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Mission

Develop the social and cultural capital of individuals, primarily serving those from immigrant families, to become leaders in the workforce.

The Parties acknowledge that material is regarded confidential information.

Agenda

1. **Introduction**
   Brief about me
2. **SaaS for Nonprofits**
   Journey to SaaS world
3. **Performance bottlenecks**
   What went wrong? How did we identify issues?
4. **SPEEEEEEEEEEED!**
   How did we iterate our performance improvements
5. **Keeping this up in the future**
   Monitoring, Training, Volunteering, Champion

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HI! It’s nice to be here and meet you all!

Akshay Nair

Software Engineer

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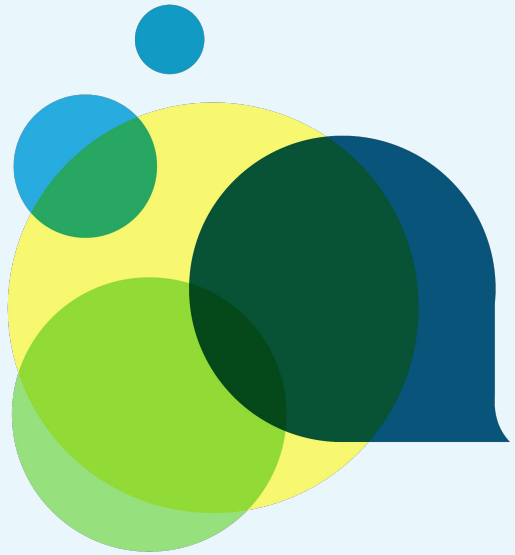


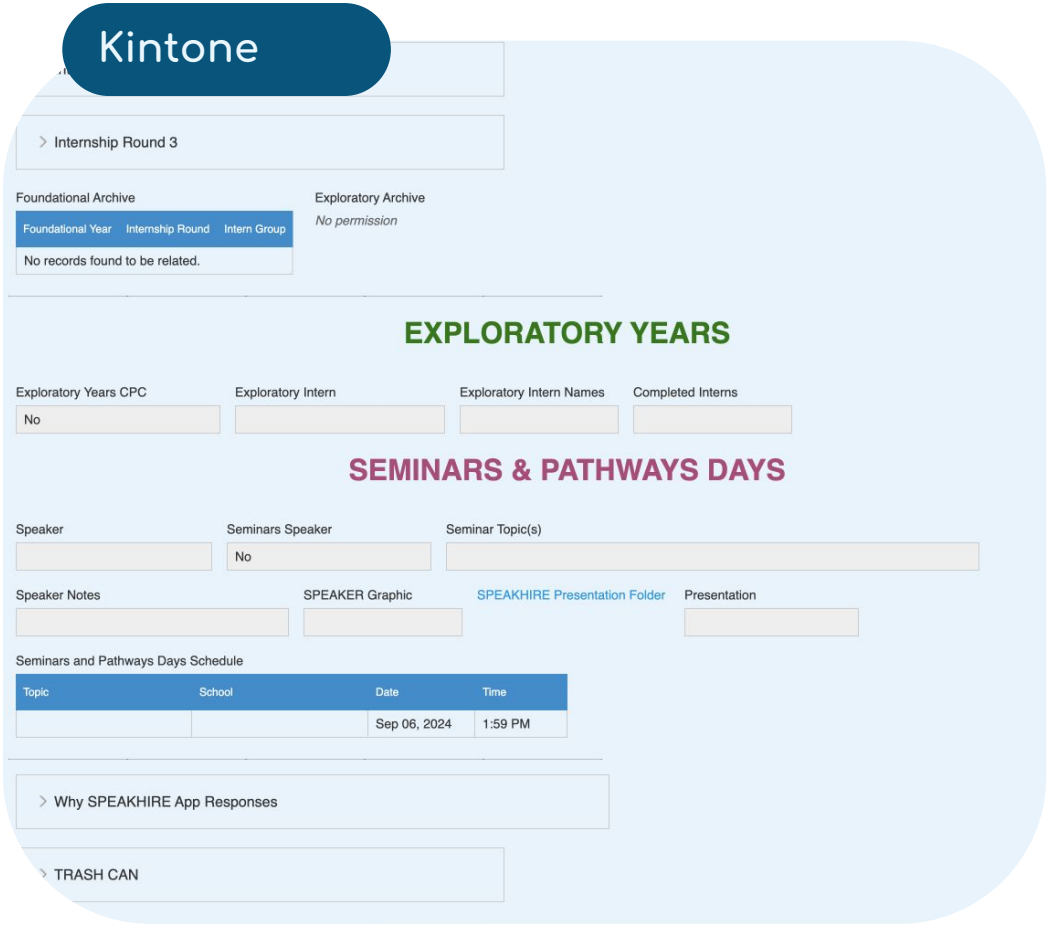
Our Journey

How we build our platform

The Parties acknowledge that material is regarded confidential information.

