end_time
    - Response: Newly created event model
- PUT: X
- DELETE: X

Event ID in Calendar:
http://localhost:8000/api/meetings/<meeting_id>/members/<member_id>/calendar/events/event_id

- GET: Return event of <eventID> in meeting <meetingID>
    - Header: Authorization(IsMember | IsAdminUser)
    - Param:X
    - Body:X
    - Response: event model of specific event ID
- POST: X
- PUT: Return an updated event <eventID>
    - Header: Authorization(IsMember | IsAdminUser)
    - Param:X
    - Body: name, availability, start_time, end_time
    - Response: updated event model

- DELETE: Return an empty object and delete the event ID
    - Header: Authentication(IsMember | IsAdminUser)
    - Param:X
    - Body:X
    - Response: message

Nodes in meeting ID: http://localhost:8000/meetings/<meeting_id>/nodes/

- GET: Return a list of timeline nodes of meeting <meeting_id>
    - Header:Authorization(IsMember | IsAdminUser)
    - Param:X
    - Body:X
    - Response: List of all types of Node model
- POST: X
- PUT: X
- DELETE: X

Specific node type in meeting ID:
http://localhost:8000/meetings/<meeting_id>/nodes/<node_type>/

- GET: Return specific node <node_type> list of meeting <meetingID>
    - Header:Authorization(IsMember | IsAdminUser)
    - Param:X
    - Body:X
    - Response: List of <node_type> model
- POST: Create specific node <node_type> of meeting <meetingID>
    - Header:Authorization(IsMember | IsAdminUser)
    - Param:X
    - Body:X
    - Response: created <node_type> model
- PUT: X
- DELETE: X

Specific node ID in meeting ID:
http://localhost:8000/meetings/<meeting_id>/nodes/<node_type>/<node_id>/

- GET: Return specific node <node_id> of meeting <meetingID>
    - Header:Authorization(IsMember | IsAdminUser)
    - Param:X
    - Body:X
    - Response: Node of node_id model
- POST: X
- PUT: Update specific node <node_type> of meeting <meetingID> (Poll node only)
    - Header:Authorization(IsMember | IsAdminUser)
    - Param:X
    - Body:X
    - Response: Updated node model
- DELETE: X

Appendix

1. API Rules

GET /collection：返回资源对象的列表（数组）

GET /collection/resource：返回单个资源对象

POST /collection：返回新生成的资源对象

PUT /collection/resource：返回完整的资源对象

PATCH /collection/resource：返回完整的资源对象

DELETE /collection/resource：返回一个空文档

2. Request Inputs

Header:

- metadata about the request
- HTTP Headers are NOT part of the URL
- if it's information about the request or the client, then the header is appropriate
- headers are hidden from end-users
- globally data
- restrict Attacks by detecting authorization on its header because a header can be accessed before the body is downloaded

Param:

- the query params are within the URL
- like this "tag=networking&order=newest"
- if it's the content of the request itself, then it's a parameter
- The product ID and requested image size are examples of "some detail" (or parameter) being supplied as part of the content of a request
- parameters can be seen by end-users (query parameters) on URL

Body:

- data of business logic
- important information
- unlike the body, proxy servers are allowed to modify headers
- data in specific kinds of requests
- you can pass tokens by the body as encoding & decoding in servers

3. Authentication & Permission

Token generated by user login.

AllowAny

IsAdminUser

IsAuthenticated

IsMember

- Permission:
    - This user's profile
    - This user's contact list
    - This user's contact
    - This user's meeting list
    - This user's meeting
        - This user's meeting member list
        - This user's meeting calendar list
            - This user's meeting calendar's event list
        - This user's meeting node list

4. User

Super User
username: csc309
Password: csc309yes!!

