

Calculator REST API

Table of Contents

Requirements

Observations

HTTP verbs

Resources

- Login

- Report

- Operation

- OpenAPI v3 spec in JSON

Requirements

1. REST API for calculator operations: ADDITION, SUBTRACTION, MULTIPLICATION, DIVISION, SQUARE ROOT, RANDOM STRINGS
2. REST API for report operation records: PAGING, SORTING, SEARCHING

Observations

1. RANDOM STRINGS fetches only numeric 8 digit random numbers

HTTP verbs

HTTP verbs that correspond operation on the API.

Verb	Use
GET	(READ) Used to fetch operation records
POST	(CREATE) Used to execute an operation
PUT	(UPDATE) Used to (logically exclude a record)

Resources

Login

Base url: /login-form

Http verb: POST for doing login

Request Body application/json

```
{ "username": "john@gmail.com", "password": "john0000" }
```

JSON

Request Examples

```
$ curl 'http://localhost:8080/login-form' -i -X POST \
-H 'Content-Type: application/json' \
-d '{ "username": "john@gmail.com", "password": "john0000" }'
```

BASH

```
$ echo '{ "username": "john@gmail.com", "password": "john0000" }' | http POST 'http://localhost:8080/login-form' \
'Content-Type:application/json'
```

BASH

Request

```
POST /login-form HTTP/1.1
Content-Type: application/json
Host: localhost:8080
Content-Length: 57
```

HTTP

```
{ "username": "john@gmail.com", "password": "john0000" }
```

Response

```
HTTP/1.1 200 OK
Vary: Origin
Vary: Access-Control-Request-Method
Vary: Access-Control-Request-Headers
Authorization: Bearer eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJqb2huQGdtYWlsLmNvbSI6ImFwcCI6ImNhbnGN1bGF0b3IiLCJpYXQiOjE3Mz
X-Content-Type-Options: nosniff
X-XSS-Protection: 0
Cache-Control: no-cache, no-store, max-age=0, must-revalidate
Pragma: no-cache
Expires: 0
X-Frame-Options: DENY
Content-Type: text/plain;charset=UTF-8
Date: Sun, 24 Nov 2024 20:17:34 GMT
Keep-Alive: timeout=60
Connection: keep-alive
```

HTTP

Response Body absent. However, the important part is the token in the authorization header

PLATIN

Report

All requests should include the authorization token obtained after login

Base url: /api/v1/report

Http verb: GET for obtaining log records

Query parameters: page , pageSize , softField (date,operation), sortOrder (asc,desc), filter (operation_name)

Request Examples

```
$ curl 'http://localhost:8080/api/v1/report' -i -X GET \
-H 'Authorization: Bearer eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJqb2huQGdtYWlsLmNvbSIsImFwcCI6ImNhbGN1bGF0b3IiLCJpYXQiOiJlY3MzI0Nzk0NTUsImV4cCI6MTczMjUxNTQ1NX0.jV-1jkSPrURygCofh9bxvs2VxD-7nuu9S1PLtC38HcM'
BASH
```

```
$ http GET 'http://localhost:8080/api/v1/report' \
'Authorization:Bearer eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJqb2huQGdtYWlsLmNvbSIsImFwcCI6ImNhbGN1bGF0b3IiLCJpYXQiOiJlY3MzI0Nzk0NTUsImV4cCI6MTczMjUxNTQ1NX0.jV-1jkSPrURygCofh9bxvs2VxD-7nuu9S1PLtC38HcM'
BASH
```

Request

```
GET /api/v1/report HTTP/1.1
Authorization: Bearer eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJqb2huQGdtYWlsLmNvbSIsImFwcCI6ImNhbGN1bGF0b3IiLCJpYXQiOiJlY3Mz
Host: localhost:8080
HTTP
```

