

## **REST API for an Electronic Voting System**

**Richard Nana Kweenu Quayson**

**29962024**

Department of Computer Science and Information Systems, Ashesi University

CS 341\_B: Lab 4 Build and run a REST API

Dennis Owusu

April 04 2023

Link to repository:

[https://github.com/Ashesi-Org/Richard\\_Quayson\\_REST\\_API\\_LAB\\_5](https://github.com/Ashesi-Org/Richard_Quayson_REST_API_LAB_5)

## Screenshots:

### 1. Register a voter.

The screenshot shows a REST client interface with the following details:

- URL:** `https://us-central1-rest-api-lab-5.cloudfunctions.net/ashesi_election_api/voters/register_voter/`
- Method:** POST
- Body (JSON):**

```
{  1  "student_id": "29982026",  2  "firstname": "Emmanuel",  3  "lastname": "Anim",  4  "email": "emmanuel.anim@ashesi.edu.gh"  5  }
```
- Response (JSON):**

```
{  1  "email": "emmanuel.anim@ashesi.edu.gh",  2  "firstname": "Emmanuel",  3  "is_registered": true,  4  "lastname": "Anim",  5  "student_id": "29982026"  6  }
```
- Status:** 201 Created, 469 ms, 536 B

Below the REST client, a Google Cloud console snippet shows the data in the `voters` collection:

| Collection              | Document ID | Fields  |
|-------------------------|-------------|---|
| rest-api-lab-5 / voters | 12342024    |   |
|                         | 12782024    |   |
|                         | 12782025    |   |
|                         | 12782026    |   |
|                         | 12892023    |   |
|                         | 29962024    |   |
|                         | 29982026    | <code>email: "emmanuel.anim@ashesi.edu.gh"</code><br><code>firstname: "Emmanuel"</code><br><code>is_registered: true</code><br><code>lastname: "Anim"</code><br><code>student_id: "29982026"</code> |
|                         | 55732024    |   |
| 55772024                |             |   |

### 2. Deregister a voter.

Query Params

|  | Key | Value | Description | ... | Bulk Edit |
|--|-----|-------|-------------|-----|-----------|
|  | Key | Value | Description |     |           |



```
1  [
2    {
3      "message": "Users in year group 2024 have been de-registered!"
4    },
5    {
6      "email": "thomas.richardson@ashesi.edu.gh",
7      "firstname": "Thomas",
8      "is_registered": false,
9      "lastname": "Richardson",
10     "student_id": "12342024"
11   },
12   {
13     "email": "thomas.quarshie@ashesi.edu.gh",
14     "firstname": "Thomas",
15     "is_registered": false,
16     "lastname": "Quarshie",
17     "student_id": "12782024"
18   },
19   {
20     "email": "richard.quayson@ashesi.edu.gh",
21     "firstname": "Richard",
22     "is_registered": false,
23     "lastname": "Quayson",
24     "student_id": "29962024"
25   },
26   {
27     "email": "morgan.sarpong@ashesi.edu.gh",
28     "firstname": "Morgan",
29     "is_registered": false,
30     "lastname": "Sarpong",
31     "student_id": "55732024"
32   },
33   {
34     "email": "bright.quayson@ashesi.edu.gh",
35     "firstname": "Bright",
36     "is_registered": false,
37     "lastname": "Quayson",
38     "student_id": "55772024"
39   }
40 ]
```

rest-api-lab-5 voters 29982026 More in Google Cloud

|   |  |   |
|---|--|---|
| <p>+ Start collection</p> <p>elections</p> <p>voters &gt;</p> | <p>+ Add document</p> <p>12342024</p> <p>12782024</p> <p>12782025</p> <p>12782026</p> <p>12892023</p> <p>29962024</p> <p>29982026 &gt;</p> <p>55732024</p> <p>55772024</p> | <p>+ Start collection</p> <p>+ Add field</p> <p>email: "emmanuel.anim@ashesi.edu.gh"</p> <p>firstname: "Emmanuel"</p> <p>is_registered: false</p> <p>lastname: "Anim"</p> <p>student_id: "29982026"</p> |
|---|--|---|