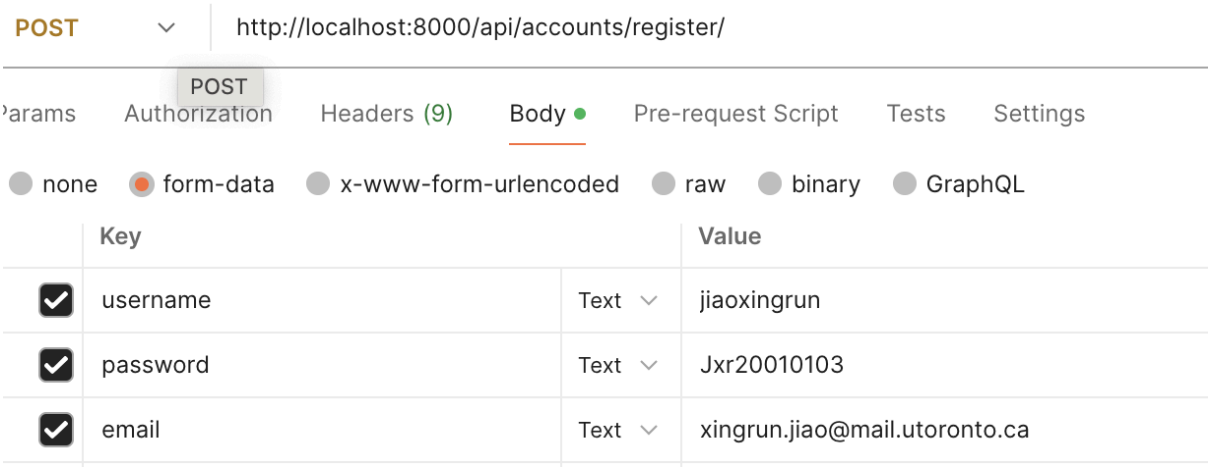
5. 2 pointer version

```
Def find intersection (calendar1, calendar2):
    assert(len calendar1, len calendar 2 > 0)
    I, j = 0, 0
    Intersection = []
    While (i < len(c1) and j < len(c2)):
        Start1, end1 = c1[i].start, c1[i].end
        Start2, end2 = c2[j].start, c2[j].end
        // determine whether intersect
```

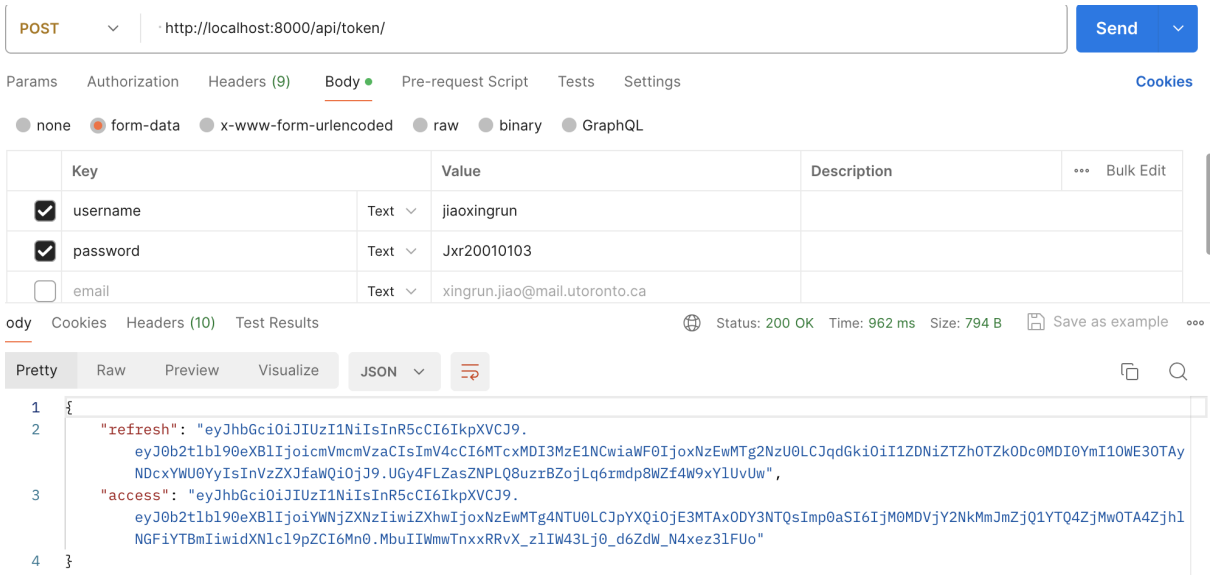
```
        If start1 <= end2 and start2 <= end1:
            intersection.append(max(start1, start2), min(end1, end2))

        If end1 < end2:
            I += 1;
        Else:
            J += 1;


    Return intersection

Def find(calendars):
    Curr_intersection = calendars[0]
    For calendar in calendars[1:]
        Curr_intersection = find intersection (currintersection, calendar)
        If curr_intersection.length == 0:
            Return []
    Return current_intersecion
```

