

# Presidents API

by teamCatLady



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# Problem

- Presidents are important historical figures
- Information about presidents is spread across a variety of services/locations
- A wide variety of people need access to this information
  - Ex: students studying, trivia practice

# Solution: Presidents API

- Data sourced from a different GitHub project
- Stored in MySQL database (single table)
- Hibernate DAO
- Log4J2 Logging
- Jackson API
- Swagger documentation

# Implementation: Database & Entity

## Models

```
President {
  id          integer($int32)
  number      integer($int32)
  name        string
  birthYear   integer($int32)
  deathYear   integer($int32)
  tookOffice  string
  leftOffice  string
  party       string
}
```

```
public class President {
```

```
    private int id;
```

```
    ...
```

```
}
```

id	number	president	birth_year	death_year	took_office	left_office	party
1	1	George Washington	1732	1799	1789-04-30	1797-03-04	No Party
2	2	John Adams	1735	1826	1797-03-04	1801-03-04	Federalist
3	3	Thomas Jefferson	1743	1826	1801-03-04	1809-03-04	Democratic-Republ:
4	4	James Madison	1751	1836	1809-03-04	1817-03-04	Democratic-Republ:
5	5	James Monroe	1758	1831	1817-03-04	1825-03-04	Democratic-Republ:

# Implementation: DAO

uniqueResult()

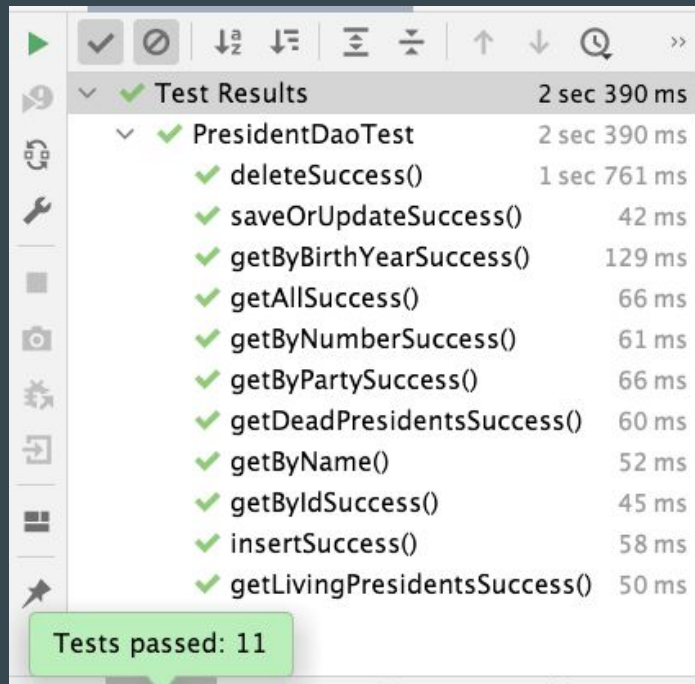
```
public President getByNumber(int number) {  
    Session session = sessionFactory.openSession();  
    CriteriaBuilder builder = session.getCriteriaBuilder();  
    CriteriaQuery<President> query = builder.createQuery(President.class);  
    Root<President> root = query.from(President.class);  
    Expression<String> propertyPath = root.get("number");  
    query.where(builder.equal(propertyPath, number));  
    President president = session.createQuery(query).uniqueResult();  
    session.close();  
    return president;  
}
```

# Implementation: DAO

builder.isNull and builder.isNotNull

```
public List<President> getAllLivingPresidents() {  
    Session session = sessionFactory.openSession();  
    CriteriaBuilder builder = session.getCriteriaBuilder();  
    CriteriaQuery<President> query = builder.createQuery(President.class);  
    Root<President> root = query.from(President.class);  
    Expression<String> propertyPath = root.get("deathYear");  
    query.where(builder.isNull(propertyPath));  
    List<President> presidents = session.createQuery(query).getResultList();  
    session.close();  
    return presidents;  
}
```

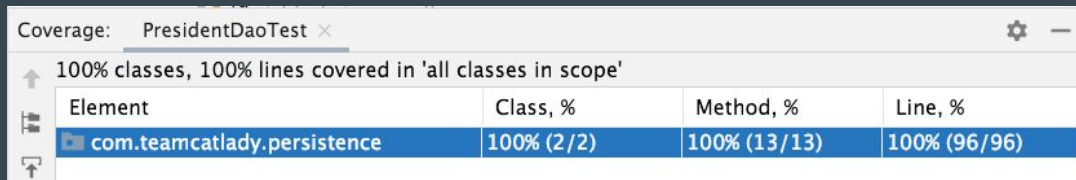
# Implementation: Unit Tests



The screenshot shows the 'Test Results' window in an IDE. The 'Test Results' tree is expanded, showing 'PresidentDaoTest' with a green checkmark and a duration of 2 sec 390 ms. Below it, 11 individual test methods are listed, each with a green checkmark and its duration. A green tooltip at the bottom left states 'Tests passed: 11'.

