



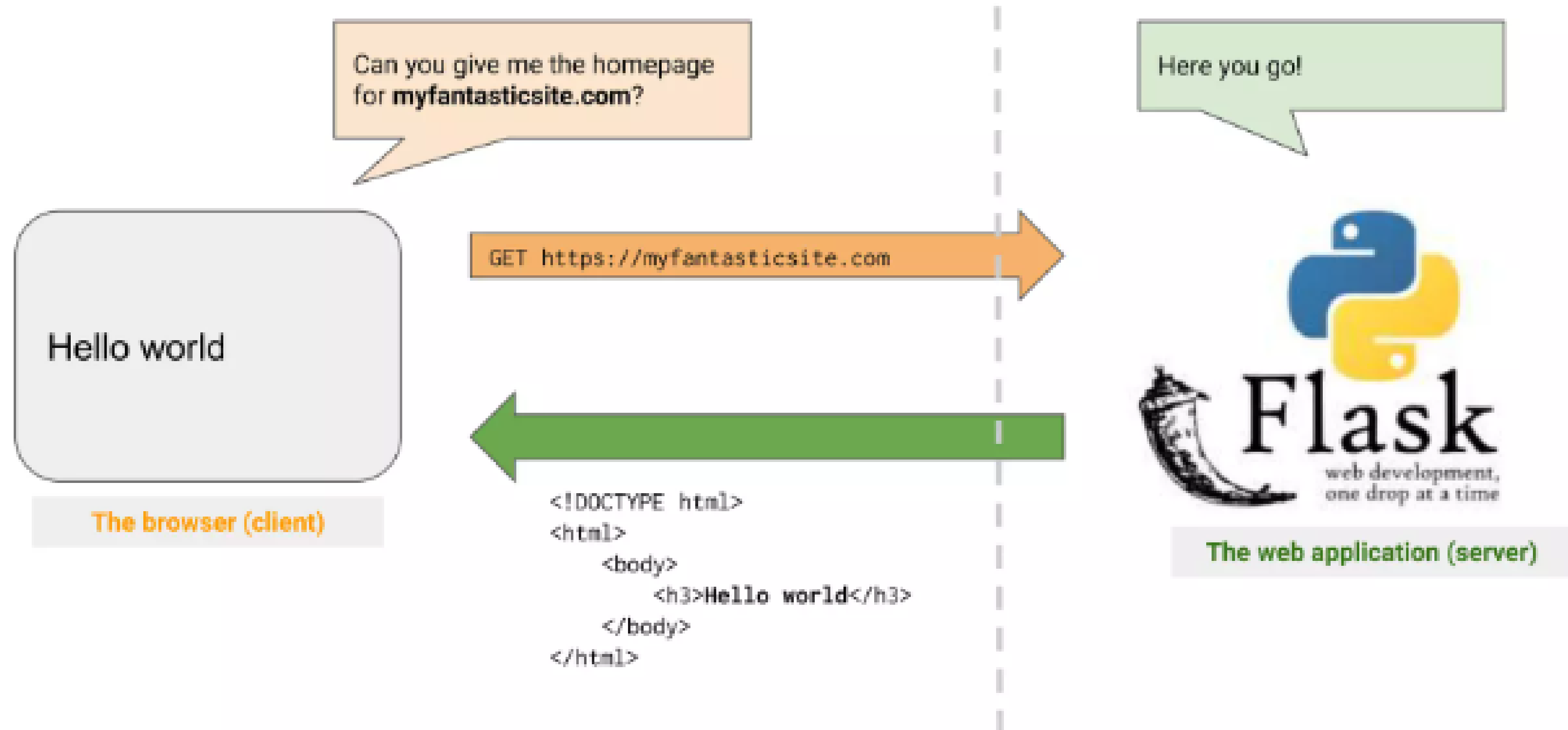
Introduction to Flask

By Nadhim T. – Student Coordinator – Web Dev – Tech Club '23

What is Flask?

