PYCON CHINA 2018

自由的Flask

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PyCon China 2018 北京

?

No

powder horn / flask

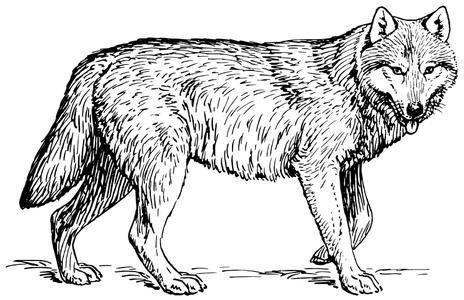
Yes

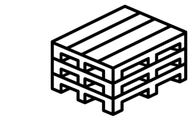
Werkzeug

[ˈvɛɐ̯kˌtsɔɣk]

About Me

- Hello! 我是李辉（Grey Li）
- 知乎专栏“Hello, Flask!” 作者
- 《Flask Web开发实战》作者
- Flask开发团队（Pallets Team）成员
- 多个 Flask 扩展的维护者





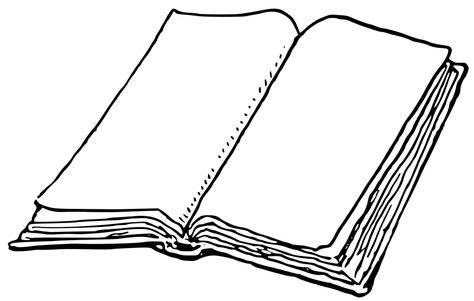
About Flask

- 由 Armin Ronacher 在 2010 年创建
- 目前由 Pallets Team 维护
- 5个依赖：Werkzeug、Jinja2、Click……
- 今年 4 月发布了 1.0 稳定版
- 在 GitHub 上有近 4 万 star

~~zer0ver~~

Contents

- What’s new in Flask 1.0?
- Web 程序和 Web 框架
- 自由的功能扩展
- 自由的路由定义
- 自由的项目结构



“大快所有人心的大事，大了又大。”

– Steve Jobs

Chapter 0

What’s new in Flask 1.0?

更完善的 CLI 系统

Development Server

```
if __name__ == '__main__':
    app.run(debug=True)
```

```
$ export FLASK_APP=hello
$ export FLASK_ENV=development
$ flask run
```

Application Discovery

1. 不设置（app.py / wsgi.py）
2. 设为包含程序实例或工厂函数的模块
   - FLASK_APP=hello
   - FLASK_APP=project/hello
   - FLASK_APP=hello.web
3. 直接指定程序实例或工厂函数
   - FLASK_APP=hello:myapp
   - FLASK_APP=hello:generate_app
   - FLASK_APP="hello:create_app('dev')"

python-dotenv Support

```
$ pip install python-dotenv

$ nano .flaskenv
```

```
FLASK_APP=hello
FLASK_ENV=development
```

```
$ flask *
```

更丰富的测试支持

测试 JSON API

```
def test_hello_api():
    client = app.test_client()
    rv = client.post('/api/hello', json={
        'name': 'Grey'
    })
    json_data = rv.get_json()
    assert json_data['message'] == 'Hello, Grey!'
```

测试 Flask 命令

```
from myapp import hello_command

def test_hello_command():
    runner = app.test_cli_runner()

    result = runner.invoke(hello_command)
    assert 'Hello!' in result.output
```