### 3. Update a voter.

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

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

```
1 {
2   ... "email": "elikeb.bansah@ashesi.edu.gh",
3   ... "firstname": "Geoffrey",
4   ... "is_registered": true,
5   ... "lastname": "Bansah",
6   ... "student_id": "12782025"
7 }
```

Body Cookies Headers (5) Test Results 200 OK 7.19 s 316 B Save as Example

Pretty Raw Preview Visualize JSON

```
1 {
2   "email": "elikeb.bansah@ashesi.edu.gh",
3   "firstname": "Geoffrey",
4   "is_registered": true,
5   "lastname": "Bansah",
6   "student_id": "12782025"
7 }
```

rest-api-lab-5 > voters > 12782025 [More in Google Cloud](#)

| rest-api-lab-5   | voters  | 12782025  |
|--|---|---|
| <a href="#">+ Start collection</a><br>elections<br><b>voters</b> > | <a href="#">+ Add document</a><br>12342024<br>12782024<br><b>12782025</b> ><br>12782026<br>12892023<br>29962024<br>29982026<br>55732024<br>55772024 | <a href="#">+ Start collection</a><br><a href="#">+ Add field</a><br>email: "elikem.bansah@ashesi.edu.gh"<br>firstname: "Geoffrey"<br>is_registered: true<br>lastname: "Bansah"<br>student_id: "12782025" |

#### 4. Retrieve a voter.

Body Cookies Headers (5) Test Results 200 OK 424 ms 333 B Save as Example

Pretty Raw Preview Visualize JSON

```

1 [
2   {
3     "email": "emmanuel.anim@ashesi.edu.gh",
4     "firstname": "Emmanuel",
5     "is_registered": false,
6     "lastname": "Anim",
7     "student_id": "29982026"
8   }
9 ]

```

rest-api-lab-5 > voters > 29982026 [More in Google Cloud](#)

| rest-api-lab-5   | voters  | 29982026   |
|--|---|--|
| <a href="#">+ Start collection</a><br>elections<br><b>voters</b> > | <a href="#">+ Add document</a><br>12342024<br>12782024<br>12782025<br>12782026<br>12892023<br>29962024<br><b>29982026</b> ><br>55732024<br>55772024 | <a href="#">+ Start collection</a><br><a href="#">+ Add field</a><br>email: "emmanuel.anim@ashesi.edu.gh"<br>firstname: "Emmanuel"<br>is_registered: false<br>lastname: "Anim"<br>student_id: "29982026" |

## 5. Create an election.

Body Cookies Headers (5) Test Results

200 OK 1235 ms 1.09 KB Save as Example

Pretty

Raw

Preview

Visualize

JSON



```
1  {
2    "election_code": "2023ASC",
3    "election_name": "2023 ASC Election",
4    "election_period": 72,
5    "election_startdate": "2023-03-27 13:57:30.769268",
6    "positions": [
7      {
8        "candidates": [
9          {
10             "candidate_id": "12892023",
11             "candidate_voters": []
12           },
13          {
14             "candidate_id": "55732024",
15             "candidate_voters": []
16           },
17          {
18             "candidate_id": "12782025",
19             "candidate_voters": []
20           }
21        ],
22        "position_id": "001",
23        "position_name": "ASC President"
24      },
25      {
26        "candidates": [
27          {
28             "candidate_id": "55772024",
29             "candidate_voters": []
30           },
31          {
32             "candidate_id": "12782026",
33             "candidate_voters": []
34           },
35          {
36             "candidate_id": "29982026",
37             "candidate_voters": []
38           }
39        ],
40        "position_id": "002",
41        "position_name": "JEC Chairperson"
42      }
43    ]
44  }
```

home > elections > 2023ASC

More in Google Cloud

rest-api-lab-5

elections

2023ASC

+ Start collection

+ Add document

+ Start collection

elections

2023ASC

+ Add field

voters

election\_code: "2023ASC"

election\_name: "2023 ASC Election"

election\_period: 72

election\_startdate: "2023-03-27 13:57:30.769268"

