Lab IV – HL7 FHIR Fundamentals

Create a Patient Resource

Resource code in JSON format:

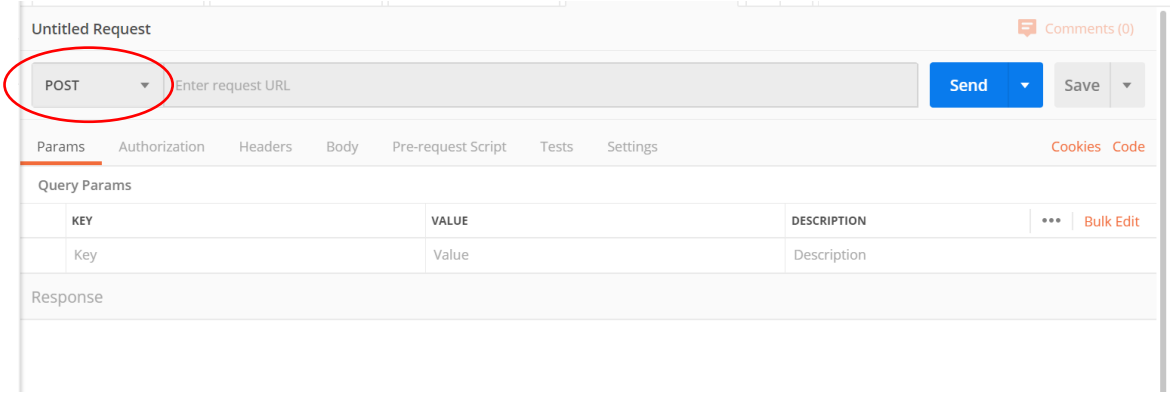
```
{
    "resourceType": "Patient",
    "identifier": {
        "value": "shuang379"
    },
    "name": {
        "family": "Daniel",
        "given": "Johnson"
    },
    "birthDate": "1980-01-27",
    "gender": "male",
    "telecom":{
        "system": "phone",
        "value": "1(555)555-1212",
        "use": "mobile"
    },
    "address":{
        "line": "4800 Calhoun Rd",
        "city": "Houston",
        "state": "Texas",
        "postcode": "77004",
        "country": "USA"
    }
}
```

CRUD Operations

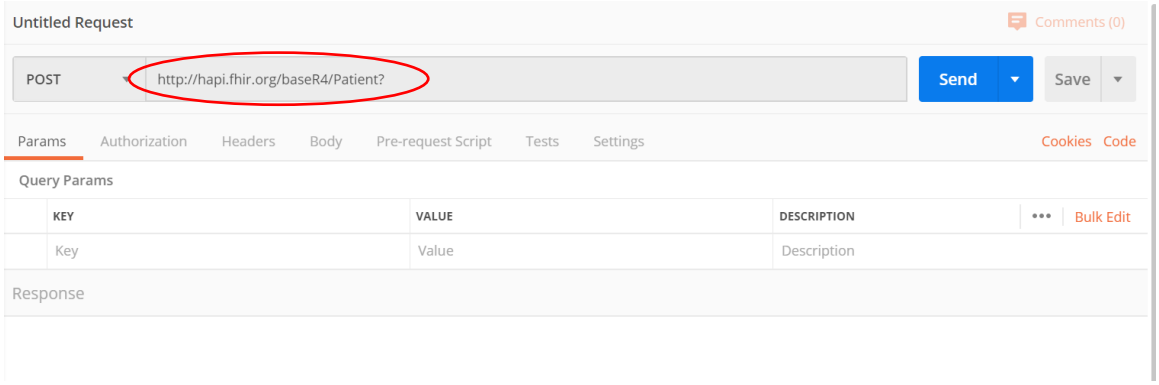
Task 1: Using the Patient Resource you created, save the resources by making a POST to the FHIR Server. Make sure the New Resource is successfully saved.