6. set of test data

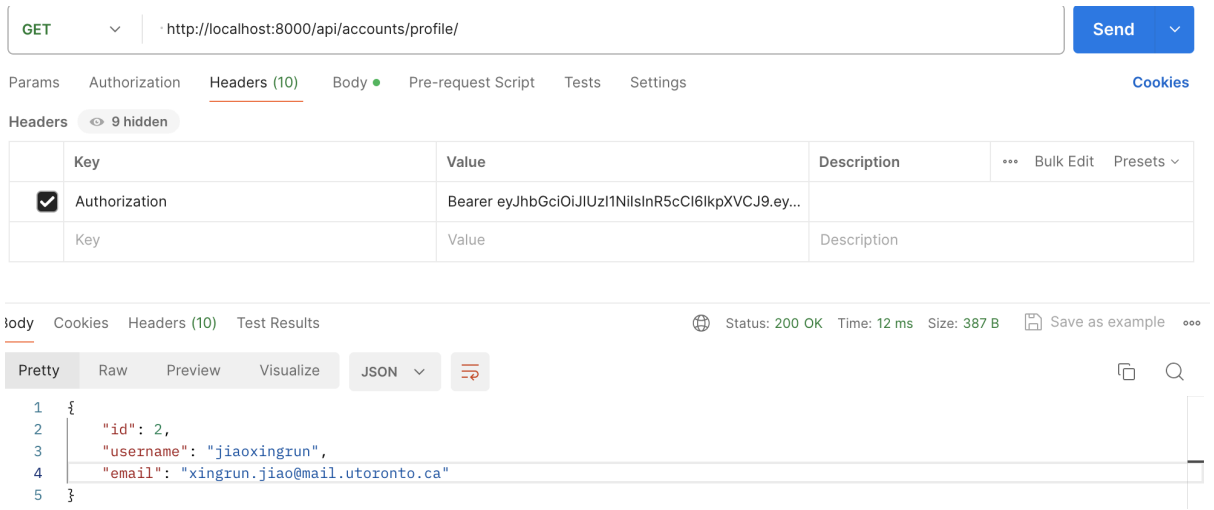
- Register:



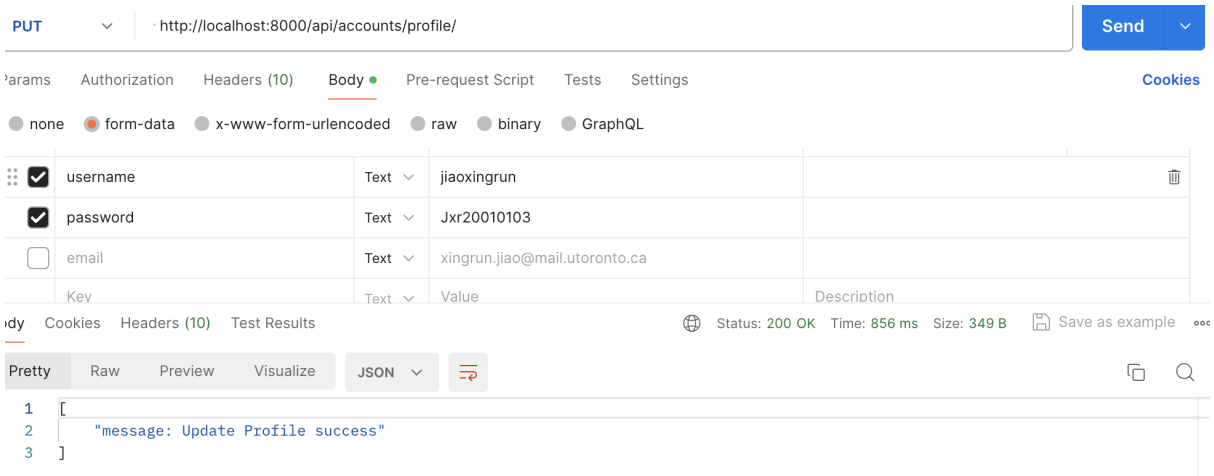
- Login Token:



