

CS493 Cloud Development Homework 4 – Spring 2020

Author: Chen Zou

Email: zouch@oregonstate.edu

Application link: <https://hw4-zouch000.appspot.com/>

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Change log

Page	Change	Date
	Initial version.	April 21, 2020
	Finalized	April 23, 2020

Create a Boat

Allows you to create a new boat.

POST /boats

Request

Request Parameters

None

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	<p>If the request is missing any of the 3 required attributes, the boat must not be created, and 400 status code must be returned.</p> <p>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.</p> <p>You can also assume that the request will not contain any extraneous attribute (i.e., the request JSON will never contain any attribute other than the ones that are listed).</p>

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 `loads` is the list of IDs of loads currently loaded on to this boat. If there is no load at this boat, the value of `loads` should be an empty list.
- The `self` attribute will contain the live link to the REST resource corresponding to this boat. In other words, this is the URL to get this newly created boat. You must not store the `self` attribute in Datastore

Success

Status: 201 Created

```
{
  "id": "abc123",
  "name": "Sea Witch",
  "type": "Catamaran",
  "length": 28,
  "loads": [],
  "self": "https://hw4-zouch000.appspot.com/boats/abc123"
}
```

Failure

Status: 400 Bad Request

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

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

Request Body

None

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

Response Examples

Success

```
Status: 200 OK

{
  "id": "abc123",
  "name": "Sea Witch",
  "type": "Catamaran",
  "length": 28,
  "loads": [
    { "id": "123abc",
      "self": "https:// hw4-zouch000.appspot.com/loads/123abc" },
    { "id": "456",
      "self": "https:// hw4-zouch000.appspot.com/loads/456" }
  ],
  "self": "https:// hw4-zouch000.appspot.com/boats/abc123"
}
```

Failure

```
Status: 404 Not Found

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

List all Boats

List all the boats.

GET /boats

Request

Request Parameters

None

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	

Response Examples

Success

Status: 200 OK

Page 1:

```
{
  "boats": [
    {
      "loads": [],
      "length": 999,
      "type": "Yatch",
      "name": "Odyssey III",
      "id": "5090685099180032",
      "self": "https://hw4-zouch000.appspot.com/boats/5090685099180032"
    },
    {
      "length": 99,
      "type": "Yatch",
      "name": "Odyssey",
      "loads": [],
      "id": "5662484329398272",
      "self": "https://hw4-zouch000.appspot.com/boats/5662484329398272"
    },
    {
      "loads": [],
      "type": "Yatch",
      "length": 888,
      "name": "Odyssey IV",
```

```
    "id": "5672404563001344",
    "self": "https://hw4-zouch000.appspot.com/boats/5672404563001344"
  }
],
"next": "https://hw4-zouch000.appspot.com/boats?limit=3&offset=3"
}
```

Page 2:

```
{
  "boats": [
    {
      "length": 88,
      "type": "Yatch",
      "name": "Odyssey II",
      "loads": [],
      "id": "5700115691995136",
      "self": "https://hw4-zouch000.appspot.com/boats/5700115691995136"
    },
    {
      "length": 66,
      "type": "Yatch",
      "name": "Odyssey VI",
      "loads": [],
      "id": "5711226101301248",
      "self": "https://hw4-zouch000.appspot.com/boats/5711226101301248"
    },
    {
      "type": "Yatch",
      "length": 77,
      "name": "Odyssey VII",
      "loads": [],
      "id": "5738356268859392",
      "self": "https://hw4-zouch000.appspot.com/boats/5738356268859392"
    }
  ],
  "next": "https://hw4-zouch000.appspot.com/boats?limit=3&offset=6"
}
```

Page 3:

```
{
  "boats": [
    {
      "name": "Odyssey V",
      "loads": [],
      "length": 55,
      "type": "Yatch",
      "id": "5746523350499328",
      "self": "https://hw4-zouch000.appspot.com/boats/5746523350499328"
    }
  ]
}
```

```
}  
  ]  
{
```

Delete a Boat

Allows you to delete a boat. Deleting the boat will unload any loads that were loaded on to it.

DELETE /boats/:boat_id

Request

Request Parameters

Name	Type	Description	Required?
boat_id	String	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	404 Not Found	No boat with this boat_id exists

Response Examples

Success

Status: 204 No Content

Failure

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

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 of the load.	Yes
content	String	The content of the load.	Yes
delivery_date	String	The date of the load is to be delivered	Yes

Request Body Example

```
{
  "weight": 5,
  "content": "LEGO Blocks",
  "delivery_date": "1/1/2020"
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	<p>If the request is missing the number attribute, the slip must not be created, and 400 status code must be returned.</p> <p>You don't need to validate the values of this attribute and can assume that if the number attribute is specified, then its value is valid.</p> <p>You can also assume that the request will not contain any extraneous attribute (i.e., the request JSON will never contain any attribute other than number).</p>

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 the load is currently assigned to. If there is no boat assigned, the value of `carrier` should be null.
- The value of the attribute `self` is a live link to the REST resource corresponding to this slip. In other words, this is the URL to get this newly created slip. You must not store this attribute in Datastore.

