

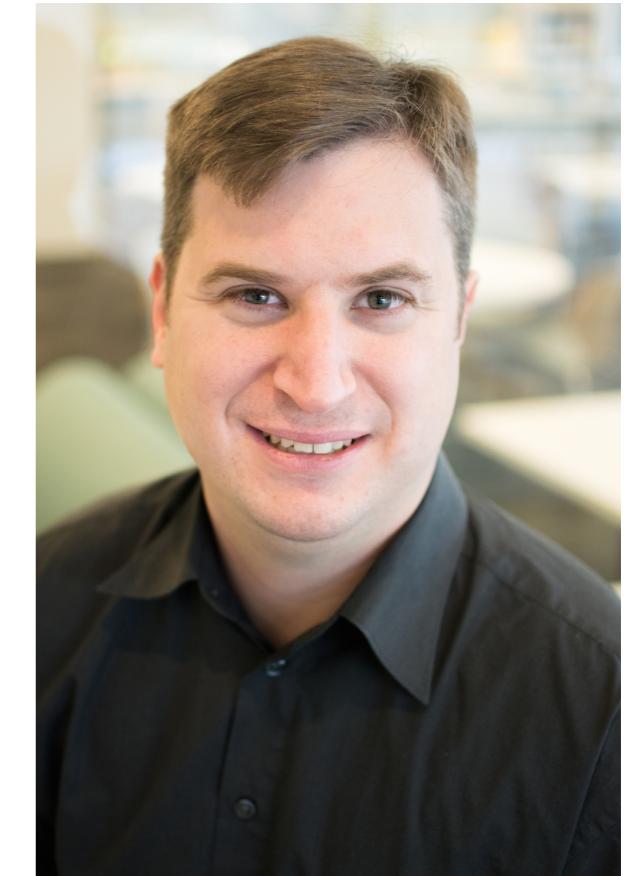
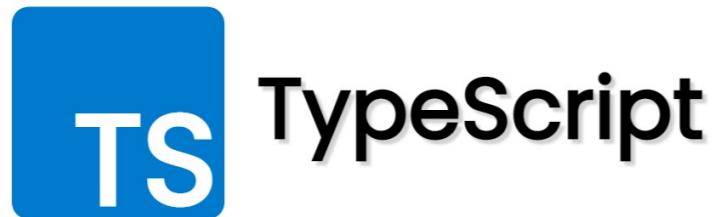
Using HTMX to make awesome server side web apps

Build interactive UIs without
JavaScript



Kurt Wiersma, Open Source North 2025

About Me



Kurt Wiersma
[LinkedIn](#)



Agenda

- What is HTMX?
- A story of how HTMX helped me
- Don't just take my word for it
- Patterns to make better user experiences with HTMX
- What is HTMX not good for?
- Helpful resources for using HTMX with Python or dotNet

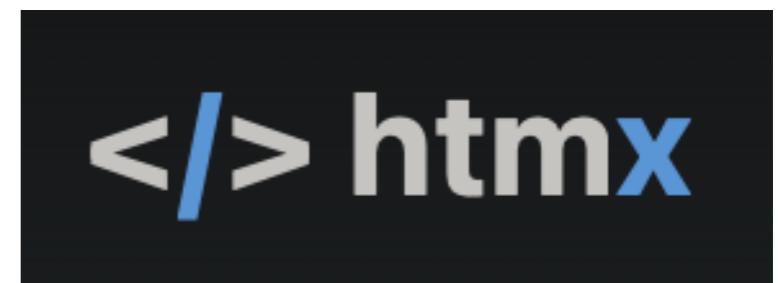
What is HTMX?

