API TEST WITH POSTMAN

Last updated: Monday, September 21st, 2020

3 November 2020

AGENDA

- Working with API request
- Working with Collection
- Working with Test
- Data file (CSV, JSON)
- Environment
- Newman
- Script Test

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Before write test API

1. Acceptance test
2. Data test
3. API Specification
4. HTTP Methods
5. HTTP Status code

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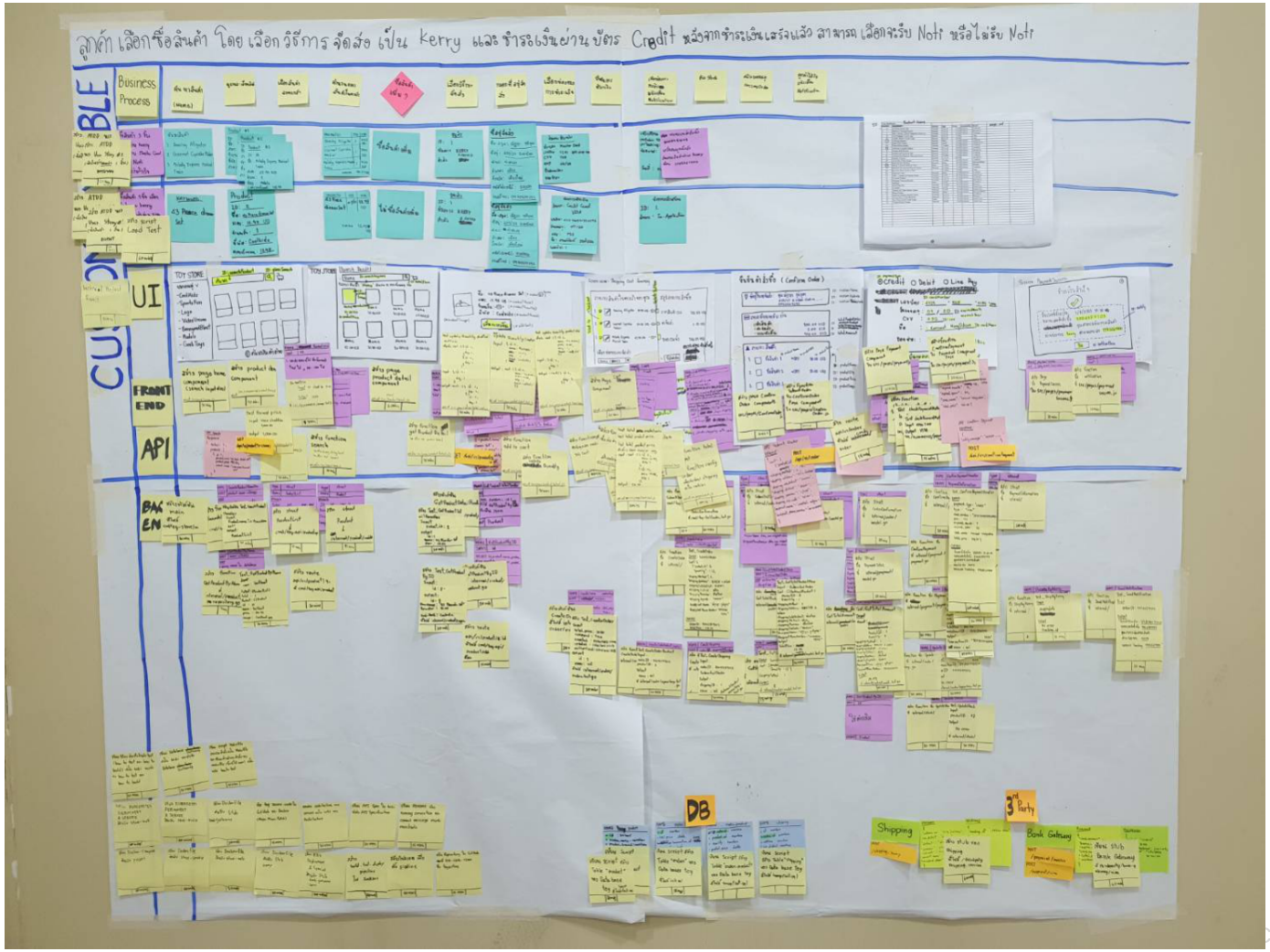
Example : Acceptance Test

Story #1 : ลูกค้าเลือกซื้อสินค้าโดยเลือกวิธีการจัดส่งเป็น Kerry และชำระเงินผ่านบัตร Credit หลังจากชำระเงินเสร็จแล้ว สามารถเลือกจะรับการแจ้งเตือนหรือไม่รับแจ้งเตือน



Example : Data test

ชื่อสินค้า	ราคา	จำนวน	ที่อยู่	รูปแบบการชำระเงิน	ประเภทการขนส่ง	ค่าส่ง	เลขบัตรเครดิต
43 Piece dinner set	12.95	1	405/37 ถ.มหิดล ต.ท่าศาลา อ.เมือง จ.เชียงใหม่ 50000	Credit Visa	Kerry	2	4719700591590995

เลข CVV	วันหมดอายุบัตร (MM/YY)	ชื่อ-นามสกุล	ราคารวมทั้งหมด	ข้อความการแจ้งเตือน
752	02/22	Karnawat Wongudom	14.95	วันเวลาที่ชำระเงิน **1/3/2020 13:30:00** หมายเลขคำสั่งซื้อ **8004359103** คุณสามารถติดตามสินค้าผ่านช่องทาง **Kerry** ด้วยหมายเลข **1785261900**

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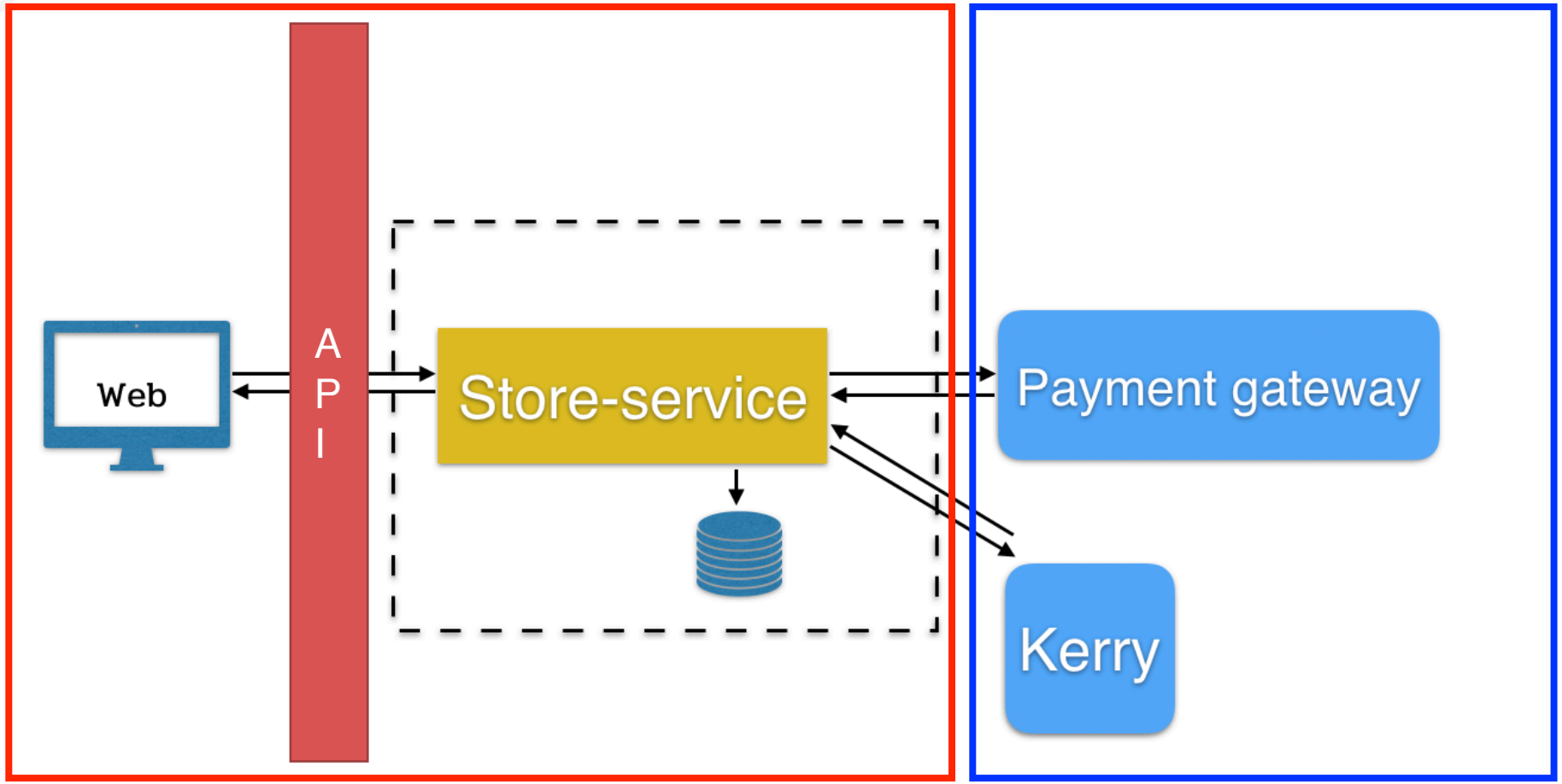
Example : Architecture



*Reserved for additional fields in future

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API Specification

Home

Nareenart edited this page yesterday · 4 revisions

API Specification

1. API Search
2. API Product detail
3. API Submit Order
4. API Confirm Payment

Database and Data Dictionary

- Database name : toy
- Table name : products
- Table name : order_product
- Table name : shipping
- Table name : orders

Reference : https://github.com/platylm/postman-101

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HTTP Methods

C -> Create -> Post

R -> Read -> Get

U -> Update -> Put

D -> Delete -> Delete

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HTTP Methods

Using HTTP Methods for RESTful Services

Quick-Tips Resource Naming

The HTTP verbs comprise a major portion of our "uniform interface" constraint and provide us the action counterpart to the noun-based resource. The primary or most-commonly-used HTTP verbs (o methods, as they are properly called) are POST, GET, PUT, PATCH, and DELETE. These correspond to create, read, update, and delete (or CRUD) operations, respectively. There are a number of other verbs, too, but are utilized less frequently. Of those less-frequent methods, OPTIONS and HEAD are used more often than others.

Below is a table summarizing recommended return values of the primary HTTP methods in combination with the resource URIs:

HTTP Verb	CRUD	Entire Collection (e.g. /customers)	Specific Item (e.g. /customers/{id})
POST	Create	201 (Created), 'Location' header with link to /customers/{id} containing new ID.	404 (Not Found), 409 (Conflict) if resource already exists..
GET	Read	200 (OK), list of customers. Use pagination, sorting and filtering to navigate big lists.	200 (OK), single customer. 404 (Not Found), if ID not found or invalid.
PUT	Update/Replace	405 (Method Not Allowed), unless you want to update/replace every resource in the entire collection.	200 (OK) or 204 (No Content). 404 (Not Found), if ID not found or invalid.
PATCH	Update/Modify	405 (Method Not Allowed), unless you want to modify the collection itself.	200 (OK) or 204 (No Content). 404 (Not Found), if ID not found or invalid.
DELETE	Delete	405 (Method Not Allowed), unless you want to delete the whole collection—not often desirable.	200 (OK). 404 (Not Found), if ID not found or invalid.

Below is a more-detailed discussion of the main HTTP methods. Click on a tab for more information about the desired HTTP method.

ที่มา : https://www.restapitutorial.com/lessons/httpmethods.html

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What is Postman?