Success

Status: 201 Created

```
{
  "id": "123abc",
  "weight": 5,
  "carrier": {
    "id": "abc123",
    "name": "Sea Witch",
    "self": "https://appspot.com/boats/abc123"
  },
  "content": "LEGO Blocks",
  "delivery_date": "1/1/2020",
  "self": "https://hw4-zouch000.com/loads/123abc"
}
```

Failure

Status: 400 Bad Request

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

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

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

Response Examples

Success

```
Status: 200 OK

{
  "id": "123abc",
  "weight": 5,
  "carrier": {
    "id": "abc123",
    "name": "Sea Witch",
    "self": "https://hw4-zouch000.appspot.com/boats/abc123"
  },
  "content": "LEGO Blocks",
  "delivery_date": "1/1/2020",
  "self": "https://hw4-zouch000.appspot.com/loads/123abc"
}
```

Failure

```
Status: 404 Not Found

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

List all Loads

List all the loads. The results are displayed as 3 loads per page and a 'next' link if there is a next page.

GET /loads

Request

Request Parameters

None

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	

Response Examples

Success

Status: 200 OK

Page 1:

```
{
  "loads": [
    {
      "carrier": null,
      "weight": 5,
      "delivery_date": "1/1/2020",
      "content": "LEGO Blocks VII",
      "id": "5126231892688896",
      "self": "https://hw4-zouch000.appspot.com/loads/5126231892688896"
    },
    {
      "content": "LEGO Blocks IV",
      "weight": 5,
      "carrier": null,
      "delivery_date": "1/1/2020",
      "id": "5653281556660224",
      "self": "https://hw4-zouch000.appspot.com/loads/5653281556660224"
    },
    {
      "content": "LEGO Blocks V",
      "weight": 5,
      "carrier": null,
      "delivery_date": "1/1/2020",
```

```
    "id": "5659211052613632",
    "self": "https://hw4-zouch000.appspot.com/loads/5659211052613632"
  }
],
"next": "https://hw4-zouch000.appspot.com/loads?limit=3&offset=3"
}
```

Page 2:

```
{
  "loads": [
    {
      "content": "LEGO Blocks III",
      "weight": 5,
      "carrier": null,
      "delivery_date": "1/1/2020",
      "id": "5663521362673664",
      "self": "https://hw4-zouch000.appspot.com/loads/5663521362673664"
    },
    {
      "content": "LEGO Blocks II",
      "weight": 5,
      "carrier": null,
      "delivery_date": "1/1/2020",
      "id": "5678224176578560",
      "self": "https://hw4-zouch000.appspot.com/loads/5678224176578560"
    },
    {
      "content": "LEGO Blocks VI",
      "weight": 5,
      "carrier": null,
      "delivery_date": "1/1/2020",
      "id": "5728633066881024",
      "self": "https://hw4-zouch000.appspot.com/loads/5728633066881024"
    }
  ],
  "next": "https://hw4-zouch000.appspot.com/loads?limit=3&offset=6"
}
```

Last page:

```
{
  "loads": [
    {
      "content": "LEGO Blocks",
      "weight": 5,
      "carrier": null,
      "delivery_date": "1/1/2020",
      "id": "5758387459457024",
      "self": "https://hw4-zouch000.appspot.com/loads/5758387459457024"
    }
  ]
}
```

```
}  
  ]  
{
```

Delete a Load

Allows you to delete a slip. If the load being deleted is assigned to a boat, the boat should be updated to exclude this load.

DELETE /:load_id

Request

Request Parameters

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

Assign a Load to a Boat

Load assigned to a boat. Load carrier will be updated to boat and boat loads will include load. If a load is already assigned to one boat and then is assigned to another boat without first being removed, it should return a 403 status code.

PUT /boats/:boat_id/:load_id

Request

Request Parameters

Name	Type	Description	Required?
load_id	String	ID of the load	Yes
Boat_id	String	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 and a load exists with this load_id.
Failure	403 Forbidden	The load is already assigned to another 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": "The load has already been assigned to another boat"
}
```

Status: 404 Not Found

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


Remove a Load from a Boat

Unassigned a load from a boat. Load carrier will be null and load will be removed from boat loads.

DELETE /boats/:boat_id/:load_id

Request

Request Parameters

Name	Type	Description	Required?
load_id	String	ID of the load	Yes
Boat_id	String	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 is at this boat.
Failure	404 Not Found	No load with this load_id is at the boat with this boat_id.

Response Examples

Success

Status: 204 No Content

Failure

Status: 404 Not Found
<pre>{ "Error": "No load with this load_id is at the boat with this boat_id" }</pre>

List All Loads for a Given Boat

List all the loads at a boat, no carrier information required.

GET /boats/:boat_id/loads

Request

Request Parameters

Name	Type	Description	Required?
boat_id	String	ID of the boat	Yes

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	Succeeds only if a boat exists with this boat_id.
Failure	404 Not Found	No boat with this boat_id exists.

Response Examples

Success

Status: 200 OK
<pre>[{ "id": "123abc", "weight": 5, "content": "LEGO Blocks", "delivery_date": "1/1/2020" "self": "https://appspot.com/loads/123abc" }, { "id": "456def", "weight": 10000, "content": "Money", "delivery_date": "10/1/2020" "self": "https://appspot.com/loads/456def" }]</pre>

Failure

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