Response

```
HTTP/1.1 200 OK
Vary: Origin
Vary: Access-Control-Request-Method
Vary: Access-Control-Request-Headers
X-Content-Type-Options: nosniff
X-XSS-Protection: 0
Cache-Control: no-cache, no-store, max-age=0, must-revalidate
Pragma: no-cache
Expires: 0
X-Frame-Options: DENY
Content-Type: application/json
Transfer-Encoding: chunked
Date: Sun, 24 Nov 2024 20:17:36 GMT
Keep-Alive: timeout=60
Connection: keep-alive
Content-Length: 256
HTTP
```

```
{"content":[{"id":"e627c04a-0ea5-4112-bd29-78179b096911","date":"2024-11-24T20:17:25.127182Z","operation":{"type"
```

Response body application/json

```
{"content":[{"id":"e627c04a-0ea5-4112-bd29-78179b096911","date":"2024-11-24T20:17:25.127182Z","operation":{"type"
JSON
```

Http verb: GET for obtaining the last balance for a user

Path Param: username

Examples: /api/v1/report/{username}/last-balance

```
$ curl 'http://localhost:8080/api/v1/report/john%40gmail.com/last-balance' -i -X GET \
-H 'Authorization: Bearer
eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJqb2huQGdtYWlsLmNvbSIzImFwcCI6ImNhbnGN1bGF0b3IiLCJpYXQiOiJlE3MzI0Nzk0NTYsImV4cCI6MT
czMjUxNTQ1Nn0.YAUG-h8c0mlAAc02xXtmAyHbKj7EyzWZDY5Q07esGAQ'
```

BASH

```
$ http GET 'http://localhost:8080/api/v1/report/john%40gmail.com/last-balance' \
'Authorization:Bearer
eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJqb2huQGdtYWlsLmNvbSIzImFwcCI6ImNhbnGN1bGF0b3IiLCJpYXQiOiJlE3MzI0Nzk0NTYsImV4cCI6MT
czMjUxNTQ1Nn0.YAUG-h8c0mlAAc02xXtmAyHbKj7EyzWZDY5Q07esGAQ'
```

Response

HTTP

```
HTTP/1.1 200 OK
Vary: Origin
Vary: Access-Control-Request-Method
Vary: Access-Control-Request-Headers
X-Content-Type-Options: nosniff
X-XSS-Protection: 0
Cache-Control: no-cache, no-store, max-age=0, must-revalidate
Pragma: no-cache
Expires: 0
X-Frame-Options: DENY
Content-Type: text/plain;charset=UTF-8
Content-Length: 6
Date: Sun, 24 Nov 2024 20:17:36 GMT
Keep-Alive: timeout=60
Connection: keep-alive

100.00
```

Response Body text/plain

PLAIN

```
100.00
```

Http verb: PUT

Operation

Base url: /api/v1/operation

Http verb: POST

Request body application/json

JSON

```
{"amount": "1 1", "operation": "ADDITION"}
```

Request (Addition)

BASH

```
$ curl 'http://localhost:8080/api/v1/calculator' -i -X POST \
-H 'Authorization: Bearer
eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJtYXJ5QGdtYWlsLmNvbSIzImFwcCI6ImNhbnGN1bGF0b3IiLCJpYXQiOiJlE3MzI0Nzk0NTcsImV4cCI6MT
czMjUxNTQ1N30.y2wSErX0PlUAViL2_qe_yR28mPPk3aKqtwGvXVbBrRA' \
-H 'Content-Type: application/json' \
-d '{"amount": "1 1", "operation": "ADDITION"}'
```

BASH


```
$ echo '{"amount": "1 1", "operation": "ADDITION"}' | http POST 'http://localhost:8080/api/v1/calculator' \
  'Authorization: Bearer eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJtYXJ5QGdtYWlsLmNvbSI6ImFwcCI6ImNhbn1bGF0b3IiLCJpYXQiOiE3MzI0Nzk0NTcsImV4cCI6MTczMjUxNTQ1N30.y2wSErX0PlUAViL2_qe_yR28mPPk3aKqtwGvXVbBrRA' \
  'Content-Type: application/json'
```