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Install Postman

https://www.postman.com/downloads/

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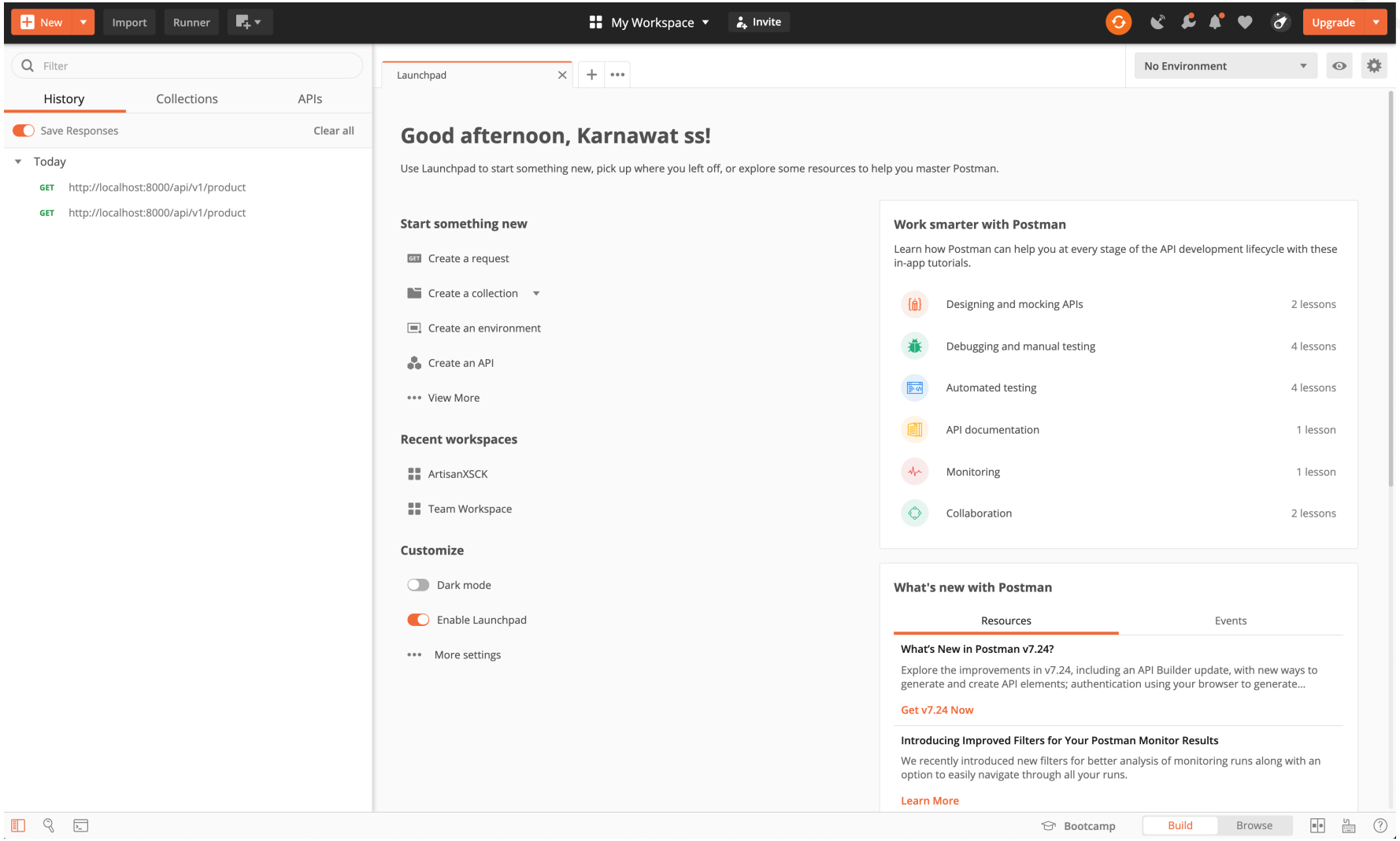
หน้าหลัก Postman



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Working with API request

1. กดเครื่องหมายสัญลักษณ์

2. เลือก Method = GET

3. พิมพ์ URL = https://api.umd.io/v1/courses

4. กด Send

5. ดู Response

GET https://api.umd.io/v1/courses

Untitled Request

No Environment

Comments 0

GET | https://api.umd.io/v1/courses | Send | Save

Headers (7) | Body | Pre-request Script | Tests | Settings

KEY	VALUE	DESCRIPTION	••• Bulk Edit
Key	Value	Description	

Body | Cookies | Headers (14) | Test Results (1/1)

Status: 200 OK | Time: 1266 ms | Size: 21.05 KB | Save Response

Pretty | Raw | Preview | Visualize | JSON


```
[
    {
        "course_id": "AASP100",
        "semester": "202008",
        "name": "Introduction to African American Studies",
        "dept_id": "AASP",
        "department": "African American Studies",
        "credits": "3",
        "description": "Significant aspects of the history of African Americans with particular emphasis on the evolution and development of black communities from slavery to the pres
        "grading_method": [
            "Regular",
            "Pass-Fail",
            "Audit"
        ],
        "gen_ed": [
            [
                "DSHS",
                "DVUP"
            ]
        ],
        "core": [
            "SH",
            "D"
        ],
        "relationships": {
```


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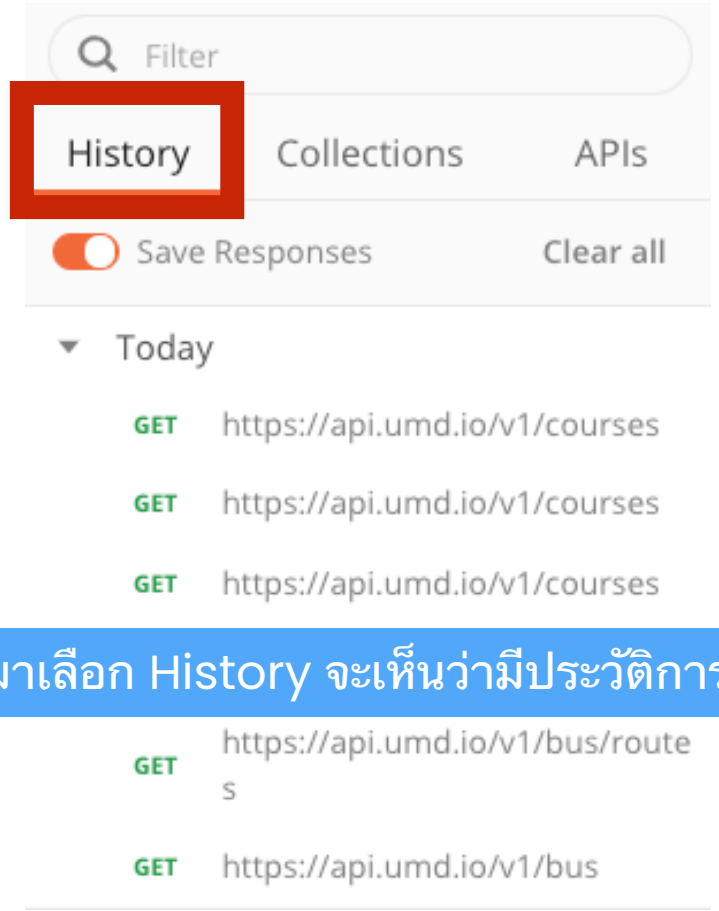
Working with API request



หลังกด Send มาเลือก History จะเห็นว่ามีประวัติการเรียก Request

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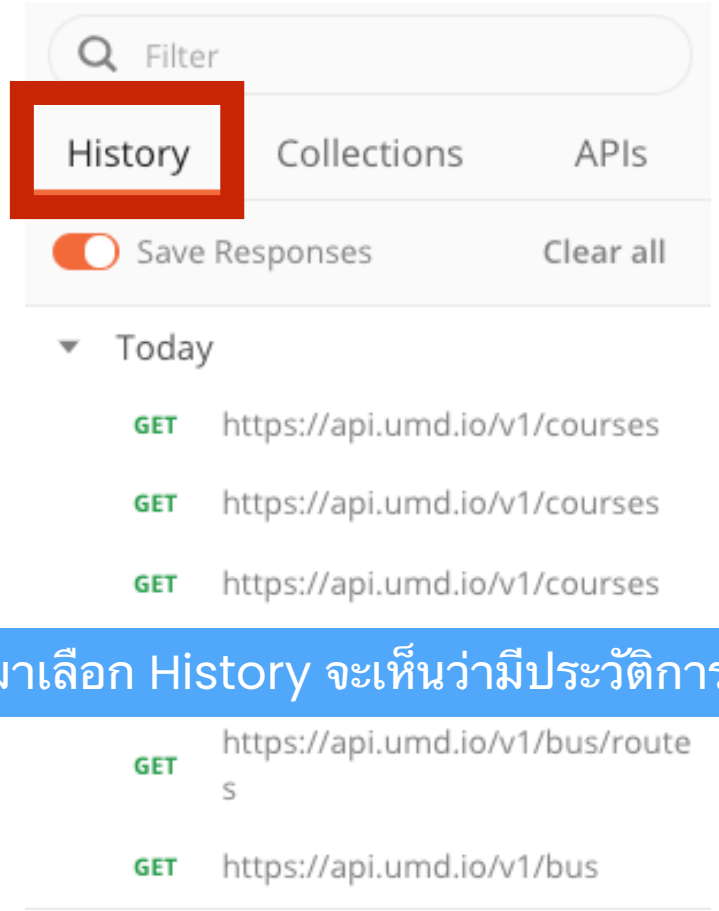
Working with API request



หลังกด Send มาเลือก History จะเห็นว่ามีประวัติการเรียก Request

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Working with API request

เพิ่ม API request อีก 1 เส้น

GET https://api.umd.io/v1/courses | GET https://api.umd.io/v1/courses/list

No Environment

Untitled Request

Comments 0

GET https://api.umd.io/v1/courses/list Send Save

Params Authorization Headers (7) Body Pre-request Script Tests Settings Cookies Code

Query Params

KEY	VALUE	DESCRIPTION
Key	Value	Description

Bulk Edit

Body Cookies Headers (11) Test Results Status: 200 OK Time: 3.99 s Size: 324.6 KB Save Response

Pretty Raw Preview Visualize JSON


```
[
    {
        "course_id": "AASP100",
        "name": "Introduction to African American Studies"
    },
    {
        "course_id": "AASP100H",
        "name": "Introduction to African American Studies"
    },
    {
        "course_id": "AASP101",
        "name": "Public Policy and the Black Community"
    },
    {
        "course_id": "AASP200",
        "name": "African Civilization"
    },
    {
        "course_id": "AASP202",
        "name": "Black Culture in the United States"
    },
```


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Working with API request

GET https://api.umd.io/v1/courses | GET https://api.umd.io/v1/courses/list | GET https://api.umd.io/v1/courses/s... | GET https://api.umd.io/v1/courses/...

No Environment

Untitled Request

Comments 0

GET https://api.umd.io/v1/courses/MATH140 Send Save

Params Authorization Headers (7) Body Pre-request Script Tests Settings Cookies Code

Query Params

KEY	VALUE	DESCRIPTION
Key	Value	Description

Bulk Edit

Body Cookies Headers (11) Test Results Status: 200 OK Time: 1141 ms Size: 2.22 KB Save Response

Pretty Raw Preview Visualize JSON


```
[
    {
        "course_id": "MATH140",
        "semester": "202008",
        "name": "Calculus I",
        "dept_id": "MATH",
        "department": "Mathematics",
        "credits": "4",
        "description": "Introduction to calculus, including functions, limits, continuity, derivatives and applications of the derivative, sketching of graphs of functions, definite a
        "grading_method": [
            "Regular",
            "Pass-Fail",
            "Audit"
        ],
        "gen_ed": [
            [
                "FSAR",
                "FSMA"
            ]
        ],
        "core": [
            "MS"
        ],
```


และถ้ามี API เพิ่ม อีกละ?

