Blockly develop

Summary of requirements

Modify blockly, add some functions to blockly.
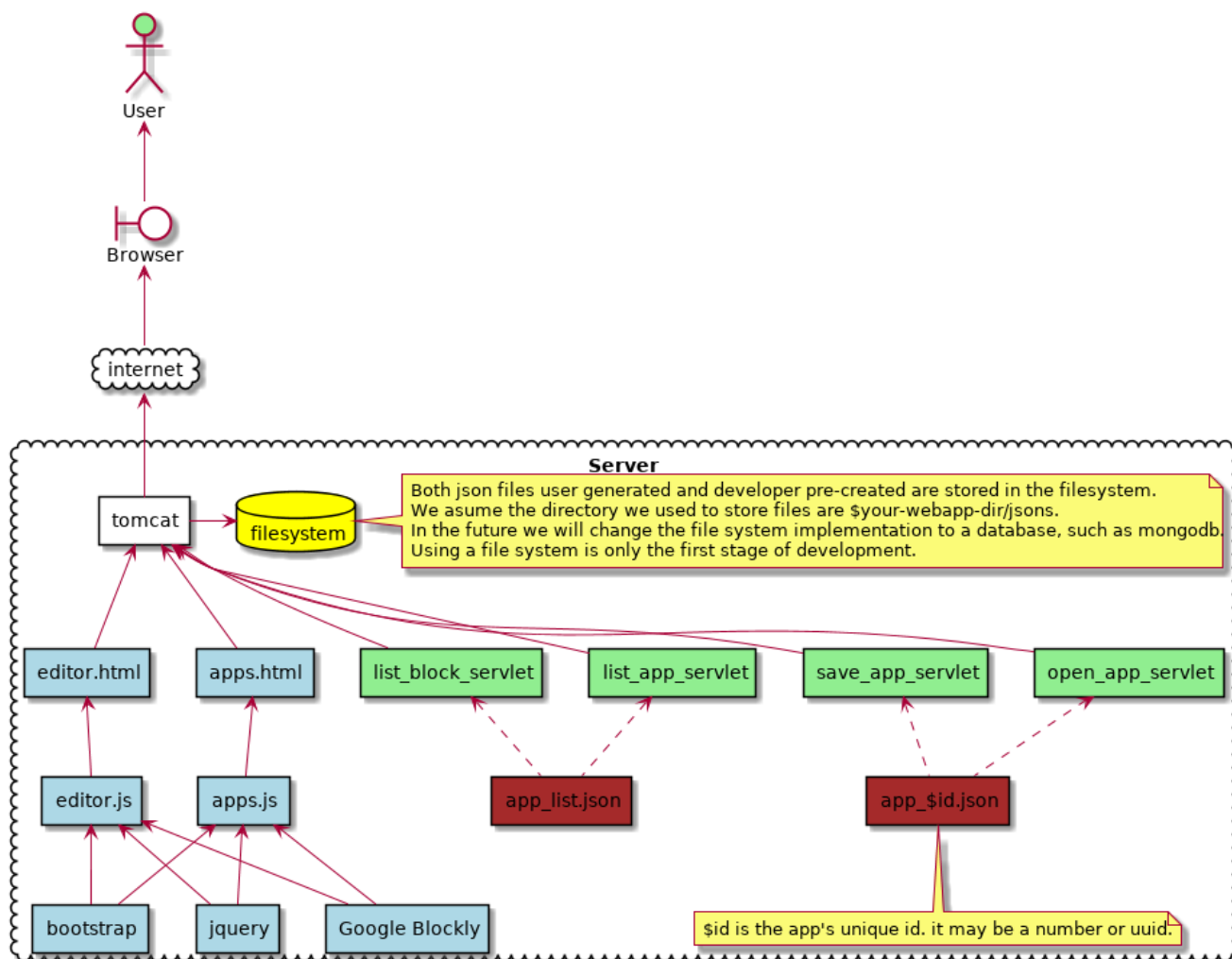
Usage for google blockly is at: https://developers.google.com/blockly/