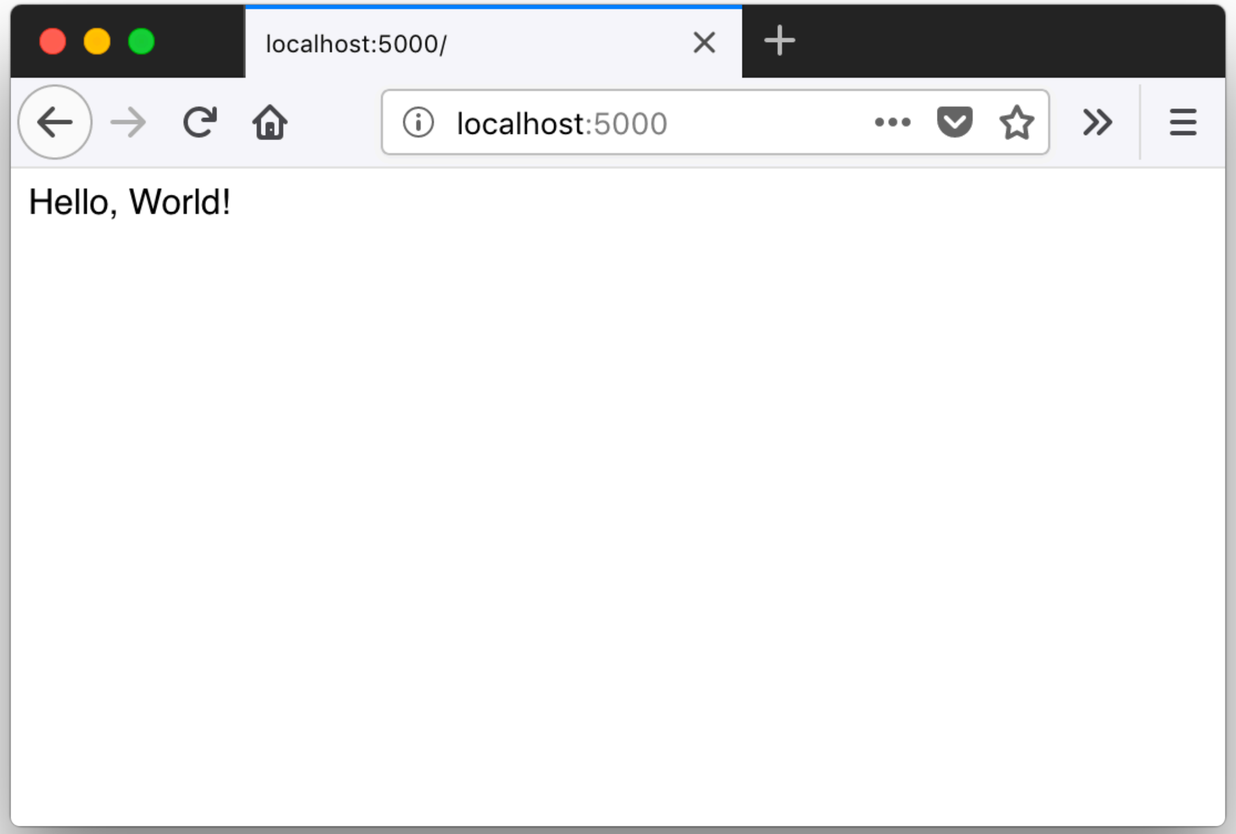
etc.

