GCP deployed & login/register URL: https://final-project-ngchi.nw.r.appspot.com

Data Model

Boat- Protected (JWT required for CRUD operations)

Property	Туре	Required	Valid values	Notes	
id	Int		/	The ID of the boat. Datastore automatically generates it.	
name	String	Yes	No limitations	Name of the boat.	
type	String	Yes	No limitations	Type of the boat. E.g., Sailboat, Catamaran, etc.	
length	Int	Yes	>0	The length of the boat in feet.	
owner	String		No limitations	User_ID. The user who creates this boat.	
alliance	Int		/	ID of alliance generated by Datastore. The alliance this	
				boat joined.	

Relationship with Alliance - Many(boat) to One(alliance)

Relationship with User - Many(boat) to One(user)

Alliance-Unprotected

Property	Type	Required	Valid values	Notes	
id	Int		/	The ID of the alliance. Datastore automatically	
				generates it.	
founding_date	String	Yes	No limitations	Creation date of the alliance.	
PIC	String	Yes	No limitations	Name of person in charge of the alliance.	
capacity	Int	Yes	>0	Maximum number of boats this alliance can have.	
#boats	Int		>=0	Number of boats this alliance currently has.	
				Initiated as 0.	
boats	Array		/	IDs of boats which joined this alliance. Initiated as	
	[Int]			an empty list.	

Relationship with Boat - One(alliance) to Many(boat)

Relationship with User - None

User

Property	Type	Required	Valid values	Notes
id	Int		/	Datastore automatically generates it.
user_id	String	Yes	/	Unique identifier for the user. JWT's sub property.

Relationship with Boat - One(user) to Many(boat)

Relationship with Alliance – None

^{*} The unique identifier is only used to show the owner of a boat, the authentication of users requires a JWT for protected endpoints. "user_id" is not required for making any of the requests.

^{*}A JWT can be acquired by registering or logging in an account via a link found in the above URL.

Final Project: API Spec

CS 493: Cloud Application Development

Spring 2021

Oregon State University

Last Update: June 06, 2021

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Change log

Version	Change	Date
1.0	Initial version.	June 06 2021

Create a Boat

Allows you to create a new boat. The alliance of a newly created boat is unassigned. Protected.

POST /boats

Request

Path Parameters

None

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Туре	Description	Required?
name	String	The name of the boat.	Yes
type	String	The type of the boat. E.g., Sailboat, Catamaran, etc.	Yes
length	Integer	Length of the boat in feet.	Yes

Request Body Example

```
{
  "name": "Sea Witch",
  "type": "Catamaran",
  "length": 28
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	If the request is missing any of the 3 required attributes, or any of the data types is incorrect, or length is smaller
		than 1, 400 status code must be returned.
Failure	401 Unauthorized	If JWT is invalid or missing, 401 status code must be returned.
Failure	406 Not Acceptable	If the requested media type does not include 'application/json', 406 status code must be returned.

Response Examples

Success

Status: 201 Created

```
{
    "id": 5712837116690432,
    "name": "Sea Witch",
    "type": "Catamaran",
    "length": 28,
    "owner": "Anderson1234",
    "alliance": null,
    "self": "https://final-project-ngchi.nw.r.appspot.com/boats/5712837116690432"
}
```

```
Status: 400 Bad Request

{
    "Error": "Invalid request body."
}

Status: 401 Unauthorized
---Token is missing---
{
    "Error": "No token."
}

---Token is invalid---
{
    "code": ... (depends on different reasons of being invalid),
    "description": ... (depends on different reasons of being invalid)
}

Status: 406 Not Acceptable

{
    "Error": "Invalid requested media type."
}
```

List all Boats

List all the boats owned by the authenticated user. Pagination is implemented with 5 boats listed per page. Protected.

GET /boats

Request

Path Parameters

None

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	Return no content if a JWT is missing or invalid.
Failure	406 Not Acceptable	If the requested media type does not include
		'application/json', 406 status code must be returned.

Response Examples