SaaS For Nonprofits

- Legacy Technology (Smorgasboard of Apps)
  - Public:
    - Squarespace
    - Typeform
    - Google forms
  - Internal:
    - Kintone
    - Google suite for all internal tasks
    - Zapier automations
  - Low potential for scale
    - Manual
    - Repetitive and Error prone
    - Slowwwwww



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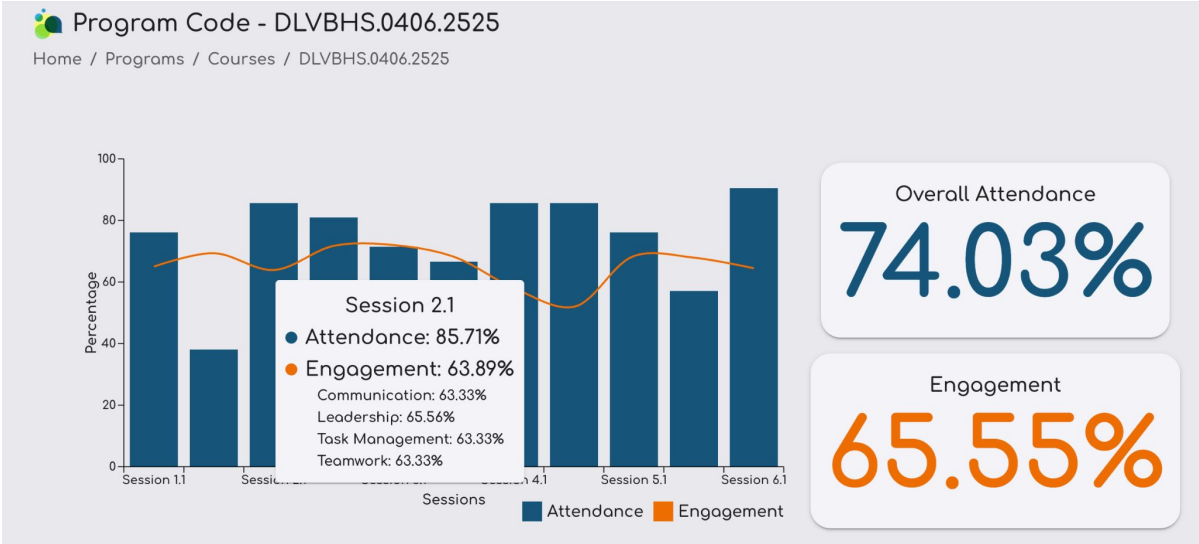
SaaS For Nonprofits

- New Technology (Single solution application)
  - Bespoke SaaS solutions
    - General access platform
    - Involved all parties from get go
    - Collaborative
  - Automation of processes
    - Matching process
    - Reporting and Management
  - High potential for scale
    - If done well, we only need training staff
    - Ability to move outside of the NYC area
    - SPEEEEEEEED!!

Hub



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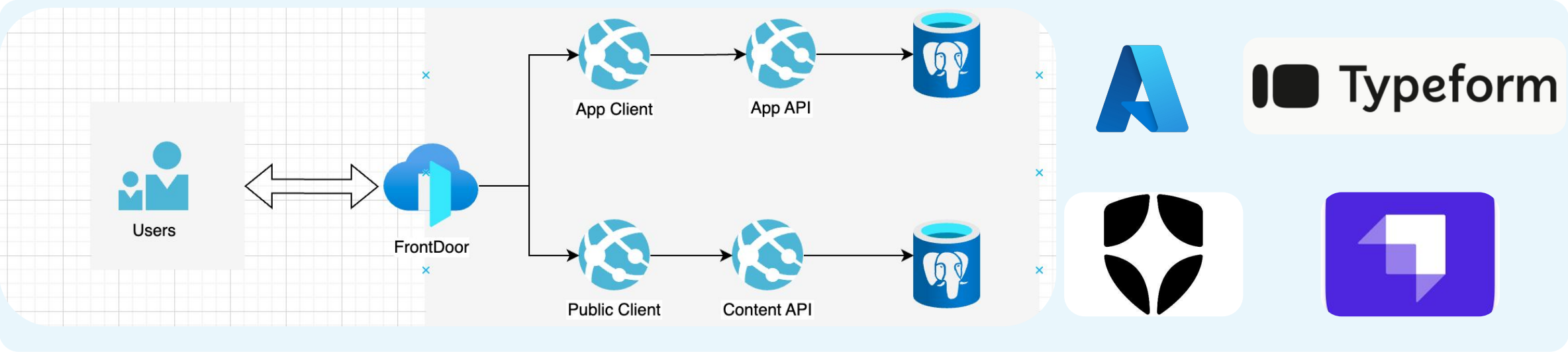
How it started

