CS493 Cloud Development Homework 4 – Spring 2020

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**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 |
|  | Changed the URL for managing boat/load | April 28, 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 | 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 other than the ones that are listed). |

### 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  {  "Error": "No boat with this boat\_id exists"  } |

# 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 | If the request is missing the number attribute, the slip must not be created, and 400 status code must be returned.  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.  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). |

### 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  {  "Error": "No load with this load\_id exists"  } |

# 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/loads/: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

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 exits. |

### 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/loads/: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  {  "Error": "No load with this load\_id is at the boat with this boat\_id"  } |

# 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?** |
| boad\_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  [  {  "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"  }  ] |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "No boat with this boat\_id"  } |