```
Status: 200 OK
---when JWT is valid, and the user has some boats---
{
    "boats": [
            "length": 28,
            "alliance": null,
            "id": 4586837486075904,
            "name": "Sea Witch",
            "type": "Catamaran",
            "owner": "David9456",
            "self": "https://final-project-ngchi.nw.r.appspot.com
                      /boats/4586837486075904"
        },
            "length": 60,
            "alliance": null,
            "id": 1586849586055094,
            "name": "Skyline 66",
            "type": "Yacht",
            "owner": "David9456",
            "self": "https://final-project-ngchi.nw.r.appspot.com
```

```
/boats/1586849586055094"
        },
            "type": "Power boat",
            "length": 60,
            "name": "Random 2",
            "alliance": null,
            "owner": "David9456",
            "id": 4788074152198144,
            "self": "https://final-project-ngchi.nw.r.appspot.com
                     /boats/4788074152198144"
        },
            "type": "Destroyer",
            "length": 515,
            "name": "Finisher01",
            "alliance": null,
            "owner": "David9456",
            "id": 6485074642198199,
            "self": "https://final-project-ngchi.nw.r.appspot.com
                     /boats/6485074642198199"
        },
            "length": 89,
            "alliance": null,
            "name": "Sea Horse",
            "type": "Sailboat",
            "owner": "David9456",
            "id": 4792220395816064,
            "self": "https://final-project-ngchi.nw.r.appspot.com
                     /boats/4792220395816064"
        }
    "total_number": 7
    "next": "https://final-project-ngchi.nw.r.appspot.com/boats?limit=5&offset=5"
}
```

```
Status: 406 Not Acceptable

{
    "Error": "Invalid requested media type."
}
```

Get a Boat

Allows you to get an existing boat owned by the authenticated user. Protected.

```
GET /boats/:boat_id
```

Request

Path Parameters

Name	Туре	Description
boat_id	String	ID of the boat

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	401 Unauthorized	If JWT is invalid or missing, 401 status code must be returned.
Failure	403 Forbidden	If the boat with this boat_id is not owned by the authenticated user, 403 status code must be returned.
Failure	404 Not Found	No boat with this boat_id exists.
Failure	406 Not Acceptable	If the requested media type does not include 'application/json', 406 status code must be returned.

Response Examples

Success

```
Status: 200 OK

{
    "id": 5712837116690432,
    "name": "Sea Witch",
    "type": "Catamaran",
    "length": 28,
    "owner": "Anderson1234",
    "alliance": null,
    "self": "https://final-project-ngchi.nw.r.appspot.com/boats/5712837116690432"
}
```

```
Status: 401 Unauthorized

---Token is missing---
{
    "Error": "No token."
}
```

```
---Token is invalid---

{
    "code": ... (depends on different reasons of being invalid),
    "description": ... (depends on different reasons of being invalid)
}

Status: 403 Forbidden

{
    "Error": "Not your boat."
}

Status: 404 Not Found

{
    "Error": "Boat not found."
}

Status: 406 Not Acceptable

{
    "Error": "Invalid requested media type."
}
```

Put a Boat

Allows you to update a boat owned by the authenticated user. Protected.

PUT /boats/:boat_id

Request

Path Parameters

Name	Туре	Description
boat_id	String	ID of the boat

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Туре	Description	Required?
name	String	The name of the boat.	Yes
type	String	The type of the boat. E.g., Sailboat, Catamaran, etc.	Yes
length	Integer	Length of the boat in feet.	Yes

Request Body Example

```
{
   "name": "Sea Witch",
   "type": "Catamaran",
   "length": 30
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	400 Bad Request	If the request is missing any of the 3 required attributes, or any of the data types is incorrect, or length is smaller than 1, 400 status code must be returned.
Failure	401 Unauthorized	If JWT is invalid or missing, 401 status code must be returned.
Failure	403 Forbidden	If the boat with this boat_id is not owned by the authenticated user, 403 status code must be returned.
Failure	404 Not Found	No boat with this boat_id exists.
Failure	406 Not Acceptable	If the requested media type does not include 'application/json', 406 status code must be returned.