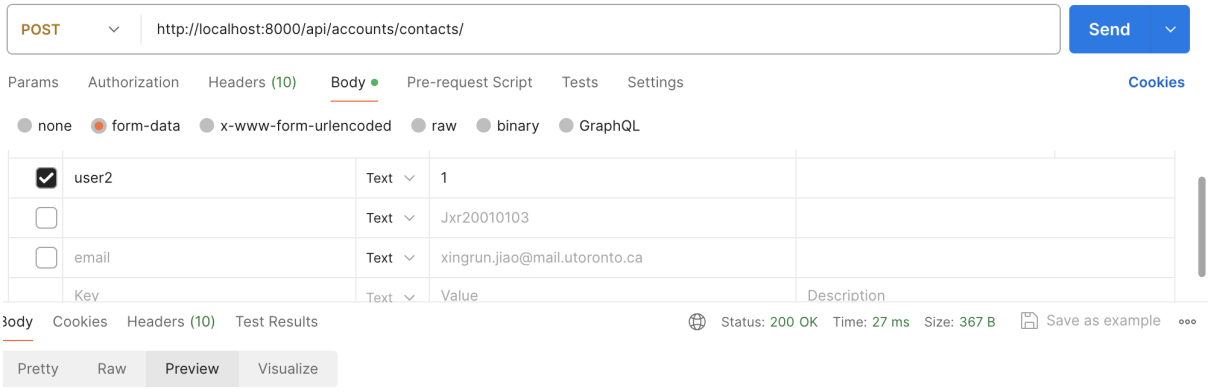
- Profile info:



- Profile update:

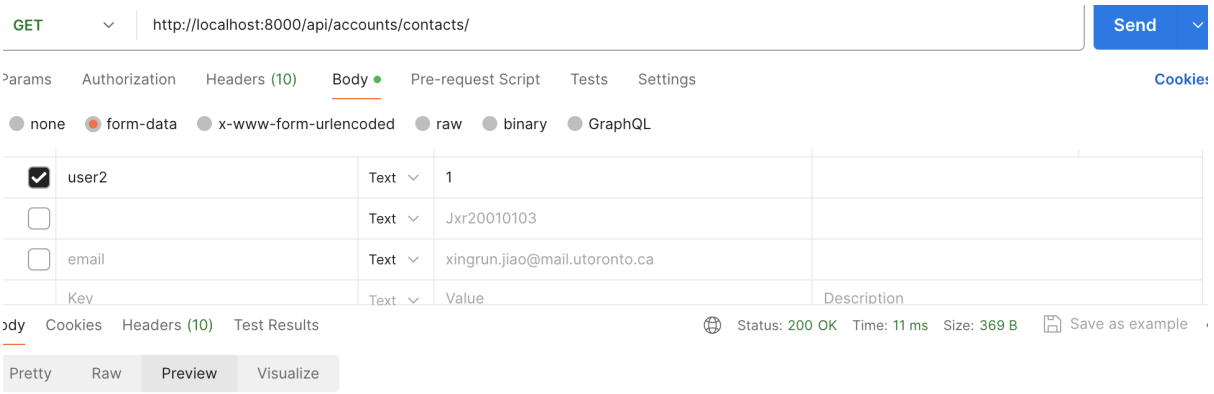


- Create contact:



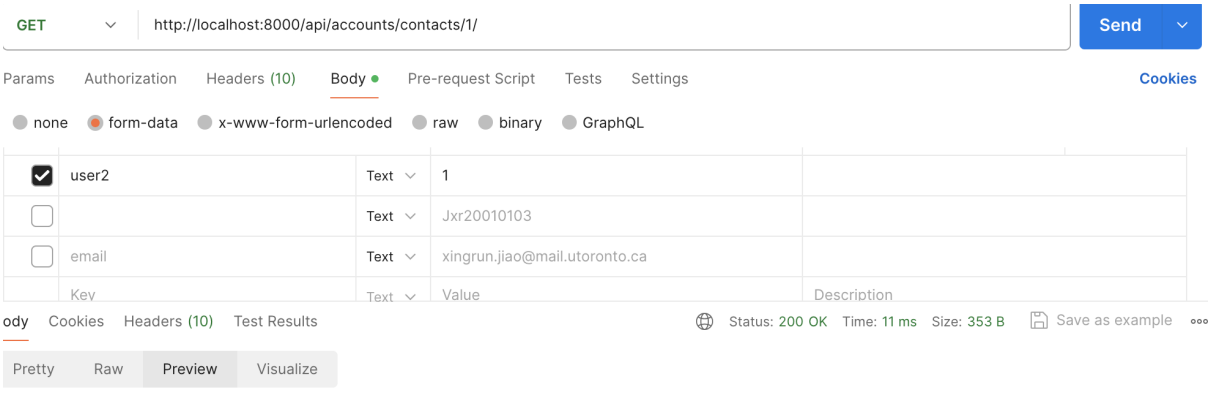
{"id":1,"user1":2,"user2":1,"alias1":"","alias2":""}

- View contact list:



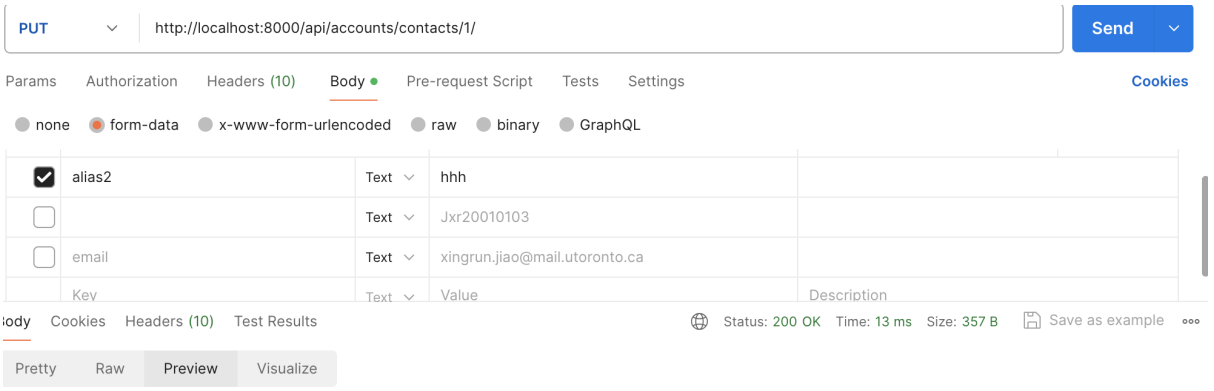
[{"id":1,"user1":2,"user2":1,"alias1":"","alias2":""}]

- View specific contact info:



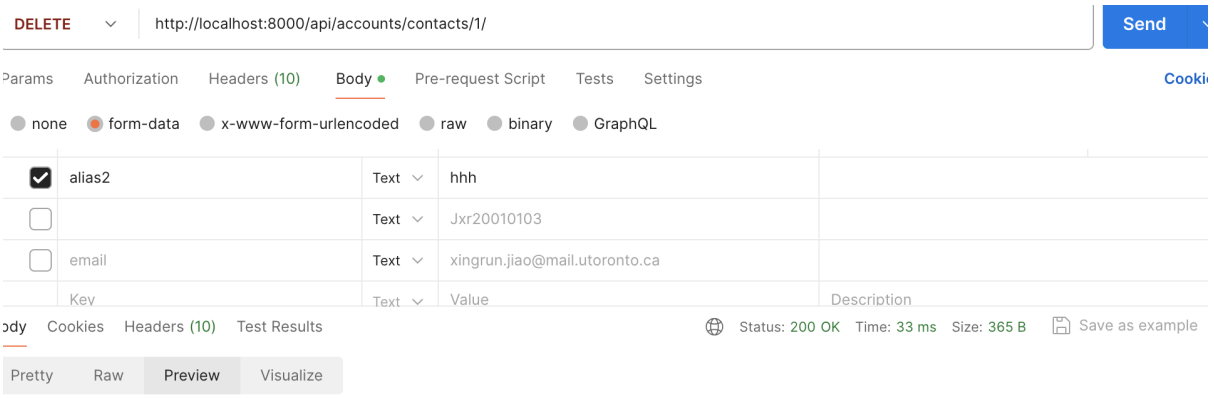
{"id":1,"user_id":1,"alias":""}

- Change contact alias:



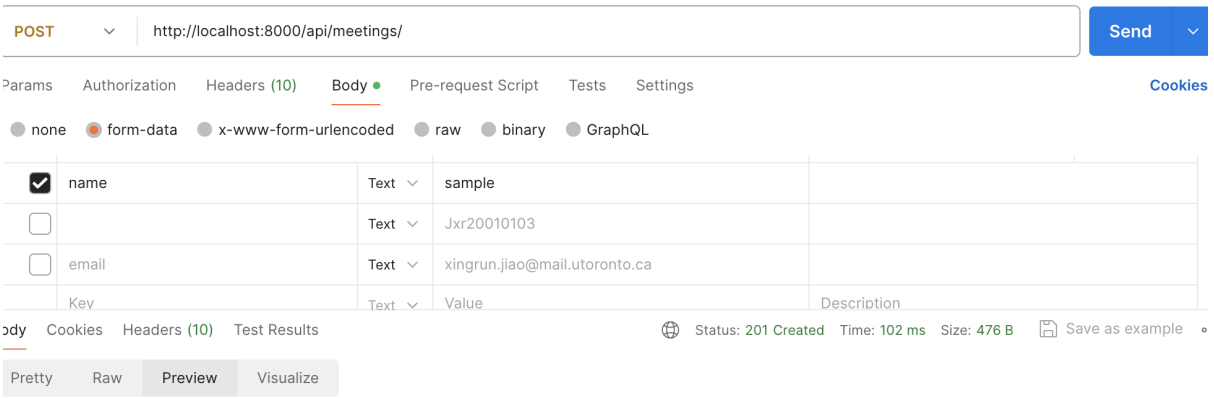
{"message":"Contact info updated!"}

- Delete contact:



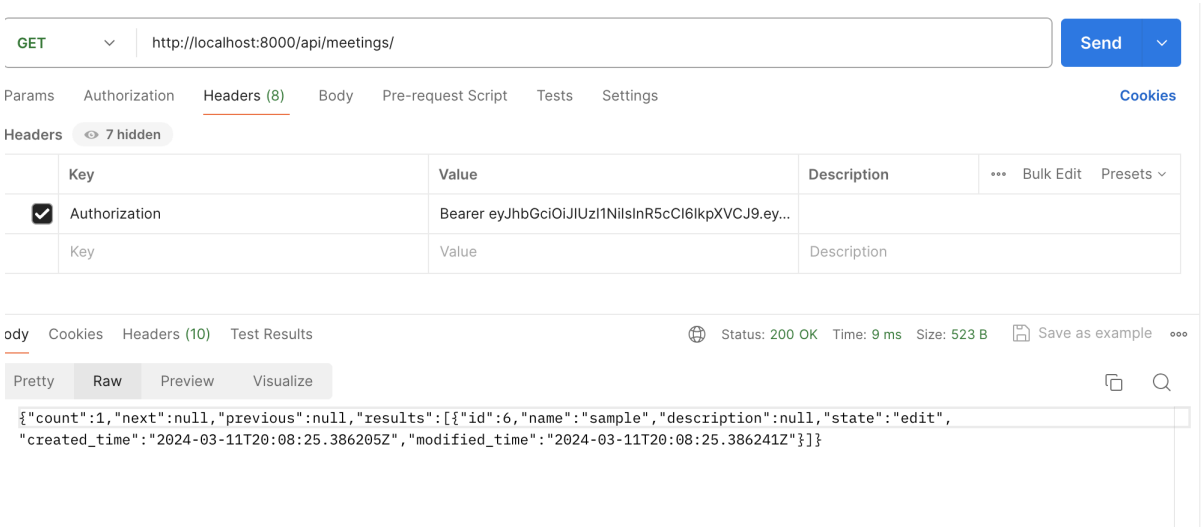
{"message":"Contact deleted successfully."}

