# Portfolio: API Spec

CS 493: Cloud Application Development

#### Fall 2022

#### Oregon State University

Assignment Base URL: https://a7-bowdenn.wl.r.appspot.com
User Login and JWT Generation: https://a7-bowdenn.wl.r.appspot.com

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## Change log

Version	Change	Date
1.0	Initial version.	Oct 6, 2022
2.0	Modified for use in the Portfolio Assignment	Dec 1, 2022

## Data Model

The app stores two kinds of entities in Datastore, Boats and Slips.

## Boats

Property	Data Type	Valid Values	Notes
id	String	Numeric only	The id of the boat. Datastore automatically generates it. Don't add it yourself as a property of the entity.
name	String	Alphanumeric - 2 to 64 chars long	Name of the boat.
type	String	Alphanumeric - 2 to 64 chars long	Type of the boat. E.g., Sailboat, Catamaran, etc.
length	Integer	Numeric only	The length of the boat in feet.
owner	String	Numeric only	Owner's user id extracted from their valid JWT.
loads	Array	Load objects	Each object represents a load that the boat is carrying. Object contains: Load id, Load self URL
self	String	URL string	Points to the canonical representation of that entity.

## Loads

Property	Data Type	Valid Values	Notes
id	String	Numeric only	The id of the slip. Datastore automatically generates it. Don't add it yourself as a property of the entity.
item	String	Alphanumeric - 2 to 64 chars long	The name of the item being represented by this load.
volume	Integer	Numeric only	The amount of the item this load represents.
creation_date	String	Date String - "mm/dd/yyyy"	A date string showing when this load was created.
carrier	Object	Boat object	The singular object representing the boat that is carrying this load. Object contains: Boat id, Boat name, Boat self URL
self	String	URL string	Points to the canonical representation of that entity.

## Users

Property	Data Type	Valid Values	Notes
id	String	Numeric only	The id of the slip. Datastore automatically generates it. Don't add it yourself as a property of the entity.
userid	String	Numeric only	The extracted unique id value associated with the JWT information

## Get all Users

List all the users. Users are added to the datastore the first time they generate a JWT using a Google login. The "sub" attribute is extracted from the decoded JWT to be used as a unique userid.

There is a one-to-many relationship with Boats. Each owner can own many boats, but each boat can only be owned by one owner.

This is the only allowed Users endpoint.

#### **GET /users**

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	The request is only accepting an unsupported content
		type. This endpoint only returns JSON.

### Response Examples

#### Success

```
Status: 406 Not Acceptable

{
"Error": "The request is only accepting an unsupported type"
}
```

## Create a Boat

Allows you to create a new boat. Requires valid JWT.

This entity has a one-to-many relationship with Loads. Each Boat can have many loads, but each load can only be on one boat.

This entity has a many-to-one relationship with Users. Each Boat can only have one owner, but an owner can have many boats.

#### POST /boats

Request

Path Parameters

None

Request Body

Required

Request Body Format

**JSON** 

#### Request JSON Attributes

Name	Description	Required?
name	The name of the boat.	Yes
type	The type of the boat. E.g., Sailboat, Catamaran, etc.	Yes
length	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, the boat must not be created, and 400 status code must be returned.
		You don't need to validate the values of the attributes and can assume that if the request contains any of the listed attributes, then that attribute's value is valid.
		You can also assume that the request will not contain any

		extraneous attribute (i.e., the request JSON will never contain any attribute that is not listed above).
Failure	401 Unauthorized	If a request contains a missing or invalid JWT token.
Failure	406 Not Acceptable	The request is only accepting an unsupported content type. This endpoint only returns JSON.
Failure	415 Unsupported Media Type	The request has sent over the information in an unsupported content type. This endpoint only accepts JSON.

#### Response Examples

- Datastore will automatically generate an ID and store it with the entity being created. Your app must send back this value in the response body as shown in the example.
- The owner's unique userid will be extracted from the provided JWT.