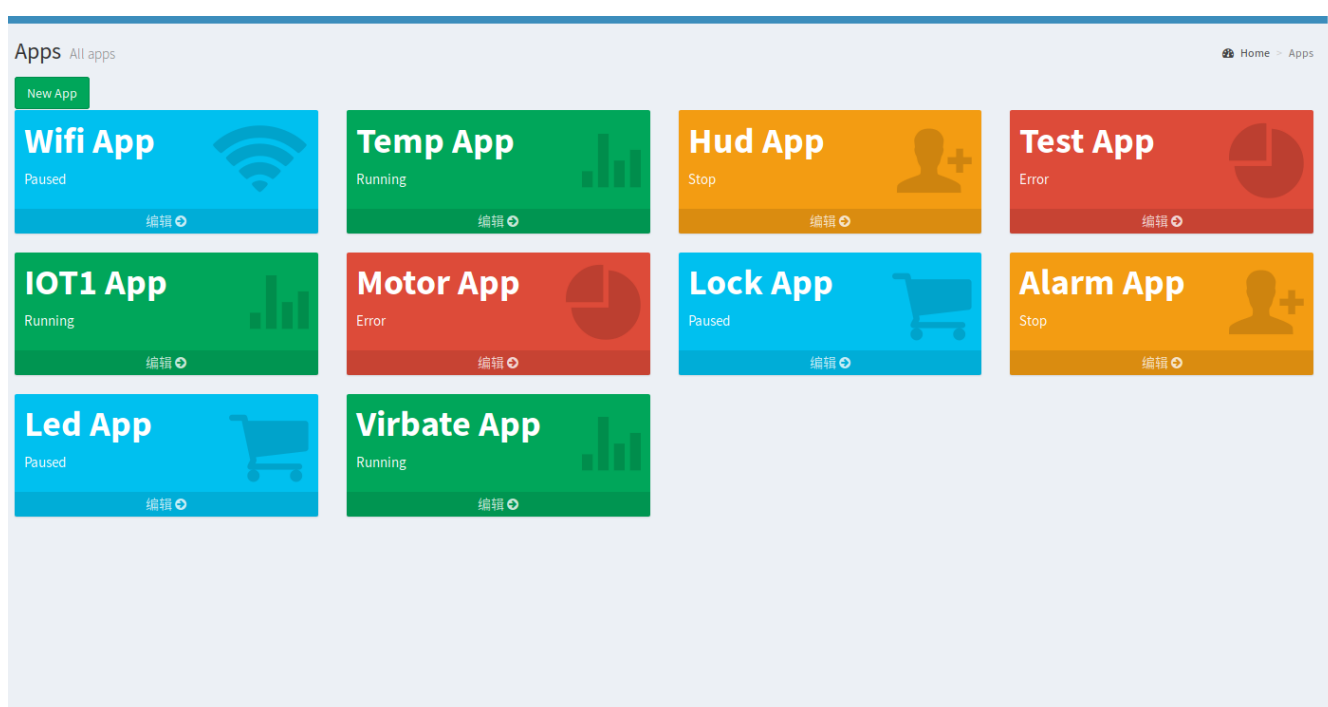We don't need User login, The first page is apps.html

Definitions

1. APP - An user-edited program that contains many blocks.

2. Block - A block is initially placed in the toolbox of the editing page（editor.html）, when used, the user drags it from the toolbox into the code editing area(editor.html). A block has input and output interface, block and block can be joined. All blocks in code editing area are combined into a APP.