- Create meeting:

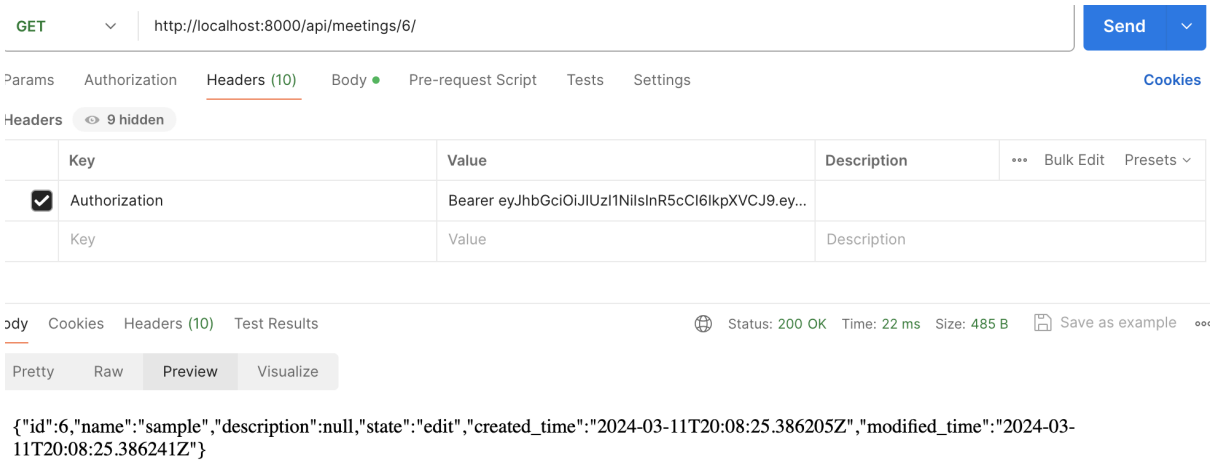


{"id":6,"name":"sample","description":null,"state":"edit","created_time":"2024-03-11T20:08:25.386205Z","modified_time":"2024-03-11T20:08:25.386241Z"}

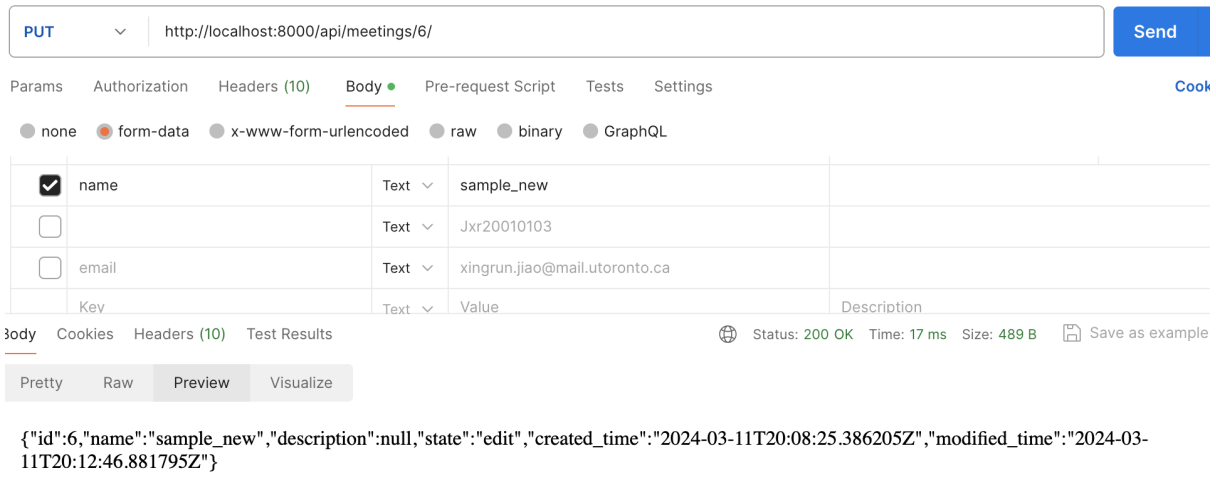
- View meeting list:



- View specific meeting:



- Update specific meeting:



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