#### Success

```
Status: 201 Created

{
    "id": 123,
    "name": "Sea Witch",
    "type": "Catamaran",
    "length": 28,
    "owner": "8182349234929234",
    "loads": [],
    "self": https://a7-bowdenn.wl.r.appspot.com/boats/123
}
```

#### Failure

```
Status: 400 Bad Request
{
"Error": "The request object is missing at least one of the required attributes"
}
```

#### Failure

```
Status: 401 Unauthorized
{
"Error": "Invalid or missing token"
}
```

#### Failure

```
Status: 406 Not Acceptable
{
"Error": "The request is only accepting an unsupported type"
}
```

```
Status: 415 Unsupported Media Type
{
"Error": "The request object is using an unsupported media type. This endpoint accepts only JSON"
}
```

## Get a Boat

Allows you to get an existing boat. Required a valid JWT that corresponds to the boat owner.

## GET /boats/:boat\_id

## Request

#### Path Parameters

Name	Description	Required
boat_id	ID of the boat	Yes

#### Request Body

None

## Response

### Response Body Format

**JSON** 

#### Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	401 Unauthorized	If a request contains a missing or invalid JWT token.
Failure	403 Forbidden	The request contains valid JWT but is not the owner of
		the requested boat
Failure	404 Not Found	No boat with this boat_id exists
Failure	406 Not Acceptable	The request is only accepting an unsupported content
		type. This endpoint only returns JSON.

## Response Examples

#### Success

```
Status: 200 OK

{
    "id": 123,
    "name": "Sea Witch",
    "type": "Catamaran",
    "length": 28,
    "loads": [],
    "owner": "81923591234"
    "self": "https://a7-bowdenn.wl.r.appspot.com/boats/123"

}
```

```
Status: 401 Unauthorized

{
"Error": "Invalid or missing token"
}
```

#### Failure

```
Status: 403 Forbidden
{
"Error": "Not authorized to view this boat"
}
```

## Failure

```
Status: 404 Not Found

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

```
Status: 406 Not Acceptable

{
"Error": "The request is only accepting an unsupported type"
}
```

## List all Boats

List all the boats using pagination. Requires a valid JWT, will only show the boats that correspond to the owner of the JWT.

#### **GET /boats**

#### Request

#### Path Parameters

Name	Description	Required?
offset	The starting result offset for pagination, default is 0	No
limit	The amount of results to be returned in the request, default is 5	No

#### Request Body

None

### Response

#### Response Body Format

JSON

#### Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	401 Unauthorized	If a request contains a missing or invalid JWT token.
Failure	406 Not Acceptable	The request is only accepting an unsupported content
		type. This endpoint only returns JSON.

#### Response Examples

• The value of the "next" attribute represents a link to the next page of results, this is dictated by the current "offset" value shown in the query portion of the URL. If there are no other pages of results to be retrieved, "next" will have a **null** value.

#### Success

```
Status: 200 OK

"boats": [

{
    "type": "Catamaran",
    "loads": [],
    "self": "https://a7-bowdenn.wl.r.appspot.com/boats/5068721408180224",
    "owner": "112482900568693244864",
    "length": 28,
    "name": "Sea Witch 4",
    "id": "5068721408180224"
},
{
    "length": 28,
    "type": "Catamaran",
```

#### Failure

```
Status: 401 Unauthorized

{
"Error": "Invalid or missing token"
}
```

```
Status: 406 Not Acceptable

{
"Error": "The request is only accepting an unsupported type"
}
```

## Update all Boat information - PUT

Allows you to update all the editable properties of a boat. This endpoint requires all 3 properties to make an update. Requires valid JWT that corresponds to the owner of the boat.

PUT /boats/:boat\_id

#### Request

#### Path Parameters

Name	Description	Required
boat_id	ID of the boat	Yes

## Request Body

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

#### Response

## Response Body Format

JSON

### Response Statuses

Outcome	Status Code	Notes
Success	303 OK - See Other	Provides Location header for user to make a new GET
		request to.
Failure	400 Bad Request	Provides specific info as to why the invalid property
		failed.
Failure	401 Unauthorized	If a request contains a missing or invalid JWT token.
Failure	403 Forbidden	The request contains valid JWT but is not the owner of
		the requested boat
Failure	404 Not Found	No boat with this boat_id exists
Failure	406 Not Acceptable	The request is only accepting an unsupported content
		type. This endpoint only returns JSON.
Failure	415 Unsupported	The request has sent over the information in an
	Media Type	unsupported content type. This endpoint only accepts
		JSON.

#### Response Examples

#### Success

Status: 303 OK - See Other

No response, check the Location header