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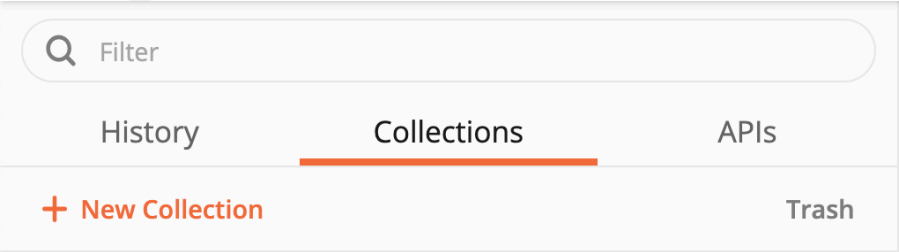
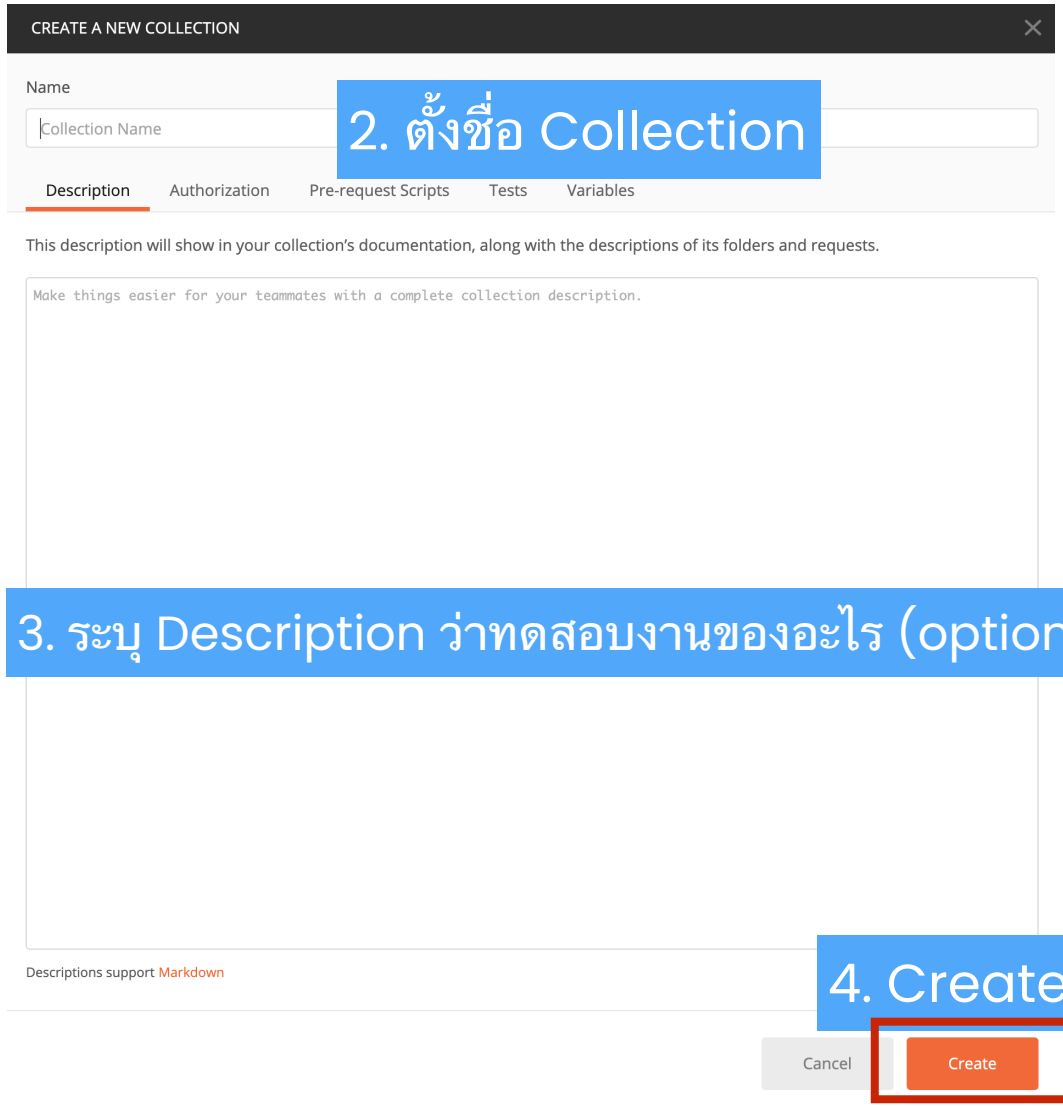
Working with API request



1. เลือก “+ New Collection”



2. ตั้งชื่อ Collection

3. ระบุ Description ว่าทดสอบงานของอะไร (optional)

4. Create

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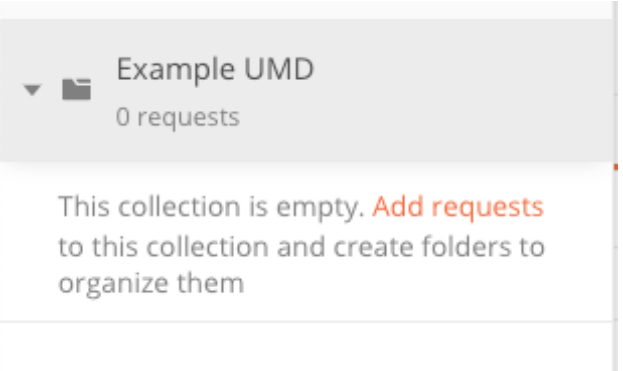
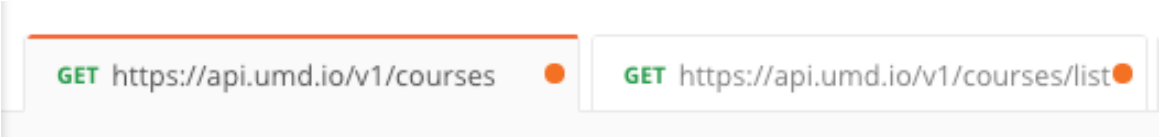
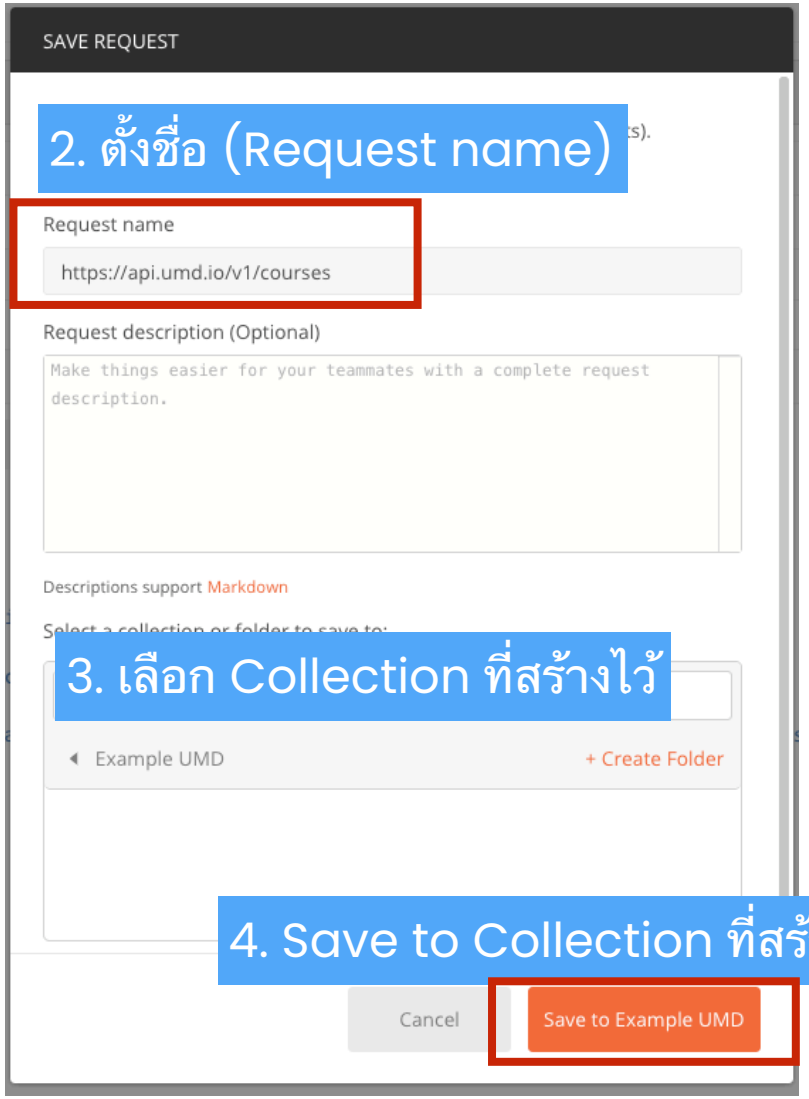
Working with Collection

หลังจากสร้างจะขึ้น Collection ที่สร้างขึ้นมา
ให้กลับมาที่ Request ที่สร้างไว้





1. กด Save Request



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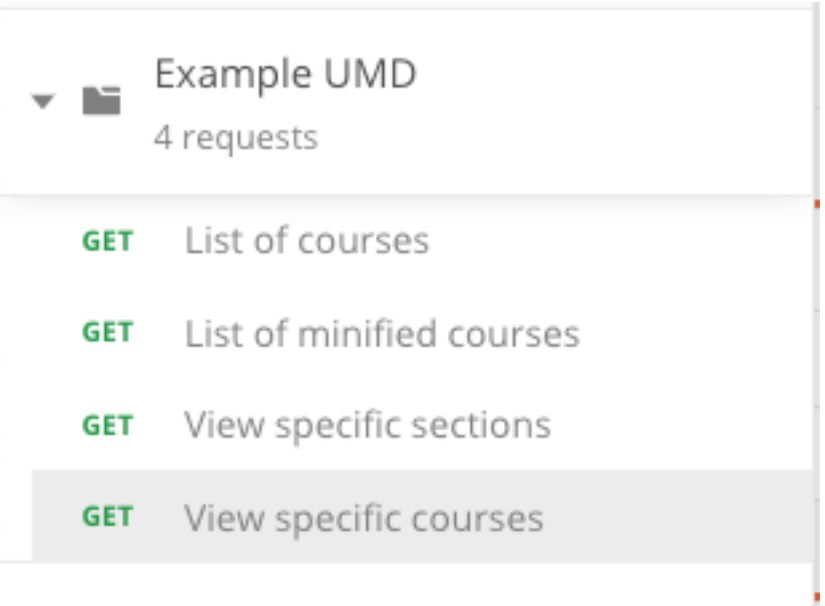
Working with Collection