The objective is to empower users but retain maximum control

- Keeping it simple with an N-tiered architecture, leveraging JS across the whole stack
- Preference for platform solutions, instead of fully self managed infrastructure
- Combine that with self hosting solutions



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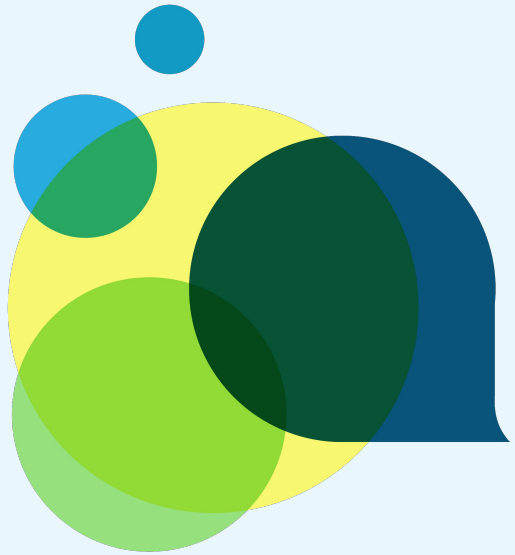

2 Years in...

What went wrong?

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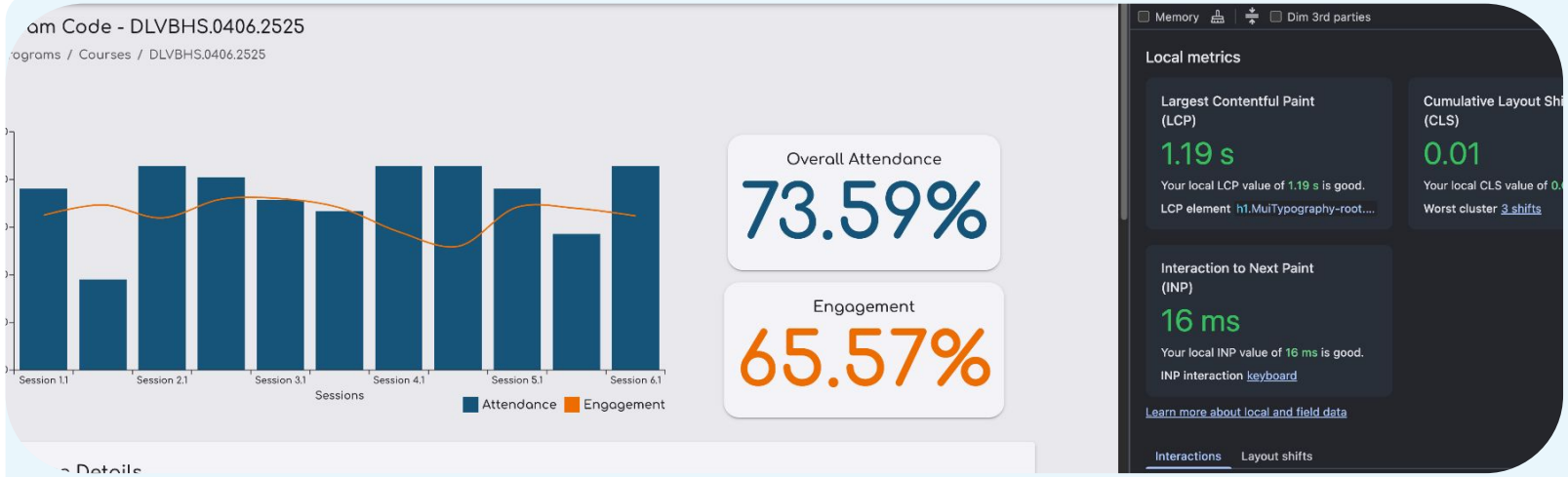
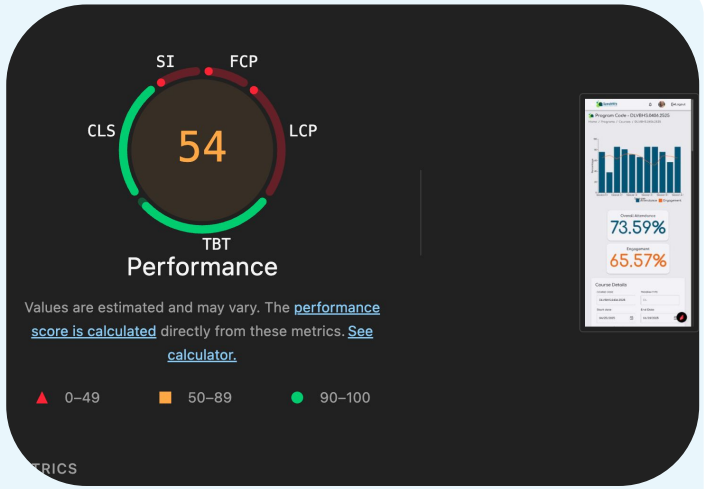
State of affairs at this stage