positions

0

## 6. Retrieve an election.

Body Cookies Headers (5) Test Results 200 OK 272 ms 1.09 KB Save as Example

Pretty Raw Preview Visualize JSON

```
1 {
2   "election_code": "2023ASC",
3   "election_name": "2023 ASC Election",
4   "election_period": 72,
5   "election_startdate": "2023-03-27 13:57:30.769268",
6   "positions": [
7     {
8       "candidates": [
9         {
10          "candidate_id": "12892023",
11          "candidate_voters": []
12        },
13        {
14          "candidate_id": "55732024",
15          "candidate_voters": []
16        },
17        {
18          "candidate_id": "12782025",
19          "candidate_voters": []
20        }
21      ],
22      "position_id": "001",
23      "position_name": "ASC President"
24    },
25    {
26      "candidates": [
27        {
28          "candidate_id": "55772024",
29          "candidate_voters": []
30        },
31        {
32          "candidate_id": "12782026",
33          "candidate_voters": []
34        },
35        {
36          "candidate_id": "29982026",
37          "candidate_voters": []
38        }
39      ]
40    }
41  ]
42 }
```

## 7. Delete an election.

Body Cookies Headers (5) Test Results 200 OK 969 ms 243 B Save as Example

Pretty Raw Preview Visualize JSON

```
1 {
2   "message": "Election with code 2023ASC has been deleted successfully!"
3 }
```

|   |                |                    |
|---|----------------|--------------------|
| rest-api-lab-5 elections 2023ASC More in Google Cloud |                |                    |
| rest-api-lab-5  | elections      | 2023ASC            |
| + Start collection                                    | + Add document | + Start collection |
| elections >   |                | + Add field        |
| voters  |                |                    |

## 8. Vote in an election.














```
1 {
2   ...."student_id": "55772024",
3   ...."candidate_id": "12892023"
4 }
```

Body Cookies Headers (5) Test Results 200 OK 1805 ms 1.12 KB Save as Example

Pretty Raw Preview Visualize JSON

```
1 {
2   "election_code": "2023ASC",
3   "election_name": "2023 ASC Election",
4   "election_period": 72,
5   "election_startdate": "2023-03-27 13:57:30.769268",
6   "positions": [
7     {
8       "candidates": [
9         {
10          "candidate_id": "12892023",
11          "candidate_voters": [
12            "55772024"
13          ]
14        },
15        {
16          "candidate_id": "55732024",
17          "candidate_voters": []
18        },
19        {
20          "candidate_id": "12782025",
21          "candidate_voters": []
22        }
23      ],
24      "position_id": "001",
25      "position_name": "ASC President"
26    },
27    {
28      "candidates": [
29        {
30          "candidate_id": "55772024",
31          "candidate_voters": []
32        },
33        {
34          "candidate_id": "12782026",
35          "candidate_voters": []
36        },
37        {
38          "candidate_id": "29982026",
39          "candidate_voters": []
40        }
41      ],
42      "position_id": "002",
43      "position_name": "JEC Chairperson"
44    }
45  ]
46 }
```



|  |  |   |
|--|--|---|
| <div><div> &gt; elections &gt; 2023ASC</div><div> More in Google Cloud </div></div> |  |   |
| <div> rest-api-lab-5</div>  | <div> elections  </div> | <div> 2023ASC </div>  |
| <div> Start collection</div>  | <div> Add document</div>  | <div> Start collection</div>   |
| <div>elections &gt;</div> <div>voters</div>  | <div>2023ASC &gt;</div>  | <div><div> Add field</div><div>election_code: "2023ASC"</div><div>election_name: "2023 ASC Election"</div><div>election_period: 72</div><div>election_startdate: "2023-03-27 13:57:30.769268"</div><div>▼ positions</div><div>▼ 0</div><div>▼ candidates</div><div>▼ 0</div><div>candidate_id: "12892023"</div><div>▼ candidate_voters</div><div>0 "55772024"</div><div>▼ 1</div><div>candidate_id: "55732024"</div><div>▼ candidate_voters</div><div>▼ 2</div><div>candidate_id: "12782025"</div><div>▼ candidate_voters</div><div>position_id: "001"</div><div>position_name: "ASC President"</div><div>▼ 1</div><div>▼ candidates</div><div>▼ 0</div><div>candidate_id: "55772024"</div><div>▼ candidate_voters</div><div>▼ 1</div></div> |