หลังจาก Save to Collection จะมี API ที่สร้างไว้ตอนแรกเพิ่มมาใน Collection ดังรูป



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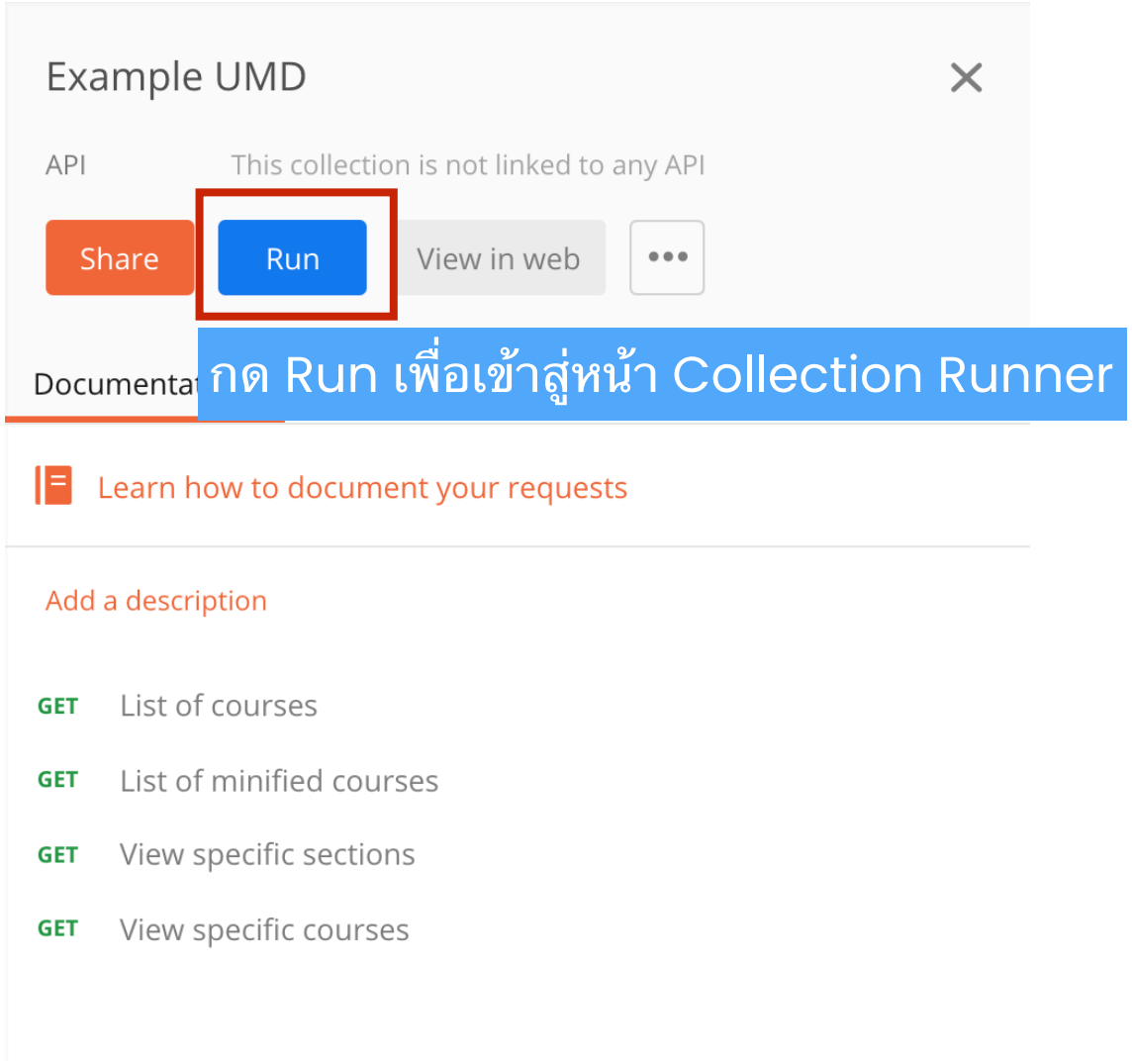
Working with Collection



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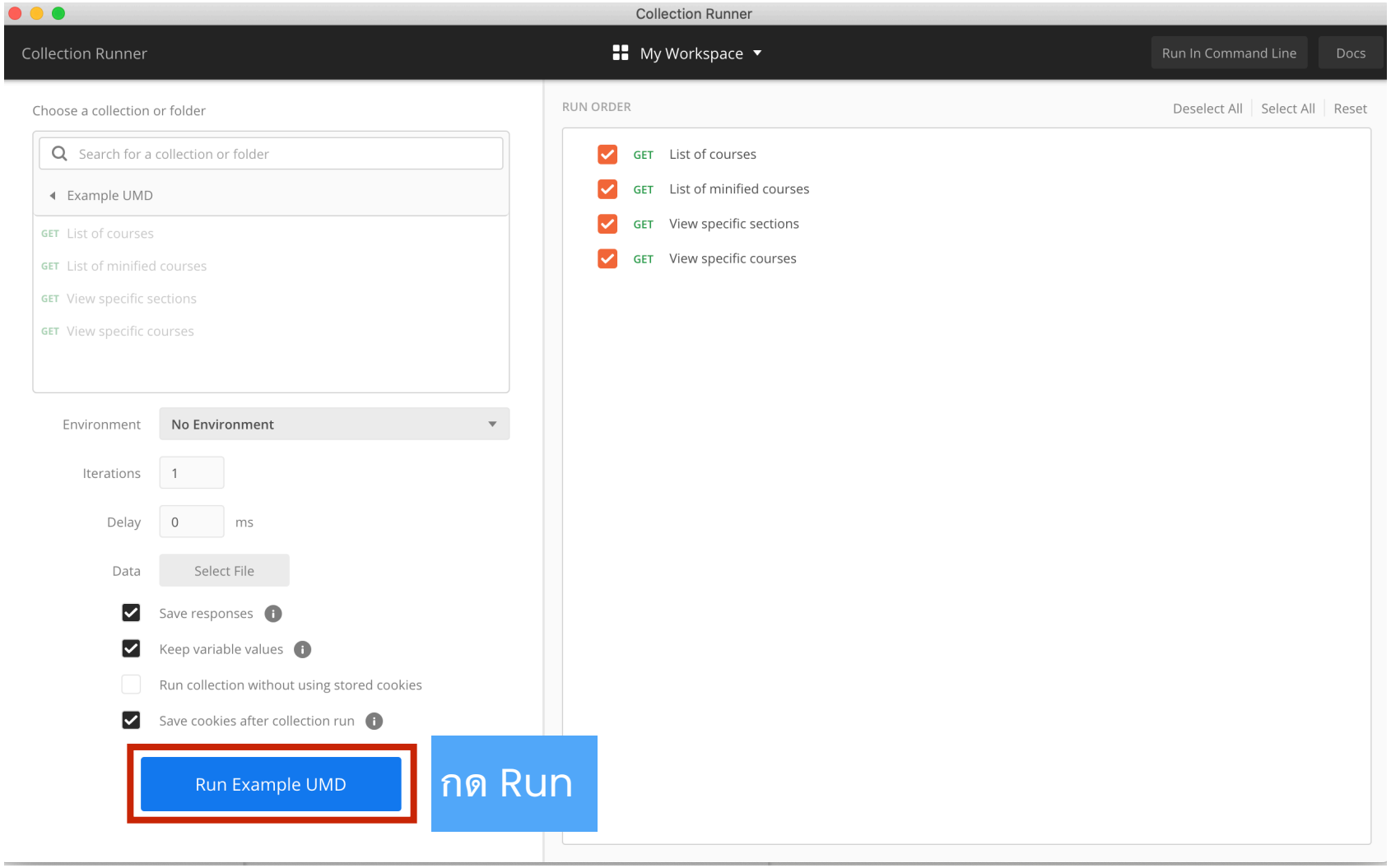
Working with Collection



กด Run

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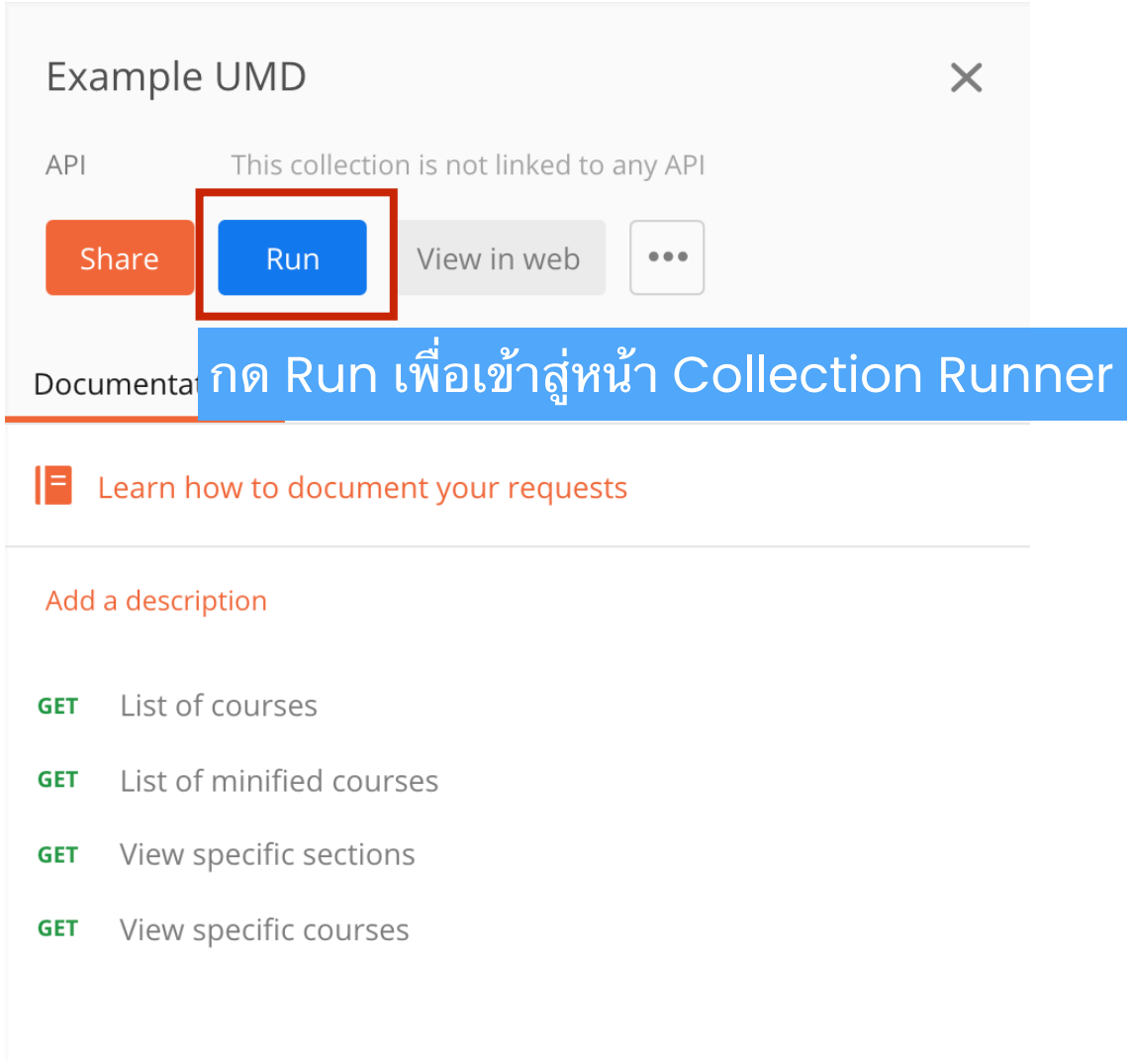
Working with Collection