- Pages were slow to load, builds were super heavy
- Frequent page crashes. Usability issues when students would attempt to login to the platform
- Data loss, server crashes, infinite loops, incomplete features causing more failures
- and the list goes on...





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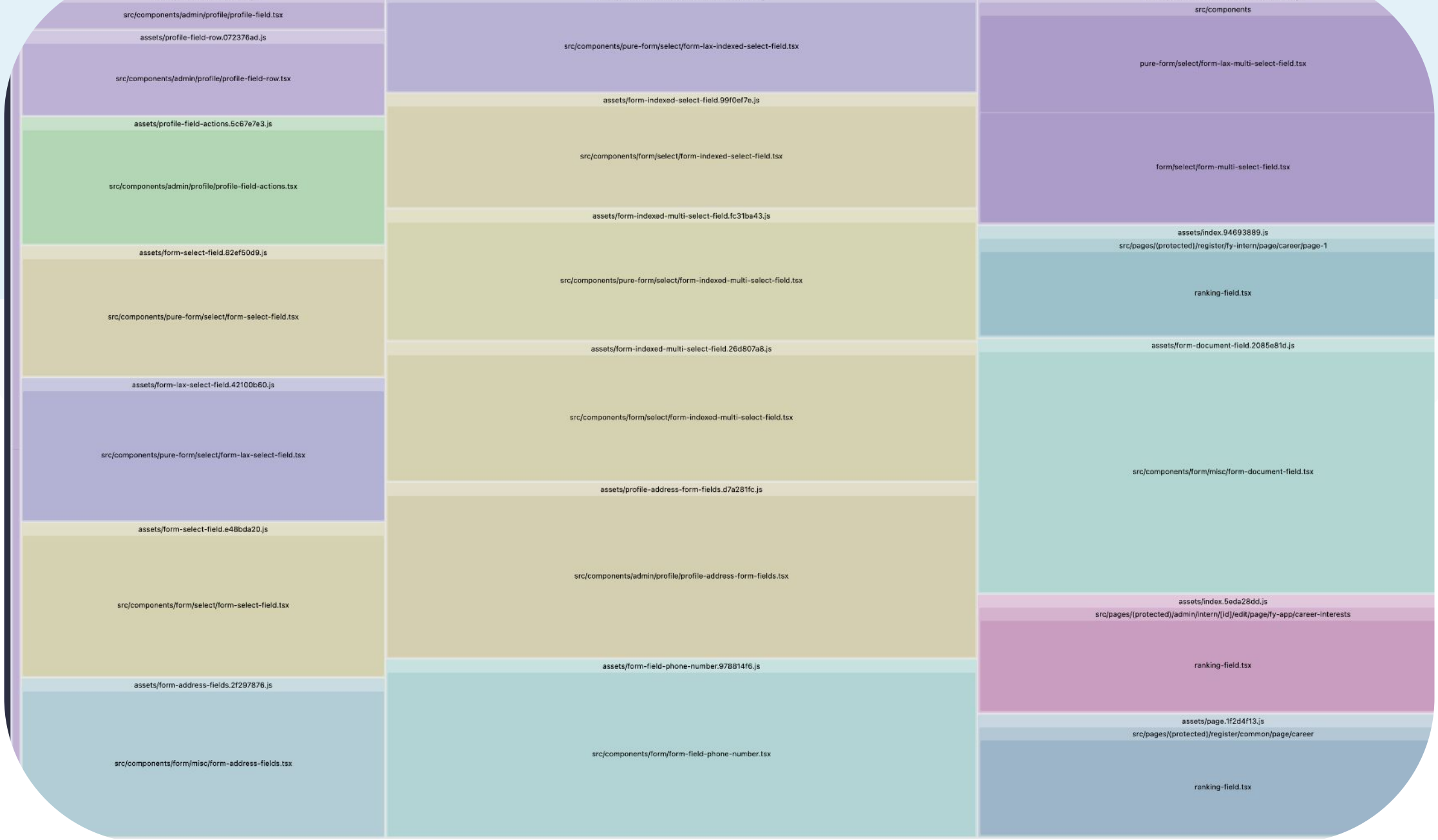
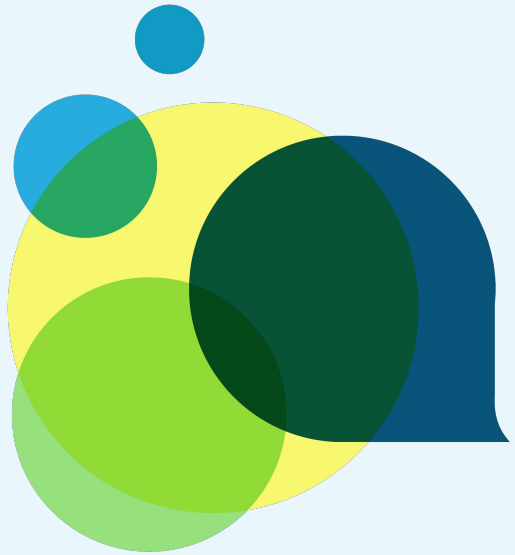