Chapter 1

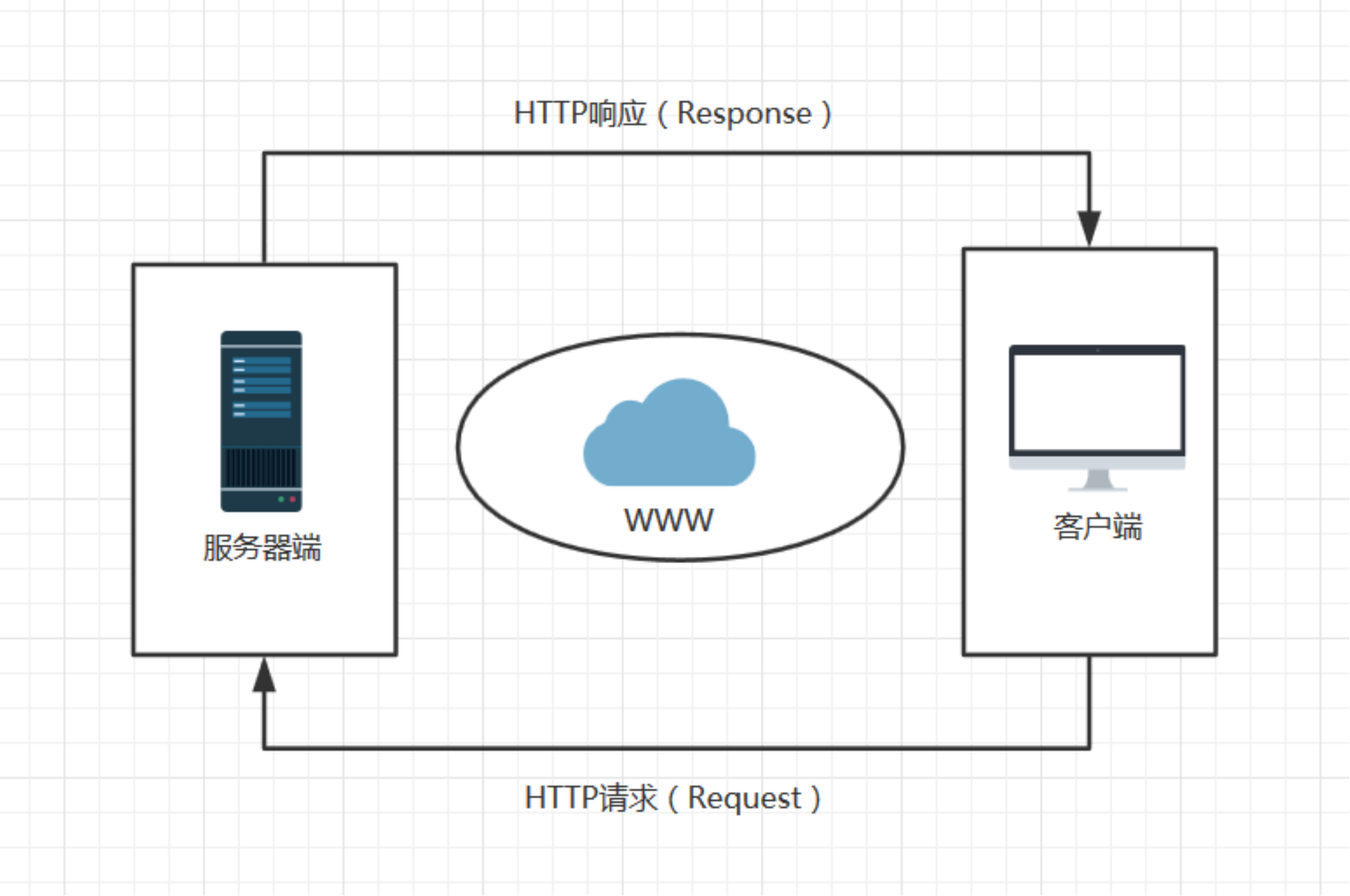
Web 程序和 Web 框架

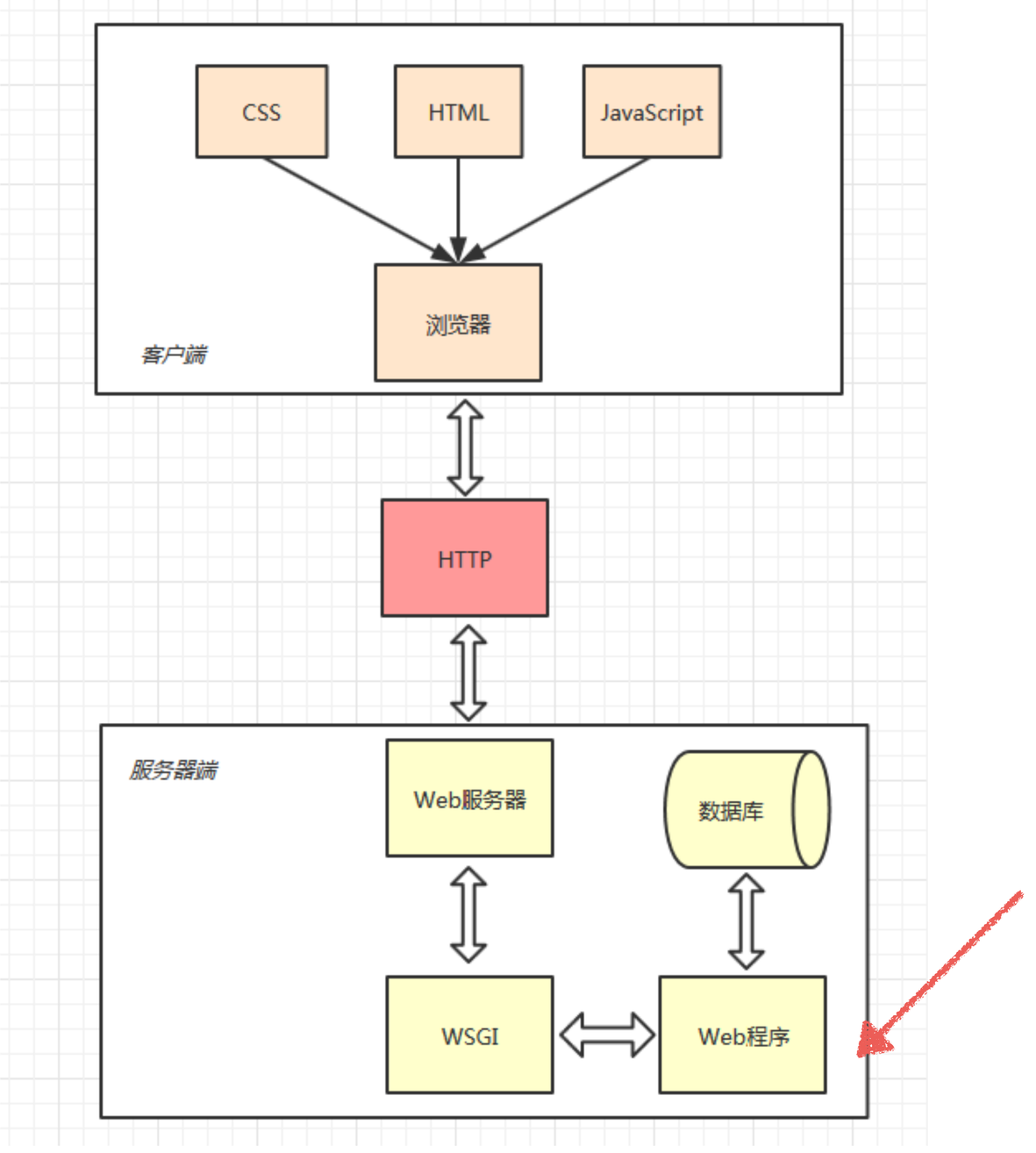
编写 Hello World 程序

- 用户访问 / 时，返回一行“Hello, World!”问候。

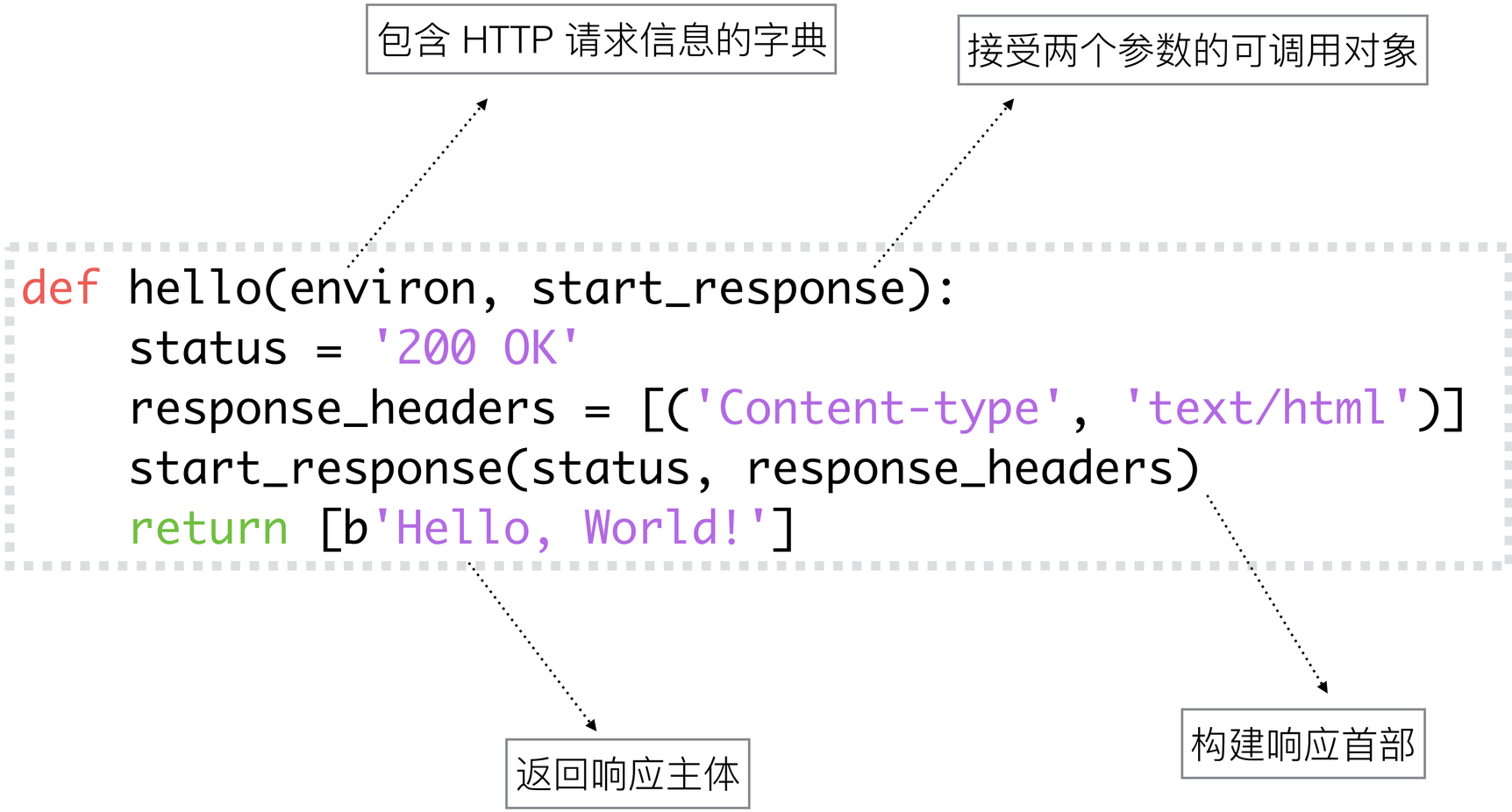


“请求 - 响应”循环




CSS
HTML
JavaScript
浏览器
客户端
HTTP
服务器端
Web服务器
数据库
WSGI
Web程序

WSGI Application