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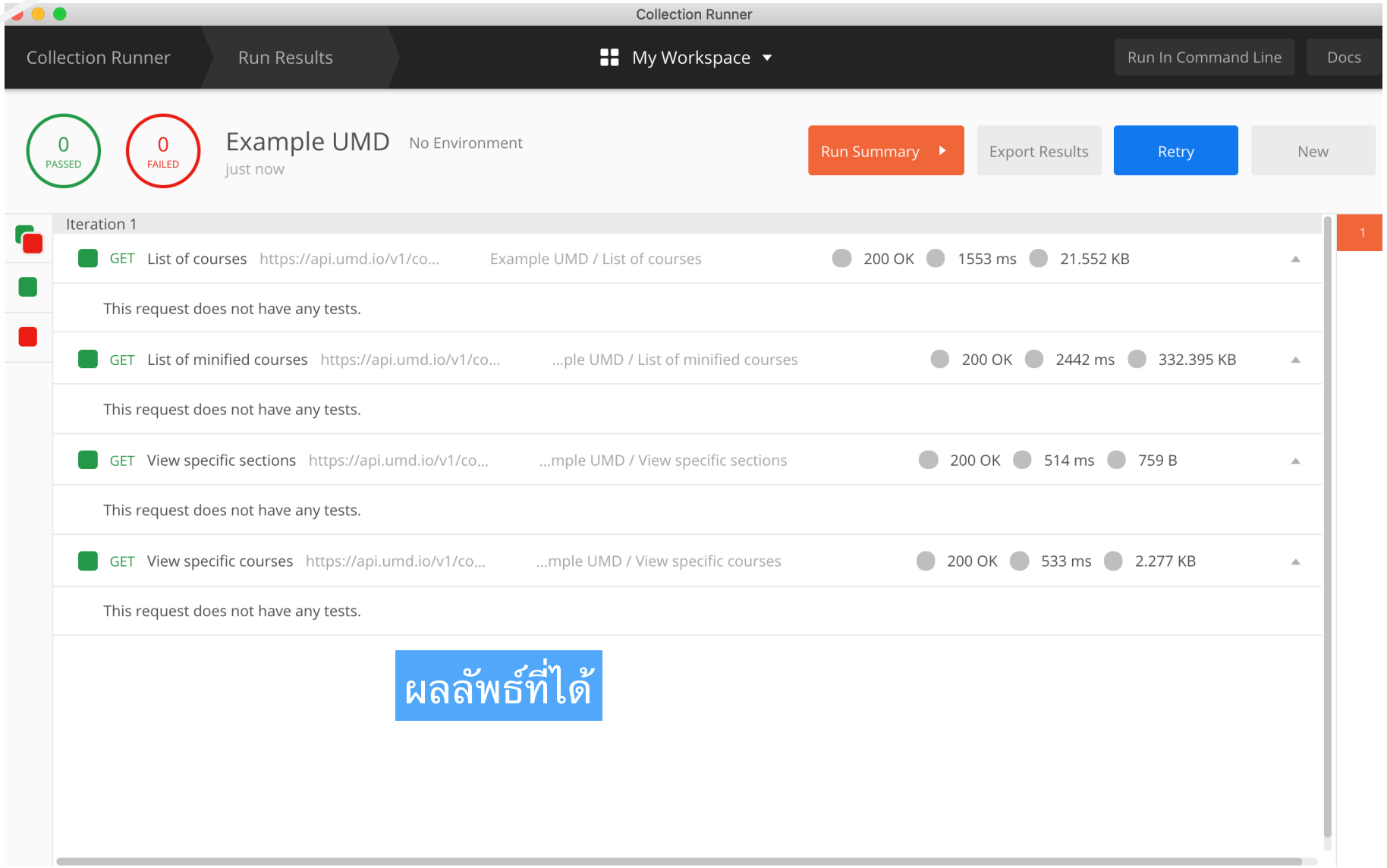
Working with Collection



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Working with Test

GET | http://localhost:8000/api/v1/product | Send | Save

Params | Authorization | Headers (7) | Body | Pre-request Script | Tests | Settings

1. เลือกว่าจะทดสอบอะไร

```
pm.test("Status code is 200", function () {
    pm.response.to.have.status(200);
});

pm.test("มีสินค้าชื่อ 43 Piece dinner Set", fun
    var jsonData = pm.response.json();
    pm.expect(jsonData.products[1].product_name).to.eql("43 Piece dinner Set");
});

pm.test("สินค้าราคา 12.95", function () {
    var jsonData = pm.response.json();
    pm.expect(jsonData.products[1].product_price).to.eql(12.95);
});

pm.test("จะต้องแสดงรูป 43
    var jsonData = pm.
    pm.expect(jsonData.
});
```

2. ตั้งชื่อ Test Case

Test scripts are written in JavaScript, and are run after the response is received.

Learn more about tests scripts

SNIPPETS

- Send a request
- Status code: Code is 200
- Response body: Contains string
- Response body: JSON value check
- Response body: Is equal to a string
- Response headers: Content-Type header check
- Response time is less than 200ms
- Status code: Successful POST request

3. Assert ของที่คาดหวัง


```
{
    "total": 2,
    "products": [
        {
            "id": 1,
            "product_name": "Balance Training Bicycle",
            "product_price": 119.95,
            "product_image": "/Balance_Training_Bicycle.png"
        },
        {
            "id": 2,
            "product_name": "43 Piece dinner Set",
            "product_price": 12.95,
            "product_image": "/43_Piece_dinner_Set.png"
        }
    ]
}
```


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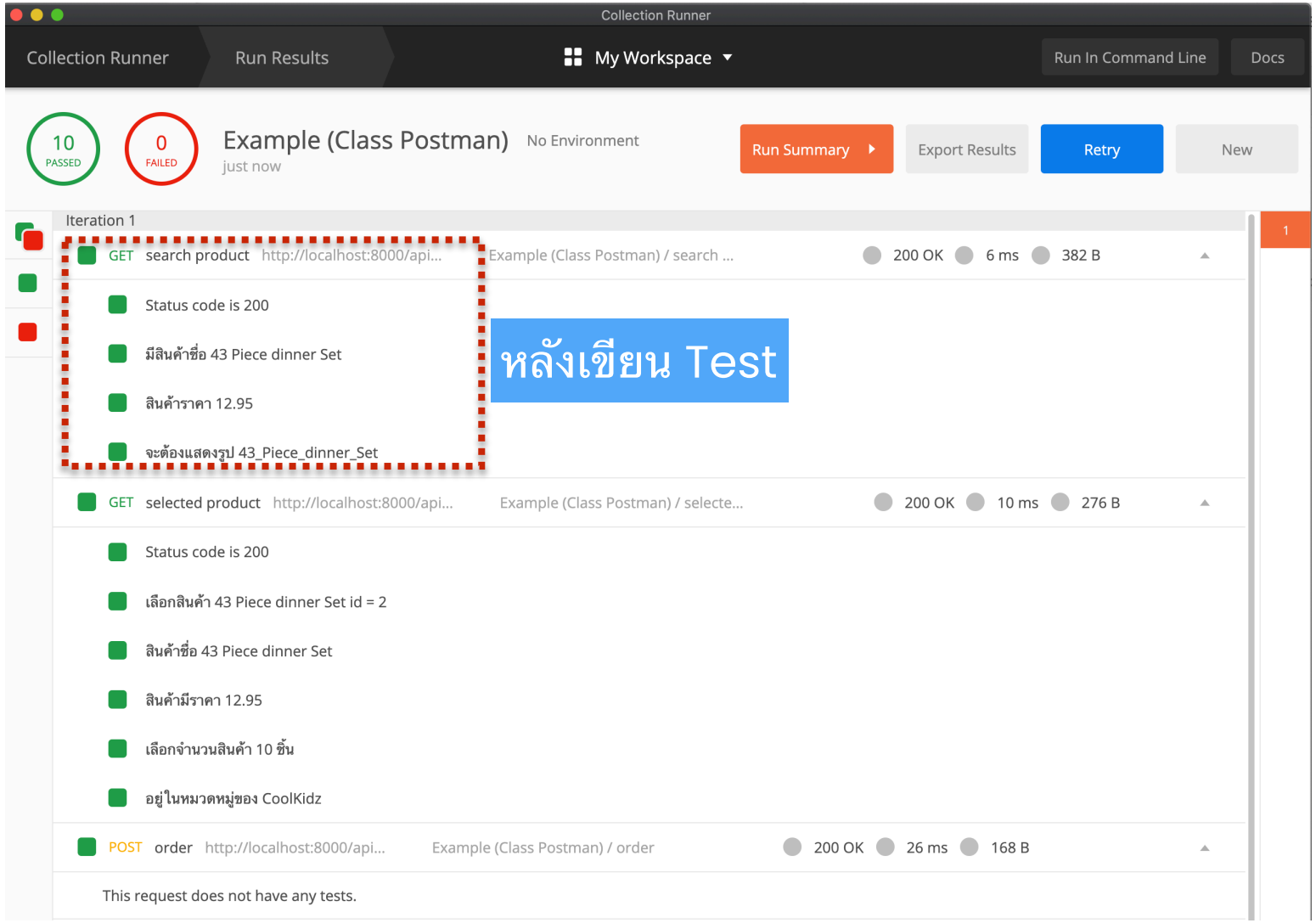
Run Collection Runner

Working with Test

สิ่งที่เปลี่ยนไปจาก จะมี **Test Case** เพิ่มเข้ามา



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Working with Test

Example (Class Postman)
4 requests

Example2 (Class Postman)
4 requests

Example3 (Class Postman)

```
pm.test("Status code is 200", function () {
    pm.response.to.have.status(200);
});

pm.test("เลือกสินค้า 43 Piece dinner Set id = 2", functio
    var jsonDat
    pm.expect(j
});

pm.test("สินค้าชื่
    var jsonDat
    pm.expect(j
});

pm.test("สินค้ามีร
    var jsonDat
```

```
pm.test("Status code i
    pm.response.to.have
});

pm.test("เลือกสินค้า 43 Piece dinner Set id = 2", function () {
    var jsonData = pm.response.json();
    pm.expect(jsonData.id).to.eql(2);
});

pm.test("สินค้าชื่อ 43 Piece dinner Set", function () {
    var jsonData = pm.response.json();
    pm.expect(jsonData.product_name).to.eql("43 Piece dinner Set");
});

pm.test("สินค้ามีราคา 12.95", function () {
    var jsonData = pm.response.json();
    pm.expect(jsonData.product_price).to.eql(12.95);
```

```
pm.test("Status code is 200", function () {
    pm.response.to.have.status(200);
});

pm.test("เลือกสินค้า 43 Piece dinner Set id = 2", function () {
    var jsonData = pm.response.json();
    pm.expect(jsonData.id).to.eql(2);
});

pm.test("สินค้าชื่อ 43 Piece dinner Set", function () {
    var jsonData = pm.response.json();
    pm.expect(jsonData.product_name).to.eql("43 Piece dinner Set");
});

pm.test("สินค้ามีราคา 12.95", function () {
    var jsonData = pm.response.json();
    pm.expect(jsonData.product_price).to.eql(12.95);
```

ถ้ามีการเปลี่ยนแปลง จะต้องแก้ไขทั้ง 3 ที่

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Working with Data test

```
1  {
2      "cart": [
3          {
4              "product_id": {{product_id}},
5              "quantity": {{quantity}}
6          }
7      ],
8      "shipping_method": "{{shipping_method}}",
9      "shipping_address": "405/37 ถ.มหิดล",
10     "shipping_sub_district": "ต.ท่าศาลา",
11     "shipping_district": "อ.เมือง",
12     "shipping_province": "จ.เชียงใหม่",
13     "shipping_zip_code": "50000",
14     "recipient_name": "ณัฐญา ชุติบุตร",
15     "recipient_phone_number": "0970809292"
16 }
```

การกำหนดชื่อตัวแปรใน postman ให้ใส่ {{ตัวแปร}}

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Working with Data test

Params | Authorization | Headers (7) | Body | Pre-request Script | Tests ● | Settings

```
1   pm.test("Status code is 200", function () {
2       pm.response.to.have.status(200);
3   });
4
5   pm.test("มีสินค้าชื่อ 43 Piece dinner Set", function () {
6       var jsonData = pm.response.json();
7       pm.expect(jsonData.products[1].product_name).to.eql(data["product_name"]);
8   });
9
10  pm.test("สินค้าราคา 12.95", function () {
11      var jsonData = pm.response.json();
12      pm.expect(jsonData.products[1].product_price).to.eql(12.95);
13  });
```