The steps I took:

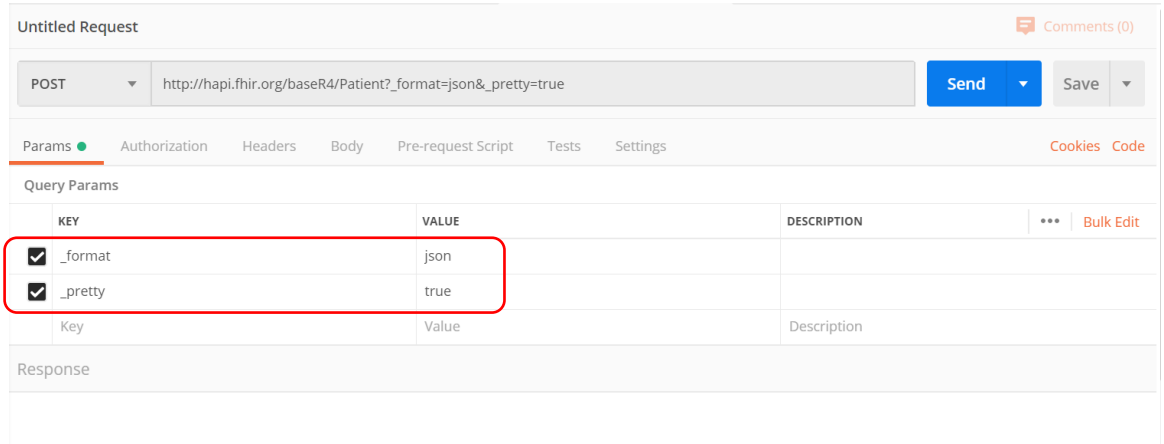
1. Selected the POST method as shown in the red ellipse:



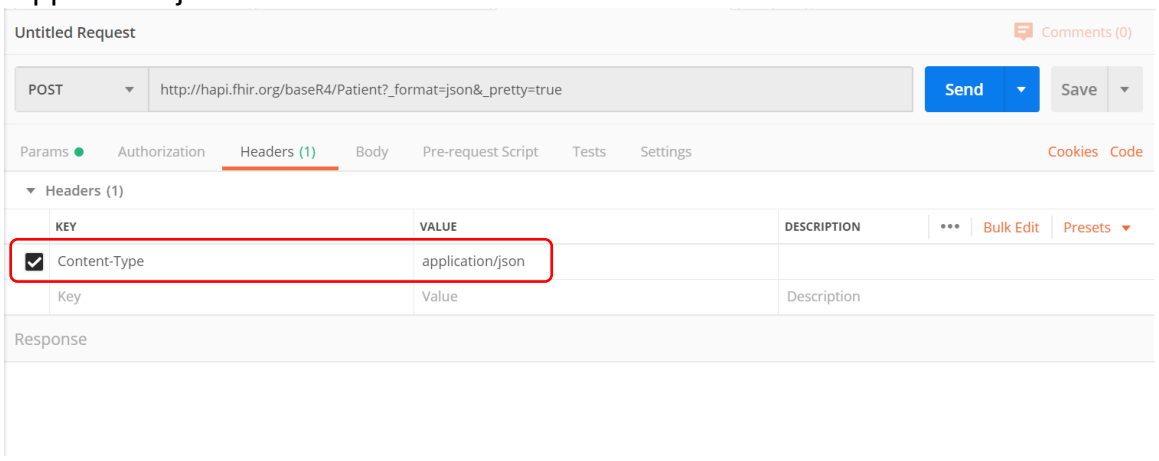
2. Typed http://hapi.fhir.org/baseR4/Patient? in the address box as shown in the red ellipse.



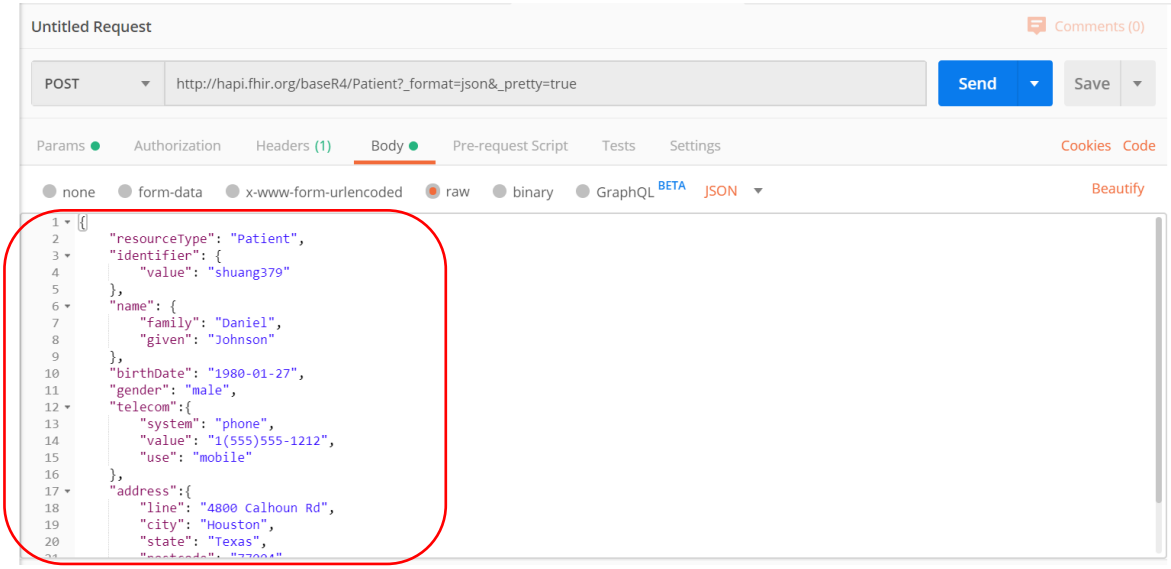
3. Specified parameters "_format" and "_pretty" under "Params" tab as shown below in the red box:



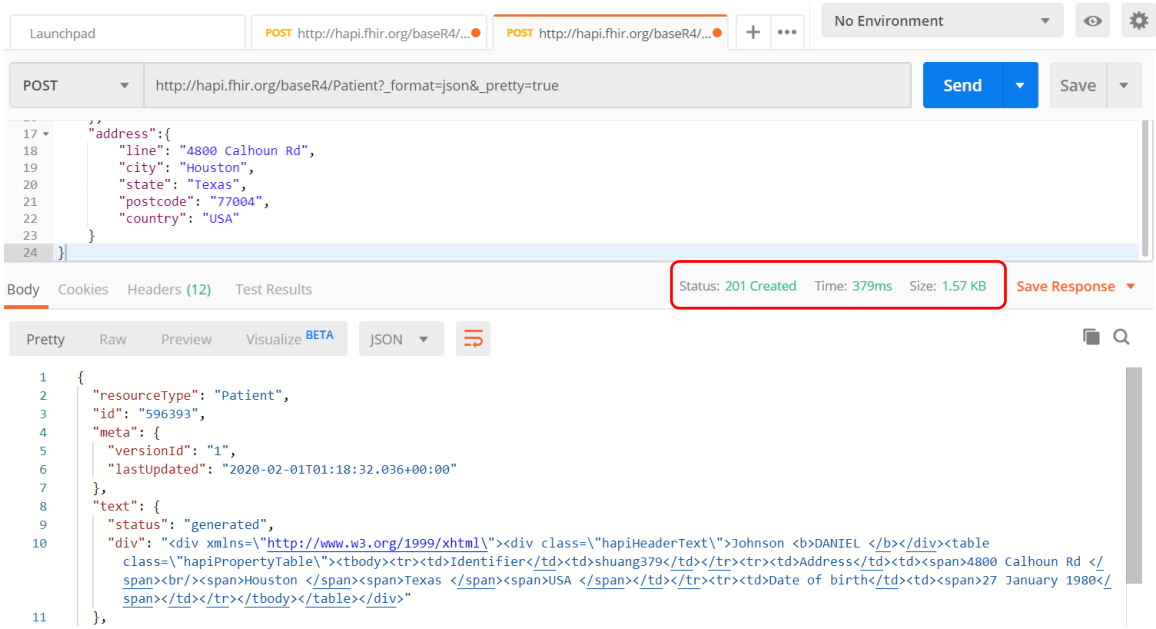
4. Chose "Content-Type" under "Headers" tab and assigned its value as "application/json" as shown below in the red box:



5. Chose “raw” under the “Body” tab and pasted the resource I created in the body as shown below in the red box:



6. Pressed “Send” button to save the resource. The status returned as “201 Created” as shown below in the red box:

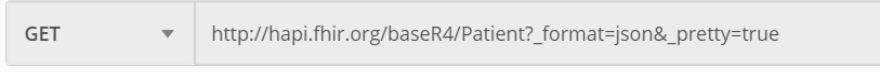


7. The created resource is shown below:


```
{
  "resourceType": "Patient",
  "id": "596393",
  "meta": {
    "versionId": "1",
    "lastUpdated": "2020-02-01T01:18:32.036+00:00"
  },
```

```
  "text": {
    "status": "generated",
    "div": "<div xmlns=\"http://www.w3.org/1999/xhtml\"><div class=\"hapiHeaderText\">John
son <b>DANIEL </b></div><table class=\"hapiPropertyTable\"><tbody><tr><td>Identifier</td><
td>shuang379</td></tr><tr><td>Address</td><td><span>4800 Calhoun Rd </span><br/><span>Hous
ton </span><span>Texas </span><span>USA </span></td></tr><tr><td>Date of birth</td><td><sp
an>27 January 1980</span></td></tr></tbody></table></div>"
  },
  "identifier": [
    {
      "value": "shuang379"
    }
  ],
  "name": [
    {
      "family": "Daniel",
      "given": [
        "Johnson"
      ]
    }
  ],
  "telecom": [
    {
      "system": "phone",
      "value": "1(555)555-1212",
      "use": "mobile"
    }
  ],
  "gender": "male",
  "birthDate": "1980-01-27",
  "address": [
    {
      "line": [
        "4800 Calhoun Rd"
      ],
      "city": "Houston",
      "state": "Texas",
      "country": "USA"
    }
  ]
}
```