←!— HTMX 14kb (gzipped) →

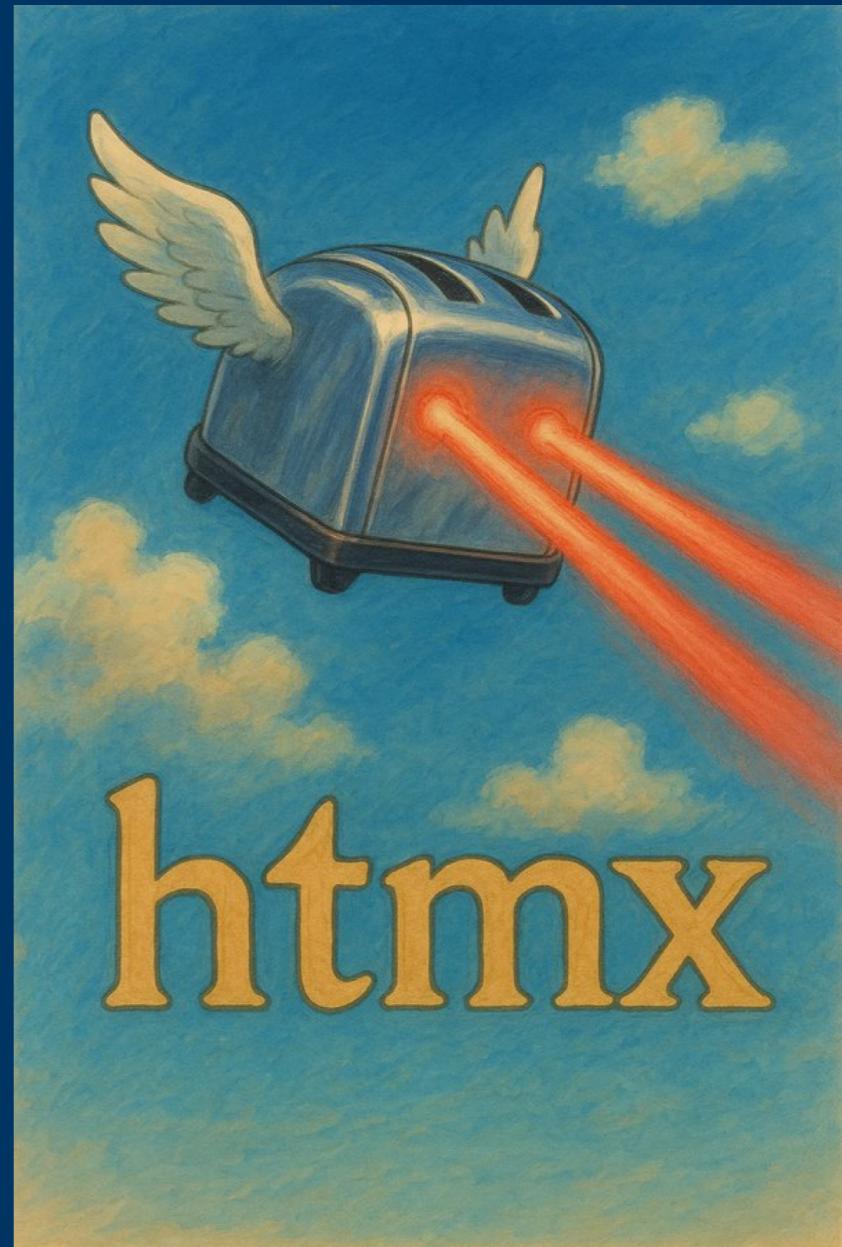
```
<script src="https://unpkg.com/htmx.org@2.0.4"></script>
```

←!— When clicked send a POST request & replace the button element
with the server response →

```
<button hx-post="/clicked" hx-swap="outerHTML">  
    Click Me  
</button>
```



My HTMX Story





<https://grugbrain.dev/>

The Frontend Treadmill



“If your product is still around in 5 years, you’re doing great and you should feel successful. But guess what? Whatever framework you choose will be obsolete in 5 years.”

Quote Source: [These Yaks Ain't Gonna Shave Themselves](#)

HTML

I feel bad for you.

JSON

I don't think about you at all.

Don't just take my word for it



- The effort took about 2 months (with a 21K LOC code base, mostly JavaScript)
- No reduction in the application's user experience (UX)
- They reduced the code base size by 67% (21,500 LOC to 7200 LOC)
- They increased python code by 140% (500 LOC to 1200 LOC)
- They reduced their total JS dependencies by 96% (255 to 9)
- They reduced their web build time by 88% (40 seconds to 5)
- First load time-to-interactive was reduced by 50-60% (from 2 to 6 seconds to 1 to 2 seconds)

Ghetto League Draft Teams

| Round 2 | | | | | | |
|-------------------------------|------------------------------|-----|--|--|--|--|
| 19. | Hurts so Good (Kristina) | | | | | |
| 20. | The Blue Sky Bullets (Swig) | | | | | |
| Round 3 | | | | | | |
| 21. | The Blue Sky Bullets (Swig) | | | | | |
| 22. | Hurts so Good (Kristina) | | | | | |
| 23. | Mofriday, August 39th (Will) | | | | | |
| 24. | Bastard Righty (Todd) | | | | | |
| 25. | Yuba's Garden Gnomes (Kurt) | | | | | |
| 26. | Tua minute warning (Pingle) | | | | | |
| 27. | Keepy Uppy (Steph) | | | | | |
| 28. | Suburbia (Marc) | | | | | |
| 29. | Woodstock Nation (Russ) | | | | | |
| The Blue Sky Bullets (Swig) ▾ | | | | | | |
| Player | Pos | Bye | | | | |
| McCaffrey, Christian | RB | 9 | | | | |
| (R 1, P 1) | | | | | | |

| Last Name | Position | Status | | | | |
|----------------------|----------|--------|-----|------|--------|--|
| | Any | Any | | | | |
| Player | Rank↓ | Pts | Bye | ADP | Pick # | Fantasy Team |
| McCaffrey, Christian | 1 | 357 | 9 | 1.1 | 1 | The Blue Sky Bullets (Swig) |
| SF - RB | | | | | | |
| Lamb, CeeDee | 2 | 332 | 7 | 3.2 | 5 | Yuba's Garden Gnomes (Kurt) |
| Dal - WR | | | | | | |
| Hill, Tyreek | 3 | 308 | 6 | 2.8 | 2 | Hurts so Good (Kristina) |
| Mia - WR | | | | | | |
| Hall, Breece | 4 | 253 | 12 | 4.3 | 6 | Tua minute warning (Pingle) |
| NYJ - RB | | | | | | |
| Robinson, Bijan | 5 | 215 | 12 | 5.7 | 3 | Mofriday, August 39th (Will) |
| Atl - RB | | | | | | |
| Chase, Ja'Marr | 6 | 214 | 12 | 6.7 | 4 | Bastard Righty (Todd) |
| Cin - WR | | | | | | |
| Jefferson, Justin | 7 | 160 | 6 | 7.4 | 11 | Watery Tarts Throwing Swords (Rebecca) |
| Min - WR | | | | | | |
| St. Brown, Amon-Ra | 8 | 272 | 5 | 7.8 | 12 | Woodstock Nation (Russ) |
| Det - WR | | | | | | |
| Wilson, Garrett | 9 | 172 | 12 | 12.4 | 13 | Suburbia (Marc) |
| NYJ - WR | | | | | | |
| Brown, A.J. | 10 | 232 | 5 | 10.7 | 14 | Keepy Uppy (Steph) |
| Phi - WR | | | | | | |
| See More Players > | | | | | | |