src/components/admin/profile/profile-field.tsx
assets/profile-field-row.072376ad.js
src/components/admin/profile/profile-field-row.tsx
assets/profile-field-actions.5c67e7e3.js
src/components/admin/profile/profile-field-actions.tsx
assets/form-select-field.82ef50d9.js
src/components/pure-form/select/form-select-field.tsx
assets/form-lax-select-field.42100b60.js
src/components/pure-form/select/form-lax-select-field.tsx
assets/form-select-field.e48bda20.js
src/components/form/select/form-select-field.tsx
assets/form-address-fields.2f297876.js
src/components/form/misc/form-address-fields.tsx
src/components/pure-form/select/form-lax-indexed-select-field.tsx
assets/form-indexed-select-field.99f0ef7e.js
src/components/form/select/form-indexed-select-field.tsx
assets/form-indexed-multi-select-field.fc31ba43.js
src/components/pure-form/select/form-indexed-multi-select-field.tsx
assets/form-indexed-multi-select-field.26d807a8.js
src/components/form/select/form-indexed-multi-select-field.tsx
assets/profile-address-form-fields.d7a281fc.js
src/components/admin/profile/profile-address-form-fields.tsx
assets/form-field-phone-number.978814f6.js
src/components/form/form-field-phone-number.tsx
src/components
pure-form/select/form-lax-multi-select-field.tsx
form/select/form-multi-select-field.tsx
assets/index.94693889.js
src/pages/(protected)/register/fy-intern/page/career/page-1
ranking-field.tsx
assets/form-document-field.2085e81d.js
src/components/form/misc/form-document-field.tsx
assets/index.5eda28dd.js
src/pages/(protected)/admin/intern/[id]/edit/page/fy-app/career-interests
ranking-field.tsx
assets/page.1f2d4f13.js
src/pages/(protected)/register/common/page/career
ranking-field.tsx



How did we fix things?

What are we learning?

