

Final Project

CS 493: Cloud Application Development

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Oregon State University

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Intro

URL of Website and Login: <https://randhagufin.appspot.com/>

Non-User Entities:

Boats have names, lengths, and types.

Loads have weights, contents, and transports.

Marinas have names, locations, and leisure.

A boat can have multiple loads, but a load can only be on one boat. A marina can have multiple boats, but a boat can only be at one marina.

User Entity:

The “sub” field is used to store unique identifiers for each user and it’s gathered from the JWT provided by the Google API using OAUTH. Logging in allows a user to create boat entities, edit them, delete them, and view each boat entity that they created. Since the sub field is unique, it’s matched against the “owner” property of the boat entity to verify that only the correct creator is able to modify or delete the boat.

In order to make an authenticated request, the Authorization header must include a valid bearer token. In the case of viewing specific user created boats, the sub property must be included as an id in the url.

Create a Boat

Allows you to create a new boat.

POST /boats

Request

Request Parameters

Name	Type	Description	Required?
Authorization	Token	JWT Bearer token	Yes

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	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	
Failure	401 Unauthorized	If the provided JWT token is missing or invalid, the request is rejected.

Success

```
Status: 201 Created

{
  "id": "abc123",
  "name": "Sea Witch",
  "type": "Catamaran",
  "length": 28,
  "owner": 123,
  "self": "https://<your-app>/boats/abc123"
}
```

Failure

Status: 400 Bad Request

```
{  
  "Error": "The request object is missing at least one of the required attributes"  
}
```

Failure

Status: 401 Unauthorized

```
{  
  "Error": "The JWT token is missing or invalid"  
}
```

Get a Boat

Allows you to get an existing boat

GET /boats/:boat_id

Request

Request Parameters

Name	Type	Description	Required?
boat_id	String	ID of the boat	Yes
Accept	Application/json	Accept header must have 'application/json'	Yes

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	400 Bad Request	Accept header must include application/json
Failure	404 Not Found	No boat with this boat_id exists

Response Examples

Success

Status: 200 OK
<pre>{ "id": "abc123", "name": "Sea Witch", "type": "Catamaran", "length": 28, "owner": 123, "self": "https://<your-app>/boats/abc123" }</pre>

Failure

Status: 404 Not Found
<pre>{ "Error": "No boat with this boat_id exists" }</pre>

Failure

Status: 400 Bad Request
<pre>{ "Error": "The method is not recognized or allowed" }</pre>

List all Boats

List all the boats.

GET /boats

Request

Request Parameters

Name	Type	Description	Required?
Accept	Application/json	Accept header must have 'application/json'	Yes

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	400 Bad Request	Accept header must have 'application/json'

Response Examples

Success

Status: 200 OK
<pre>[{ "id": "abc123", "name": "Sea Witch", "type": "Catamaran", "length": 28, "owner": 123, "self": "https://<your-app>/boats/abc123" }, { "id": "def456", "name": "Adventure", "type": "Sailboat", "length": 50, "owner": 456, "self": "https://<your-app>/boats/def456" }]</pre>

Failure

Status: 400 Bad Request
<pre>{ "Error": "The method is not recognized or allowed" }</pre>

Put a Boat

Allows you to edit a boat.

PUT /boats/:boat_id

Request

Request Parameters

Name	Type	Description	Required?
boat_id	String	ID of the boat	Yes
Authorization	Token	JWT Bearer token	Yes

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	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": 99
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	400 Bad Request	One or more attributes are missing
Failure	404 Not Found	No boat with this boat_id exists
Failure	401 Unauthorized	Provided JWT is invalid or missing

Success

```
Status: 200 OK

{
  "id": "abc123",
  "name": "Sea Witch",
  "type": "Catamaran",
  "length": 99,
  "owner": 123,
  "self": "https://<your-app>/boats/abc123"
```

```
}
```

Failure

Status: 400 Bad Request

```
{  
  "Error": "The request object is missing at least one of the required attributes"  
}
```

Status: 404 Not Found

```
{  
  "Error": "No boat with this boat_id exists"  
}
```

Failure

Status: 401 Unauthorized

```
{  
  "Error": "The JWT token is missing or invalid"  
}
```


Patch a Boat

Allows you to edit a boat.