3. Toolbox - A list on the west of the screen in editor.html that contains the available blocks of code.

4. Code editing area - An area where a user can drop blocks in the middle of the screen.
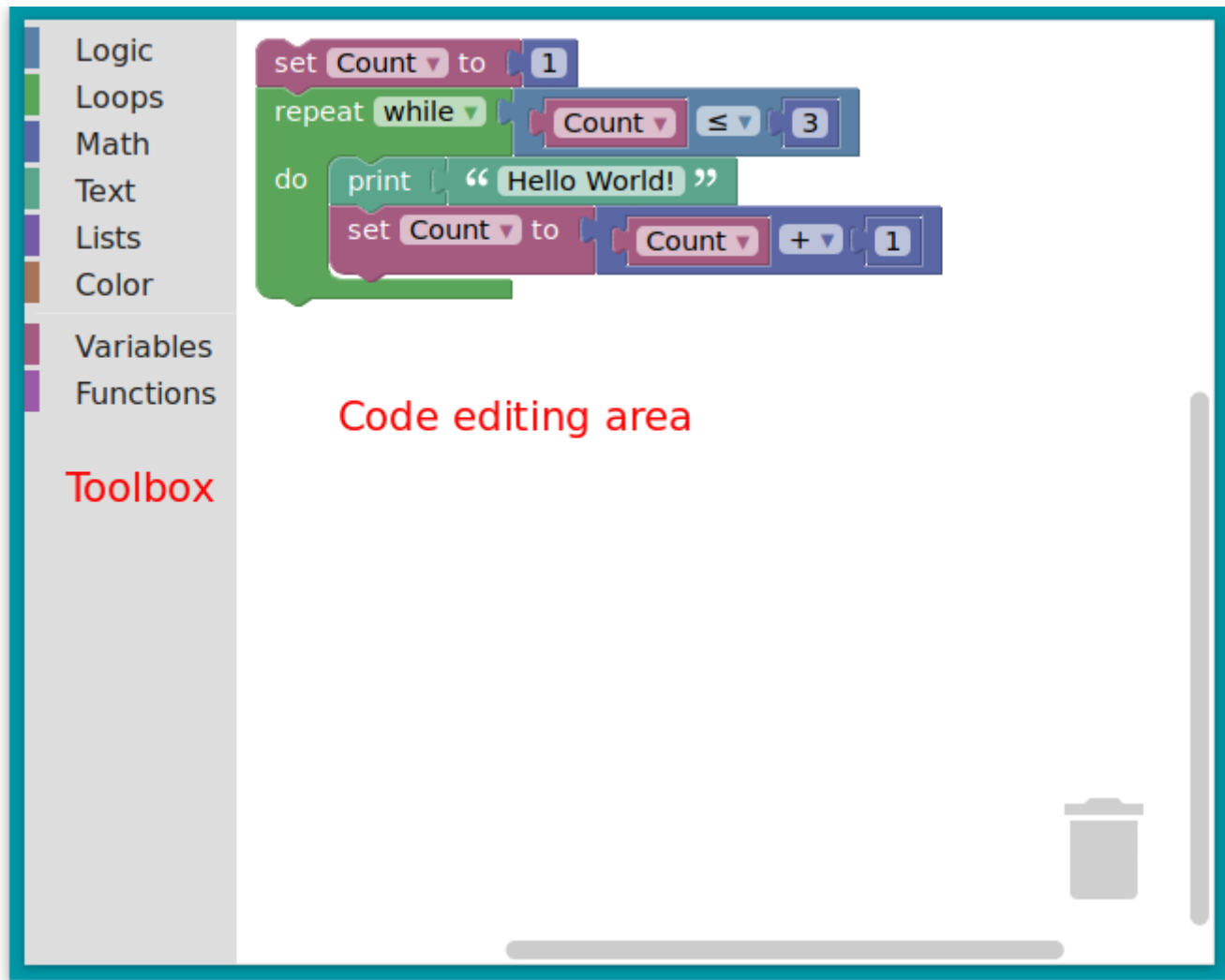
System overview

User

Browser

internet

Server

tomcat

filesystem

Both json files user generated and developer pre-created are stored in the filesystem.
We asume the directory we used to store files are $your-webapp-dir/jsons.
In the future we will change the file system implementation to a database, such as mongodb.
Using a file system is only the first stage of development.

editor.html | apps.html | list_block_servlet | list_app_servlet | save_app_servlet | open_app_servlet

editor.js | apps.js | app_list.json | app_$id.json

bootstrap | jquery | Google Blockly

$id is the app's unique id. it may be a number or uuid.