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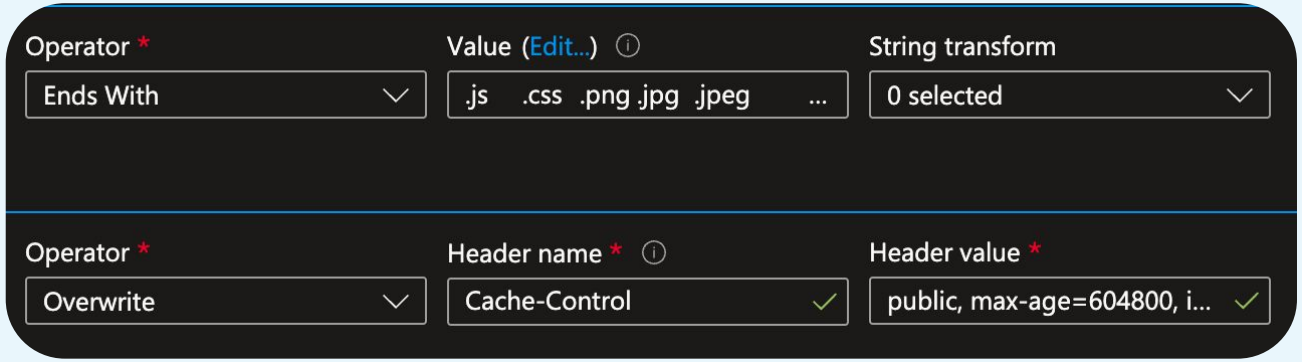
Fonts, Assets

- We started by self-hosting our fonts instead of using a CDN
- We had originally cached the fonts via an NGINX server, but pivoted to Azure front door CDN after we received a grant from Azure

```
@font-face {
  font-family: 'Comfortaa';
  font-style: normal;
  font-display: swap;
  font-weight: 600;
  src: local('Comfortaa'), local('Comfortaa-Regular'), url(${Comfo
  unicodeRange: U+0000-00FF, U+0131, U+0152-0153, U+02BB-02BC, U+0
}
```



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Compression

```
# --- GZIP COMPRESSION ---
gzip on;
gzip_disable "msie6";
gzip_vary on;
gzip_proxied any;
gzip_comp_level 6;
gzip_buffers 16 8k;
gzip_http_version 1.1;
gzip_min_length 256;
gzip_types
  application/javascript
  application/json
  application/vnd.ms-fontobjec
  application/x-font-ttf
  application/xml
  font/opentype
  image/svg+xml
  image/x-icon
  text/css
  text/plain
  text/xml
  text/javascript;
```

We tested out working with NGINX servers to help us with costs instead of a CDN

Our users are still mostly based out of NYC area

```
# --- SECURITY HEADERS ---
add_header
X-Content-Type-Options "nosnif
add_header
X-Frame-Options "DENY" always;
add_header
X-XSS-Protection "1; mode=bloc
add_header
Referrer-Policy "no-referrer"
add_header
Permissions-Policy "camera=(),
add_header
Strict-Transport-Security "max
add_header
Content-Security-Policy "
    default-src 'self';
    script-src 'self' 'unsafe
    style-src 'self' 'unsafe-
    img-src 'self' data: blob
    font-src 'self' https:;
    connect-src 'self' https:
  " always;
```

We still use NGINX for security headers, rate limiting, and other security concerns.