- Flask is a lightweight Python framework for web applications
- It is called a micro framework

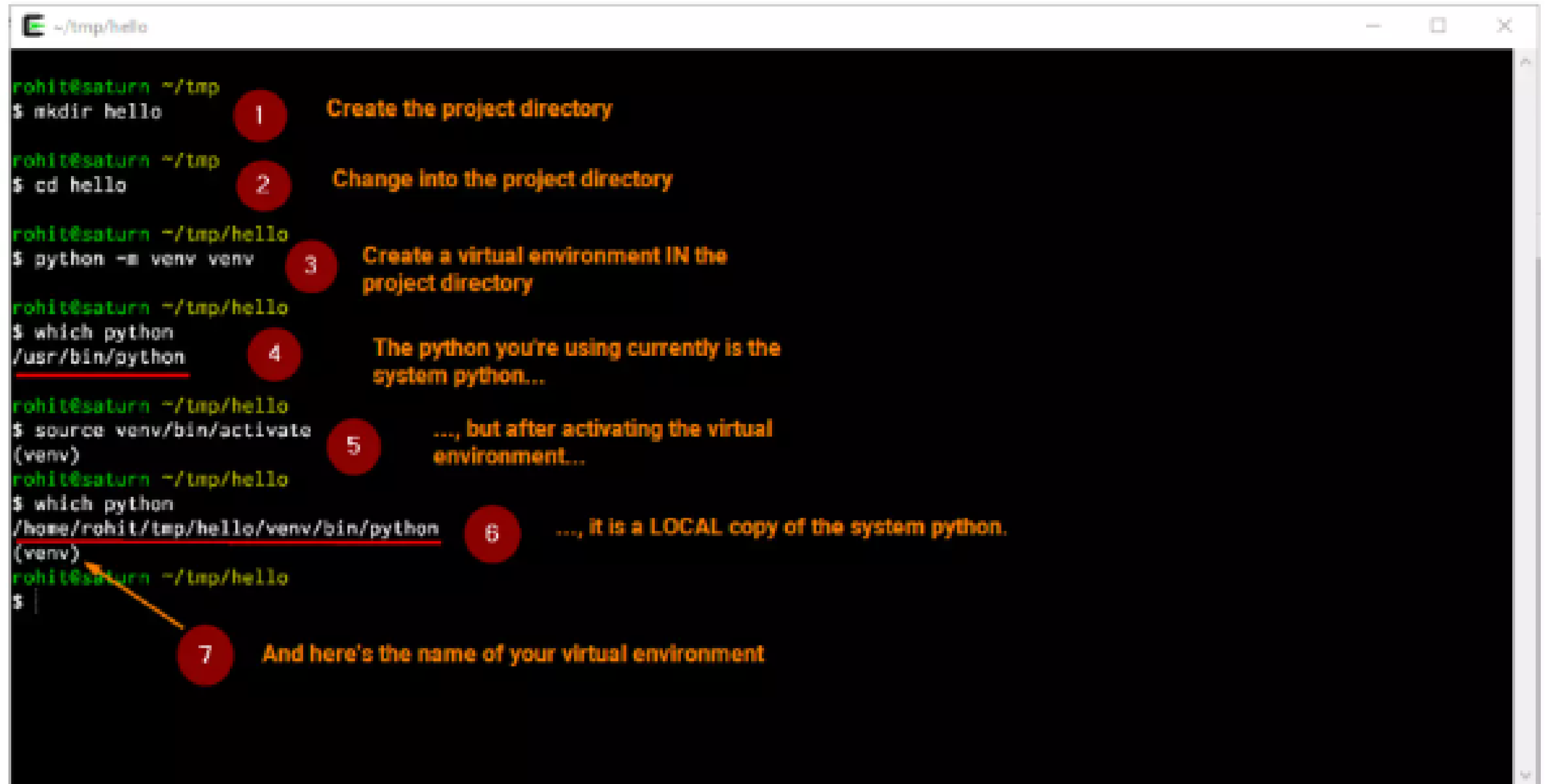
Framework for building web applications in Python



Before writing a Flask application . . .