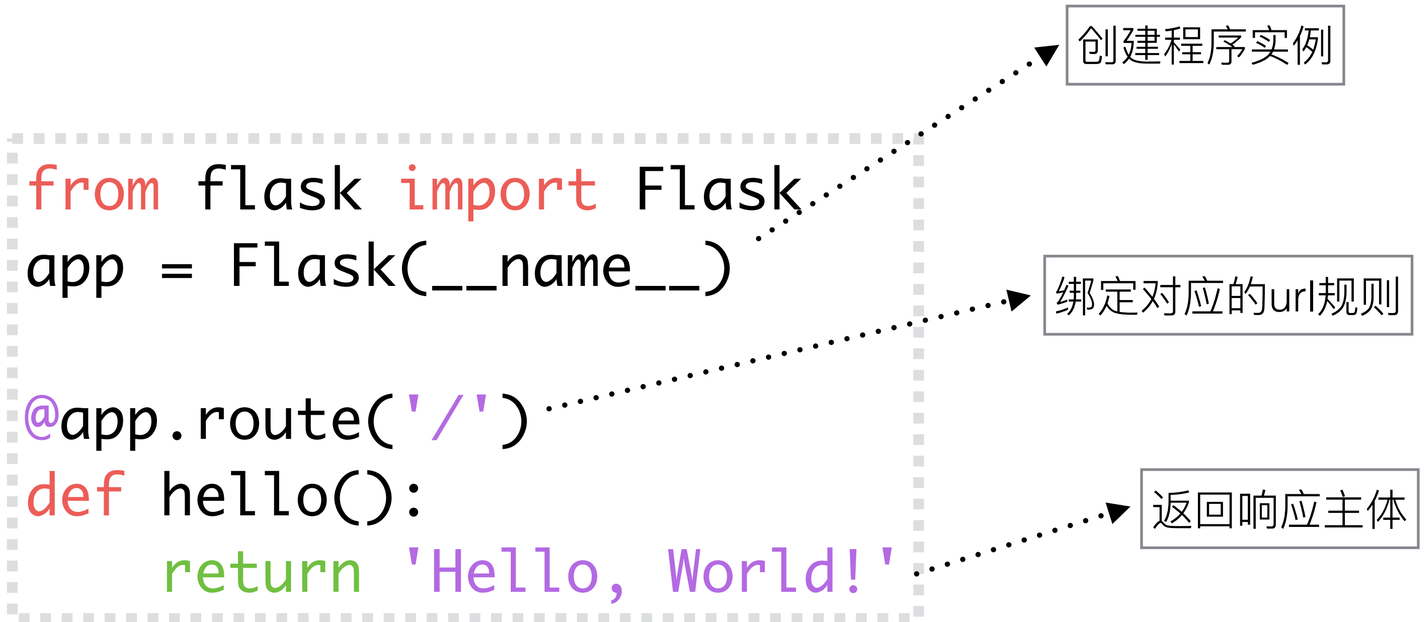


“Web 框架把 Web 开发者从繁琐的底层实现中解放出来，从而有更多的时间思考午饭吃什么。”

– Karl Marx

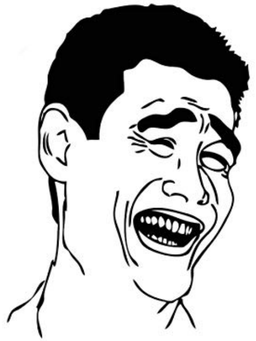
Flask

```python
from flask import Flask
app = Flask(__name__)

@app.route('/')
def hello():
    return 'Hello, World!'
```



Django

```
from django.conf.urls import url
from django.http import HttpResponse

DEBUG = True
SECRET_KEY = '4l0ngs3cr3tstr1ngw3lln0ts0l0ngw41'
ROOT_URLCONF = __name__

def hello(request):
    return HttpResponse('Hello, World!')

urlpatterns = [
    url(r'^$', hello),
]
```



“没有对比就没有伤害。”

– Yao

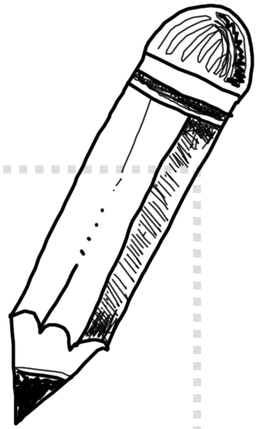
Chapter 2

自由的功能扩展

微核心 + 扩展

- 保留核心（一个初始状态的芭比娃娃）
- 通过扩展与第三方库进行集成（附送几百套衣服）
- 打造你自己的 Web 框架

高度可自定义



```
from flask import Flask

class SmileFlask(Flask):

    def make_response(self, rv):
        body = rv + ' :)'
        response = self.response_class(body)
        return response

app = SmileFlask(__name__)
```