On the clock: Kristina (R 2 P 9)

On deck: Swig

Last Pick: Allen, Josh by Mofriday, August 39th (Will)

Before Last Pick: Mostert, Raheem by Bastard Righty (Todd)

Practical HTMX Patterns



Island Architecture

Ghetto League Draft Teams

| Round 2 | |
|---------|------------------------------|
| 15. | Tua minute warning (Pingle) |
| 16. | Yuba's Garden Gnomes (Kurt) |
| 17. | Bastard Righty (Todd) |
| 18. | Mofriday, August 39th (Will) |
| 19. | Hurts so Good (Kristina) |
| 20. | T Upcoming (Swig) |

| Round 3 | |
|---------|------------------------------|
| 21. | The Blue Sky Bullets (Swig) |
| 22. | Hurts so Good (Kristina) |
| 23. | Mofriday, August 39th (Will) |
| 24. | Bastard Righty (Todd) |
| 25. | Yuba's Garden Gnomes (Kurt) |

| The Blue Sky Bullets (Swig) ▾ | | | |
|-------------------------------|------|-----|------------|
| Player | Team | Pos | Bye |
| McCaffrey, Christian | RB | 9 | (R 1, P 1) |

| Last Name | Position | Status | | | | |
|----------------------|----------|--------|---------------|------|--------|--|
| | Any | Any | | | | |
| Player | Rank↓ | Pts | Bye | ADP | Pick # | Fantasy Team |
| McCaffrey, Christian | 1 | 357 | 9 | 1.1 | 1 | The Blue Sky Bullets (Swig) SF - RB |
| Lamb, CeeDee | 2 | 332 | 7 | 3.2 | 5 | Yuba's Garden Gnomes (Kurt) Dal - WR |
| Hill, Tyreek | 3 | 308 | 6 | 2.8 | 2 | Hurts so Good (Kristina) Mia - WR |
| Hall, Breece | 4 | 25 | Filter & Sort | | | Tua minute warning (Pingle) NYJ - RB |
| Robinson, Bijan | 5 | 215 | 12 | 5.7 | 3 | Mofriday, August 39th (Will) Atl - RB |
| Chase, Ja'Marr | 6 | 214 | 12 | 6.7 | 4 | Bastard Righty (Todd) Cin - WR |
| Jefferson, Justin | 7 | 160 | 6 | 7.4 | 11 | Watery Tarts Throwing Swords (Rebecca) Min - WR |
| St. Brown, Amon-Ra | 8 | 272 | 5 | 7.8 | 12 | Woodstock Nation (Russ) Det - WR |
| Wilson, Garrett | 9 | 172 | 12 | 12.4 | 13 | Suburbia (Marc) NYJ - WR |
| Brown, A.J. | 10 | 232 | 5 | 10.7 | 14 | Keepy Uppy (Steph) Phi - WR |

See More Players >

On the clock: Pingle (R 2 P 5)

On deck: Kurt

Recent Picks

Last Pick: Brown, A.J. by Keepy Uppy (Steph)

Before Last Pick: Wilson, Garrett by Suburbia (Marc)

Lazy Loading

hx-get

| Round 2 | |
|---------|------------------------------|
| 15. | Tua minute warning (Pingle) |
| 16. | Yuba's Garden Gnomes (Kurt) |
| 17. | Bastard Righty (Todd) |
| 18. | Mofriday, August 39th (Will) |
| 19. | Hurts so Good (Kristina) |
| 20. | T Upcoming vig) |
| Round 3 | |
| 21. | The Blue Sky Bullets (Swig) |
| 22. | Hurts so Good (Kristina) |
| 23. | Mofriday, August 39th (Will) |
| 24. | Bastard Righty (Todd) |
| 25. | Yuba's Garden Gnomes (Kurt) |

```
<div hx-get="{% url 'upcoming_picks' %}">
  hx-target="#upcoming-picks"
  hx-trigger="revealed">
    <div id="upcoming-picks"></div>
</div>

<div id="upcoming-picks" class="list-group">
  {% for row in rows %}
    {% if row.row_type == "round" %}
      <div class="list-group-item">
        {{ row.name }}
      </div>
    {% else %}
      <div class="list-group-item list-group-item-{{ row.item_class }}"
           style="{{ row.item_style }}>
        <span class="badge rounded-pill bg-{{ row.label_class }}>
          {{ row.pick_no }}.
        </span>
        <span style="padding-left: 5px">{{ row.name }}</span>
      </div>
    {% endif %}
  {% endfor %}
</div>
```