เปลี่ยนจาก Hard code ใน Test เป็นดึงจาก Data File
โดยเขียน data[“variable”]

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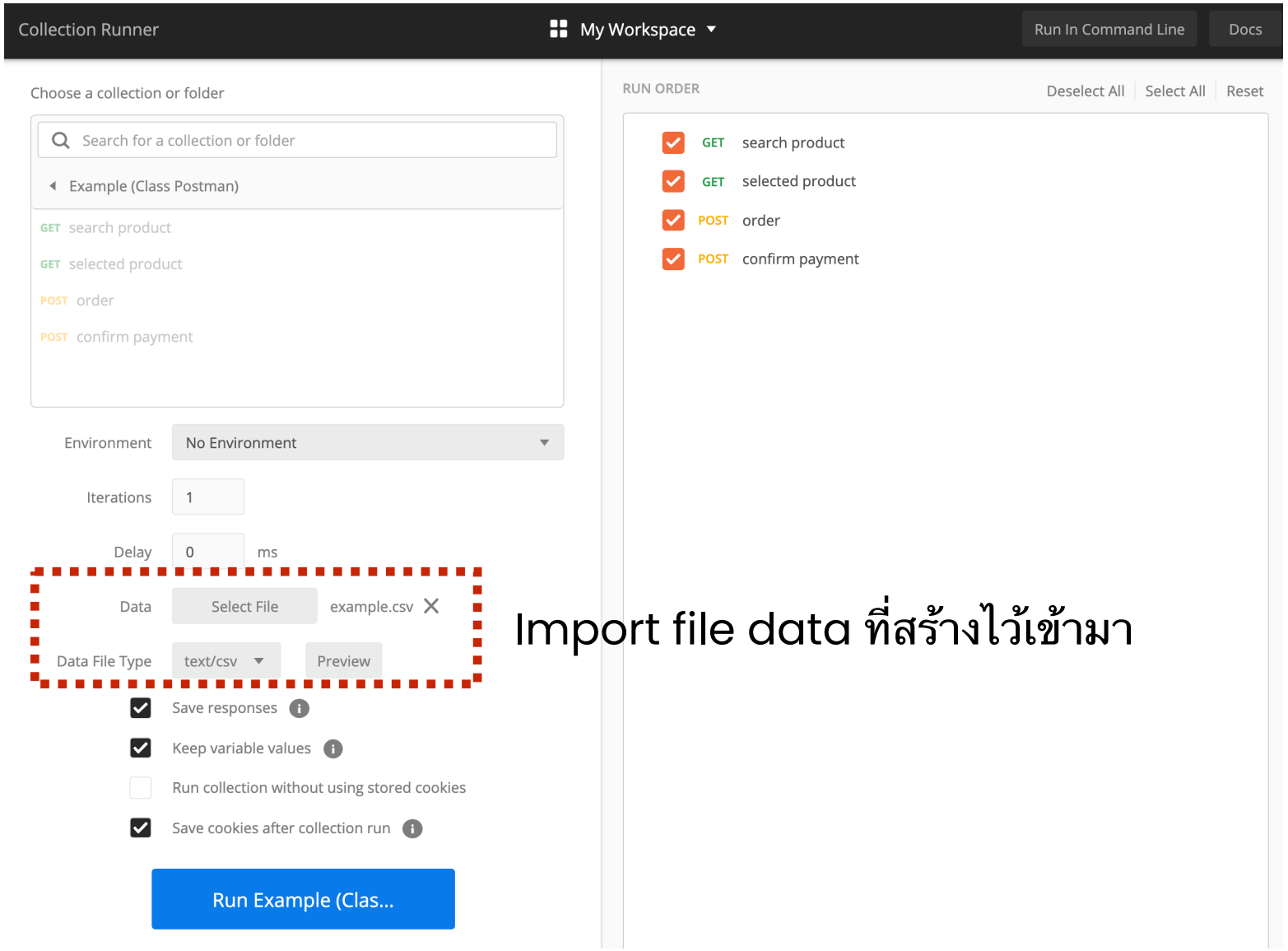
Working with Data test



Import file data ที่สร้างไว้เข้ามา

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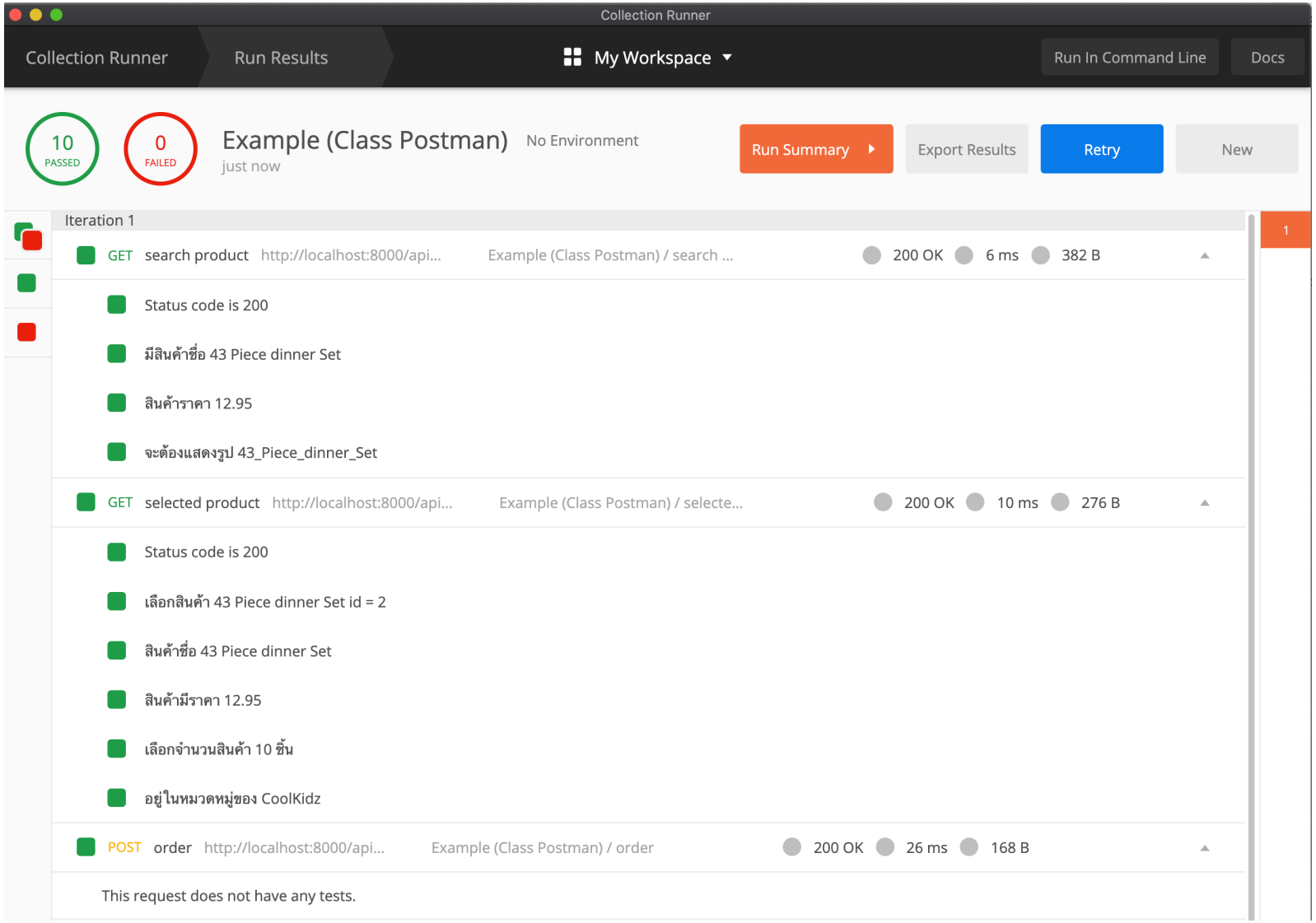
Working with Data test

ผลของ Collection Runner ยังต้องเหมือนเดิม



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Working with set variable

submit order

POST {{url}}/api/v1/order

Params Authorization Headers (10) Body Pre-request Script Tests Settings

```
1  pm.test("Status code is 200", function () {
2      pm.response.to.have.status(200);
3  });
4  pm.test("OrderId is existed", function () {
5      var jsonData = pm.response.json();
6      pm.expect(jsonData.order_id).to.exist;
7      pm.environment.set("order_id", jsonData.order_id);
8  });
9
10 pm.test("Total price " + data["assert"]["total_price_order"], function () {
11     var jsonData = pm.response.json();
12     pm.expect(jsonData.total_price).to.eql(data["assert"]["total_price_order"]);
13 });
```

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Working with get variable

confirm payment

POST {{url}}/api/v1/confirmPayment

Params Authorization Headers (10) Body Pre-request Script Tests Settings

```
1  pm.environment.get("order_id");
```

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Working with use variable

confirm payment

POST {{url}}/api/v1/confirmPayment

Params Authorization Headers (10) Body Pre-request Script Tests Settings

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

```
1  {
2    "order_id": {{order_id}},
3    "payment_type": "{{payment_type}}",
4    "type": "{{type}}",
5    "card_number": "{{card_number}}",
6    "cvv": "{{cvv}}",
7    "expired_month": {{expired_month}},
8    "expired_year": {{expired_year}},
9    "card_name": "{{card_name}}",
10   "total_price": {{total_price}}
11 }
```

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Working with Environment

GET http://localhost:8000/api/v1/product

GET api/v1/product

GET

GET http://UAT-Environment/api/v1/product

จะทดสอบที่ Environment อื่นจะต้อง Duplicate Test มาเพิ่ม
หรือแก้ URL ใหม่เวลาจะทดสอบ

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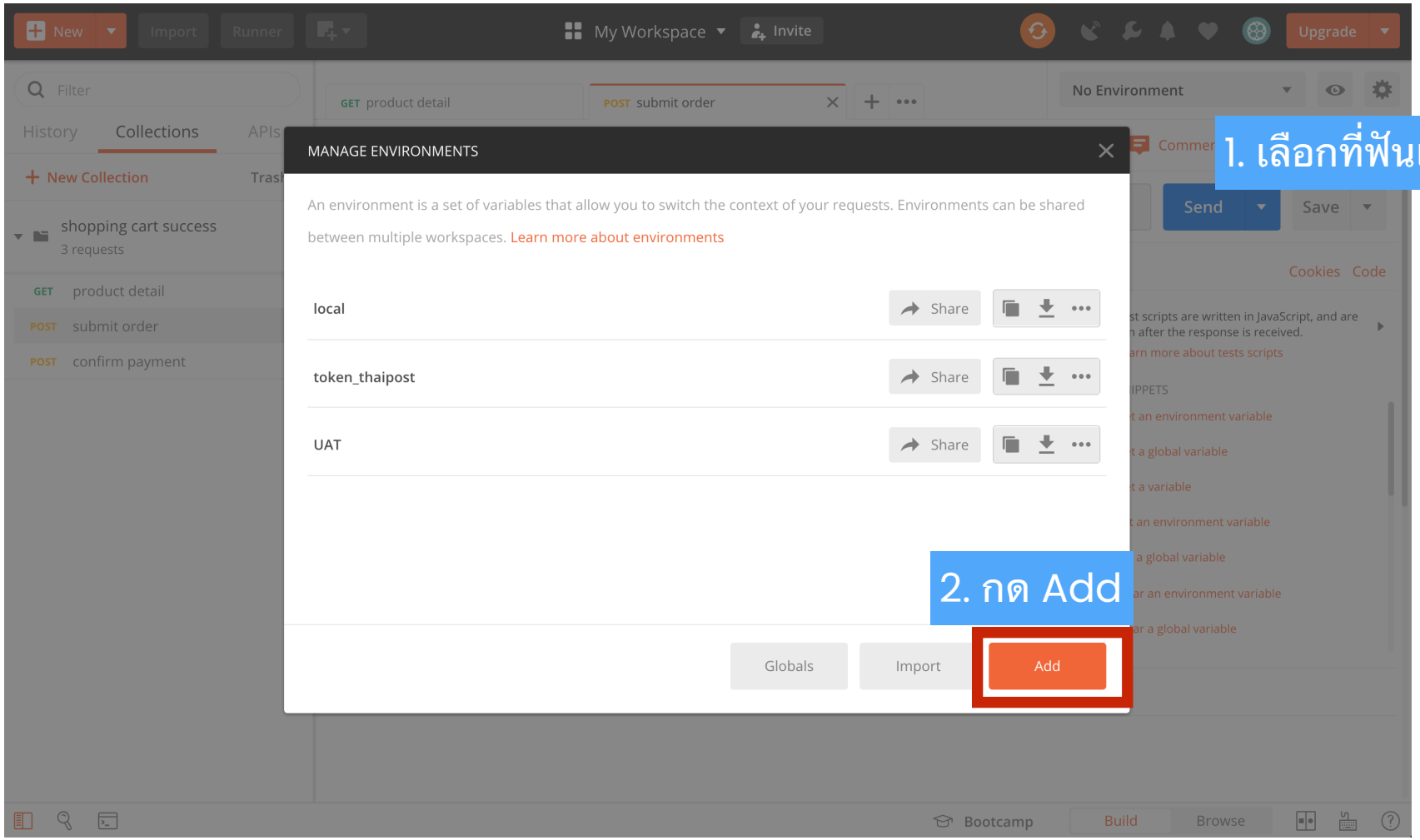
Working with Environment