- Install Python
 - Python comes with a package manager called `pip`
- Install `virtualenv`
 - `pip install virtualenv`
- Create a directory for your web application
 - `mkdir hello`
- Activate `virtualenv` **inside** your application directory
 - `python -m venv venv`

Before writing a Flask application . . .



```
rohit@saturn ~/tmp
$ mkdir hello
rohit@saturn ~/tmp
$ cd hello
rohit@saturn ~/tmp/hello
$ python -m venv venv
rohit@saturn ~/tmp/hello
$ which python
/usr/bin/python
rohit@saturn ~/tmp/hello
$ source venv/bin/activate
(venv)
rohit@saturn ~/tmp/hello
$ which python
/home/rohit/tmp/hello/venv/bin/python
(venv)
rohit@saturn ~/tmp/hello
$
```

1 Create the project directory

2 Change into the project directory

3 Create a virtual environment IN the project directory

4 The python you're using currently is the system python...

5 ..., but after activating the virtual environment...

6 ..., it is a LOCAL copy of the system python.

7 And here's the name of your virtual environment

pip install flask

```
~/tmp/hello
[venv]
rohit@saturn ~/tmp/hello
$ pip install flask
Collecting flask
  Using cached https://files.pythonhosted.org/packages/9b/93/628589b8d5dc749656a9641f4ca13540e2cdec85276964ff8f43bbb1d3b/Flask-1.1.1-py2.py3-none-any.whl
Collecting itsdangerous>=0.24 (from flask)
  Using cached https://files.pythonhosted.org/packages/76/ae/44b03b253d6fade317f32c24d100b3b35c2239807046a4c953c7b89fa49e/itsdangerous-1.1.0-py2.py3-none-any.whl
Collecting Werkzeug>=0.15 (from flask)
  Downloading https://files.pythonhosted.org/packages/ce/42/3aeda98f96e85fd26180534d36570e4d18100d62ae36f87694b476b83d6f/Werkzeug-0.16.0-py2.py3-none-any.whl (327kB)
    |████████████████████| 327kB 1.7MB/s
Collecting click>=5.1 (from flask)
  Using cached https://files.pythonhosted.org/packages/fa/37/45185eb5abbec30d7257104c434fe0b07e5a195a6847506c074527aa599ec/Click-7.0-py2.py3-none-any.whl
Collecting Jinja2>=2.10.1 (from flask)
  Downloading https://files.pythonhosted.org/packages/65/e0/eb35e762802015cab1ccee04e8a277b03f1d8e53da3ec3106882ec42558b/Jinja2-2.10.3-py2.py3-none-any.whl (125kB)
    |████████████████████| 133kB 13.0MB/s
Collecting MarkupSafe>=0.23 (from Jinja2>=2.10.1->flask)
Installing collected packages: itsdangerous, Werkzeug, click, MarkupSafe, Jinja2, flask
Successfully installed Jinja2-2.10.3 MarkupSafe-1.1.1 Werkzeug-0.16.0 click-7.0 flask-1.1.1 itsdangerous-1.1.0
WARNING: You are using pip version 19.1.1, however version 19.3.1 is available.
You should consider upgrading via the 'pip install --upgrade pip' command.
[venv]
rohit@saturn ~/tmp/hello
$
```