```
Status: 400 Bad Request
{
   "Error": "Invalid name: must be alphanumeric/spaces and between 2 and 64
   characters long"
}
```

#### Failure

```
Status: 401 Unauthorized

{
"Error": "Invalid or missing token"
}
```

#### Failure

```
Status: 403 Forbidden

{
"Error": "Not authorized to edit this boat"
}
```

#### Failure

```
Status: 404 Not Found

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

#### Failure

```
Status: 406 Not Acceptable

{
    "Error": "The request is only accepting an unsupported type"
}
```

```
Status: 415 Unsupported Media Type

{
"Error": "The request object is using an unsupported media type. This endpoint accepts only JSON"
}
```

## Update some Boat information - PATCH

Allows you to update all the editable properties of a boat. This endpoint uses up to all 3 properties to make an update. Requires valid JWT that corresponds to the owner of the boat.

PUT /boats/:boat\_id

#### Request

#### Path Parameters

Name	Description	Required
boat_id	ID of the boat	Yes

## Request Body

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

#### Response

## Response Body Format

JSON

## Response Statuses

Outcome	Status Code	Notes
Success	303 OK	Provides Location header for user to make a new GET
		request to.
Failure	400 Bad Request	Provides specific info as to why the invalid property
		failed.
Failure	401 Unauthorized	If a request contains a missing or invalid JWT token.
Failure	403 Forbidden	The request contains valid JWT but is not the owner of
		the requested boat
Failure	404 Not Found	No boat with this boat_id exists
Failure	406 Not Acceptable	The request is only accepting an unsupported content
		type. This endpoint only returns JSON.
Failure	415 Unsupported	The request has sent over the information in an
	Media Type	unsupported content type. This endpoint only accepts
		JSON.

#### Response Examples

#### Success

Status: 303 OK - See Other No response, check the Location header

```
Status: 400 Bad Request
{
"Error": "Invalid name: must be alphanumeric/spaces and between 2 and 64
characters long"
}
```

#### Failure

```
Status: 401 Unauthorized

{
"Error": "Invalid or missing token"
}
```

#### Failure

```
Status: 403 Forbidden

{
   "Error": "Not authorized to edit this boat"
}
```

#### Failure

```
Status: 404 Not Found

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

#### Failure

```
Status: 406 Not Acceptable

{
    "Error": "The request is only accepting an unsupported type"
}
```

```
Status: 415 Unsupported Media Type

{
"Error": "The request object is using an unsupported media type. This endpoint accepts only JSON"
}
```

## Delete a Boat

Allows you to delete a boat. Note that if the boat currently has loads, deleting the boat will remove the loads from the boat. The removed Loads will have their "carrier" attribute adjusted to be **null** again. Requires a valid JWT that correctly matches to the owner of the boat.

#### DELETE /boats/:boat\_id

## Request

#### Path Parameters

Name	Description	Required
boat_id	ID of the boat	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	401 Unauthorized	If a request contains a missing or invalid JWT token.
Failure	403 Forbidden	The request contains valid JWT but is not the owner of
		the requested boat
Failure	404 Not Found	No boat with this boat_id exists

#### Response Examples

#### Success

## Status: 204 No Content

#### Failure

```
Status: 401 Unauthorized
{
"Error": "Invalid or missing token"
}
```

#### Failure

```
Status: 403 Forbidden
{
"Error": "Not authorized to view this boat"
}
```

```
Status: 404 Not Found
{
"Error": "No boat with this boat_id exists"
}
```

## Create a Load

Allows you to create a new load.

This entity has a many-to-one relationship with Boats. Each load can only exist on one boat, but each boat can carry many loads.

## POST /loads

Request

Path Parameters

None

Request Body

Required

Request Body Format

**JSON** 

## Request JSON Attributes

Name	Description	Required?
item	The item that is going to be represented by the load	Yes
volume	The amount of space this load will take up	Yes
creation_date	The creation date of the load	Yes

## Request Body Example