1. เลือกที่ฟันเฟือง

2. กด Add

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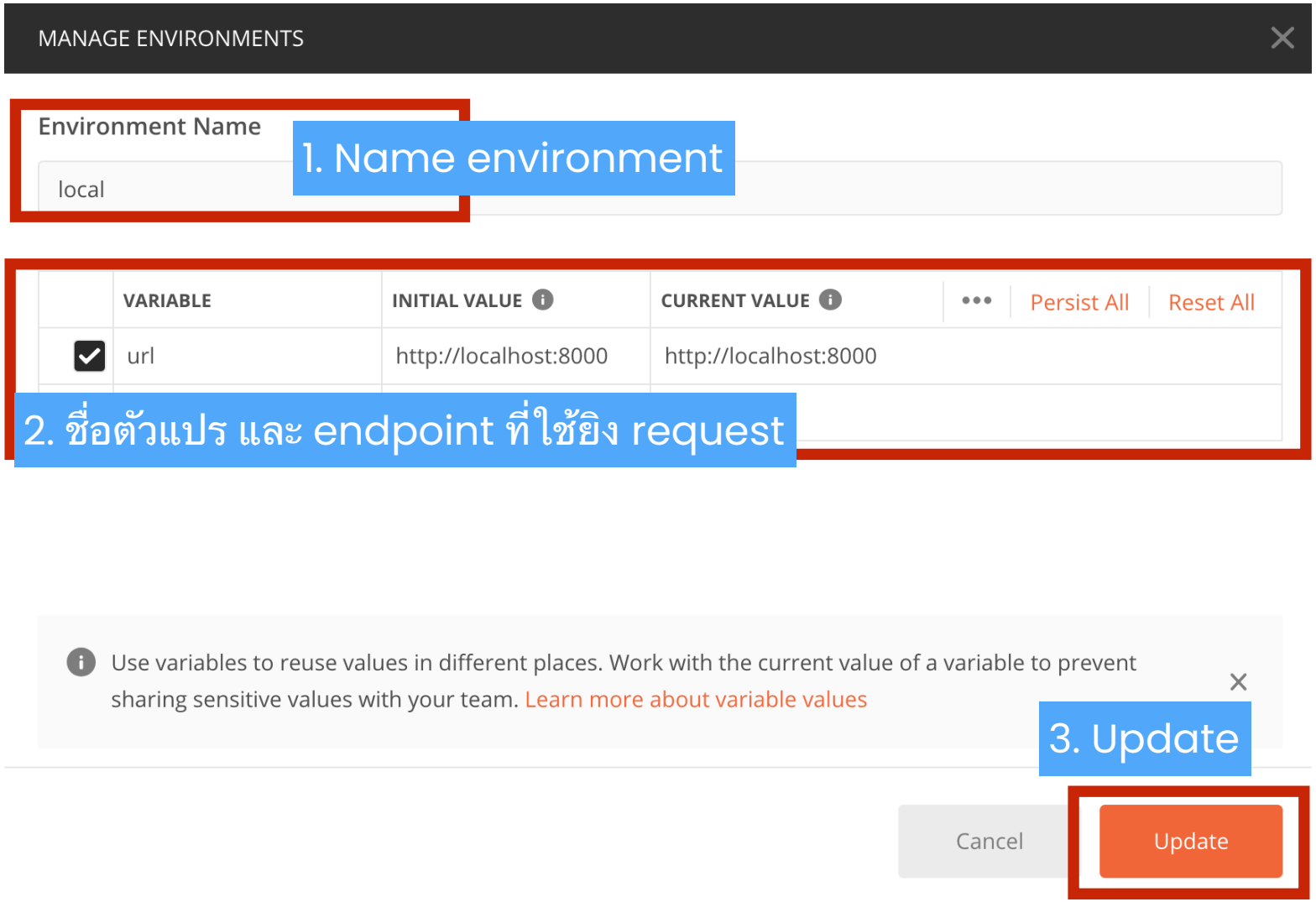
Working with Environment



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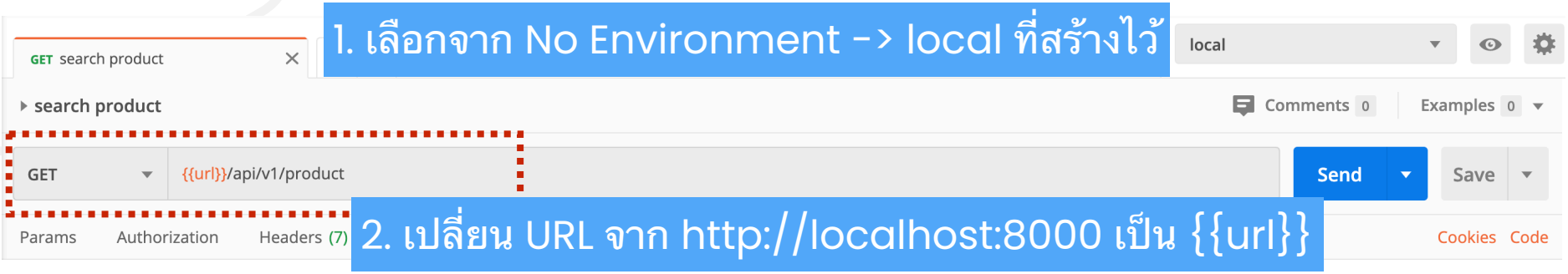
Working with Environment



1. เลือกจาก No Environment -> local ที่สร้างไว้

2. เปลี่ยน URL จาก http://localhost:8000 เป็น {{url}}


```
1  {
2      "total": 2,
3      "products": [
4          {
5              "id": 1,
6              "product_name": "Balance Training Bicycle",
7              "product_price": 119.95,
8              "product_image": "/Balance_Training_Bicycle.png"
9          },
10         {
11             "id": 2,
12             "product_name": "43 Piece dinner Set",
13             "product_price": 12.95,
14             "product_image": "/43_Piece_dinner_Set.png"
15         }
16     ]
17 }
```


3. กด Send จะต้องได้ Response เหมือนเดิม

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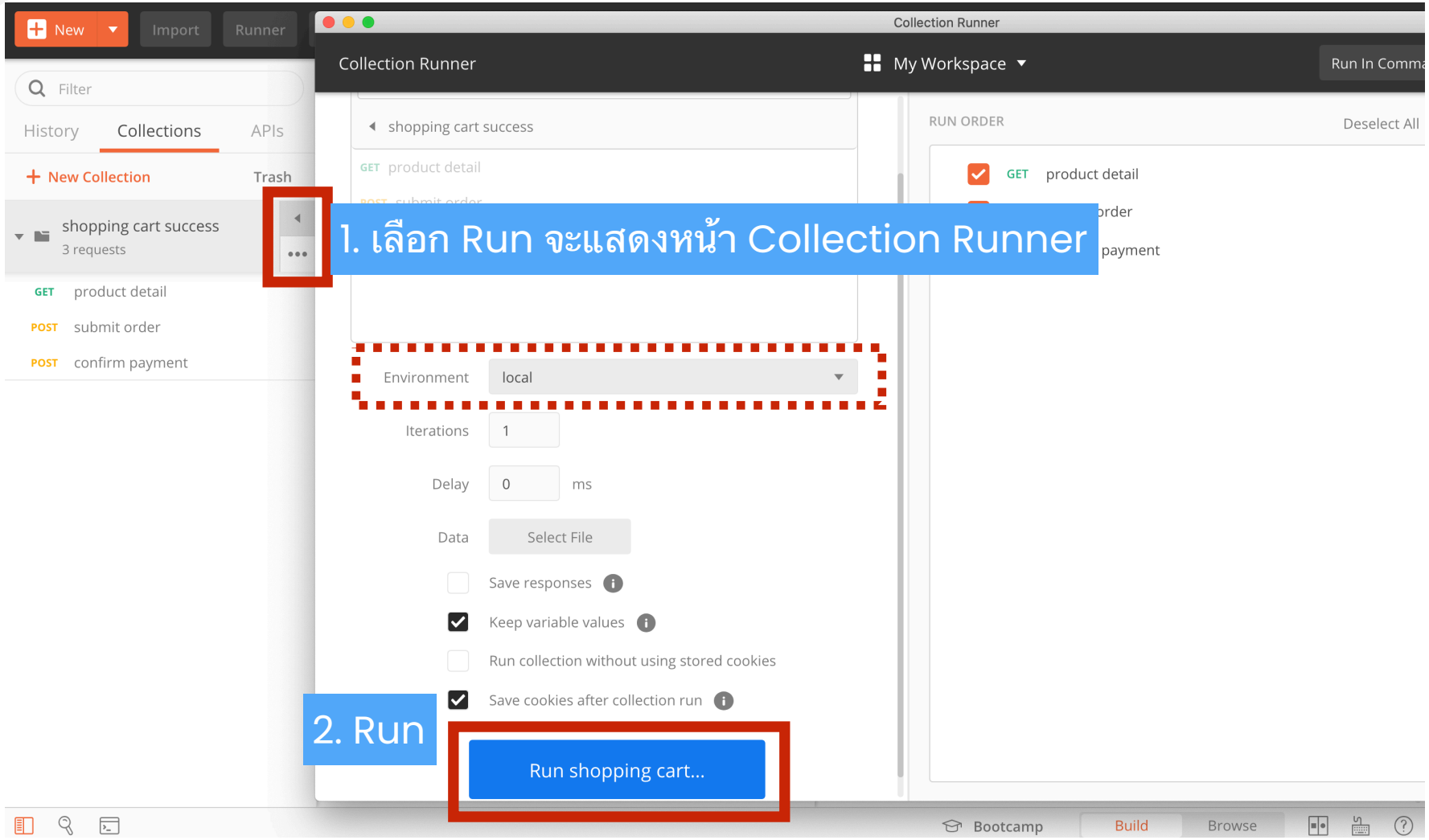
Working with Environment