Active Search

| Last Name | Position | Status | | | | |
|---------------------------------|-------------------|--------------------------|-----|------|--------------------|---|
| <input type="text"/> | RB ▼ | Available ▼ | | | | |
| Player | Rank | Pts↓ | Bye | ADP | Pick # | Fantasy Team |
| Etienne Jr., Travis Jax - RB | 22 | 252 | 12 | 22.1 | Draft |  |
| Mostert, Raheem Mia - RB | 64 | 250 | 6 | 66.5 | Draft |  |

```
<form id="players-search" method="get"
      hx-trigger="submit, input from:[form=players-search] delay:200ms"
      hx-push-url="true"
      hx-get="{% url 'draft' %}" hx-target="#players">
  ...
</form>

<div id="players">
  <table class="table table-striped">
  ...
</table>
</div>
```

Table Sorting

```
<div id="players">
  <input type="hidden" form="players-search" name="sort" value="{{ filter.form.data.sort }}" />
  <table class="table table-striped">
    <thead>
      <tr>
        <th>Player</th>
        <th>
          {% if not filter.form.data.sort or filter.form.data.sort == "rank" %}
            Rank&downarrow;
          {% else %}
            <a href="{{ filter.query_string }}&sort=rank"
              hx-get="{{ filter.query_string }}&sort=rank"
              hx-target="#players"
              hx-push-url="true">
              Rank
            </a>
          {% endif %}
        </th>
        . . .
      </tr>
    <thead>
```



Ghetto League Draft Teams

| Draft Order | Team | Owner | |
|-------------|--|----------|-----------------------|
| 1 | The Blue Sky Bullets | Swig | <button>Edit</button> |
| 2 | Hurts so Good | Kristina | <button>Edit</button> |
| 3 | Mofriday, August 39th | Will | <button>Edit</button> |
| 4 | Bastard Righty | Todd | <button>Edit</button> |
| 5 | Yuba's Garden Gnomes | Kurt | <button>Edit</button> |
| 6 | Tua minute warning | Pingle | <button>Edit</button> |
| 7 | Keepy Uppy | Steph | <button>Edit</button> |
| 8 | Suburbia | Marc | <button>Edit</button> |
| 9 | Woodstock Nation | Russ | <button>Edit</button> |
| 10 | Watery Tarts Throwing Swords | Rebecca | <button>Edit</button> |

DRAFT

2025 dleague-htmx

Click To Edit

| Draft Order | Team | Owner | |
|-------------|--------------------------------------|----------|-----------------------|
| 1 | The Blue Sky Bullets | Swig | <button>Edit</button> |
| 2 | Hurts so Good | Kristina | <button>Edit</button> |

```
<tr id="team_{{ team.id }}" hx-target="this" hx-swap="outerHTML">
  <td>{{ team.draft_order }}</td>
  <td><a href="{% url "team_edit" team.id %}">{{ team.name }}</a></td>
  <td>{{ team.owner }}</td>
  <td>
    <button class="btn btn-primary"
      hx-get="{% url 'team_edit' team.id %}"
      hx-indicator="#htmx-indicator-{{ team.id }}"
      >Edit</button>
    
  </td>
</tr>
```

Click To Edit

| Draft Order | Team | Owner | |
|-------------|--|---------------------------------------|--|
| 1 | The Blue Sky Bullets | Swig | <button>Edit</button> |
| 2 | <input type="text" value="Hurts so Good"/> | <input type="text" value="Kristina"/> | <button>Save Team</button> <button>Cancel</button> |

```
<tr id="team_{{ form.instance.id }}" hx-disabled-elt="#save_{{ form.instance.id }}">
    {% csrf_token %}
    <td>{{ form.draft_order|as_crispy_field }}</td>
    <td>{{ form.name|as_crispy_field }}</td>
    <td>{{ form.owner|as_crispy_field }}</td>
    <td>
        <button class="btn btn-primary" id="save_{{ form.instance.id }}"
            hx-post="{% url 'team_edit' form.instance.id %}"
            hx-include="closest tr"
            hx-target="closest tr"
            hx-swap="outerHTML">
            Save Team
        </button>
        <button class="btn btn-danger"
            hx-get="{% url 'team_row' form.instance.id %}"
            hx-target="closest tr"
            hx-swap="outerHTML">
            Cancel
        </button>
    </td>
</tr>

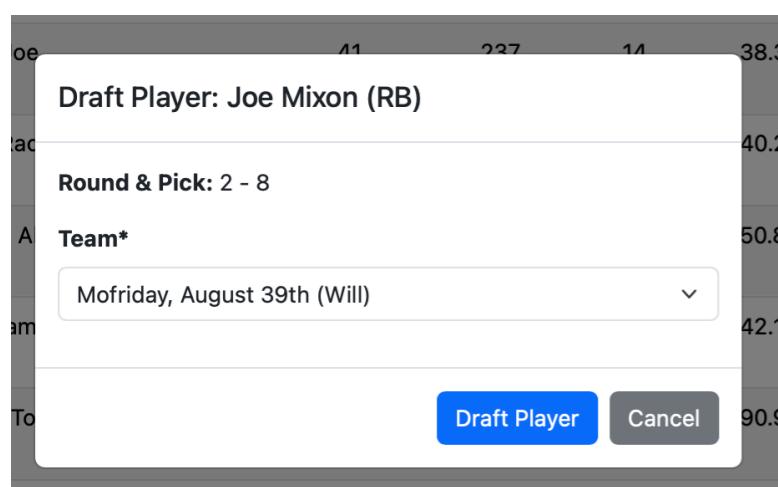
<script>
    document.body.setAttribute('hx-headers', '{"X-CSRFToken": "{{ csrf_token }}'});
</script>
```