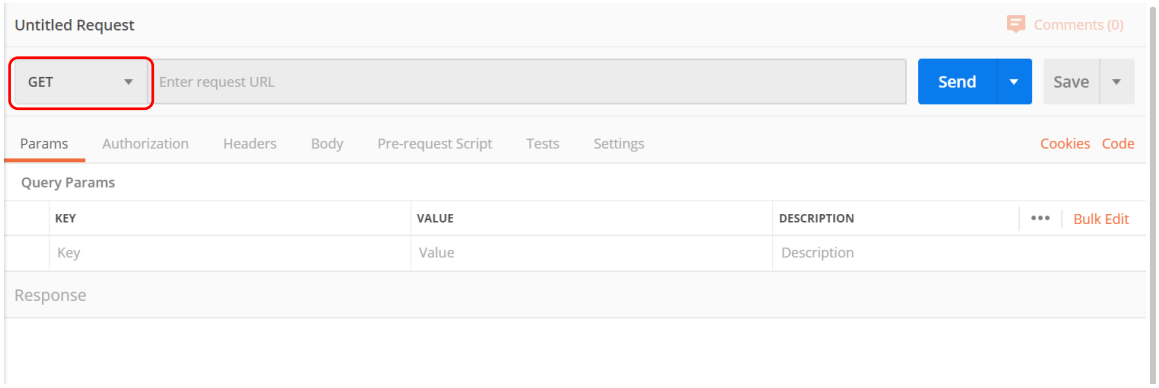

I tried several times until I completed task 1. Other elements except identifier and birthday were easy since they were covered by the provided tutorial video. I had difficulties in specifying identifier and birthday which were figured out later by referring to the result from a GET request shown below:



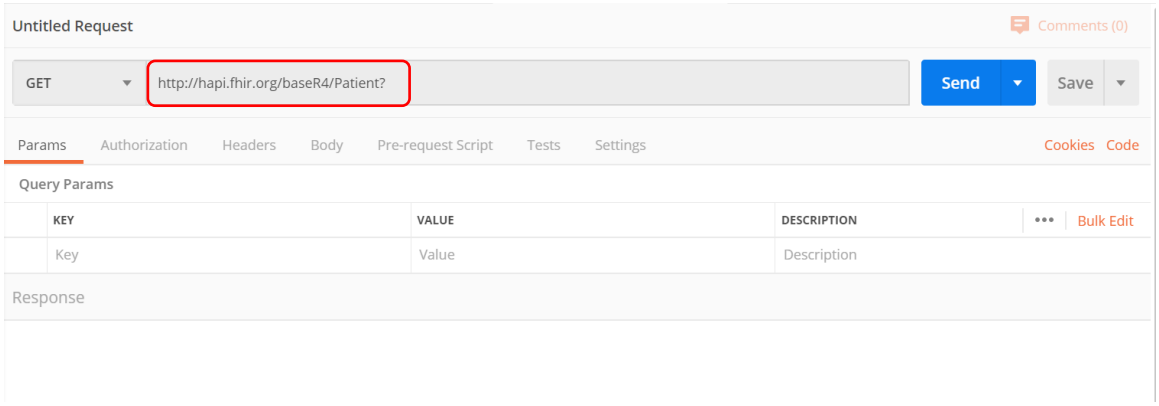
Task 2: GET the FHIR Resource using the ID that has been assigned by the server to your resource.