This is in conjunction with Azure WAF protection

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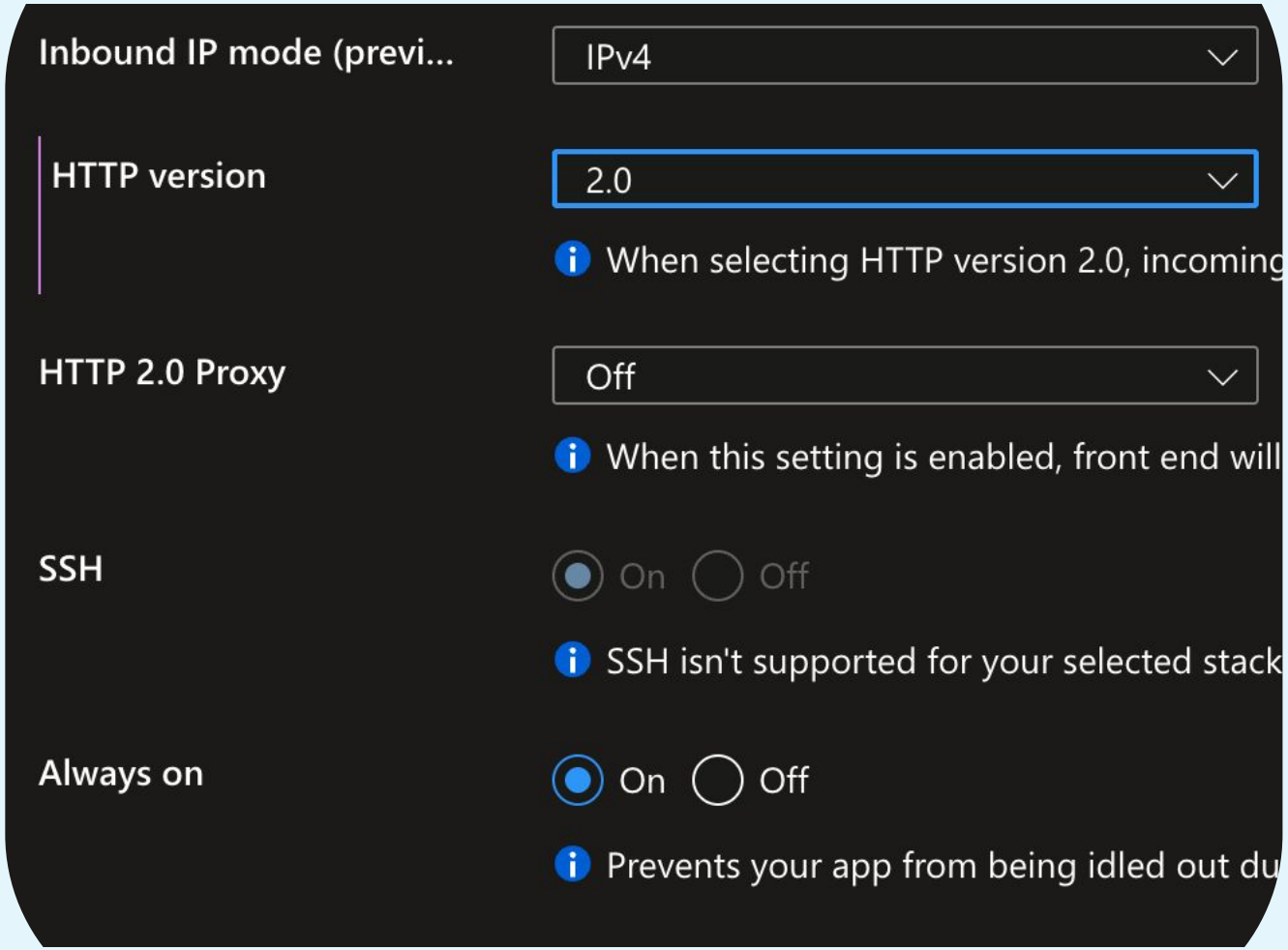
More interesting win

HTTP/2 - Flipped a switch



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Yellow lights for devs

Linter rules

While there is ongoing work to refactor older code, we added in rules for new devs to not use them.

Especially important since the team is mostly composed of contractors and interns

```
'prettier/prettier': 'warn',
'react-refresh/only-export-components': 'warn',
'no-restricted-imports': [
    'warn',
    {
        patterns: [
            {
                group: ['@mui/icons-material'],
                message:
                    '⚠️ Do not import the full @mui/icons-material package. Import individual icons inst
            },
            {
                group: ['@mui/icons-material/*'],
                message: '✅ Import only the icons you use. Avoid wildcard or full-package imports.',
            },
            {
                group: ['@components/pure-form/*'],
                message:
                    '⚠️ Avoid using imports from @components/pure-form/. Use similarly named module at @
            },
            {
                group: ['@constants/yup-schemas'],
                message:
                    '⚠️ Avoid using imports from this file. Use similarly named module at @constants/pur
            },
            {
                group: ['@dashboard/program-invites'],
                message: '⚠️ Deprecated file',
            },
        ],
    },
```


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Ongoing efforts

- Ensuring images have a fixed height and width to prevent layout shifts
- Adding in Suspense in appropriate places
- Optimizing RTK queries to correctly cache API responses
- Adding in form control, and error handling
- Removed components which didn't have an active use in production
- Modified pages for re-use

Images Title

```
<Box flex='1' alignItems='center' gap='20'>
    <img src={altLogo} alt='SPEAKHIRE' height='50px' width='130px' />
</Box>
```

```
<Suspense fallback={<OverflowingAppPageL
    <Outlet />
    <VoiceflowChat />
</Suspense>
```

```
getOneCourse: build.query<ProgramDetails, IdPayload>({
    Windsurf: Refactor | Explain | Docstring | ×
    query: (id : IdPayload ) : string  => `/programs/le/${id}`,
    Windsurf: Refactor | Explain | Docstring | ×
    providesTags: (data : ProgramDetails | undefined , error : FetchB
        if (error) return []
        return [{ type: LEADERSHIP_APP_TAG, id: `${id}` }]
    },
}),

updateCourse: build.mutation<UpdateProgramDetails, Partial<
    Windsurf: Refactor | Explain | Docstring | ×
    query: ({ id, ...body } : Partial<UpdateProgramDetails... ) : { url:
        url: `/programs/le/${id}`,
        method: 'PUT',
        body: { ...body },
    }),
    Windsurf: Refactor | Explain | Docstring | ×
    invalidatesTags: (result : UpdateProgramDetails | unde.... , erro
        if (error) return []
        return [{ type: LEADERSHIP_APP_TAG, id }]
```