Chapter 3

自由的路由定义

方式 1

函数 + 单独注册

```
from flask import Flask
app = Flask(__name__)

def hello():
    return 'Hello, Flask!'

app.add_url_rule('/', hello)
```

方式 2

装饰器

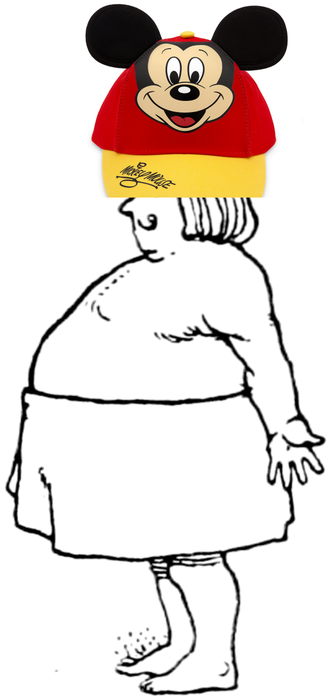
```
from flask import Flask
app = Flask(__name__)

@app.route('/')
def hello():
    return 'Hello, Flask!'
```

“装饰器是一个绝妙的好主意，我们应该把它发扬光大。”

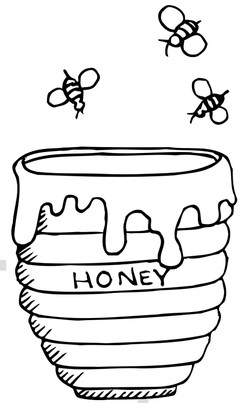
– Zen of Flask

百变装饰器

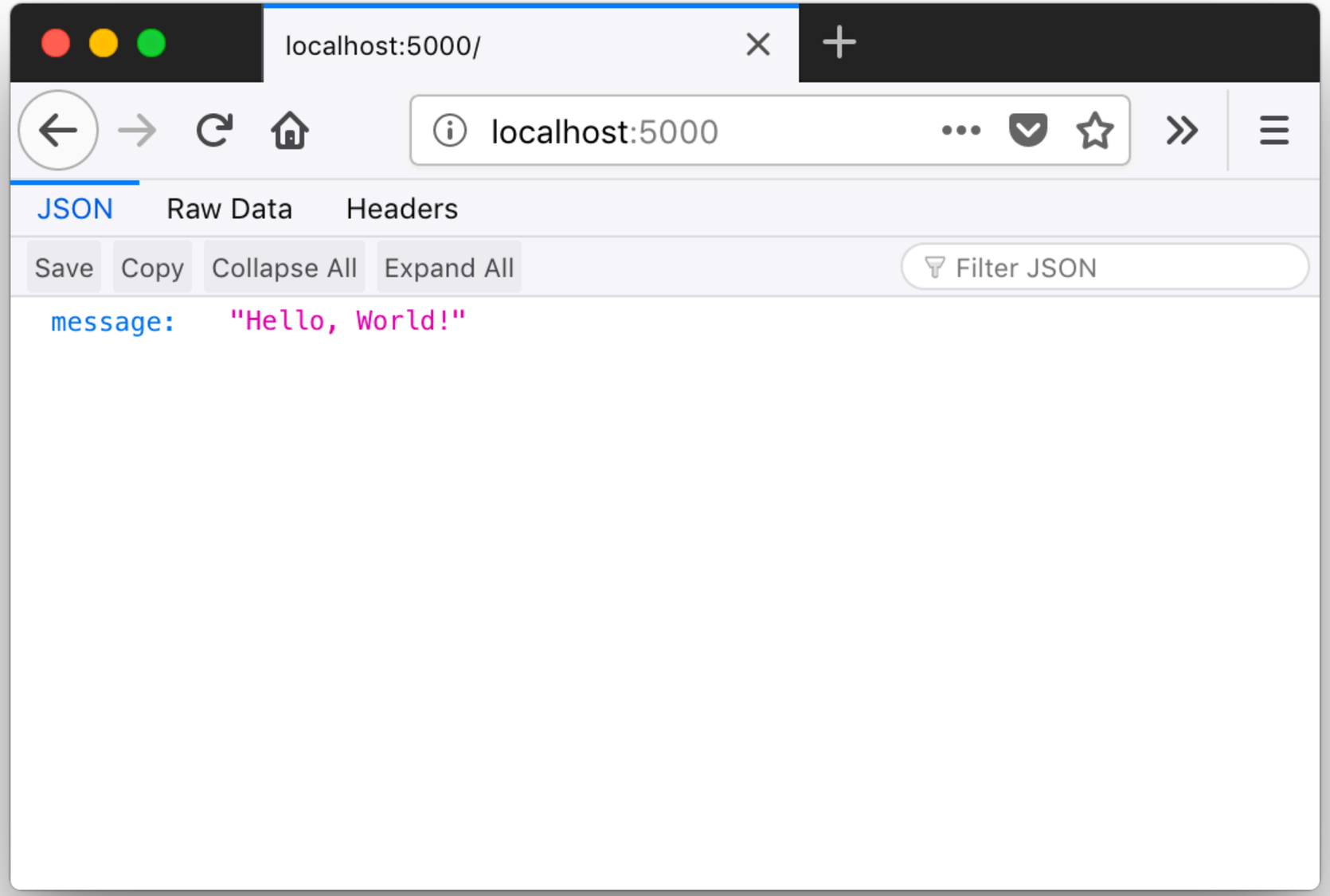
```
@etc.
def hello():
    pass # do something
```