Modal Form

```
<a class="btn btn-primary"  
    hx-get="{% url 'draft_player' player.id %}"  
    hx-target="#modals-here"  
    hx-trigger="click"  
>Draft</a>
```

```
→ <div id="modals-here"></div>
```

```
<div id="modal" class="modal fade show" tabindex="-1" style="display:block;">  
  <div class="modal-dialog modal-dialog-centered">  
    <div class="modal-content">  
      <form hx-post="{% url 'draft_player' form.instance.id %}" ←  
          hx-target="#modals-here"  
          hx-on::after-request="if (event.detail.successful) closeModal()" ←  
        <div class="modal-header">  
          <h5 class="modal-title">  
            Draft Player: {{ form.instance.firstname }} {{ form.instance.lastname }}  
          </h5>  
        </div>  
        <div class="modal-body">  
          <p><b>Round & Pick:</b> {{ round }} - {{ pick }}</p>  
          {{ form.fantasyteam|as_crисy_field }}  
        </div>  
        <div class="modal-footer">  
          <button type="submit" class="btn btn-primary">Draft Player</button>  
          <button type="button" class="btn btn-secondary" onclick="closeModal()"  
            >Cancel</button>  
        </div>  
      </form>  
    </div>  
  </div>  
</div>
```



Events

Ghetto League Draft Teams

| Round 2 | |
|---------|------------------------------|
| 15. | Tua minute warning (Pingle) |
| 16. | Yuba's Garden Gnomes (Kurt) |
| 17. | Bastard Righty (Todd) |
| 18. | Mofriday, August 39th (Will) |
| 19. | Hurts so Good (Kristina) |
| 20. | T Upcoming (Swig) |
| Round 3 | |
| 21. | The Blue Sky Bullets (Swig) |
| 22. | Hurts so Good (Kristina) |
| 23. | Mofriday, August 39th (Will) |
| 24. | Bastard Righty (Todd) |
| 25. | Yuba's Garden Gnomes (Kurt) |

| The Blue Sky Bullets (Swig) | | | |
|-----------------------------|------|-----|-----|
| Player | Team | Pos | Bye |
| McCaffrey, Christian | RB | 9 | |
| (R 1, P 1) | | | |

| Last Name | Position | Status | | | | |
|----------------------|----------|--------|-----|------|--------|--|
| | Any | Any | | | | |
| Player | Rank↓ | Pts | Bye | ADP | Pick # | Fantasy Team |
| McCaffrey, Christian | 1 | 357 | 9 | 1.1 | 1 | The Blue Sky Bullets (Swig) SF - RB |
| Lamb, CeeDee | 2 | 332 | 7 | 3.2 | 5 | Yuba's Garden Gnomes (Kurt) Dal - WR |
| Hill, Tyreek | 3 | 308 | 6 | 2.8 | 2 | Hurts so Good (Kristina) Mia - WR |
| Hall, Breece | 4 | 253 | 25 | 25.5 | 11 | Tua minute warning (Pingle) NYJ - RB |
| Robinson, Bijan | 5 | 215 | 12 | 5.7 | 3 | Mofriday, August 39th (Will) Atl - RB |
| Chase, Ja'Marr | 6 | 214 | 12 | 6.7 | 4 | Bastard Righty (Todd) Cin - WR |
| Jefferson, Justin | 7 | 160 | 6 | 7.4 | 11 | Watery Tarts Throwing Swords (Rebecca) Min - WR |
| St. Brown, Amon-Ra | 8 | 272 | 5 | 7.8 | 12 | Woodstock Nation (Russ) Det - WR |
| Wilson, Garrett | 9 | 172 | 12 | 12.4 | 13 | Suburbia (Marc) NYJ - WR |
| Brown, A.J. | 10 | 232 | 5 | 10.7 | 14 | Keepy Uppy (Steph) Phi - WR |

See More Players >

On the clock: Pingle (R 2 P 5)

On deck: Kurt

Recent Picks

Last Pick: Brown, A.J. by Keepy Uppy (Steph)

Before Last Pick: Wilson, Garrett by Suburbia (Marc)