The steps I took:

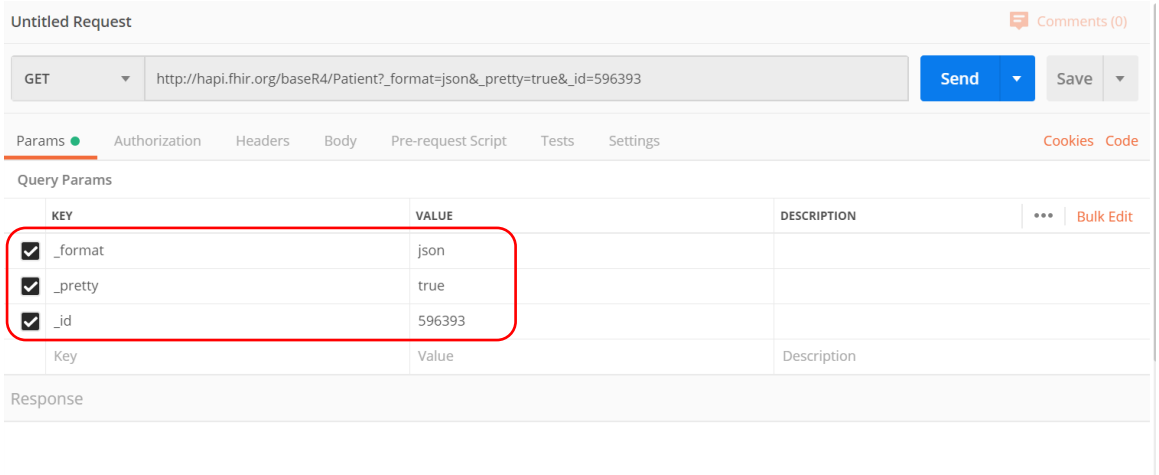
1. Selected the “GET” method as shown below in the red box:



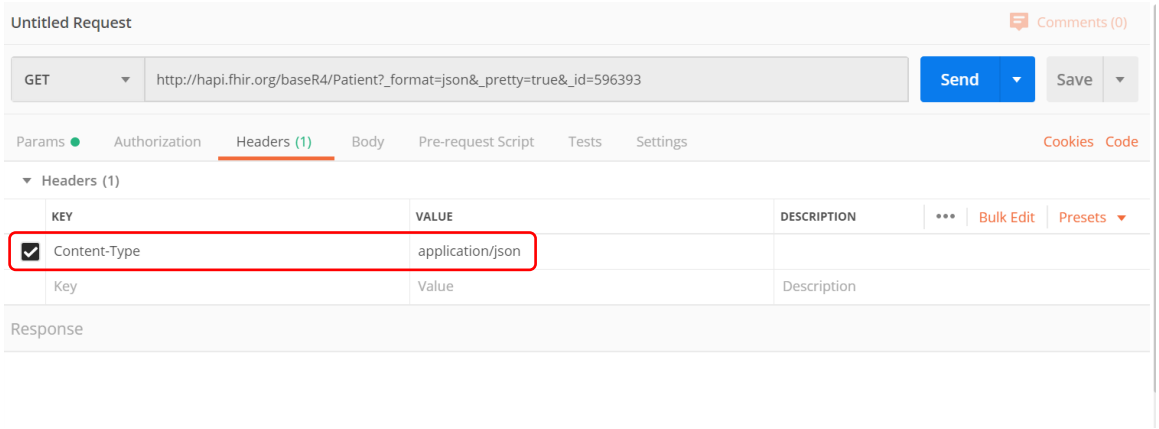
2. Typed http://hapi.fhir.org/baseR4/Patient? in the address box as shown in the red box.



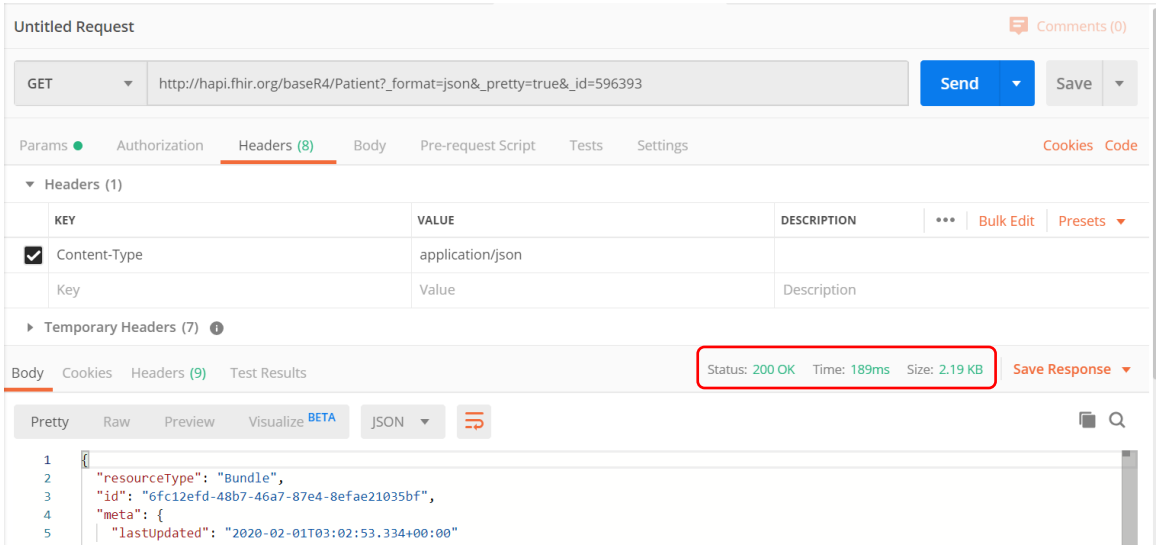
3. Specified parameters “_format”, “_pretty” and “_id” (refer to step 7 in task 1, the id of the created resource is 596393) under “Params” tab as shown below in the red box:



4. Chose “Content-Type” under “Headers” tab and assigned its value as “application/json” as shown below in the red box:



5. Pressed “Send” button to get the resource. The status returned as “200 OK” as shown below in the red box:



6. The resource returned as below:


```
"entry": [
  {
    "fullUrl": "http://hapi.fhir.org/baseR4/Patient/596393",
    "resource": {
      "resourceType": "Patient",
      "id": "596393",
      "meta": {
        "versionId": "1",
        "lastUpdated": "2020-02-01T01:18:32.036+00:00",
        "source": "#g7GbBBtUSnz2LvRU"
      },
      "text": {
        "status": "generated",
        "div": "<div xmlns=\"http://www.w3.org/1999/xhtml\"><div class=\"hapiHeaderText\">Johnson <b>DANIEL </b></div><table
          class=\"hapiPropertyTable\"><tbody><tr><td>Identifier</td><td>shuang379</td></tr><tr><td>Address</td><td><span>4800 Calhoun
          Rd </span><br/><span>Houston </span><span>Texas </span><span>USA </span></td></tr><tr><td>Date of birth</td><td><span>27
          January 1980</span></td></tr></tbody></table></div>"
      },
      "identifier": [
        {
          "value": "shuang379"
        }
      ],
      "name": [
        {
          "family": "Daniel",
          "given": [
            "Johnson"
```

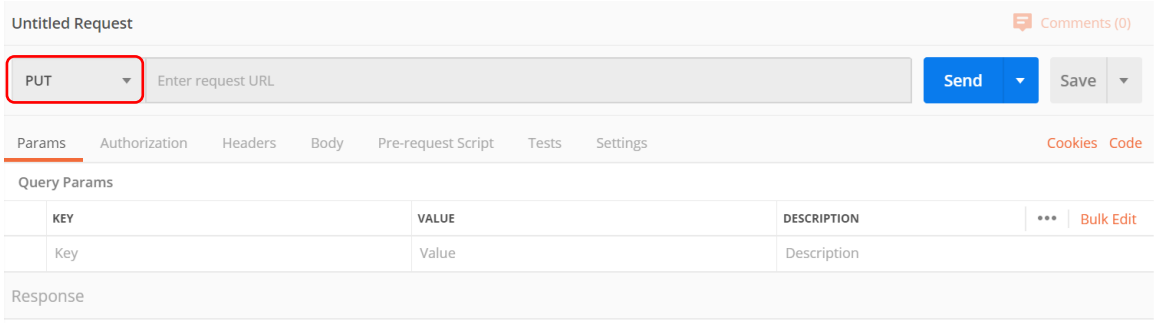
```
        ]
      }
    ],
    "telecom": [
      {
        "system": "phone",
        "value": "1(555)555-1212",
        "use": "mobile"
      }
    ],
    "gender": "male",
    "birthDate": "1980-01-27",
    "address": [
      {
        "line": [
          "4800 Calhoun Rd"
        ],
        "city": "Houston",
        "state": "Texas",
        "country": "USA"
      }
    ]
```


Task 2 is straightforward. I did not encounter any issue while following what had been demonstrated in the provided tutorial.