Page prototype

apps.html

Apps All apps

Home Apps

New App

Wifi App
Paused
编辑 ➔

Temp App
Running
编辑 ➔

Hud App
Stop
编辑 ➔

Test App
Error
编辑 ➔

IOT1 App
Running
编辑 ➔

Motor App
Error
编辑 ➔

Lock App
Paused
编辑 ➔

Alarm App
Stop
编辑 ➔

Led App
Paused
编辑 ➔

Virbate App
Running
编辑 ➔

editor.html

Working process

1. Login process

User → Browser: Visit http://host/apps.html

Browser → Backend: HTTP POST in apps.js

http://HOST/list_app_servlet

Read app_list.json from filesystem

Backend → Browser: return json data

Returned data include all blockly apps info. See app_list.json for detail

Parse the json document and load blockly apps' information

Browser → User: Render all blockly app into apps.html in apps.js.

Show a grid in apps.html that looks like app store. Display image, title, status infomation for each app. See Page prototype>apps.html for more info.

2. Load App Process

User → Browser: User clicked a blockly app in the grid of apps.html.

Browser → User: show editor.html#id=$id

the $id is the block app's unique id.

Browser → Backend: Download the json file app_$id.json for the blockly app that user clicked in editor.js

http://HOST/open_app_servlet?id=$id
$id is the block app's unique id.
see app_1.json for more information.

Backend → Browser: return json data see app_1.json

Parse the json document and load blockly apps' information

Render toolbox and code editing area.
This page disply a blockly editor.
Developer can port this page from google.
This page contains two parts:
1. Toolbox that show all available blocks;
2. Code editing area show user's program
that loaded from json file.
See https://developers.google.com/blockly/
for more.

Two types of blocks will be added to toolbox,
google originally provided and "device" fields
from app_$id.json.

The app_$id.json file contains a field named "content".
The value of this field is the xml code for google blockly program.
Please use base64 to encode this value.

3. New blockly app process

User → Browser: User Click New App Button in apps.html

Browser → User: show editor.html#id=$random_id with blank workspace.

4. Save blockly app process

User → Browser: User Click Save App Button in apps.html

Browser → Backend: Upload user app's json file.

http://host/save_app_servlet?id=1
the id field is the block app's unique id.

Saving app_$id to filesystem

Backend → Browser: return true or false

Browser → User: alert success or failed information.

5. Mouse hovered above the app in apps.html process

User → Browser: Move mouse cursor and hover it above an app icon

Generate a tooltip,
the following information should be included in the tooltip
"information": {
  "model": "modelA",
  "vendor": {
    "name": "vendorA",
    "image": ""
  }
},
"purchase_link": {
  "taobao": ""
},
"protocol": "wifi",
"class": "sensor"