Events

Server

```
def post(self, request, *args, **kwargs):
    context = self._build_context(kwargs)

    form = DraftPlayerForm(request.POST, instance=context["player"])
    context["form"] = form
    if form.is_valid():
        player = form.instance
        player.round = context["round"]
        player.pick = context["pick"]
        player.picktime = datetime.now()
        player.save()

        if settings.PUSHER_KEY:
            p = pusher.Pusher(
                app_id=settings.PUSHER_APP_ID,
                key=settings.PUSHER_KEY,
                secret=settings.PUSHER_SECRET,
                cluster=settings.PUSHER_CLUSTER,
            )
            p.trigger("draftedPlayers", "playerDrafted", Player.objects.fetch_last_picks())

    return HttpResponseRedirect(headers={"HX-Trigger": "player-drafted"})
else:
    return self.render_to_response(context)
```

HTML

```
<div hx-trigger="player-drafted from:body">
```



Ghetto League Draft Teams

| Round 2 | | |
|----------------------------|------------------------------|-----|
| 19. | Hurts so Good (Kristina) | |
| 20. | The Blue Sky Bullets (Swig) | |
| Round 3 | | |
| 21. | The Blue Sky Bullets (Swig) | |
| 22. | Hurts so Good (Kristina) | |
| 23. | Mofriday, August 39th (Will) | |
| 24. | Bastard Righty (Todd) | |
| 25. | Yuba's Garden Gnomes (Kurt) | |
| 26. | Tua minute warning (Pingle) | |
| 27. | Keepy Uppy (Steph) | |
| 28. | Suburbia (Marc) | |
| 29. | Woodstock Nation (Russ) | |
| Hurts so Good (Kristina) | | ▼ |
| Player | Pos | Bye |
| Hill, Tyreek (R 1, P 2) | WR | 6 |

| Last Name | Position | Status | | | | |
|-----------------------------|----------|-----------|-----|------|--------|--------------|
| | QB | Available | | | | |
| Player | Rank↓ | Pts | Bye | ADP | Pick # | Fantasy Team |
| Hurts, Jalen Phi - QB | 35 | 425 | 5 | 32.0 | Draft | Draft |
| Mahomes, Patrick KC - QB | 39 | 364 | 6 | 28.3 | Draft | Draft |
| Jackson Bal - QB | | 35.0 | | | Draft | Draft |
| Richard Ind - QB | | 47.7 | | | Draft | Draft |
| Stroud, Hou - QB | | 44.0 | | | Draft | Draft |
| Murray, Ari - QB | | 56.4 | | | Draft | Draft |
| Love, Jo GB - QB | | 71.5 | | | Draft | Draft |
| Prescott, Dak Dal - QB | 71 | 445 | 7 | 68.5 | Draft | Draft |
| Burrow, Joe Cin - QB | 72 | 194 | 12 | 60.3 | Draft | Draft |
| Daniels, Jayden Was - QB | 81 | 0 | 14 | 98.2 | Draft | Draft |

On the clock: Kristina (R 2 P 9)