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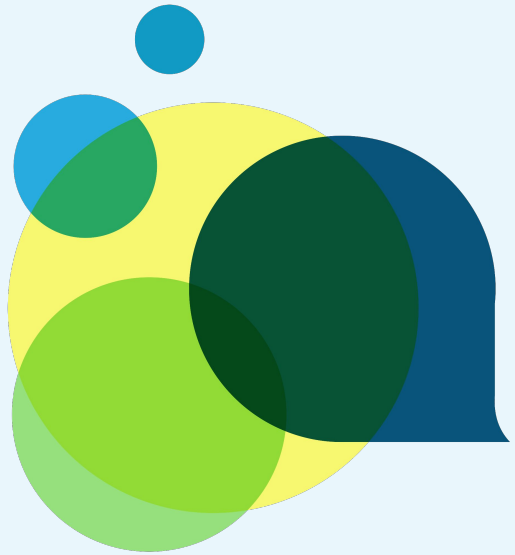

Our Future

How we applied those learnings

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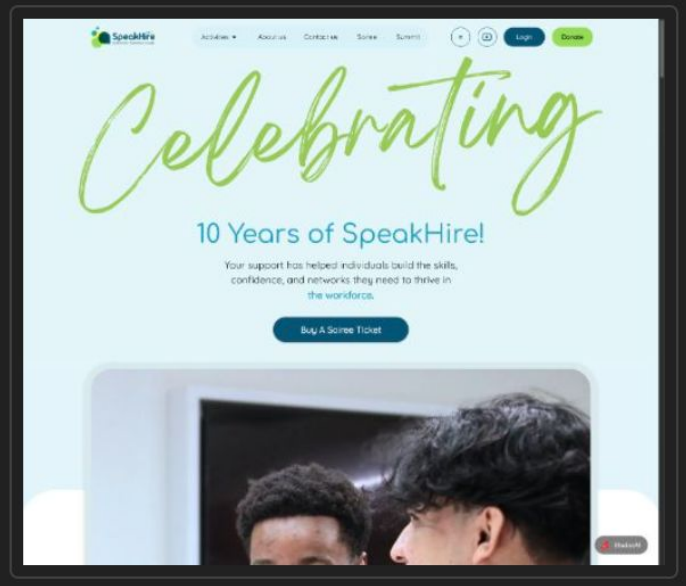
Our Public Website - Old Wins, New Challenges

https://www.speakhire.org/en

Performance

Values are estimated and may vary. The performance score is calculated directly from these metrics. See calculator.



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10th Year Celebration on the 26th June, 2025

Tickets

Soiree page

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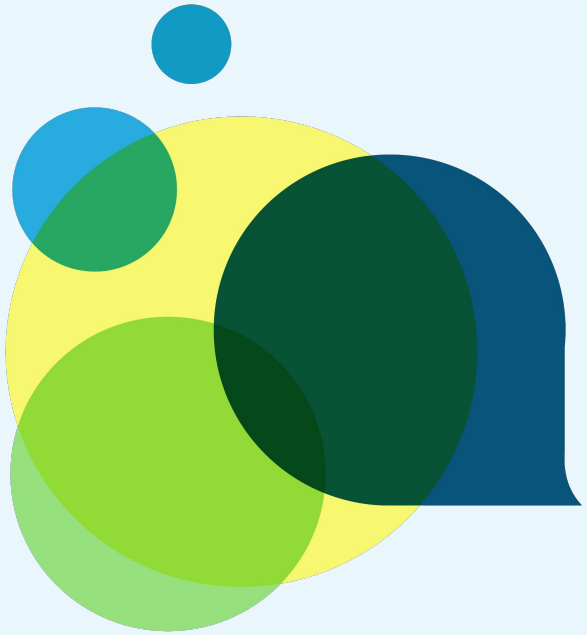

Q & A

The Parties acknowledge that material is regarded confidential information.

Thank you!

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