

Parking Lot API

This API represents a Parking lot API. The kinds consist of Space, Renter and Car.
The relationships between the kinds are:

- There are many Spaces.
- There are many Renters.
- There are many Cars.
- A Space can have 1 Renter.
- A Space can have Any of the Renter's Cars.
- A Renter can have many Spaces.
- A Renter can have many Cars.
- A Car can have 1 Renter.
- A Car can park in Any of the Renters Spaces.

The Space's Entities are : Name/ID, cost, location, size.

The Car's Entities are: Name/ID, color, make model, owner, space, tag, type.

The Renter's Entities are: Name/ID, first, last, phone, space, u_id, username

Entities

Spaces

```
{  "id": "abc123",
    "size": "8x16",      # or "12x16" or "12x32"
    "location": "A1",
    "cost": 30           # 45 or 55
}
```

Renters

```
{
    "id": "bcd123",
    "first": "Ralph",
    "last": "Wiggums",
    "username": "wigman",
    "u_id": "auth0:1324123",
    "phone": "863-529-3078",
    "space": [ ]
}
```

Cars

```
{
    "id": "131234",
    "type": "SUV",
    "make": "Jeep",
    "model": "Wrangler",
    "color": "Yellow",
    "tag": "Paste Eater",
    "space" : null,
    "owner" : null
}
```

Not Implemented Completely:

A) GET All Renters does not return cars that the owner possesses. In order to implement this, I would make a call to datastore that would return all cars. Then search the result looking for owner ID. An array would be generated that consisted of matches for car the renter owns. Upon receiving the list, a self link would be implemented by setting the value of
`renters.self= req.protocol + '://' + req.get("host") + '/cars/' + car.owner`

B) Authorization for renters exists through all the /renter path's. However, authorization does not exist for Spaces or Cars. Since in my application, they are not "owned" or "rented" until they are connect through either post /renter/{r_id}/cars/{c_id} or post /renter/{r_id}/space/{s_id} I viewed the space and cars route's more as utility functions.

If I were to implement the authorization for these routes, I would insert checkJwt function after the path and before the function. Since the car routes doesn't have knowledge of the user's information, I would need to make a call to the the datastore to recover the renter's information. The u_id would would then be compared to the req.user.sub to ensure the user was authorized.

For the space routes, it is a little more complex. The space has no knowledge of the user. To recover the user, all of the users would need to be recovered from the datastore, then the renter's space's would have to be search for the space id. The user's u_id would then be compared to the req.user.sub.

If the user was not valid for both instances, a 401 error would be returned.

URLs

Spaces

****NOTE on Authorization for spaces: I did not implement authorization for spaces because it did not make sense that a Renter would be able to change the space that he/she was renting.**

/spaces

GET /spaces

Description: GET all space

Headers: Content-Type: application/json

Body: none

Response:

```
{
  "items": [
    {
      "size": "8x16",
      "cost": 30,
      "location": "A5",
      "id": "5657082955038720",
```

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```
"self": "http://cs493-final.appspot.com/spaces/5657082955038720"
},
{
  "size": "8x16",
  "cost": 30,
  "location": "A1",
  "id": "5662005255995392",
  "self": "http://cs493-final.appspot.com/spaces/5662005255995392"
},
{
  "size": "8x16",
  "cost": 30,
  "location": "A4",
  "id": "5664488955052032",
  "self": "http://cs493-final.appspot.com/spaces/5664488955052032"
},
{
  "size": "8x16",
  "cost": 30,
  "location": "A9",
  "id": "5692367319334912",
  "self": "http://cs493-final.appspot.com/spaces/5692367319334912"
},
{
  "size": "8x16",
  "cost": 30,
  "location": "A6",
  "id": "5695159920492544",
  "self": "http://cs493-final.appspot.com/spaces/5695159920492544"
}
],
"next": "http://cs493-final.appspot.com/spaces?
cursor=CikSl2oNc35jczQ5My1maW5hbHISCxIFU3BhY2UYglCAgPz2jgoMGAAgAA==",
"total": 9
}
Codes:
  200 Success
  406 Not Acceptable
```

POST /spaces

Description: Create individual space

Headers: none

Body:

```
{
  "location": "C3-delete",
  "size": "12x32",
  "cost": 55
}
```

Response:

```
{ "self": "http://cs493-final.appspot.com/spaces/5649521866440704" }
Codes:
```

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201 Created

/spaces/{s_id}

GET /spaces/{s_id}

Description: Get individual space

Headers: none

Body: none

Response:

```
{
  "size": "12x32",
  "cost": 55,
  "location": "C3-delete",
  "id": "5649521866440704",
  "self": "http://cs493-final.appspot.com/spaces/5649521866440704"
}
```

Codes:

200 Success

406 Not Acceptable

DELETE /spaces/{s_id}

Description: Delete individual space

Headers: none

Body: none

Response: none

Codes:

204 No Content

403 Forbidden

PUT /spaces/{s_id}

Description: Edit individual space

Headers: Content-type: application/json

Body:

```
{
  "size": "11x32",
  "cost": 45,
  "location": "Delete"
}
```

Response: none

Codes:

303 Location

403 Forbidden

/spaces/{s_id}/cars

GET /spaces/{s_id}/cars

Description: Get car in space

Headers: none

Authorization: Bearer Token: ID_token

Body: none

Response:

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```
{
  "make": "The Simpson",
  "owner": "5706631174160384",
  "space": "5766862319124480",
  "type": "Crossover",
  "model": "Bart Car",
  "color": "yellow",
  "tag": "bc34",
  "id": "5701241594183680",
  "location": "Bart Space",
  "self": "http://cs493-final.appspot.com/cars/5701241594183680",
  "owner_self": "http://cs493-final.appspot.com/renters/5706631174160384",
  "space_self": "http://cs493-final.appspot.com/spaces/5766862319124480"
}
```

Codes:

200	Success
401	Unauthorized
403	Forbidden

Renters

/renters

GET /renters

Description: Get all Renters

Headers: None

Authorization: None

Body: None

Response:

```
{
  "items": [
    {
      "u_id": "auth0|5c036fe6c803fa2def729a9d",
      "phone": "555-123-9640",
      "first": "Delete",
      "space": [],
      "last": "Me",
      "username": "dme",
      "id": "5666083260334080",
      "self": "http://cs493-final.appspot.com/renters/5666083260334080"
    },
    {
      "space": [],
      "last": "Griffin",
      "username": "bgriffin",
      "u_id": "auth0|5bff50624d8ffd2eab7ac3a0",
      "phone": "555-123-5300",
      "first": "Brian",
      "id": "5694847495176192",
      "self": "http://cs493-final.appspot.com/renters/5694847495176192"
    }
  ]
}
```

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```
    },
    {
      "first": "Glen",
      "space": [],
      "last": "Quagmire",
      "username": "gquagmire",
      "u_id": "auth0|5bff5092c08160357db19bbe",
      "phone": "555-123-7300",
      "id": "5727838514708480",
      "self": "http://cs493-final.appspot.com/renters/5727838514708480"
    },
    {
      "space": [],
      "last": "Simpson",
      "username": "bsimpson",
      "u_id": "auth0|5c044aa3c803fa2def729fcd",
      "phone": "555-423-9640",
      "first": "Bart",
      "id": "5742636757417984",
      "self": "http://cs493-final.appspot.com/renters/5742636757417984"
    },
    {
      "u_id": "auth0|5c044a9d73e2ed2e18e8a3e6",
      "phone": "555-123-3640",
      "first": "Peter",
      "space": [],
      "last": "Griffin",
      "username": "pgrif",
      "id": "5746670839005184",
      "self": "http://cs493-final.appspot.com/renters/5746670839005184"
    }
  ],
  "next": "http://cs493-final.appspot.com/renters?
cursor=CioSJGoNc35jczQ5My1maW5hbHlTCxlGUmVudGVyGICAgJCR0poKDBgAIAA=",
  "total": 7
}
```

Codes:

200	Success
406	Not Acceptable
403	Forbidden

POST /renters

Description: Create a Renter

Headers: Content-Type: application/json

Body:

```
{ "first": "Peter",
  "last": "Griffin",
  "phone": "555-123-3640",
  "username": "pgrif",
  "email": "pgriffin@email.com",
  "password": "abc123456" }
```

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}

Response:

```
{ "self": "http://cs493-final.appspot.com/renters/5752897300070400" }
```

Codes:

201 Created
403 Forbidden

/renters/{r_id}

GET/renters/{r_id}

Description: Get individual Renter

Headers: none

Authorization: Bearer token: ID_token

Body: none

Response:

```
{  
  "space": [],  
  "last": "Griffin",  
  "username": "pgrif",  
  "u_id": "auth0|5c044a9d73e2ed2e18e8a3e6",  
  "phone": "555-123-3640",  
  "first": "Peter",  
  "id": "5746670839005184",  
  "self": "http://cs493-final.appspot.com/renters/5746670839005184"  
}
```

Codes:

200 Success
401 Unauthorized
406 Not Acceptable
403 Forbidden

PUT /renters/{r_id}

Description: Edit individual Renter

Headers: Content-Type: application/json

Authorization: Bearer Token: ID_token

Body:

```
{  
  "first": "Change",  
  "last": "Me",  
  "phone": "555-123-4567"  
}
```

Response: none

Codes:

303 Location
401 Unauthorized
403 Forbidden

DELETE /renters/{r_id}

Description: Delete individual Renter

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Headers: None
Authorization: Bearer Token: ID_token
Body: None
Response: None
Codes:
204 No Content
403 Forbidden
404 Not Found

/renters/{r_id}/spaces

GET /renters/{r_id}/spaces
Description: Get Renter's spaces
Headers: None
Authorization: Bearer Token: ID_token
Body: None
Response: None
Codes:
200 OK
401 Unauthorized
406 Not Acceptable

/renters/{r_id}/spaces/{s_id}

POST /renters/{r_id}/spaces/{s_id}
Description: Add Space to Renter
Headers:
Authorization: Bearer Token: ID_token
Body: none
Response:
{ "self": "http://cs493-final.appspot.com/renters/5706631174160384" }
Codes:
200 Created
401 Unauthorized
406 Not Acceptable

DELETE /renters/{r_id}/spaces/{s_id}
Description: Remove Space from Renter
Headers: none
Body: none
Response: none
Codes:
204 No content
401 Unauthorized
403 Forbidden

/renters{r_id}/cars

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GET /renters{r_id}/cars

Description: GET a Renters cars

Headers: none

Authorization: Bearer Token: ID_token

Body: none

Response:

```
[
  {
    "owner": "5706631174160384",
    "space": null,
    "type": "Crossover",
    "model": "Bart Car",
    "color": "yellow",
    "tag": "bc34",
    "make": "The Simpson",
    "id": "5701241594183680",
    "self": "http://cs493-final.appspot.com/cars/5701241594183680"
  },
  {
    "owner_self": "http://cs493-final.appspot.com/renters/5706631174160384"
  }
]
```

Codes:

200	Success
401	Unauthorized
403	Renter doesn't own car
403	Forbidden

/renters{r_id}/cars/{c_id}

POST /renters{r_id}/cars/{c_id}

Description: Add Car to Renter

Headers: none

Authorization: Bearer Token: ID_token

Body: none

Response:

```
{ "self": "http://cs493-final.appspot.com/renters/5706631174160384" }
```

Codes:

201	Created
401	Unauthorized
403	Car Has Owner

DELETE /renters{r_id}/cars/{c_id}

Description: Remove Car from Renter

Headers: none

Authorization: Bearer Token

Body: none

Response:

Codes:

200	Success
401	Unauthorized

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403 Forbidden

/renters/{r_id}/spaces/{s_id}/cars{c_id}

POST /renters/{r_id}/spaces/{s_id}/cars{c_id}

Description: Add Car to Renter's Space

Headers: none

Authorization: Bearer Token: ID_token

Body: none

Response:

```
{ "self": "http://cs493-final.appspot.com/renters/5706631174160384" }
```

Codes:

201	Created
401	Unauthorized
403	Not renters car
403	Space not rented by Renter
403	Forbidden

DELETE/ renters/{r_id}/spaces/{s_id}/cars{c_id}

Description: Remove Car from Renters Space

Headers: none

Authorization: Bearer Token: ID_token

Body: none

Response:

```
{ "self": "http://cs493-final.appspot.com/renters/5706631174160384" }
```

Codes:

200	OK
401	Unauthorized
403	Not Renters Car
403	Not Renters Space
403	Forbidden

Cars

/cars

GET /cars

Description: Get all Cars

Headers: Content-Type: application/json

Body: none

Response:

```
{  
  "items": [  
    {  
      "color": "black",  
      "tag": "b1234",  
      "make": "Jeep",  
      "owner": "null",  
      "space": "null",  
    },  
  ],  
}
```

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```
    "type": "SUV",
    "model": "Wrangler",
    "id": "5681777339269120",
    "self": "http://cs493-final.appspot.com/cars/5681777339269120"
  },
  {
    "color": "blue",
    "tag": "b4366",
    "make": "Chevrolet",
    "owner": "5694847495176192",
    "space": "null",
    "type": "car",
    "model": "Camaro",
    "id": "5687682516647936",
    "self": "http://cs493-final.appspot.com/cars/5687682516647936"
  },
  {
    "make": "Ford",
    "owner": "5757956570218496",
    "space": null,
    "type": "truck",
    "model": "F150",
    "color": "green",
    "tag": "b1254",
    "id": "5706163895140352",
    "self": "http://cs493-final.appspot.com/cars/5706163895140352"
  },
  {
    "model": "Elantr",
    "color": "gold",
    "tag": "b2656",
    "make": "Hyundai",
    "owner": "5763744441303040",
    "space": null,
    "type": "car",
    "id": "5708644372971520",
    "self": "http://cs493-final.appspot.com/cars/5708644372971520"
  },
  {
    "model": "Civic",
    "color": "silver",
    "tag": "b2254",
    "make": "Honda",
    "owner": "5727838514708480",
    "space": "null",
    "type": "car",
    "id": "5732312192909312",
    "self": "http://cs493-final.appspot.com/cars/5732312192909312"
  }
],
"next": "http://cs493-final.appspot.com/cars?
cursor=CicSIWoNc35jczQ5My1maW5hbHIQCxIDQ2FyGICAgICfsJcKDBgAIAA=",
```