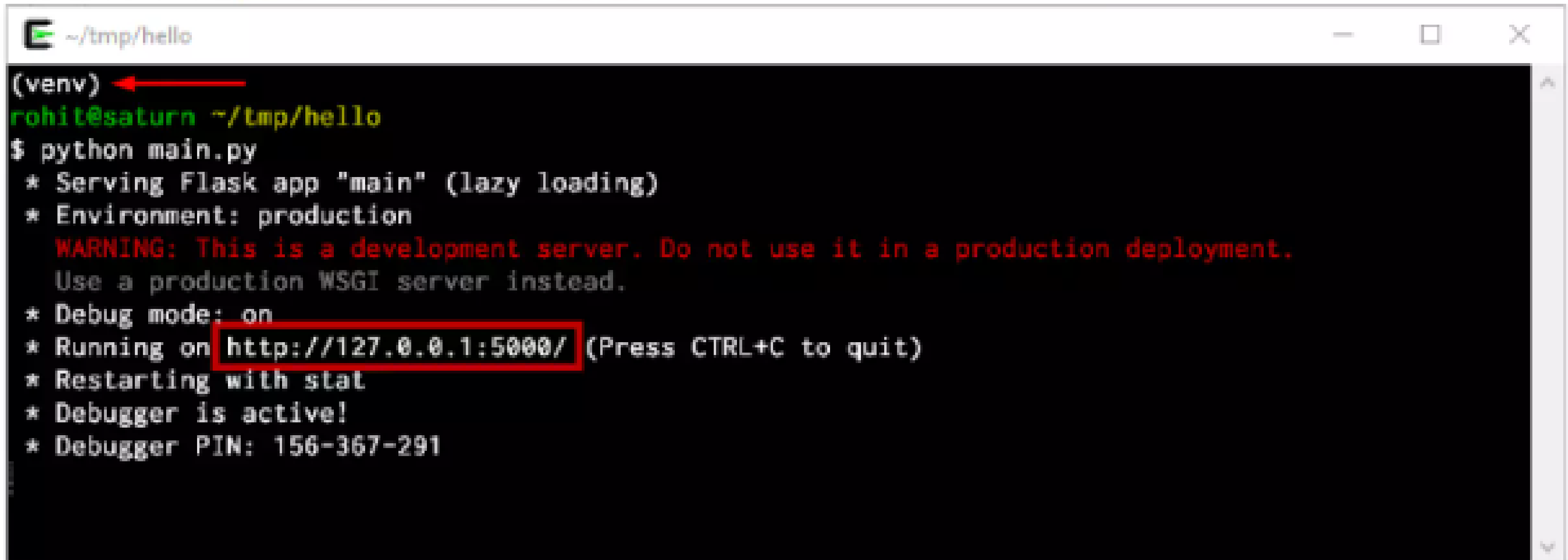
Writing your first Flask application

- Create a file called `main.py` in your project directory . . .
- . . . and edit it in your favorite text editor

```
from flask import Flask  
  
app = Flask(__name__)  
  
app.run(debug=True)
```

Running your Flask application

- Run `main.py`, and visit <http://localhost:5000/> in your browser
- Note the `/`. That's the **route**