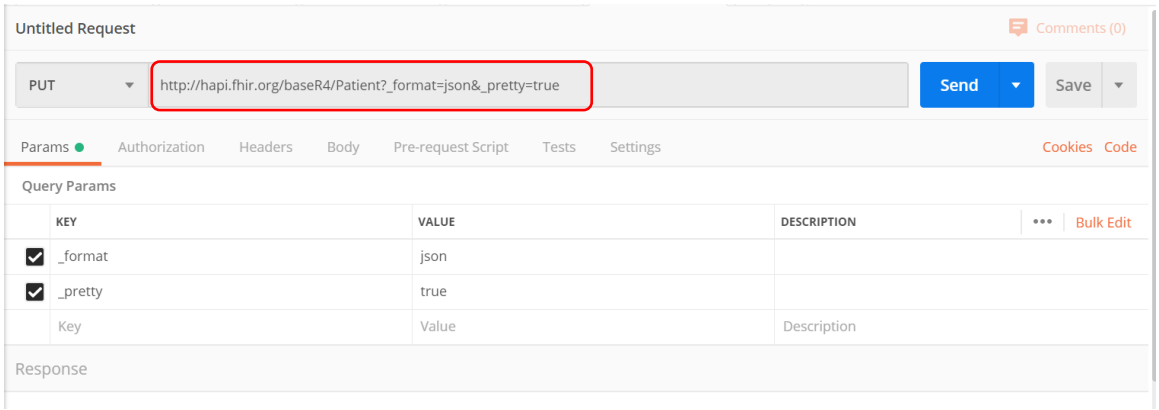
Task 3: Using the Resource you retrieved in task 2, alter the line, city, state and telecom to different ones and send your edited resource for update to the server.

The steps I took:

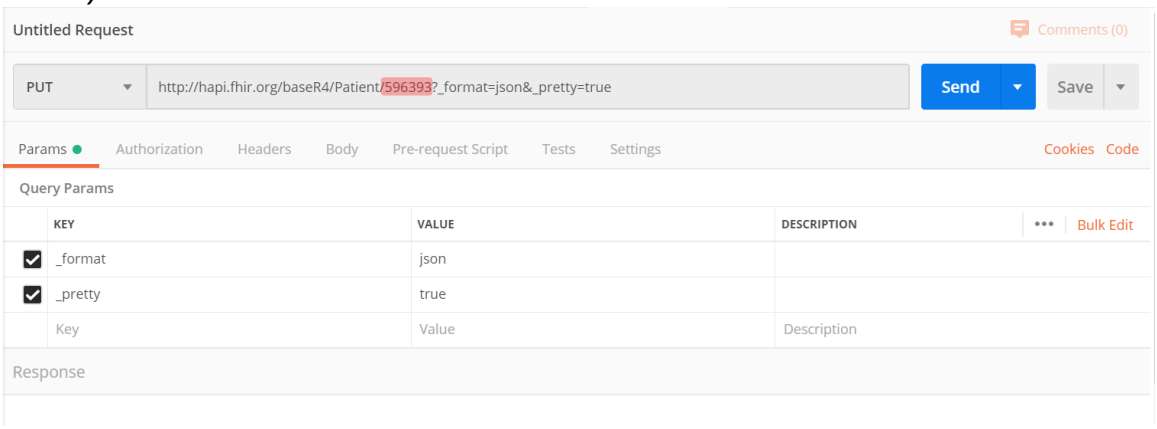
1. Selected the “PUT” method as shown below in the red box:



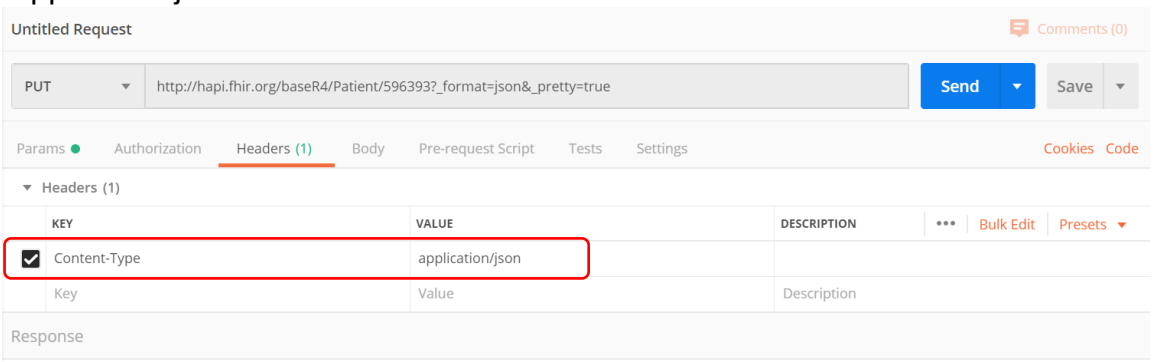
2. Typed “http” and selected from the auto fill list the address shown below in the red box:



3. Modified the address by adding the assigned id (i.e. the highlighted part shown below):



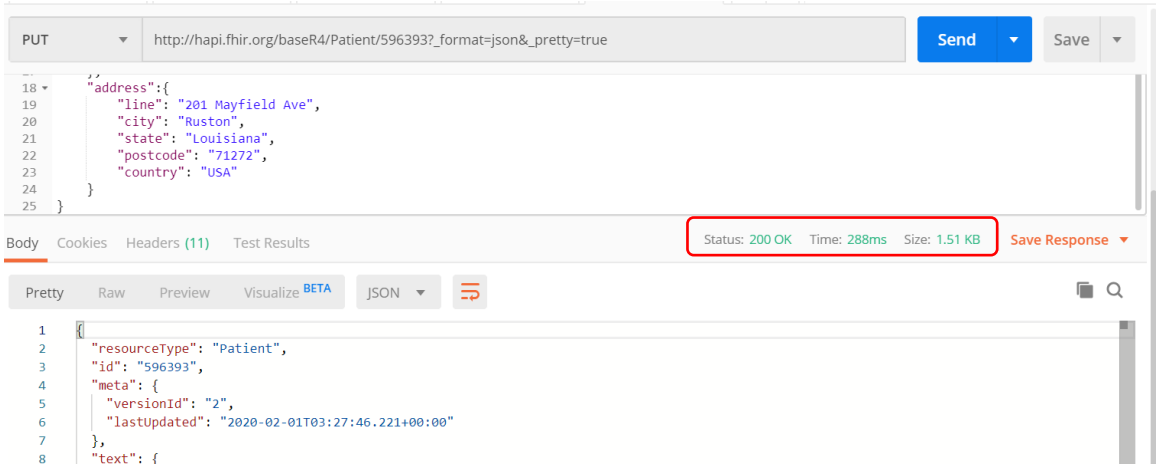
4. Chose “Content-Type” under “Headers” tab and assigned its value as “application/json” as shown below in the red box:



5. Chose “raw” under the “Body” tab and pasted the resource I created in the body. But this time, I added the “id” element and its value of "596393". Moreover, I altered the line, city, state and telecom to different ones as shown below:


```
{
    "resourceType": "Patient",
    "id": "596393",
    "identifier": {
        "value": "shuang379"
    },
    "name": {
        "family": "Daniel",
        "given": "Johnson"
    },
    "birthDate": "1980-01-27",
    "gender": "male",
    "telecom":{
        "system": "phone",
        "value": "1(318)257-2000",
        "use": "mobile"
    },
    "address":{
        "line": "201 Mayfield Ave",
        "city": "Ruston",
        "state": "Louisiana",
        "postcode": "71272",
        "country": "USA"
    }
}
```

6. Pressed “Send” button to update the resource. The status returned as “200 OK” as shown below in the red box:



7. The updated resource matches new information and “versionId” became “2”, which is shown below:


```
{
  "resourceType": "Patient",
  "id": "596393",
  "meta": {
    "versionId": "2",
    "lastUpdated": "2020-02-01T03:27:46.221+00:00"
  },
  "text": {
    "status": "generated",
    "div": "<div xmlns=\"http://www.w3.org/1999/xhtml\"><div class=\"hapiHeaderText\">Johnson <b>DANIEL </b></div><table
      class=\"hapiPropertyTable\"><tbody><tr><td>Identifier</td><td>shuang379</td></tr><tr><td>Address</td><td><span>201 Mayfield Ave </
      span><br/><span>Ruston </span><span>Louisiana </span><span>USA </span></td></tr><tr><td>Date of birth</td><td><span>27 January
      1980</span></td></tr></tbody></table></div>"
  },
  "identifier": [
    {
      "value": "shuang379"
    }
  ],
  "name": [
    {
      "family": "Daniel",
      "given": [
        "Johnson"
      ]
    }
  ],
  "telecom": [
    {
      "system": "phone",
      "value": "1(318)257-2000",
      "use": "mobile"
    }
  ],
  "gender": "male",
  "birthDate": "1980-01-27",
  "address": [
    {
      "line": [
        "201 Mayfield Ave"
      ],
      "city": "Ruston",
      "state": "Louisiana",
      "country": "USA"
    }
  ]
}
```

Task 3 is tricky. First issue was the format with which the id should be included in the address. I had to go back to the tutorial video and got the correct order. Then, I got a 400 Bad Request error because I did not include the id in the raw input. I followed the error message in the response (shown below) and had it fixed.


```
"issue": [
  {
    "severity": "error",
    "code": "processing",
    "diagnostics": "Can not update resource, resource body must contain an ID element for update (PUT) operation"
  }
]
```