Browser → User: Show a tooltip to user nearby the mouse cursor
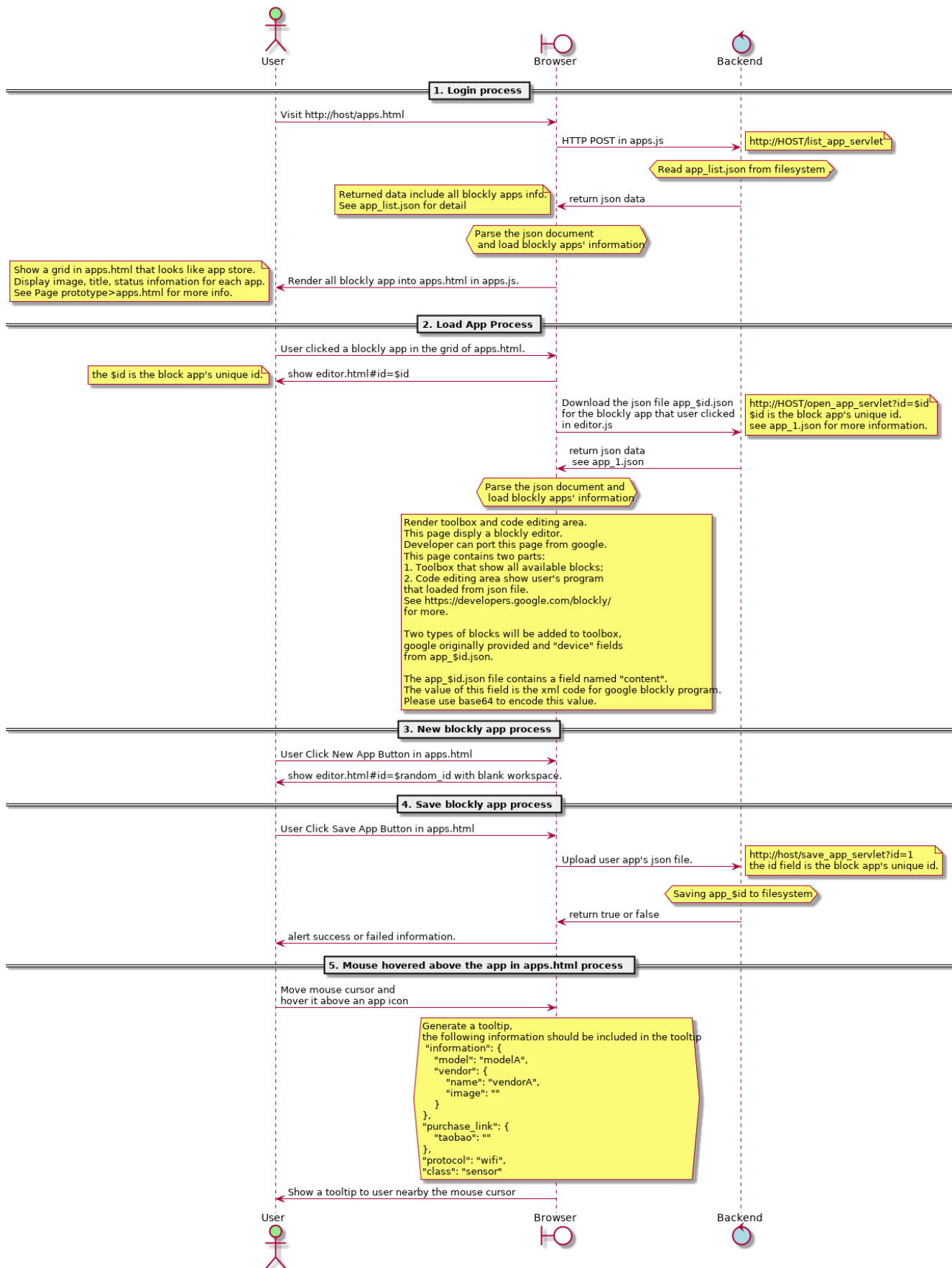
Sample data

app_list.json

```
{
    "flows": [{
        "information": {
            "name": "app_1",
            "id": 1,
            "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg",
            "author": {
                "name": "DEMO",
                "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg",
                "email": "test@test.com"
            },
            "description": "This is demo flow 1"
        },
        "status": {
            "status": ["running"],
            "error_info": {
                "error_code": "0",
                "error_message": "null"
            }
        },
        "last_sync_date": {
            "year": "num",
            "mouth": "num",
            "day": "num",
            "hour": "num",
            "minute": "num",
            "second": "num"
        }
    }, {
        "information": {
            "name": "2_sample",
            "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg",
            "author": {
                "name": "DEMO",
                "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg",
                "email": "test@test.com"
```

```json
        },
        "description": "This is demo flow 2"
    },
    "status": {
        "status": ["stop"],
        "error_info": {
            "error_code": "-1",
            "error_message": "some thing wrong"
        }
    },
    "last_sync_date": {
        "year": "num",
        "mouth": "num",
        "day": "num",
        "hour": "num",
        "minute": "num",
        "second": "num"
    }
}]
}
```