On deck: Swig

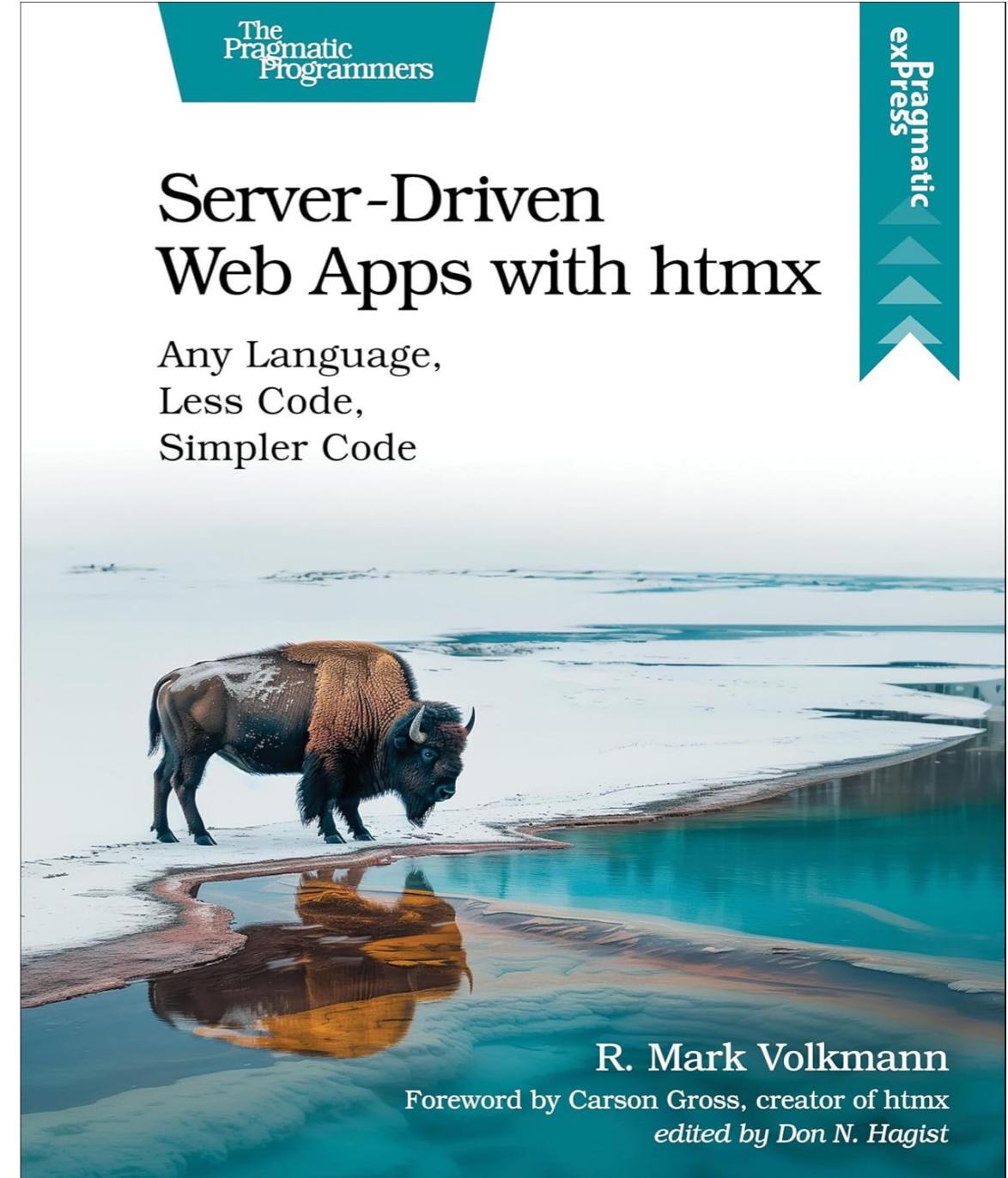
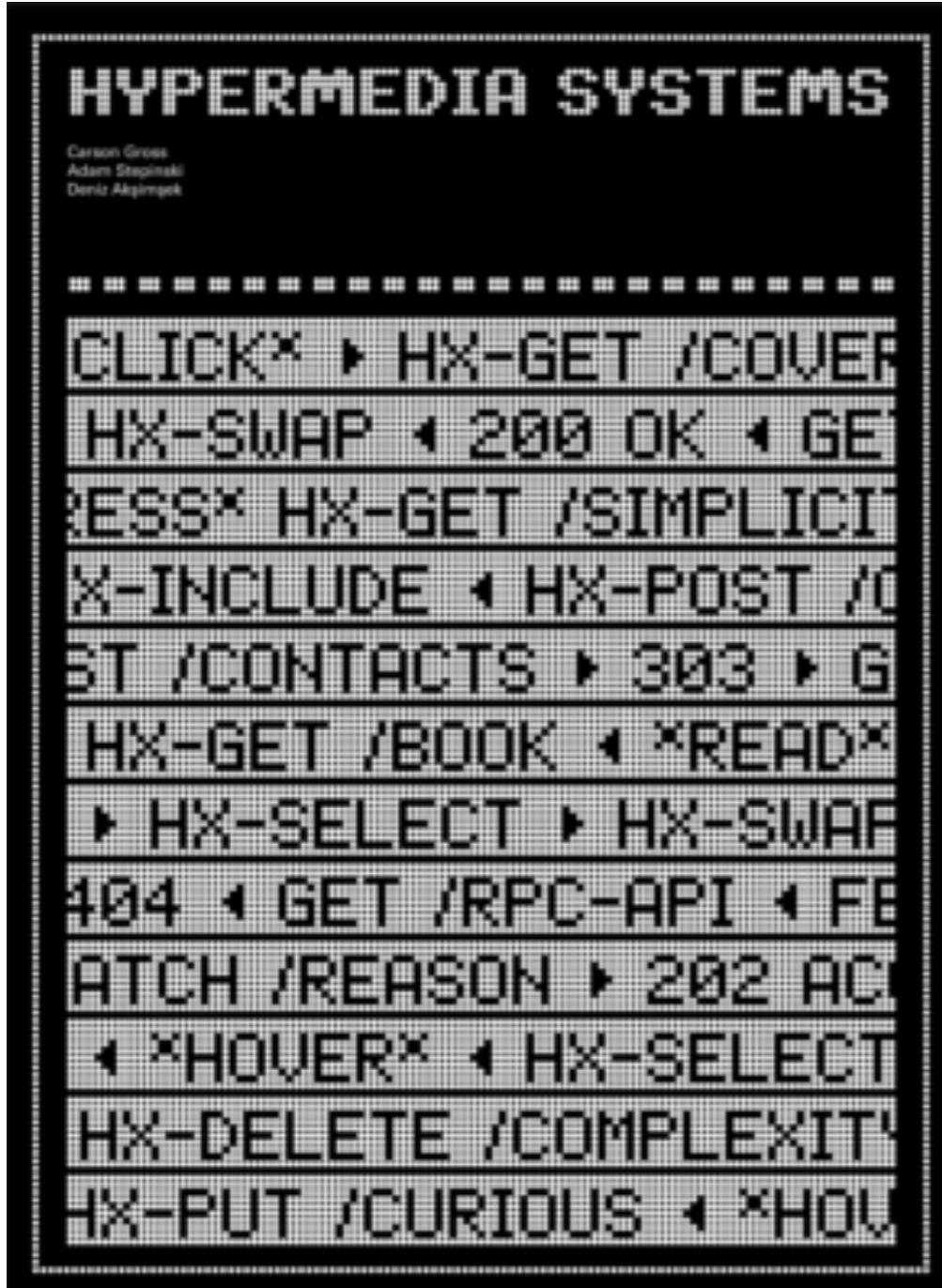
Last Pick: Allen, Josh by Mofriday, August 39th (Will)

Before Last Pick: Mostert, Raheem by Bastard Righty (Todd)

What is HTMX not good for?