```
{
    "volume": 5,
    "item": "LEGO Blocks",
    "creation_date": "10/18/2021
}
```

## Response

Response Body Format

**JSON** 

## Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	If the request is missing the number attribute, the slip must not be created, and 400 status code must be returned.
Failure	406 Not Acceptable	The request is only accepting an unsupported content type. This endpoint only returns JSON.
Failure	415 Unsupported Media Type	The request has sent over the information in an unsupported content type. This endpoint only accepts JSON.

#### Response Examples

- Datastore will automatically generate an ID and store it with the entity being created. This value needs to be sent in the response body as shown in the example.
- The value of the attribute carrier is the ID of the boat currently carrying this load. If there is no boat carrying this load, the value of carrier should be null.

#### Success

```
Status: 201 Created

{
    "id": 123,
    "volume": 5,
    "item": "LEGO Blocks",
    "creation_date": "10/18/2021",
    "carrier": null,
    "self": "https://a7-bowdenn.wl.r.appspot.com/loads/123"
}
```

#### Failure

```
Status: 400 Bad Request

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

#### Failure

```
Status: 406 Not Acceptable

{
"Error": "The request is only accepting an unsupported type"
}
```

```
Status: 415 Unsupported Media Type

{
"Error": "The request object is using an unsupported media type. This endpoint accepts only JSON"
}
```

## Get a Load

Allows you to get an existing load.

```
GET /loads/:load_id
```

### Request

## Path Parameters

Name	Description
load_id	ID of the load

#### 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 load_id exists	
Failure	406 Not Acceptable	The request is only accepting an unsupported content type. This endpoint only returns JSON.	

#### Response Examples

#### Success

```
Status: 200 OK

{
    "creation_date": "10/18/2021",
    "carrier": {
        "id": "5147403464212480",
        "self": "https://a7-bowdenn.wl.r.appspot.com/boats/5147403464212480",
        "name": "Lucia"
    },
    "volume": 5,
    "item": "LEGO Blocks",
    "self": "https://a7-bowdenn.wl.r.appspot.com/loads/5679095853613056",
    "id": "5679095853613056"
}
```

```
Status: 404 Not Found

{
"Error": "No load with this load_id exists"
}
```

```
Status: 406 Not Acceptable

{
    "Error": "The request is only accepting an unsupported type"
    }
```

## List all Loads

List all the loads.

#### **GET /loads**

#### Request

#### Path Parameters

Name	Description	Required?
offset	The starting result offset for pagination, default is 0	No
limit	The amount of results to be returned in the request, default is 3	No

### Request Body

None

## Response

#### Response Body Format

JSON

### Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	406 Not Acceptable	The request is only accepting an unsupported content
		type. This endpoint only returns JSON.

#### Response Examples

• The value of the "next" attribute represents a link to the next page of results, this is dictated by the current "offset" value shown in the query portion of the URL. If there are no other pages of results to be retrieved, "next" will have a **null** value.

#### Success

```
"id": "4836104234598400"

},

{
    "item": "LEGO Blocks",
    "volume": 5,
    "creation_date": "10/18/2021",
    "carrier": null,
    "self": "https://a7-bowdenn.wl.r.appspot.com/loads/5073695114526720",
    "id": "5073695114526720"
    }

],
    "next": "https://a7-bowdenn.wl.r.appspot.com/loads?offset=5"
]
```

## Update all Load information - PUT

Allows you to update all the editable properties of a load. This endpoint requires all 3 properties to make an update.

PUT /loads:load\_id

## Request

#### Path Parameters

Name	Description
load_id	ID of the load

#### Request Body

Required

## Request Body Format

**JSON** 

## Request JSON Attributes

Name	Description	Required?
item	The item that is going to be represented by the load	Yes
volume	The amount of space this load will take up	Yes
creation_date	The creation date of the load	Yes

## Request Body Example

```
{
   "volume": 5,
   "item": "LEGO Blocks",
   "creation_date": "10/18/2021
}
```

## Response

## Response Body Format

**JSON** 

## Response Statuses

Outcome	Status Code	Notes	
Success	303 OK - See Other	Provides Location header for user to make a new GET	
		request to.	
Failure	400 Bad Request	If the request is missing the number attribute, the slip	
		must not be created, and 400 status code must be	
		returned.	
Failure	404 Not Found	No load with this load_id exists	
Failure	406 Not Acceptable	The request is only accepting an unsupported content	
		type. This endpoint only returns JSON.	
Failure	415 Unsupported	The request has sent over the information in an	
	Media Type	unsupported content type. This endpoint only accepts	
		JSON.	

