

Modern Websites with Django and React

Andrew Neitsch

2016-08-23

Introduction

1. Django tutorial
2. JSON APIs with Django REST framework
3. Interactivity with React.js

Conclusion

Disclaimer

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If you know a better way to do this, please give a talk on it

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Django tutorial

<https://docs.djangoproject.com/en/1.10/intro/tutorial01/>



localhost:8000/admin/polls/qu 



Django administration

Home > Polls > Questions

Select question to change

Action:



Go

0 of 2 selected



QUESTION



What is your favourite number?



What is your favourite colour?

2 questions



localhost:8000/polls/



- What is your favourite number?
- What is your favourite colour?



localhost:8000/polls/1/



What is your favourite colour?

- Red
- Green
- Blue

Getting it running

1. Install Python 3
2. `git clone https://github.com/andrewdotn/django-react.git`
3. `cd django-react`
4. `pip3 install --user -r requirements.txt`
5. `cd polls_tutorial`
6. `./manage.py migrate`
7. `./manage.py createsuperuser`
8. `./manage.py runserver`

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Requirements for interactivity

Browser needs to retrieve updated state

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Standard way of doing this:

JSON REST APIs

Requirements for interactivity

Browser needs to retrieve updated state GET

Browser needs to update state POST

Standard way of doing this:

JSON REST APIs

Commits

- ▶ Add serializer and view to show questions

```
curl http://localhost:8000/polls/api/questions/
```

Commits

- ▶ Add serializer and view to show questions
- ▶ Wire `rest_framework` router to URLs
See next slide



localhost:8000/polls/api/quest ↻



Django REST framework

andrew

Question List

OPTIONS

GET



GET /polls/api/questions/

HTTP 200 OK

Allow: GET, POST, HEAD, OPTIONS

Content-Type: application/json

Vary: Accept

```
[
  {
    "id": 1,
    "question_text": "What is your favourite colour?",
    "pub_date": "2016-08-17T05:06:15Z"
  }
]
```

Commits

- ▶ Add serializer and view to show questions
 - ▶ Wire `rest_framework` router to URLs
 - ▶ Expose full model to API
- Hack to workaround namespace issues

Commits

- ▶ Add serializer and view to show questions
- ▶ Wire rest_framework router to URLs
- ▶ Expose full model to API
- ▶ Add increment verb

```
$ curl -X POST http://localhost:8000/polls/api/choices/2/increment/; echo  
{"choice_text":"0","votes":26,"question":"http://localhost:8000/polls/api/quest  
$ curl -X POST http://localhost:8000/polls/api/choices/2/increment/; echo  
{"choice_text":"0","votes":27,"question":"http://localhost:8000/polls/api/quest  
$ curl -X POST http://localhost:8000/polls/api/choices/2/increment/; echo  
{"choice_text":"0","votes":28,"question":"http://localhost:8000/polls/api/quest
```

Commits

- ▶ Add serializer and view to show questions
- ▶ Wire `rest_framework` router to URLs
- ▶ Expose full model to API
- ▶ Add increment verb

Your turn!

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React.js

The new standard for JS frontend work

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Rules:

React.js

The new standard for JS frontend work

Rules:

- ▶ Components render HTML as a function of properties and state

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- ▶ Properties can only be changed by parent components

React.js

The new standard for JS frontend work

Rules:

- ▶ Components render HTML as a function of properties and state
- ▶ Properties can only be changed by parent components
- ▶ Visual updates only happen when properties or state change in a way that affects the output of the render function

Commits

- ▶ React hello world

Commits

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Note that including the initial JSON in the response saves round-trips aka progress spinner time

Commits

- ▶ React hello world
- ▶ Format questions

Commits

- ▶ React hello world
- ▶ Format questions
- ▶ Render vote counts in tables

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key allows for insertions, deletions, and reordering

Commits

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- ▶ Format questions
- ▶ Render vote counts in tables
- ▶ Add polling for data updates

Commits

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- ▶ Format questions
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excellent separation of concerns

Commits

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- ▶ Render vote counts in tables
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- ▶ Implement increment call with react

Commits

- ▶ React hello world
- ▶ Format questions
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- ▶ Implement increment call with react
normally you'd use callbacks instead of
`componentWillReceiveProps`

Demo

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Conclusions

- ▶ Exposing an API for your existing models is pretty straightforward

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- ▶ Exposing an API for your existing models is pretty straightforward
- ▶ React.js is an in-browser template layer that lets you add live updates without changing rendering code

Future work

- ▶ Replicate

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- ▶ Pause/faster/slower controls on polling

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- ▶ Permissions

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- ▶ Pre-compile JSX

Future work

- ▶ **Replicate**
- ▶ Pause/faster/slower controls on polling
- ▶ Permissions
- ▶ Pre-compile JSX
- ▶ WebSockets