Response Examples

Success

```
Status: 200 OK

{
    "id": 5712837116690432,
    "name": "Sea Witch",
    "type": "Catamaran",
    "length": 30,
    "owner": "Anderson1234",
    "alliance": null,
    "self": "https://final-project-ngchi.nw.r.appspot.com/boats/5712837116690432"
}
```

```
Status: 400 Bad Request
    "Error": "Invalid request body."
Status: 401 Unauthorized
---Token is missing---
    "Error": "No token."
---Token is invalid---
    "code": ... (depends on different reasons of being invalid),
    "description": ... (depends on different reasons of being invalid)
Status: 403 Forbidden
    "Error": "Not your boat."
Status: 404 Not Found
    "Error": "Boat not found."
Status: 406 Not Acceptable
    "Error": "Invalid requested media type."
```

Patch a Boat

Allows you to update a boat owned by the authenticated user. Protected.

PATCH /boats/:boat_id

Request

Path Parameters

Name	Туре	Description
boat_id	String	ID of the boat

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Туре	Description	Required?
name	String	The name of the boat.	No
type	String	The type of the boat. E.g., Sailboat, Catamaran, etc.	No
length	Integer	Length of the boat in feet.	No

Request Body Example

```
{
    "length": 30
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	Ignore all other attributes not listed above. Only three
		attributes listed above will be updated.
Failure	400 Bad Request	If any of the data types is incorrect, or length is smaller
		than 1, 400 status code must be returned.
Failure	401 Unauthorized	If JWT is invalid or missing, 401 status code must be
		returned.
Failure	403 Forbidden	If the boat with this boat_id is not owned by the
		authenticated user, 403 status code must be returned.
Failure	404 Not Found	No boat with this boat_id exists.
Failure	406 Not Acceptable	If the requested media type does not include
		'application/json', 406 status code must be returned.

Response Examples

Success

```
Status: 200 OK

{
    "id": 5712837116690432,
    "name": "Sea Witch",
    "type": "Catamaran",
    "length": 30,
    "owner": "Anderson1234",
    "alliance": null,
    "self": "https://final-project-ngchi.nw.r.appspot.com/boats/5712837116690432"
}
```

```
Status: 400 Bad Request
    "Error": "Invalid request body."
Status: 401 Unauthorized
---Token is missing---
    "Error": "No token."
---Token is invalid---
    "code": ... (depends on different reasons of being invalid),
    "description": ... (depends on different reasons of being invalid)
Status: 403 Forbidden
    "Error": "Not your boat."
Status: 404 Not Found
    "Error": "Boat not found."
Status: 406 Not Acceptable
    "Error": "Invalid requested media type."
```

Delete a Boat

Allows you to delete a boat owned by the authenticated user. Note that if the boat has an alliance, it will be removed in the boat list of the alliance. Protected.

DELETE /boats/:boat_id

Request

Path Parameters

Name	Туре	Description
boat_id	String	ID of the boat

Request Body

None

Response

No body

Response Body Format

Success: No body

Failure: JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	
Failure	401 Unauthorized	If JWT is invalid or missing, 401 status code must be returned.
Failure	403 Forbidden	If the boat with this boat_id is not owned by the authenticated user, 403 status code must be returned.
Failure	404 Not Found	No boat with this boat_id exists.

Response Examples

Success

Status: 204 No Content

```
Status: 401 Unauthorized

---Token is missing---
{
    "Error": "No token."
}
---Token is invalid---
{
    "code": ... (depends on different reasons of being invalid),
    "description": ... (depends on different reasons of being invalid)
```

```
Status: 403 Forbidden

{
    "Error": "Not your boat."
}

Status: 404 Not Found

{
    "Error": "Boat not found."
}
```

Create an Alliance

Allows you to create a new alliance. A newly created alliance has no boats assigned to it. Unprotected.

POST /alliances

Request

Path Parameters

None

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Туре	Description	Required?
founding_date	String	The date of the alliance founded. Yes	
PIC	String	The name of person in charge of the alliance. Yes	
capacity	Int	The maximum number of boats the alliance can have.	Yes

Request Body Example

```
{
    "founding_date": "10/18/2020",
    "PIC": "Admiral Young",
    "capacity": 10
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	If the request is missing any of the 3 required attributes, or any of the data types is incorrect, or capacity is smaller than 1, 400 status code must be returned.
Failure	406 Not Acceptable	If the requested media type does not include 'application/json', 406 status code must be returned.

Response Examples

```
Status: 201 Created
{
```

```
Status: 400 Bad Request

{
    "Error": "Invalid request body."
}

Status: 406 Not Acceptable

{
    "Error": "Invalid requested media type."
}
```

List all Alliances

List all the alliances. Pagination is implemented with 5 alliances listed per page. Unprotected.

