**Example Use Case**

The web service accepts a number, n, as input and returns the first n Fibonacci numbers, starting from 0. i.e. given n  = 5, appropriate output would represent the sequence [0, 1, 1, 2, 3].

**Usage**

* **How do I use it in ServiceNow?**
  1. Navigate to [Fibonacci Calculator](https://dev24089.service-now.com/u_fibonacci_calulator.do?sys_id=-1&sysparm_stack=u_fibonacci_calulator_list.do) in ServiceNow.
  2. Enter the Fibonacci base “n” number to calculate the sequence.
  3. Optionally enter the limit of output numbers to return.
  4. Click the **Get Sequence** form button and the results will display on the form.
* **How do I directly access the REST API?**
  1. Select any tool to use that can invoke REST requests.
     + - Request Expectations
         * Headers should be set to accept Content-Type: application/json
         * No authorization header is needed at this point.
         * Perform a *GET* Request against the url <https://dev24089.service-now.com/api/79385/v1/fibonacci>
         * Set your *GET* parameter following the above URI like the following, ?num=5. Where “num” is the base for the Fibonacci Sequence you want in your response.
         * The parameter "num" sent must not be a negative number.
       - Response Expectations
         * The response will be in the form application/json.
         * HTTP code 200 when the request was successful.
         * Example of a successful response given the parameter num is 5:

{

         "result": {

           "pattern": [

             0,

             1,

             1,

             2,

             3,

             5,

             8

           ]

         }

       }

* A bad request with a missing or incorrect parameter will result a HTTP status code of 400.
* Also a bad request will contain an error message in the JSON response body in the message element.
* Example of a failed REST request:

{

  "error": {

    "detail": "",

    "message": "Parameter num cannot be negative."

  },

  "status": "failure"

}

**Testing Options**

Testing the Fibonacci Calculator can be done in a number of different ways.

* Automated Testing Framework within ServiceNow.
* Use a third party REST/HTTP tool to invoke the web service.
* Use the OOB REST API Explorer in ServiceNow.
* Manual testing in a sub prod environment of the UI to invoke the web service.
* Third party automated testing tool.

**Unit/Functional Test Cases**

|  |  |
| --- | --- |
| **Test Case** | **Desired Result** |
| Invoke GET Request with valid URI parameter num | Response received with HTTP status code 200 and JSON body contains pattern element with correct sequence. |
| Invoke GET Request with negative URI parameter num | Error response received with HTTP failure status code 400, and response JSON body contains error message: "Parameter num cannot be negative." |
| Invoke GET Request with URI num parameter empty | Error response received with HTTP failure status code 400, and and response JSON body contains error message: "No Base Number provided, parameter num cannot be empty." |
| Enter a positive number in the field *Fibonacci Number* within ServiceNow UI.  Click the *Get Sequence* form button. | UI displays correct sequence for number entered in field. |
| Enter a negative number in the field *Fibonacci Number* within ServiceNow UI.  Click the *Get Sequence* form button. | UI displays error message: "Please verify you entered the number correctly, and re-enter the number. The field only accepts positive integers. The field is cleared. |
| Enter a letter in the field *Fibonacci Number* within ServiceNow UI.  Click the *Get Sequence* form button. | UI displays error message: "Please verify you entered the number correctly, and re-enter the number. The field only accepts positive integers. The field is cleared |
| Leave the field *Fibonacci Number* within ServiceNow UI empty.  Click the *Get Sequence* form button | UI displays error message: "Please verify you entered the number correctly, and re-enter the number. The field only accepts positive integers. The field is cleared |
| Enter positive integer in the field *Fibonacci*  Enter a number in the *Limit Output*field.  Click the *Get Sequence* form button. | UI displays correct sequence for number entered in field. Output Sequence is Limited to number entered in *Limit Output Further* field. |

**Future Authorization and Security Options**

* oAuth access with temporary token to access REST web service.
* Basic user name and password to access the web service via a Service account.
* No authorization required to access web service.
* Web service can have applied ACLs, and user must pass all ACL conditions.
* ServiceNow UI can be user role based or ACL based to access functionality.

**Technical Components**

* Scripted REST Resource [Fibonacci](https://dev24089.service-now.com/nav_to.do?uri=sys_ws_definition.do?sys_id=4bd56c1edb301300ce9059d0cf9619a1)
* UI Macro for UI Formatter [fibonacci\_uiMacro](https://dev24089.service-now.com/nav_to.do?uri=sys_ui_macro.do?sys_id=65e34d96dbb01300ce9059d0cf961923)
* UI Script to leverage AngularJS [fibonacciCalcAppInclude](https://dev24089.service-now.com/nav_to.do?uri=sys_ui_script.do?sys_id=2368c1dadbb01300ce9059d0cf961958)
* New Table to display UI in ServiceNow Fibonacci Calculator [Table](https://dev24089.service-now.com/nav_to.do?uri=sys_db_object.do?sys_id=9c738196dbb01300ce9059d0cf9619c2)
* UI Action form button Get Sequence to invoke REST from UI [Get Sequence Button](https://dev24089.service-now.com/nav_to.do?uri=sys_ui_action.do?sys_id=ddde0d12dbf01300ce9059d0cf96198b)
* UI Macro to display loader on UI in ServiceNow [loader](https://dev24089.service-now.com/nav_to.do?uri=sys_ui_macro.do?sys_id=b3315d92dbf01300ce9059d0cf9619cb)