Books



Recap

- **Pros**
 - HTMX leverages server side rendering of HTML fragments to give your web apps a better user experience
 - HTMX is stable and not complex to implement in your web app
- **Cons**
 - Highly interactive apps might not be the best fit for HTMX
 - Teams that already have a lot of front end experience with Javascript frameworks might not benefit as much

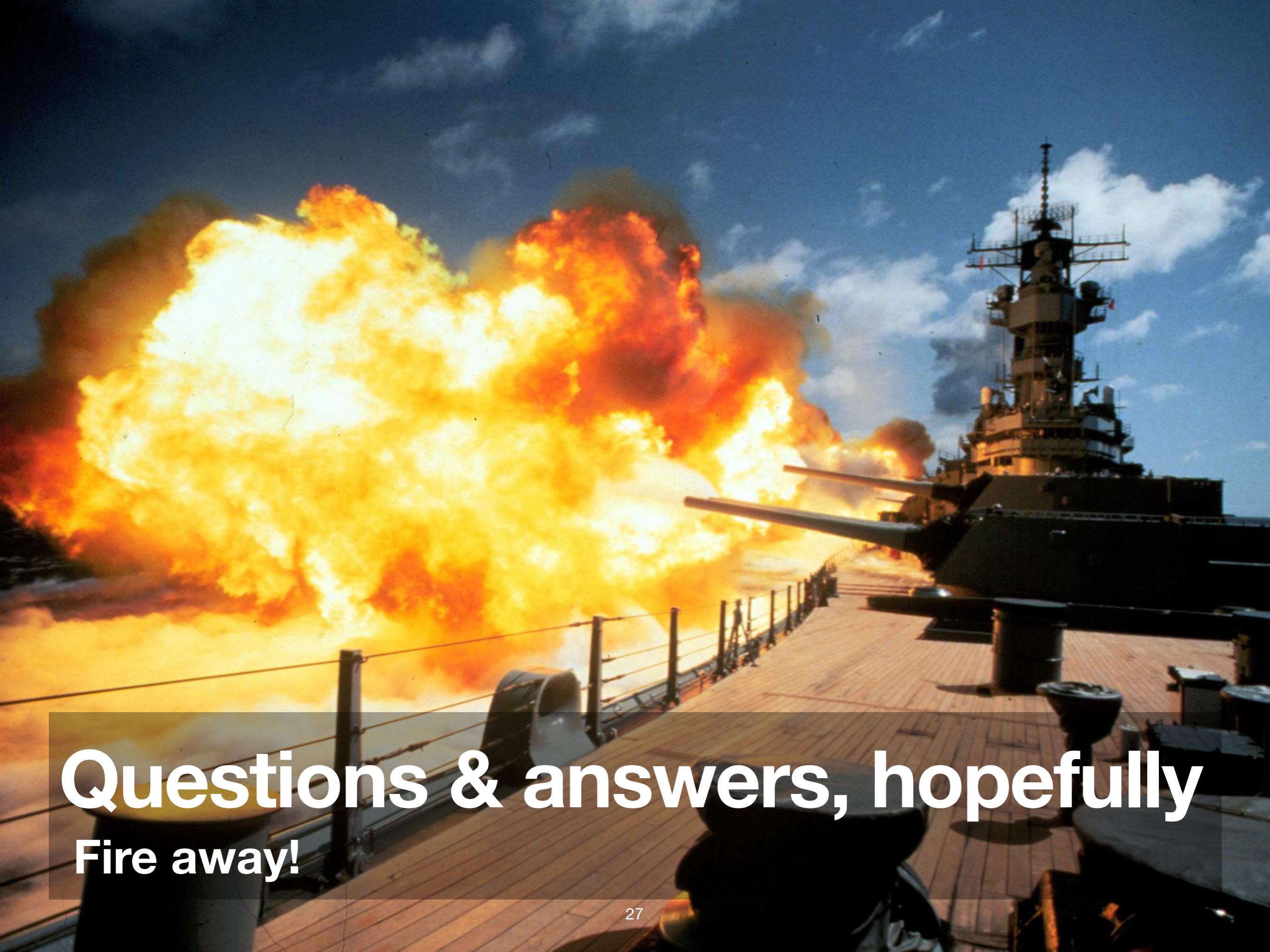
Resources

- HTMX:
 - <https://htmx.org/examples/>
 - <https://benoitaverty.com/articles/en/data-table-with-htmx>
 - <https://github.com/mvolkmann/htmx-examples>
 - <https://github.com/rajasegar/awesome-htmx>
- ASP.Net:
 - <https://www.jetbrains.com/guide/dotnet/tutorials/htmx-aspnetcore/>
 - <https://www.mostlylucid.net/blog/addpagingwithhtmx>
- Python & Django
 - <https://github.com/adamchainz/django-htmx>
 - <https://github.com/spookylukey/django-htmx-patterns>



Slides & Code:
<https://bit.ly/44JqgH4>

12 Days of Htmx-mas



**Questions & answers, hopefully
Fire away!**