## Response Examples

#### Success

```
Status: 303 OK - See Other
No Response, check Location header.
```

#### Failure

```
Status: 400 Bad Request

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

#### Failure

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

#### Failure

```
Status: 406 Not Acceptable

{
    "Error": "The request is only accepting an unsupported type"
}
```

```
Status: 415 Unsupported Media Type

{
    "Error": "The request object is using an unsupported media type. This endpoint accepts only JSON"
}
```

## Update some Load information - PATCH

Allows you to update all the editable properties of a load. This endpoint uses up to all 3 properties to make an update.

PATCH /loads:load\_id

## Request

#### Path Parameters

Name	Description
load_id	ID of the load

## Request Body

Required

## Request Body Format

**JSON** 

## Request JSON Attributes

Name	Description	Required?
item	The item that is going to be represented by the load	No
volume	The amount of space this load will take up	No
creation_date	The creation date of the load	No

## Request Body Example

```
{
   "volume": 5
}
```

## Response

## Response Body Format

**JSON** 

## Response Statuses

Outcome	Status Code	Notes	
Success	303 OK - See Other	Provides Location header for user to make a new GET	
		request to.	
Failure	400 Bad Request	If the request is missing the number attribute, the slip	
		must not be created, and 400 status code must be	
		returned.	
Failure	404 Not Found	No load with this load_id exists	
Failure	406 Not Acceptable	The request is only accepting an unsupported content	
		type. This endpoint only returns JSON.	
Failure	415 Unsupported	The request has sent over the information in an	
	Media Type	unsupported content type. This endpoint only accepts	
		JSON.	

## Response Examples

#### Success

```
Status: 303 OK - See Other
No Response, check Location header.
```

#### Failure

```
Status: 400 Bad Request

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

#### Failure

```
Status: 404 Not Found

{
"Error": "No load with this load_id exists"
}
```

#### Failure

```
Status: 406 Not Acceptable

{
    "Error": "The request is only accepting an unsupported type"
}
```

```
Status: 415 Unsupported Media Type

{
"Error": "The request object is using an unsupported media type. This endpoint accepts only JSON"
}
```

## Delete a Load

Allows you to delete a load. If the load being deleted is being carried by a boat, the load will be removed from that boat's "loads" array.

DELETE /loads/:load\_id

## Request

#### Path Parameters

Name	Description
load_id	ID of the load

#### 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

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

## Assign Load to Boat

Places a load onto a ship. Updates the loads "carrier" attribute and the ships "loads" array to reflect the current relationship.

```
PUT /boats/:boat_id/loads/:load_id
```

### Request

#### Path Parameters

Name	Description
load_id	ID of the load
boat_id	ID of the boat

## Request Body

None

Note: 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, a load	
		exists with this load_id and the load is not currently	
		assigned to any carrier.	
Failure	403 Forbidden	The load has already been assigned to another boat	
Failure	404 Not Found	The specified boat and/or load does not exist	

#### Response Examples

#### Success

```
Status: 204 No Content
```

#### Failure

```
Status: 403 Forbidden
{
"Error": "The load is already loaded on another boat"
}
```

```
Status: 404 Not Found
{
   "Error": "The specified boat and/or load does not exist"
}
```

## Remove Load from Boat

The specified load is removed from the specified boat by adjusting its "carrier" attribute to **null**. When a load is removed, the specified boat has its "loads" array adjusted to reflect the removal.

#### DELETE /boats/:boat\_id/loads/:load\_id

### Request

#### Path Parameters

Name	Description	Required
load_id	ID of the load	Yes
boat_id	ID of the boat	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	Succeeds only if a boat exists with this boat_id, a load
		exists with this load_id and this load has the specified
		boat_id assigned in the "carrier" attribute
Failure	404 Not Found	No boat with this boat_id is at the load with this load_id.
		This could be because no boat with this boat_id exists, or
		because no load with load_id exists, or even if both
		boat_id and load_id are valid, the load with this load_id
		does not have the boat_id assigned to it's "carrier"

#### Response Examples

#### Success

Status: 204 No Content

```
Status: 404 Not Found
{
"Error": "No boat with this boat_id is loaded with the load with this load_id"
}
```