GET /alliances

Request

Path Parameters

None

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	406 Not Acceptable	If the requested media type does not include
		'application/json', 406 status code must be returned.

Response Examples

```
Status: 200 OK
{
    "alliances": [
            "boats": [],
            "capacity": 10,
            "founding_date": "2021-06-04",
            "#boats": 0,
            "PIC": "Jack Sparrow",
            "id": 4961985967947776,
            "self": "https://final-project-ngchi.nw.r.appspot.com/
                     alliances/4961985967947776"
        },
            "PIC": "Jack Sparrow",
            "boats": [],
            "#boats": 0,
            "founding_date": "2021-06-06",
            "capacity": 10,
            "id": 5465505922023424,
            "self": "https://final-project-ngchi.nw.r.appspot.com/
                     alliances/5465505922023424"
```

```
"boats": [],
            "capacity": 10,
            "PIC": "Jack Sparrow",
            "#boats": 0,
            "founding_date": "2021-06-01",
            "id": 5524935921369088,
            "self": "https://final-project-ngchi.nw.r.appspot.com/
                     alliances/5524935921369088"
        },
            "#boats": 0,
            "capacity": 10,
            "PIC": "Jack Sparrow",
            "founding_date": "2021-06-03",
            "boats": [],
            "id": 6087885874790400,
            "self": "https://final-project-ngchi.nw.r.appspot.com/
                     alliances/6087885874790400"
        },
            "boats": [],
            "founding date": "2021-06-05",
            "PIC": "Jack Sparrow",
            "#boats": 0,
            "capacity": 10,
            "id": 6369360851501056,
            "self": "https://final-project--ngchi.nw.r.appspot.com/
                     alliances/6369360851501056"
        }
    ],
    "total_number": 6,
    "next": "https://final-project-ngchi.nw.r.appspot.com/
             alliances?limit=5&offset=5"
}
```

```
Status: 406 Not Acceptable

{
    "Error": "Invalid requested media type."
}
```

Get an Alliance

Allows you to get an existing alliance. Unprotected.

```
GET /alliances/:alliance_id
```

Request

Path Parameters

Name	Туре	Description
alliance_id	String	ID of the alliance

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	404 Not Found	No load with this alliance_id exists.
Failure	406 Not Acceptable	If the requested media type does not include
		'application/json', 406 status code must be returned.

Response Examples

Success

```
Status: 404 Not Found

{
    "Error": "Alliance not found."
}
Status: 406 Not Acceptable
```

```
{
    "Error": "Invalid requested media type."
}
```

Put an Alliance

Allows you to update an alliance. Unprotected.

```
PUT /alliances/:alliance_id
```

Request

Path Parameters

Name	Туре	Description
alliance_id	String	ID of the alliance

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Туре	Description	Required?
PIC	String	The name of person in charge of the alliance.	Yes
capacity	Int	The maximum number of boats the alliance can have.	Yes

Request Body Example

```
{
  "PIC": "Admiral Chan",
  "capacity": 30
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	400 Bad Request	If the request is missing any of the 2 required attributes, or any of the data types is incorrect, or capacity is smaller than 1, 400 status code must be returned.
Failure	403 Forbidden	If capacity from the request is smaller than the current number of boats in the alliance, 403 status code must be returned.
Failure	404 Not Found	No alliance with this alliance_id exists.
Failure	406 Not Acceptable	If the requested media type does not include 'application/json', 406 status code must be returned.

Response Examples

C: : 200 01/		Į.
Status: 200 OK		
Status. 200 OK		

```
Status: 400 Bad Request

{
    "Error": "Invalid request body."
}

Status: 403 Forbidden

{
    "Error": "Capacity < current #boats."
}

Status: 404 Not Found

{
    "Error": "Alliance not found."
}

Status: 406 Not Acceptable

{
    "Error": "Invalid requested media type."
}
```

Patch an Alliance

Allows you to update an alliance. Unprotected.

PATCH /alliances/:alliance_id

Request

Path Parameters

Name	Туре	Description
alliance_id	String	ID of the alliance

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Туре	Description	Required?
PIC	String	The name of person in charge of the alliance.	No
capacity	Int	The maximum number of boats the alliance can have.	No

Request Body Example

```
{
    "capacity": 30
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	400 Bad Request	If any of the data types is incorrect, or capacity is smaller
		than 1, 400 status code must be returned.
Failure	403 Forbidden	If capacity from the request is smaller than the current
		number of boats in the alliance, 403 status code must be
		returned.
Failure	404 Not Found	No alliance with this alliance_id exists.
Failure	406 Not Acceptable	If the requested media type does not include
		'application/json', 406 status code must be returned.