PATCH /boats/:boat_id

Request

Request Parameters

Name	Type	Description	Required?
boat_id	String	ID of the boat	Yes
Authorization	Token	JWT Bearer token	Yes

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	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": 99
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	404 Not Found	No boat with this boat_id exists
Failure	401 Unauthorized	Provided JWT is invalid or missing

Success

```
Status: 200 OK

{
  "id": "abc123",
  "name": "Sea Witch",
  "type": "Catamaran",
  "length": 99,
  "owner": 123,
  "self": "https://<your-app>/boats/abc123"
}
```

Failure

Status: 404 Not Found

```
{  
  "Error": "No boat with this boat_id exists"  
}
```

Failure

Status: 401 Unauthorized

```
{  
  "Error": "The JWT token is missing or invalid"  
}
```

Delete a Boat

Allows you to delete a boat. Note that if the boat is currently in a marina, deleting the boat makes the marina empty.

DELETE /boats/:boat_id

Request

Request Parameters

Name	Type	Description	Required?
Authorization	Token	JWT Bearer token	Yes

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 boat with this boat_id exists
Failure	401 Unauthorized	Provided JWT is invalid or missing

Response Examples

Success

Status: 204 No Content

Failure

Status: 404 Not Found

```
{
  "Error": "No boat with this boat_id exists"
}
```

Failure

Status: 401 Unauthorized

```
{
  "Error": "The JWT token is missing or invalid"
}
```


Create a Marina

Allows you to create a new marina.

POST /marinas

Request

Request Parameters

None

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
Name	String	The name of the marina.	Yes
Location	String	The location of the marina.	Yes
Leisure	String	Relaxing activities at the marina.	Yes

Request Body Example

```
{
  "name": "Turtle Cove",
  "location": "Best Coast",
  "leisure": "Snorkling"
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	

Success

```
Status: 201 Created

{
  "name": "Turtle Cove",
  "location": "Best Coast",
  "leisure": "Snorkling",
  "self": "https://<your-app>/marinas/123abc"
}
```

Failure

```
Status: 400 Bad Request

{
```

```
"Error": "The request object is missing the required number"  
}
```

Get a Marina

Allows you to get an existing marina.

GET /marinas/:marina_id

Request

Request Parameters

Name	Type	Description	Required?
marina_id	String	ID of the marina	Yes
Accept	Application/json	Header must accept application/json	Yes

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	400 Bad Request	Application/json missing from accept header
Failure	404 Not Found	No marina with this marina_id exists

Response Examples

Success

Status: 200 OK
<pre>{ "name": "Turtle Cove", "location": "Best Coast", "leisure": "Snorkling", "self": "https://<your-app>/marinas/123abc" }</pre>

Failure

Status: 400 Bad Request
<pre>{ "Error": "The method is not recognized or allowed" }</pre>

Failure

Status: 404 Not Found
<pre>{ "Error": "No marina with this marina_id exists" }</pre>

List all Marinas

List all the marinas.

GET /marinas

Request

Request Parameters

Accept header must include 'application/json'

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	406 Not Acceptable	The method requires application/json to be accepted

Response Examples

Success

<p>Status: 200 OK</p> <pre>[{ "name": "Turtle Cove", "location": "Best Coast", "leisure": "Snorkling", "self": "https://<your-app>/marinas/123abc" }, { "name": "Shallow Creek", "location": "Worst Coast", "leisure": "Digging", "self": "https://<your-app>/marinas/turrible" }]</pre>
--

Failure

<p>Status: 406 Not Acceptable</p> <pre>{ "Error": "The GET method of the root marina URL only allows for JSON content to be sent" }</pre>

Put a Marina

Allows you to edit a boat.

```
PUT /marinas/:marina_id
```

Request

Request Parameters

Name	Type	Description	Required?
marina_id	String	ID of the marina	Yes

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
Name	String	The name of the marina.	Yes
Location	String	The location of the marina.	Yes
Leisure	String	Relaxing activities at the marina.	Yes

Request Body Example

```
{
  "name": "Ice Town",
  "location": "Indiana",
  "leisure": "Roasts"
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	404 Not Found	No marina with this marina_id exists

Success

```
Status: 200 OK
{
  "name": "Ice Town",
  "location": "Indiana",
  "leisure": "Roasts"
}
```

Failure

```
Status: 404 Not Found
{
  "Error": "No marina with this marina_id exists"
}
```