Test Method	Duration
PresidentDaoTest	2 sec 390 ms
deleteSuccess()	1 sec 761 ms
saveOrUpdateSuccess()	42 ms
getByBirthYearSuccess()	129 ms
getAllSuccess()	66 ms
getByNumberSuccess()	61 ms
getByPartySuccess()	66 ms
getDeadPresidentsSuccess()	60 ms
getByName()	52 ms
getByIdSuccess()	45 ms
insertSuccess()	58 ms
getLivingPresidentsSuccess()	50 ms

Tests passed: 11



The screenshot shows the 'Coverage' window for 'PresidentDaoTest'. It displays a summary of 100% coverage for classes and lines. Below the summary is a table with 4 columns: Element, Class, %, Method, %, and Line, %.

Element	Class, %	Method, %	Line, %
com.teamcatlady.persistence	100% (2/2)	100% (13/13)	100% (96/96)

# Implementation: API

## Service Calls:

- . GET /presidents
- . GET /presidents/xml
- . GET /presidents/plaintext
- . GET /presidents/id/:id
- . GET /presidents/id/:id/xml
- . GET /presidents/id/:id/plaintext
- . GET /presidents/party/:party
- . GET /presidents/party/:party/xml
- . GET /presidents/party/:party/plaintext
- . GET /presidents/living/:isAlive/
- . GET /presidents/living/:isAlive/xml
- . GET /presidents/living/:isAlive/plaintext
- . POST /presidents
- . PUT /presidents/id/:id



**Demo!**

GET

localhost:8080/teamCatLady\_war/api/presidents

Send

Params

Authorization

Headers (6)

Body

Pre-request Script

Tests

Settings

Cookies

## Query Params

KEY	VALUE	DESCRIPTION	...	Bulk Edit
Key	Value	Description		

Body

Cookies

Headers (6)

Test Results



Status: 200 OK

Time: 327 ms

Size: 7.54 KB

Save Response

Pretty

Raw

Preview

Visualize

JSON



```
1 [
2   {
3     "id": 1,
4     "number": 1,
5     "name": "George Washington",
6     "birthYear": 1732,
7     "deathYear": 1799,
8     "tookOffice": "1789-04-30",
9     "leftOffice": "1797-03-04",
10    "party": "No Party"
11  },
12  {
13    "id": 2,
14    "number": 2,
15    "name": "John Adams",
16    "birthYear": 1735,
17    "deathYear": 1826,
18    "tookOffice": "1797-03-04",
19    "leftOffice": "1801-03-04",
20    "party": "Federalist"
21  },
22  {
23    "id": 3,
24    "number": 3,
```

localhost:8080/teamCatLady\_war/api/presidents/plaintext

## Settings

## Cookies

### Query Params

	KEY	VALUE	DESCRIPTION	...	Bulk Edit
	Key	Value	Description		

### Test Results

Save Response 

Visualize

Text:

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```
1 [{"President":1, "name":"George Washington", "birthYear":1732, "deathYear":1799, "tookOffice":"1789-04-30", "leftOffice":"1797-03-04",
  "party":"No Party"}, {"President":2, "name":"John Adams", "birthYear":1735, "deathYear":1826, "tookOffice":"1797-03-04",
  "leftOffice":"1801-03-04", "party":"Federalist"}, {"President":3, "name":"Thomas Jefferson", "birthYear":1743, "deathYear":1826,
  "tookOffice":"1801-03-04", "leftOffice":"1809-03-04", "party":"Democratic-Republican"}, {"President":4, "name":"James Madison",
  "birthYear":1751, "deathYear":1836, "tookOffice":"1809-03-04", "leftOffice":"1817-03-04", "party":"Democratic-Republican"}, {"President":5,
  "name":"James Monroe", "birthYear":1758, "deathYear":1831, "tookOffice":"1817-03-04", "leftOffice":"1825-03-04", "party":"Democratic-Republican"},
  {"President":6, "name":"John Quincy Adams", "birthYear":1767, "deathYear":1848, "tookOffice":"1825-03-04", "leftOffice":"1829-03-04",
  "party":"Democratic-Republican"}, {"President":7, "name":"Andrew Jackson", "birthYear":1767, "deathYear":1845, "tookOffice":"1829-03-04",
  "leftOffice":"1837-03-04", "party":"Democratic"}, {"President":8, "name":"Martin Van Buren", "birthYear":1782, "deathYear":1862,
  "tookOffice":"1837-03-04", "leftOffice":"1841-03-04", "party":"Democratic"}, {"President":9, "name":"William Henry Harrison",
  "birthYear":1773, "deathYear":1841, "tookOffice":"1841-03-04", "leftOffice":"1841-04-04", "party":"Whig"}, {"President":10, "name":"John
  Tyler", "birthYear":1790, "deathYear":1862, "tookOffice":"1841-04-04", "leftOffice":"1845-03-04", "party":"Whig"}, {"President":11,
  "name":"James K. Polk", "birthYear":1795, "deathYear":1849, "tookOffice":"1845-03-04", "leftOffice":"1849-03-04", "party":"Democratic"}, {"President
  {number":12, "name":"Zachary Taylor", "birthYear":1784, "deathYear":1850, "tookOffice":"1849-03-04", "leftOffice":"1850-07-09", "party":"Whig"},
  {"President":13, "name":"Millard Fillmore", "birthYear":1800, "deathYear":1874, "tookOffice":"1850-07-09", "leftOffice":"1853-03-04",
  "party":"Whig"}, {"President":14, "name":"Franklin Pierce", "birthYear":1804, "deathYear":1869, "tookOffice":"1853-03-04",
  "leftOffice":"1857-03-04", "party":"Democratic"}, {"President":15, "name":"James Buchanan", "birthYear":1791, "deathYear":1868,
  "tookOffice":"1857-03-04", "leftOffice":"1861-03-04", "party":"Democratic"}, {"President":16, "name":"Abraham Lincoln", "birthYear":1809,
  "deathYear":1865, "tookOffice":"1861-03-04", "leftOffice":"1865-04-15", "party":"Republican"}, {"President":17, "name":"Andrew Johnson",
  "birthYear":1808, "deathYear":1875, "tookOffice":"1865-04-15", "leftOffice":"1869-03-04", "party":"Democratic"}, {"President":18,
  "name":"Ulysses S. Grant", "birthYear":1822, "deathYear":1885, "tookOffice":"1869-03-04", "leftOffice":"1877-03-04", "party":"Republican"},
  {"President":19, "name":"Rutherford B. Hayes", "birthYear":1822, "deathYear":1893, "tookOffice":"1877-03-04", "leftOffice":"1881-03-04",
  "party":"Republican"}, {"President":20, "name":"James A. Garfield", "birthYear":1831, "deathYear":1881, "tookOffice":"1881-03-04",
  "leftOffice":"1881-09-19", "party":"Republican"}, {"President":21, "name":"Chester A. Arthur", "birthYear":1829, "deathYear":1886,
  "tookOffice":"1881-09-19", "leftOffice":"1885-03-04", "party":"Republican"}, {"President":22, "name":"Grover Cleveland", "birthYear":1837,
  "deathYear":1908, "tookOffice":"1885-03-04", "leftOffice":"1889-03-04", "party":"Democratic"}, {"President":23, "name":"Benjamin Harrison",
```

Runner

 Trash

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GET

localhost:8080/teamCatLady\_war/api/presidents/xml

Send

Params

Authorization

Headers (6)

Body

Pre-request Script

Tests

Settings

Cookies

Query Params

	KEY	VALUE	DESCRIPTION	...	Bulk Edit
	Key	Value	Description		

Body

Cookies

Headers (6)

Test Results



Status: 200 OK

Time: 91 ms

Size: 10.55 KB

Save Response

Pretty

Raw

Preview

Visualize

XML



```
1 <ArrayList>
2   <item>
3     <id>1</id>
4     <number>1</number>
5     <name>George Washington</name>
6     <birthYear>1732</birthYear>
7     <deathYear>1799</deathYear>
8     <tookOffice>1789-04-30</tookOffice>
9     <leftOffice>1797-03-04</leftOffice>
10    <party>No Party</party>
11  </item>
12  <item>
13    <id>2</id>
14    <number>2</number>
15    <name>John Adams</name>
16    <birthYear>1735</birthYear>
17    <deathYear>1826</deathYear>
18    <tookOffice>1797-03-04</tookOffice>
19    <leftOffice>1801-03-04</leftOffice>
20    <party>Federalist</party>
21  </item>
22  <item>
23    <id>3</id>
24    <number>3</number>
25    <name>Thomas Jefferson</name>
26    <birthYear>1743</birthYear>
```

GET



localhost:8080/teamCatLady\_war/api/presidents/living/true/xml

Send



Params

Authorization

Headers (6)

Body

Pre-request Script

Tests

Settings

Cookies

Body

Cookies

Headers (6)

Test Results



Status: 200 OK

Time: 20 ms

Size: 1.72 KB

Save Response



Pretty

Raw

Preview

Visualize

XML