app_1.json

```json
{
    "information": {
        "name": "app_1",
        "id": 1,
        "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg",
        "author": {
            "name": "DEMO",
            "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg",
            "email": "test@test.com"
        },
        "description": "This is demo flow 1"
    },
    "status": {
        "status": ["running"],
        "error_info": {
            "error_code": "0",
            "error_message": "null"
        }
    },
    "devices": [{
```

```
        "information": {
            "name": "A",
            "id": "1",
            "model": "modelA",
            "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg",
            "vendor": {
                "name": "vendorA",
                "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg"
            }
        },
        "purchase_link": {
            "taobao": "https://tshop.tmall.com/?spm=a21bo.2017.201862-
1.d1.5af911d9iNByAG&pos=1&mm_gxbid=1_2403371_b1c6ccd7a2273113da90776674700437&acm=2014
0506001.1003.2.3885235&scm=1003.2.20140506001.OTHER_1535185547761_3885235"
        },
        "protocol": "wifi",
        "class": "sensor",
        "input_data": [],
        "output_data": [{
            "name": "temperature",
            "data_type": ["num"],
            "data": [40]
        }]
    },{
        "information": {
            "name": "B",
            "id": "2",
            "model": "modelB",
            "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg",
            "vendor": {
                "name": "vendorB",
                "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg"
            }
        },
        "purchase_link": {
            "taobao": "https://tshop.tmall.com/?spm=a21bo.2017.201862-
1.d1.5af911d9iNByAG&pos=1&mm_gxbid=1_2403371_b1c6ccd7a2273113da90776674700437&acm=2014
0506001.1003.2.3885235&scm=1003.2.20140506001.OTHER_1535185547761_3885235"
        },
```

```json
        "protocol": "wifi",
        "class": "fan",
        "input_data": [{
            "name": "speed",
            "data_type": ["num"]
        }],
        "output_data": [{
            "name": "status",
            "data_type": ["str"],
            "data": [""]
        }]
    }],
    "content": "  里保存blockly能是  的，能  load和save的格式即可.",
    "last_sync_date": {
        "year": "num",
        "mouth": "num",
        "day": "num",
        "hour": "num",
        "minute": "num",
        "second": "num"
    }
}
```

2_sample.json

```json
{
    "information": {
        "name": "2_sample",
        "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg",
        "author": {
            "name": "DEMO",
            "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg",
            "email": "test@test.com"
        },
        "description": "This is demo flow 2"
    },
    "status": {
        "status": ["stop"],
        "error_info": {
            "error_code": "-1",
            "error_message": "some thing wrong"
        }
    },
```

```
    "devices": [{
        "information": {
            "name": "A",
            "id": "1",
            "model": "modelA",
            "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg",
            "vendor": {
                "name": "vendorA",
                "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg"
            }
        },
        "purchase_link": {
            "taobao": "https://tshop.tmall.com/?spm=a21bo.2017.201862-
1.d1.5af911d9iNByAG&pos=1&mm_gxbid=1_2403371_b1c6ccd7a2273113da90776674700437&acm=2014
0506001.1003.2.3885235&scm=1003.2.20140506001.OTHER_1535185547761_3885235"
        },
        "protocol": "wifi",
        "class": "sensor",
        "input_data": [],
        "output_data": [{
            "name": "temperature",
            "data_type": ["num"],
            "data": [40]
        }]
    },{
        "information": {
            "name": "B",
            "id": "2",
            "model": "modelB",
            "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg",
            "vendor": {
                "name": "vendorB",
                "image":
"https://timgsa.baidu.com/timg?image&quality=80&size=b9999_10000&sec=1533531791993&di=
4d473056f75f489e9774c96c3f9e99a5&imgtype=jpg&src=http%3A%2F%2Fimg1.imgtn.bdimg.com%2Fi
t%2Fu%3D3045023561%2C2402919987%26fm%3D214%26gp%3D0.jpg"
            }
        },
        "purchase_link": {
            "taobao": "https://tshop.tmall.com/?spm=a21bo.2017.201862-
1.d1.5af911d9iNByAG&pos=1&mm_gxbid=1_2403371_b1c6ccd7a2273113da90776674700437&acm=2014
0506001.1003.2.3885235&scm=1003.2.20140506001.OTHER_1535185547761_3885235"
```

```
        },
        "protocol": "wifi",
        "class": "fan",
        "input_data": [{
            "name": "speed",
            "data_type": ["num"]
        }],
        "output_data": [{
            "name": "status",
            "data_type": ["str"],
            "data": [""]
        }]
    }],
    "content": "  里保存blockly能是  的，能  load和save的格式即可.",
    "last_sync_date": {
        "year": "num",
        "mouth": "num",
        "day": "num",
        "hour": "num",
        "minute": "num",
        "second": "num"
    }
}
```