Patch a Marina

Allows you to edit a boat.

```
PATCH /marinas/:marina_id
```

Request

Request Parameters

Name	Type	Description	Required?
marina_id	String	ID of the marina	Yes

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
Name	String	The name of the marina.	No
Location	String	The location of the marina.	No
Leisure	String	Relaxing activities at the marina.	No

Request Body Example

```
{
  "name": "Ice Town"
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	404 Not Found	No marina with this marina_id exists

Success

```
Status: 200 OK
{
  "name": "Ice Town",
  "location": "Best Coast",
  "leisure": "Snorkling"
}
```

Failure

```
Status: 404 Not Found
{
  "Error": "No marina with this marina_id exists"
}
```

Delete a Marina

Allows you to delete a marina. If the marina being deleted has a boat, the boat is now considered “at sea.”

DELETE /marinas/:marina_id

Request

Request Parameters

None

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 marina with this marina_id exists

Response Examples

Success

Status: 204 No Content

Failure

Status: 404 Not Found

```
{
  "Error": "No marina with this marina_id exists"
}
```

Boat Arrives at a Marina

Boat has arrived at a marina.

```
PUT /marinas/:marina_id/boats/:boat_id
```

Request

Request Parameters

None

Request Body

None

Response

No body

Response Body Format

Success: No body

Failure: JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	Succeeds only if a boat exists with this boat_id and a marina exists with this marina_id.
Failure	403 Forbidden	The boat is already in a marina.
Failure	404 Not Found	No boat with this boat_id exists, and/or no marina with this marina_id exists.

Response Examples

Success

```
Status: 204 No Content
```

Failure

```
Status: 403 Forbidden

{
  "Error": "This boat is already in a marina."
}
```

```
Status: 404 Not Found

{
  "Error": "The specified boat and/or marina don't exist"
}
```

Boat Departs a Marina

Boat has left the marina to go to sea. The marina is now empty.

```
DELETE /marinas/:marina_id/boats/:boat_id
```

Request

Request Parameters

None

Request Body

None

Response

No body

Response Body Format

Success: No body

Failure: JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	Succeeds only if a boat exists with this boat_id, a marina exists with this marina_id and this boat is at this marina.
Failure	404 Not Found	No boat with this boat_id is at the marina with this marina_id.

Response Examples

Success

```
Status: 204 No Content
```

Failure

```
Status: 404 Not Found

{
  "Error": "No boat with this boat_id is at the marina with this marina_id"
}
```

Create a Load

Allows you to create a new Load.

POST /loads

Request

Request Parameters

None

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
Weight	Integer	The weight (in pounds) of the load.	Yes
Content	String	The cargo being transported.	Yes
Transport	String	Special handling types.	Yes

Request Body Example

```
{
  "weight": 2000,
  "content": "candles",
  "transport": "flammable"
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	All attributes must be included

Success

```
Status: 201 Created

{
  "weight": 2000,
  "content": "candles",
  "transport": "flammable"
  "self": "https://<your-app>/loads/123abc"
}
```

Failure

```
Status: 400 Bad Request

{
```

```
"Error": "The request object is missing the required number"  
}
```

Get a Load

Allows you to get an existing load.

GET /loads/:load_id

Request

Request Parameters

Name	Type	Description	Required?
load_id	String	ID of the load	Yes
Accept	Application/json	Header must accept application/json	Yes

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	400 Bad Request	Application/json missing from accept header
Failure	404 Not Found	No load with this load_id exists

Response Examples

Success

<p>Status: 200 OK</p> <pre>{ "weight": 2000, "content": "candles", "transport": "flammable" "self": "https://<your-app>/loads/123abc" }</pre>

Failure

<p>Status: 400 Bad Request</p> <pre>{ "Error": "The method is not recognized or allowed" }</pre>
--

Failure

<p>Status: 404 Not Found</p> <pre>{ "Error": "No load with this load_id exists" }</pre>

List all Loads

List all the loads.