Response

```
HTTP/1.1 200 OK
Vary: Origin
Vary: Access-Control-Request-Method
Vary: Access-Control-Request-Headers
X-Content-Type-Options: nosniff
X-XSS-Protection: 0
Cache-Control: no-cache, no-store, max-age=0, must-revalidate
Pragma: no-cache
Expires: 0
X-Frame-Options: DENY
Content-Type: application/json
Transfer-Encoding: chunked
Date: Sun, 24 Nov 2024 20:17:37 GMT
Keep-Alive: timeout=60
Connection: keep-alive
Content-Length: 41

{"balance": 99.90, "operationResponse": "2"}
```

Response body application/json

```
{"balance": 99.90, "operationResponse": "2"}
```

OpenAPI v3 spec in JSON

```

{
  "openapi": "3.0.1",
  "info": {
    "title": "Calculator API",
    "description": "Operations for a Calculator",
    "version": "1.0"
  },
  "servers": [
    {
      "url": "http://localhost:8080"
    }
  ],
  "tags": [
    {
      "name": "Actuator",
      "description": "Monitor and interact",
      "externalDocs": {
        "description": "Spring Boot Actuator Web API Documentation",
        "url": "https://docs.spring.io/spring-boot/docs/current/actuator-api/html/"
      }
    }
  ],
  "paths": {
    "/api/v1/report/{id}/is-excluded": {
      "put": {
        "tags": [
          "report-controller"
        ],
        "operationId": "status",
        "parameters": [
          {
            "name": "id",
            "in": "path",
            "required": true,
            "schema": {
              "type": "string",
              "format": "uuid"
            }
          }
        ],
        "requestBody": {
          "content": {
            "application/json": {
              "schema": {
                "type": "boolean"
              }
            }
          },
          "required": true
        },
        "responses": {
          "200": {
            "description": "OK"
          }
        }
      }
    },
    "/login-form": {
      "post": {
        "tags": [
          "auth-controller"
        ],
        "operationId": "formLogin",
        "requestBody": {
          "content": {
            "application/json": {
              "schema": {

```

```

        "$ref": "#/components/schemas/AuthRequest"
      }
    },
    "required": true
  },
  "responses": {
    "200": {
      "description": "OK",
      "content": {
        "**/*": {
          "schema": {
            "type": "string"
          }
        }
      }
    }
  }
},
"/api/v1/calculator": {
  "post": {
    "tags": [
      "operation-controller"
    ],
    "operationId": "calculate",
    "requestBody": {
      "content": {
        "application/json": {
          "schema": {
            "$ref": "#/components/schemas/CalculatorRequest"
          }
        }
      }
    },
    "required": true
  },
  "responses": {
    "200": {
      "description": "OK",
      "content": {
        "application/json": {
          "schema": {
            "$ref": "#/components/schemas/CalculatorResponse"
          }
        }
      }
    }
  }
},
"/api/v1/report": {
  "get": {
    "tags": [
      "report-controller"
    ],
    "operationId": "report",
    "parameters": [
      {
        "name": "page",
        "in": "query",
        "required": false,
        "schema": {
          "type": "integer",
          "format": "int32",
          "default": 0
        }
      }
    ],
  },
  {

```

```

        "name": "pageSize",
        "in": "query",
        "required": false,
        "schema": {
            "type": "integer",
            "format": "int32",
            "default": 1000
        }
    },
    {
        "name": "sortField",
        "in": "query",
        "required": false,
        "schema": {
            "type": "string",
            "default": "date"
        }
    },
    {
        "name": "sortOrder",
        "in": "query",
        "required": false,
        "schema": {
            "type": "string",
            "default": "desc"
        }
    },
    {
        "name": "filter",
        "in": "query",
        "required": false,
        "schema": {
            "type": "string",
            "default": ""
        }
    }
],
"responses": {
    "200": {
        "description": "OK",
        "content": {
            "application/json": {
                "schema": {
                    "$ref": "#/components/schemas/PagedModelOperationRecordProjection"
                }
            }
        }
    }
}
},
"/api/v1/report/{user}/last-balance": {
    "get": {
        "tags": [
            "report-controller"
        ],
        "operationId": "lastBalance",
        "parameters": [
            {
                "name": "user",
                "in": "path",
                "required": true,
                "schema": {
                    "type": "string"
                }
            }
        ]
    },
    "responses": {