Response Examples

Status: 200 OK		
{		

```
Status: 400 Bad Request

{
    "Error": "Invalid request body."
}

Status: 403 Forbidden

{
    "Error": "Capacity < current #boats."
}

Status: 404 Not Found

{
    "Error": "Alliance not found."
}

Status: 406 Not Acceptable

{
    "Error": "Invalid requested media type."
}
```

Delete an Alliance

Allows you to delete an alliance. All boats in this alliance will become unassigned. Unprotected.

```
DELETE /alliances/:alliance_id
```

Request

Path Parameters

Name	Туре	Description
alliance_id	String	ID of the alliance

Request Body

None

Response

No body

Response Body Format

Success: No body

Failure: JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	
Failure	404 Not Found	No alliance with this alliance_id exists.

Response Examples

Success

```
Status: 204 No Content
```

```
Status: 404 Not Found

{
    "Error": "Alliance not found."
}
```

Assign a Boat to an Alliance

Allows you to assign a boat of an authenticated user to an alliance. A boat can only be assigned to one alliance each time. The alliance must not be full. The boat will be added to a array on the alliance's "boats" attribute. The alliance will be listed as the boat's alliance. Protected.

PUT /alliances/:alliance_id/boats/:boat_id

Request

Path Parameters

Name	Туре	Description
alliance_id	String	ID of the alliance
boat_id	String	ID of the boat

Request Body

None

Response

No body

Response Body Format

Success: No body

Failure: JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	Succeed only if a boat exists with this boat_id, a alliance exists with this alliance_id, the boat is unassigned, and the alliance is not full.
Failure	401 Unauthorized	If JWT is invalid or missing, 401 status code must be returned.
Failure	403 Forbidden	The boat is already assigned to an alliance, or the alliance is full, or the boat does not belong to the authenticated user.
Failure	404 Not Found	No boat with this boat_id exists, and/or no alliance with this alliance_id exists.

Response Examples

Success

Status: 204 No Content

Failure

Status: 401 Unauthorized
---Token is missing---

```
{
    "Error": "No token."
}
---Token is invalid---
{
    "code": ... (depends on different reasons of being invalid),
    "description": ... (depends on different reasons of being invalid)
}
Status: 403 Forbidden
---Boat is assigned to another alliance---
{
    "Error": "Boat has an alliance already."
}
---Alliance is full---
{
    "Error": "Alliance is full."
}
Status: 404 Not Found
{
    "Error": "Alliance/boat not found."
}
```

Remove a Boat from an Alliance

Allows you to remove a boat from an alliance. The boat will be removed from an array of the alliance's "boats" attribute. The boat's "alliance" attribute will be null. Unprotected.

DELETE /alliances/:alliance_id/boats/:boat_id

Request

Path Parameters

Name	Туре	Description
alliance_id	String	ID of the alliance
boat_id	String	ID of the boat

Request Body

None

Response

No body

Response Body Format

Success: No body

Failure: JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	Succeed if and only if the boat is in this alliance.
Failure	403 Forbidden	The boat is not in this alliance.
Failure	404 Not Found	No boat with this boat_id exists, and/or no alliance with this alliance id exists.

Response Examples

Success

Status: 204 No Content

```
Status: 403 Forbidden

{
    "Error": "Boat is not in this alliance."
}

Status: 404 Not Found

{
    "Error": "Alliance/boat not found."
}
```

List all Users

List all users. Unprotected.

GET /users

Request

Path Parameters

None

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	

Response Examples

Remarks

For requests submitted to the URLs with a method not listed in this document, an error will be returned.

```
E.g., DELETE /users
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Failure	405 Method Not Allowed	

Response Examples

```
Status: 405 Method Not Allowed

{
    "Error": "Request method not allowed."
}
```