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```
"total": 6
}
```

Codes:
200 Success

POST /cars

Description: Create a Car
Headers: Content-Type: application/json
Body:

```
{
  "tag": "bc3234",
  "type": "Luxury",
  "make": "Lincoln",
  "model": "Navigator",
  "color": "white"
}
```

Response:
{ "self": "http://cs493-final.appspot.com/cars/5642383161032704" }

Codes:
201 Created

/cars/{c_id}

GET /cars/{c_id}

Description: Get individual car
Headers: none
Body: none
Response:

```
{
  "owner": "5694847495176192",
  "space": "null",
  "type": "SUV",
  "model": "Tahoe",
  "color": "silver",
  "tag": "b2654",
  "make": "Chevrolet",
  "id": "5755063473537024",
  "self": "http://cs493-final.appspot.com/cars/5755063473537024"
}
```

Codes:
200 Success
406 Not Acceptable

PUT /cars/{c_id}

Description: Edit individual Car
Headers: Content-type: application/json
Body:

```
{
  "tag": "bc343",
```

```
"type": "DELETE",
"make": "Volkswagon",
"model": "DELETE",
"color": "red"
}
```

Response: none

Codes:

303 Location

DELETE /cars/{c_id}

Description: Delete individual Car

Headers: none

Body: none

Response: none

Codes:

204 No Content

Login

/login

POST /login

Description: Login user

Headers: Content-Type: application/json

Body:

```
{
    "username": "pgrif",
    "password": "abc123456*"
}
```

Response:

[illegible]

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```
"id_token":
"eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzI1NiIsImtpZCI6Ikk1qTXdOVU16UWpFMFFqZEJSVE13TIRjeVFrVkrSa1UwTnprNFFVUkRRVUZCTUVJeE56RXpPQSJ9.eyJuaWNrbmFtZSI6ImBncmlmliwibmFtZSI6IiBldGVyIEdyZWZmaW4iLCJwaWN0dXJlIjoiaHR0cHM6Ly9zLmdyYXZhdGFyLmNvbS9hdmF0YXlvMjRjNDA2OWUwZjRjMjI2MDFiMGUwNjEwNTIzODIIM2Y_cz00ODAmcj1wZyZkPWVh0dHBzJTNTBjTjJGJTJGY2RuLmF1dGgwLmNvbSUyRmF2YXRhcnMIMkZwZy5wbmciLCJ1cGRhdGVkX2F0IjoiaXAxOC0xMi0wMIQyMjoxMDowMi43MzNaliwiZW1haWwiOiJwZ3JpZmZpbkBlbWFpbC5jb20iLCJlbWFpbF92ZXJpZmllZCI6ZmFsc2UsImZcyYl6Imh0dHBzOi8vd2hpdGVkNi5hdXRoMC5jb20vliwic3ViljoieXV0aDB8NWMwNDU3MDE3NTgyY2U0NjA3ZWU2NWYxliwiYXVkljoieXVlZ2pFR2tzM0xTVUpRYWkya1o4VU44OFpkOW43MU8iLCJpYXQiOiE1NDM3ODg2MDIsImV4cCI6MTU0MzgyNDYwMn0.mkws6Nj-ONuPGdGloeQZtCtAsxj1olreTd6CuY6CjhlPrY0YwVDS2JLMAVoidqD1tRhZr5ZTKshAW7mjo3pEe4_Mtmwvq2-Ap63RfKrTjU6gs0vP0RG7g2yuPPLmU01EKxChromUOZnaJPhd0rNG6o3SPvsZ78duNE2cahMrEj9VCI2reS9iM6TlcB2woc3S0r0IF5aG6ZljZi9b6xA7O9L3cxnGBDX3aSC63zQUPm4U-APu-7tZl8JWnD_RLh99-dT-BbTtZGFvX9DjN_VpWoWMGn5S1OOd3CcYQHfXom3sbbX0WcKPIgsu9AD5GO0LO8h5qHc7SNXLAFmo31leXg",
"scope": "openid profile email address phone read:current_user
update:current_user_metadata delete:current_user_metadata create:current_user_metadata
create:current_user_device_credentials delete:current_user_device_credentials
update:current_user_identities",
"expires_in": 86400,
"token_type": "Bearer"
}
Codes:
    200 OK
    500 Error
```