GET /loads

Request

Request Parameters

Name	Type	Description	Required?
Accept	Application/json	Accept header must include application/json	Yes

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	406 Not Acceptable	The method requires application/json to be accepted

Response Examples

Success

```
Status: 200 OK
[
  {
    "weight": 2000,
    "content": "candles",
    "transport": "flammable"
    "self": "https://<your-app>/loads/123abc"
  },
  {
    "weight": 5821,
    "content": "ice cream",
    "transport": "frozen"
    "self": "https://<your-app>/loads/456def"
  }
]
```

Failure

```
Status: 406 Not Acceptable

{
  "Error": "The GET method of the root load URL only allows for JSON content to be sent"
}
```

Put a Load

Allows you to edit a boat.

```
PUT /loads/:load_id
```

Request

Request Parameters

Name	Type	Description	Required?
load_id	String	ID of the load	Yes

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
Weight	Integer	The weight (in pounds) of the load.	Yes
Content	String	The cargo being transported.	Yes
Transport	String	Special handling types.	Yes

Request Body Example

```
{
  "weight": 5821,
  "content": "ice cream",
  "transport": "frozen"
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	404 Not Found	No load with this load_id exists

Success

```
Status: 200 OK
{
  "weight": 5821,
  "content": "ice cream",
  "transport": "frozen"
  "self": "https://<your-app>/loads/123abc"
}
```

Failure

```
Status: 404 Not Found
{
  "Error": "No load with this load_id exists"
}
```

Patch a Load

Allows you to edit a boat.

```
PATCH /loads/:load_id
```

Request

Request Parameters

Name	Type	Description	Required?
load_id	String	ID of the load	Yes

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
Weight	Integer	The weight (in pounds) of the load.	No
Content	String	The cargo being transported.	No
Transport	String	Special handling types.	No

Request Body Example

```
{
  "weight": 2
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	404 Not Found	No load with this load_id exists

Success

```
Status: 200 OK
{
  "weight": 2,
  "content": "ice cream",
  "transport": "frozen"
}
```

Failure

```
Status: 404 Not Found
{
  "Error": "No load with this load_id exists"
}
```

Delete a Load

Allows you to delete a load. If the load being deleted has a boat, the boat is now considered “at sea.”

DELETE /loads/:load_id

Request

Request Parameters

None

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 load with this load_id exists

Response Examples

Success

Status: 204 No Content

Failure

Status: 404 Not Found <pre>{ "Error": "No load with this load_id exists" }</pre>

Boat Picks up a Load

Boat has arrived at a load.

PUT /boats/:boat_id/loads/:load_id

Request

Request Parameters

None

Request Body

None

Note: You will need to set Content-Length to 0 in your request when calling out to this endpoint.

Response

No body

Response Body Format

Success: No body

Failure: JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	Succeeds only if a boat exists with this boat_id and a load exists with this load_id.
Failure	403 Forbidden	The load is already on a boat.
Failure	404 Not Found	No boat with this boat_id exists, and/or no load with this load_id exists.

Response Examples

Success

Status: 204 No Content

Failure

Status: 403 Forbidden

```
{
  "Error": "This load is already on a boat."
}
```

Status: 404 Not Found

```
{
  "Error": "The specified boat and/or load don't exist"
}
```

Boat Drops off a Load

Boat has left the load to go to sea. The load is now empty.

DELETE /boats/:boat_id/loads/:load_id

Request

Request Parameters

None

Request Body

None

Response

No body

Response Body Format

Success: No body

Failure: JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	Succeeds only if a boat exists with this boat_id, a load exists with this load_id and this load is on this boat.
Failure	404 Not Found	No boat with this boat_id is at the load with this load_id.

Response Examples

Success

Status: 204 No Content

Failure

Status: 404 Not Found

```
{
  "Error": "No boat with this boat_id is at the load with this load_id"
}
```

List all User-Specific Boats

List all the loads.

GET /users/:user_id/boats

Request

Request Parameters

Name	Type	Description	Required?
Authorization	Token	JWT Bearer token	Yes
Accept	Application/json	Accept header must include application/json	Yes

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	401 Unauthorized	The JWT token is missing or invalid
Failure	406 Not Acceptable	The method requires application/json to be accepted

Response Examples

Success

<pre>Status: 200 OK [{ "weight": 2000, "content": "candles", "transport": "flammable", "owner": 123 "self": "https://<your-app>/loads/123abc" }, { "weight": 5821, "content": "ice cream", "transport": "frozen", "owner": 123, "self": "https://<your-app>/loads/456def" }]</pre>
--

Failure

<pre>Status: 406 Not Acceptable { "Error": "The header must accept application/json" }</pre>

Failure

Status: 401 Unauthorized

```
{  
  "Error": "The JWT token is missing or invalid"  
}
```