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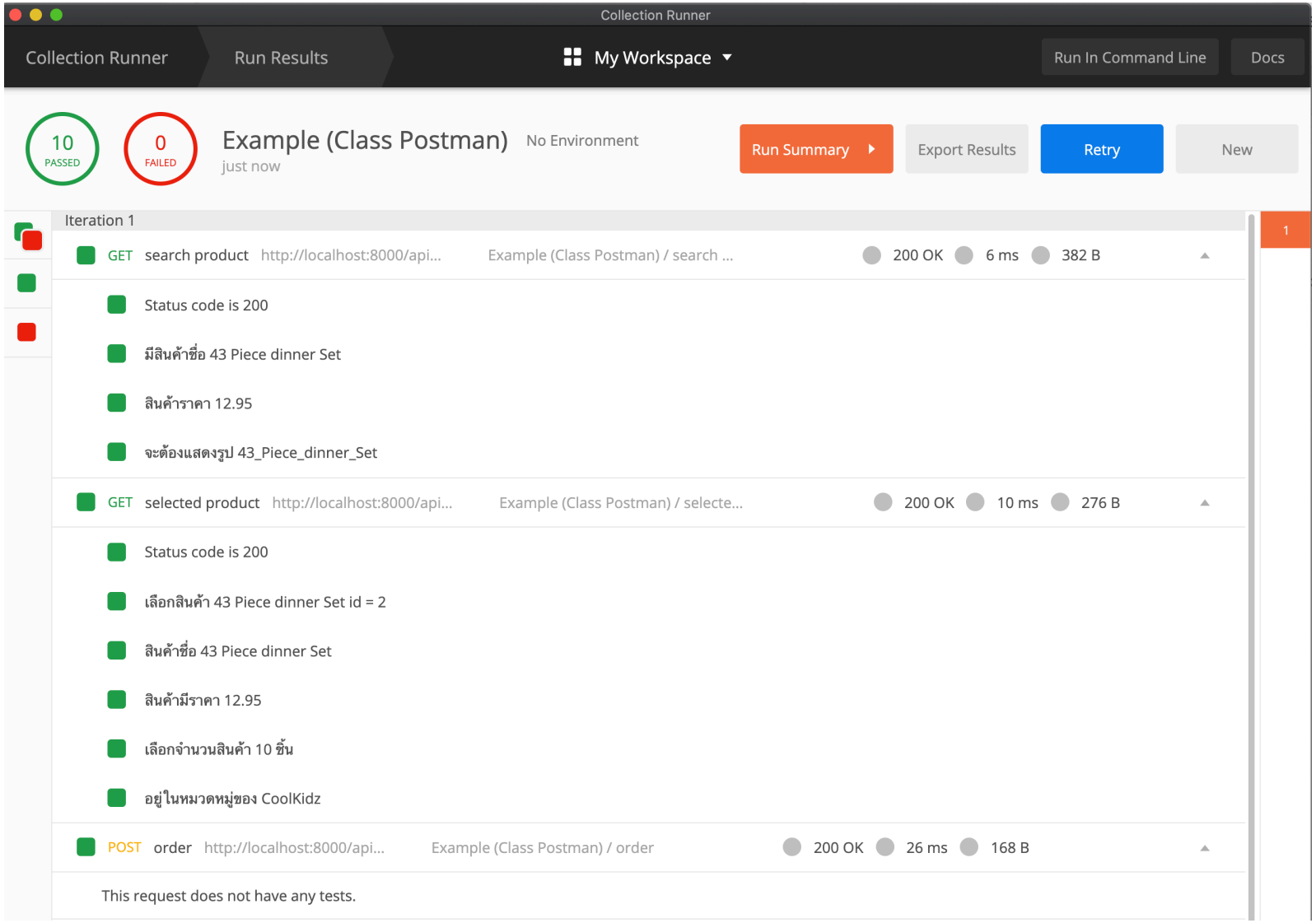
Working with Environment

ผลของ Collection Runner ยังต้องเหมือนเดิม



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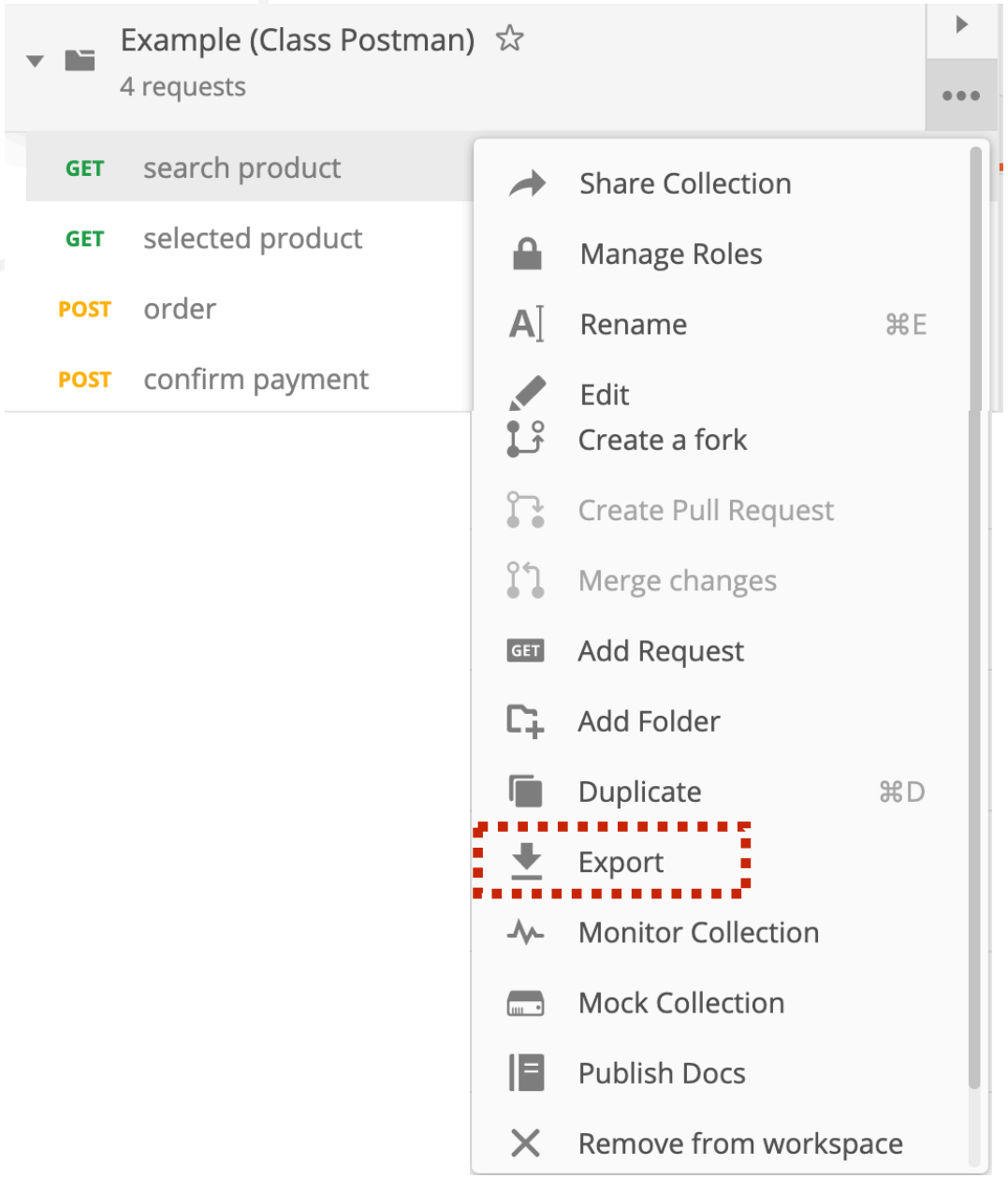
Newman



- แนะนำให้เอาไว้ที่เดียวกับ Project ที่จะทดสอบ
- กำหนดการตั้งชื่อไฟล์

Export Script Test ออกมา

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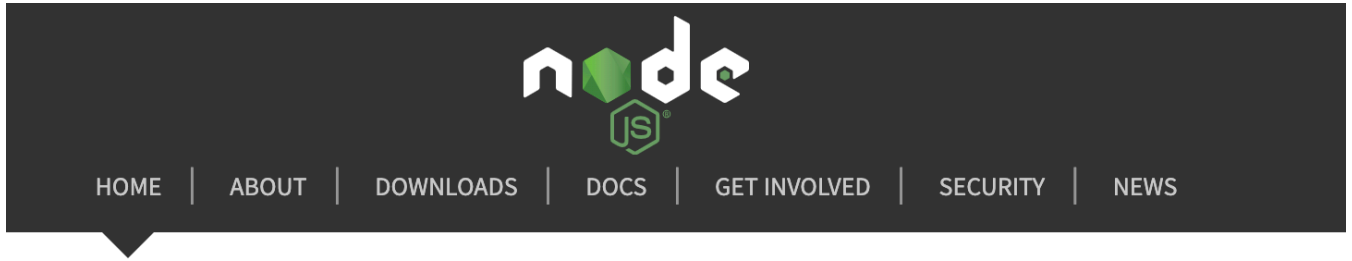
Newman

ก่อนติดตั้ง newman เช็คก่อนว่ามี node หรือไม่

https://nodejs.org/en/



Node.js® is a JavaScript runtime built on Chrome's V8 JavaScript engine.

Download for macOS (x64)

12.16.3 LTS
Recommended For Most Users

14.3.0 Current
Latest Features

Other Downloads | Changelog | API Docs Other Downloads | Changelog | API Docs

Or have a look at the Long Term Support (LTS) schedule.

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Newman

พิมพ์คำสั่งใน command line เพื่อติดตั้ง newman

```
npm install -g newman
```

คำสั่ง run newman

newman run **(ที่อยู่ของไฟล์)**/shopping_cart_success.json -e **(ที่อยู่ของไฟล์)**/local_environment.json

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Result

```
→  shopping-cart git:(master) make run_newman
newman run atdd/api/shopping_cart_success.json -e atdd/api/environment/local_environment.json -d atdd/api/data/shopping_cart_success.json
newman

shopping cart success

→ submit order
  POST http://localhost:8000/api/v1/order [200 OK, 167B, 71ms]
  ✓  Status code is 200
  ✓  OrderId is existed
  ✓  Total price 14.95

→ confirm payment
  POST http://localhost:8000/api/v1/confirmPayment [200 OK, 145B, 11ms]
  ✓  Status code is 200
  1. notify_message วันเวลาที่ชำระเงิน 1/3/2563 13:30:00 หมายเลขคำสั่งซื้อ 8004359103 คุณสามารถติดตามสินค้าผ่านช่องทาง Kerry ด้วยหมายเลข 1785261900
```

	executed	failed
iterations	1	0
requests	2	0
test-scripts	2	0
prerequest-scripts	0	0
assertions	5	1
total run duration: 165ms		
total data received: 66B (approx)		
average response time: 41ms [min: 11ms, max: 71ms, s.d.: 30ms]		

```
  #  failure                    detail

 1.  AssertionError             notify_message วันเวลาที่ชำระเงิน 1/3/2563 13:30:00 หมายเลขคำสั่งซื้อ 8004359103 คุณสามารถติดตามสินค้าผ่านช่องทาง
                                Kerry ด้วยหมายเลข 1785261900
                                expected '' to deeply equal 'วันเวลาที่ชำระเงิน 1/3/2563 13:30:00 หมายเลขคำสั่งซื้อ 8004359103
                                คุณสามารถติดตามสินค้าผ่านช่องทาง Kerry ด้วยหมายเลข 1785261900'
                                at assertion:1 in test-script
                                inside "confirm payment"
make: *** [run_newman] Error 1
```

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Thanks