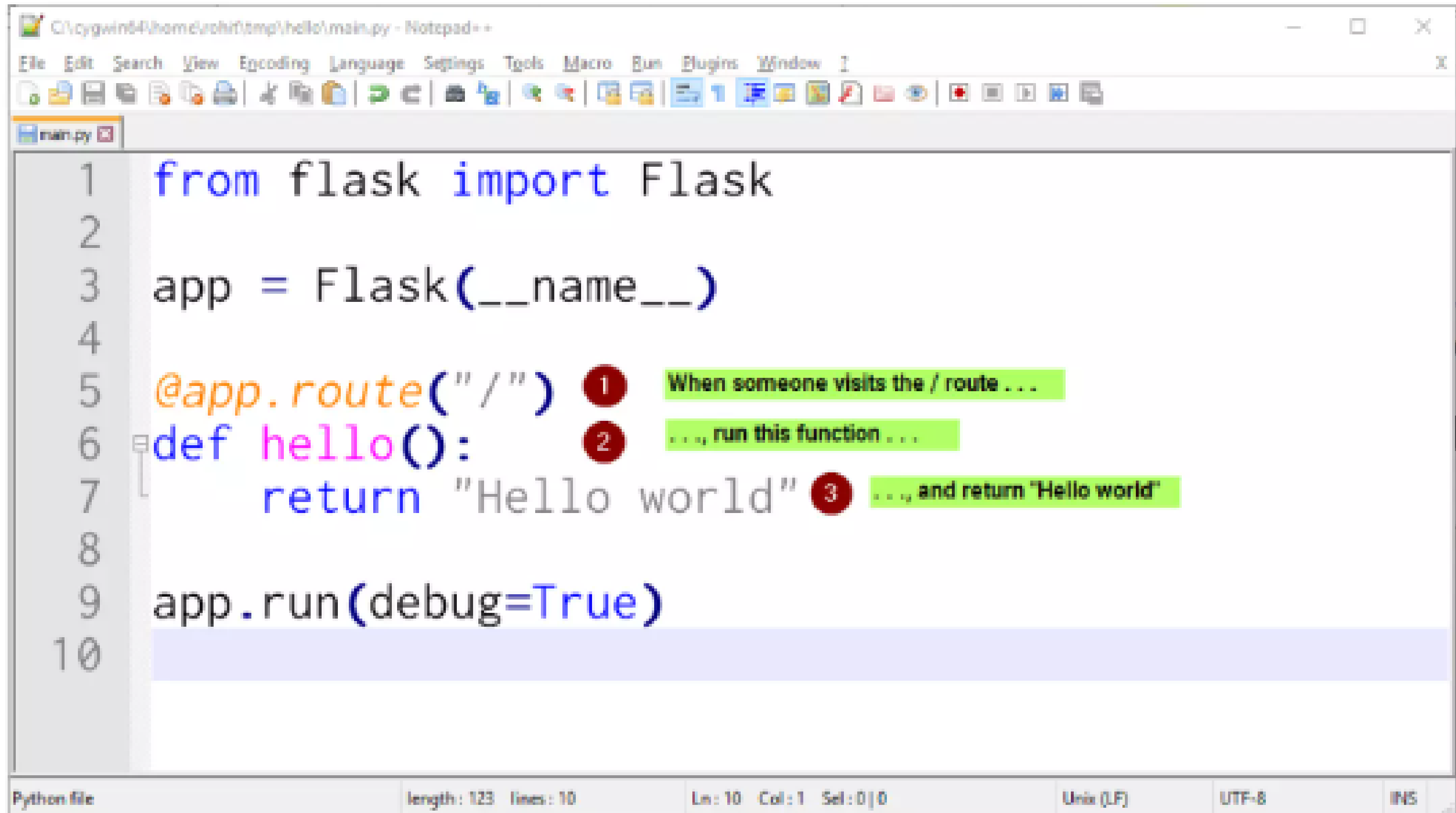
A terminal window titled "~/tmp/hello" with standard window controls. The terminal shows the output of running a Flask application. A red arrow points to the "(venv)" prompt. The output includes status messages like "Serving Flask app", "Environment: production", a warning about development vs production servers, "Debug mode: on", and the URL "http://127.0.0.1:5000/" which is highlighted with a red box. The prompt "rohit@saturn" is visible in green.

```
(venv) ←  
rohit@saturn ~/tmp/hello  
$ python main.py  
* Serving Flask app "main" (lazy loading)  
* Environment: production  
  WARNING: This is a development server. Do not use it in a production deployment.  
  Use a production WSGI server instead.  
* Debug mode: on  
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)  
* Restarting with stat  
* Debugger is active!  
* Debugger PIN: 156-367-291
```


Defining routes

- The web server is running at `http://localhost:5000`, but you didn't tell it what to return when someone visits the `/` **route**
- To do that, you have to add a function for the `/` route
- Flask uses Python **decorators** to define routes
- There can be any number of routes in your application

Defining routes



```
C:\cygwin64\home\durhi\temp\hello\main.py - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window
main.py
1 from flask import Flask
2
3 app = Flask(__name__)
4
5 @app.route("/") ① When someone visits the / route ...
6 def hello():      ② ... run this function ...
7     return "Hello world" ③ ... and return "Hello world"
8
9 app.run(debug=True)
10
```

Python file length: 123 lines: 10 Ln: 10 Col: 1 Sel: 0 | 0 Unix (LF) UTF-8 INS

Check out these Resources:

Flask Full Playlist:

<https://www.youtube.com/playlist?list=PL-osiE80TeTs4UjLw5MM6OjgkjFeUxCYH>

Troubleshoot for Errors during Virtual Environment Setup:

<https://www.youtube.com/watch?v=fEgTujWQ5Wk>