```

```

    "200": {
      "description": "OK",
      "content": {
        "text/plain": {
          "schema": {
            "type": "string"
          }
        }
      }
    }
  },
},
"/actuator": {
  "get": {
    "tags": [
      "Actuator"
    ],
    "summary": "Actuator root web endpoint",
    "operationId": "links",
    "responses": {
      "200": {
        "description": "OK",
        "content": {
          "application/vnd.spring-boot.actuator.v3+json": {
            "schema": {
              "type": "object",
              "additionalProperties": {
                "type": "object",
                "additionalProperties": {
                  "$ref": "#/components/schemas/Link"
                }
              }
            }
          }
        },
        "application/json": {
          "schema": {
            "type": "object",
            "additionalProperties": {
              "type": "object",
              "additionalProperties": {
                "$ref": "#/components/schemas/Link"
              }
            }
          }
        }
      },
      "application/vnd.spring-boot.actuator.v2+json": {
        "schema": {
          "type": "object",
          "additionalProperties": {
            "type": "object",
            "additionalProperties": {
              "$ref": "#/components/schemas/Link"
            }
          }
        }
      }
    }
  },
},
"/actuator/health": {
  "get": {
    "tags": [
      "Actuator"
    ],
    "summary": "Actuator web endpoint 'health'",

```

```

"operationId": "health",
"responses": {
  "200": {
    "description": "OK",
    "content": {
      "application/vnd.spring-boot.actuator.v3+json": {
        "schema": {
          "type": "object"
        }
      },
      "application/json": {
        "schema": {
          "type": "object"
        }
      },
      "application/vnd.spring-boot.actuator.v2+json": {
        "schema": {
          "type": "object"
        }
      }
    }
  }
},
"/actuator/health/**": {
  "get": {
    "tags": [
      "Actuator"
    ],
    "summary": "Actuator web endpoint 'health-path'",
    "operationId": "health-path",
    "responses": {
      "200": {
        "description": "OK",
        "content": {
          "application/vnd.spring-boot.actuator.v3+json": {
            "schema": {
              "type": "object"
            }
          },
          "application/json": {
            "schema": {
              "type": "object"
            }
          },
          "application/vnd.spring-boot.actuator.v2+json": {
            "schema": {
              "type": "object"
            }
          }
        }
      }
    }
  }
},
"components": {
  "schemas": {
    "AuthRequest": {
      "type": "object",
      "properties": {
        "username": {
          "type": "string"
        },
        "password": {
          "type": "string"
        }
      }
    }
  }
}

```

```

    }
  },
  "CalculatorRequest": {
    "required": [
      "operation"
    ],
    "type": "object",
    "properties": {
      "amount": {
        "type": "string"
      },
      "operation": {
        "type": "string",
        "enum": [
          "ADDITION",
          "SUBTRACTION",
          "MULTIPLICATION",
          "DIVISION",
          "SQUARE_ROOT",
          "RANDOM_STRING"
        ]
      }
    }
  },
  "CalculatorResponse": {
    "type": "object",
    "properties": {
      "balance": {
        "type": "number"
      },
      "operationResponse": {
        "type": "string"
      }
    }
  },
  "OperationRecordProjection": {
    "type": "object",
    "properties": {
      "id": {
        "type": "string"
      },
      "date": {
        "type": "string",
        "format": "date-time"
      },
      "operationResponse": {
        "type": "string"
      },
      "operation": {
        "$ref": "#/components/schemas/OperationSummary"
      },
      "amount": {
        "type": "string"
      },
      "userBalance": {
        "type": "number"
      }
    }
  },
  "OperationSummary": {
    "type": "object",
    "properties": {
      "type": {
        "type": "string",
        "enum": [
          "ADDITION",
          "SUBTRACTION",
          "MULTIPLICATION",

```