秒变 Web API




```python
from flask import Flask, jsonify
app = Flask(__name__)

@app.route('/')
def hello():
    # return 'Hello, Flask!'
    return jsonify({'message': 'Hello, Flask!'})
```


localhost:5000/
localhost:5000
JSON
Raw Data
Headers
Save
Copy
Collapse All
Expand All
Filter JSON
message: "Hello, World!"

方式 3

类方法 + 单独注册

```
from flask import Flask, MethodView
app = Flask(__name__)

class Hello(MethodView):

    def get():
        return 'Hello, Flask!'

app.add_url_rule('/', Hello.as_view('hello'))
```

API 资源类

```
from flask import Flask, MethodView, jsonify
app = Flask(__name__)

class Hello(MethodView):

    def get():
        return jsonify({'message': 'Hello, Flask!'})

    def post():
        pass

    def delete():
        pass

app.add_url_rule('/', Hello.as_view('hello'),
    methods=['GET', 'POST', 'DELETE'])
```

Chapter 4

自由的项目结构

小型项目

单脚本

- app.py

- templates/
- static/
- app.py

```
$ flask run
```

中型项目

包

```
$ export FLASK_APP=hello
$ flask run
```

hello/
- __init__.py
- templates/
- static/
- views.py
- forms.py
- errors.py
- models.py
- commands.py
- settings.py

大型项目结构 1

功能式架构

```
$ export FLASK_APP=hello
$ flask run
```

```
hello/
    blueprints/
        - __init__.py
        - blog.py
        - auth.py
    forms/
        - __init__.py
        - blog.py
        - auth.py
    templates/
        - auth/
        - blog/
        - base.html
        - macros.html
    static/
    __init__.py
   models.py
   extensions.py
```

大型项目结构 2

分区式架构

```
$ export FLASK_APP=hello
$ flask run
```

```
hello/
    blog/
        - __init__.py
        - views.py
        - forms.py
    auth/
        - __init__.py
        - views.py
        - forms.py
    templates/
        - auth/
        - blog/
        - base.html
        - macros.html
    static/
    __init__.py
    models.py
    extensions.py
```

etc.

“Life is Short, ~~Run Naked~~ Use Flask!”

– Grey Li

Resources

- 幻灯片以及相关源码：github.com/greyli/freeflask
- 更多Flask开源项目和文章：helloflask.com

Resources

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Bonus

Thanks!

- 主页：greyli.com
- GitHub：github.com/greyli
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