```
1 <ArrayList>
2   <item>
3     <id>39</id>
4     <number>39</number>
5     <name>Jimmy Carter</name>
6     <birthYear>1924</birthYear>
7     <deathYear/>
8     <tookOffice>1977-01-20</tookOffice>
9     <leftOffice>1981-01-20</leftOffice>
10    <party>Democratic</party>
11  </item>
12  <item>
13    <id>42</id>
14    <number>42</number>
15    <name>Bill Clinton</name>
16    <birthYear>1946</birthYear>
17    <deathYear/>
18    <tookOffice>1993-01-20</tookOffice>
19    <leftOffice>2001-01-20</leftOffice>
20    <party>Democratic</party>
21  </item>
22  <item>
23    <id>44</id>
24    <number>44</number>
25    <name>Barack Obama</name>
26    <birthYear>1961</birthYear>
27    <deathYear/>
28    <tookOffice>2009-01-20</tookOffice>
29    <leftOffice>2017-01-20</leftOffice>
```

PUT

localhost:8080/teamCatLady\_war/api/presidents/id/43

Send

Params Authorization Headers (8) **Body** Pre-request Script Tests Settings

Cookies

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL JSON

Beautify

```
1  ...
2  ... "id": 43,
3  ... "number": 43,
4  ... "name": "George W. Bush",
5  ... "birthYear": 1946,
6  ... "deathYear": 2030,
7  ... "tookOffice": "2001-01-20",
8  ... "leftOffice": "2009-01-20",
9  ... "party": "Republican"
10 ...
```

Body Cookies Headers (6) Test Results

Status: 200 OK

Time: 28 ms

Size: 186 B

Save Response

Pretty

Raw

Preview

Visualize

JSON

```
1  ...
2  ... "id": 43
3  ...
```

POST

localhost:8080/teamCatLady\_war/api/presidents/

Params Authorization Headers (8) **Body** Pre-request Script Tests Settings

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL **JSON**

```
1 {
2   "number": 47,
3   "name": "New President Name",
4   "birthYear": 1950,
5   "deathYear": null,
6   "tookOffice": "2024-01-20",
7   "leftOffice": null,
8   "party": "Democratic"
9 }
```

Body Cookies Headers (6) Test Results

Status: 201 Created Time: 133 ms Size: 199 B

Pretty

Raw

Preview

Visualize

Text

```
1 {"id":47}
```

GET

/presidents/id/{id} Fetches a president by ID number

⌵

Parameters

Cancel

Name	Description
<div><div>id <span>★ required</span></div><div><div>integer(\$int32)</div><div>100</div></div><div>(path)</div></div>	

Execute

Clear

Responses

Response content type application/json

Curl

```
curl -X 'GET' \
'http://localhost:8080/teamCatLady_war/api/presidents/id/100' \
-H 'accept: application/json'
```

Request URL

```
http://localhost:8080/teamCatLady_war/api/presidents/id/100
```

Server response

Code	Details
404	<div>Error: response status is 404</div> <div><div>Response body</div><div><pre>A President with the specified ID number was not found</pre></div><div><div>Download</div></div></div>

Response headers



GET http://localhost:8080/teamCatLady\_war/api/presidents/id/100

Send

Params Authorization Headers (6) Body Pre-request Script Tests Settings

Cookies

Query Params

KEY	VALUE	DESCRIPTION	...	Bulk Edit

Body Cookies Headers (6) Test Results

Status: 404 Not Found Time: 9.09 s Size: 233 B Save Response

Pretty Raw Preview Visualize Text

1 A President with the specified ID number was not found

http://localhost:8080/teamCatLady\_war/api/presidents/living/WRONG-STATUS

Save

GET http://localhost:8080/teamCatLady\_war/api/presidents/living/WRONG-STATUS

Send

Params Authorization Headers (6) Body Pre-request Script Tests Settings

Cookies

Query Params

KEY	VALUE	DESCRIPTION	...	Bulk Edit

Body Cookies Headers (6) Test Results

Status: 404 Not Found Time: 41 ms Size: 235 B

Save Response

Pretty Raw Preview Visualize Text

Copy Search

1 A list of Presidents by that living status was not found

# Challenges

- Swagger implementation
- Getting code to run on different environments
- AWS deployment

# Learning Points

- Returning different response types
  - JSON dependency
- Selecting response codes
- Git practice