KataDSA

Project Organizer

Sm Kou

Main Features

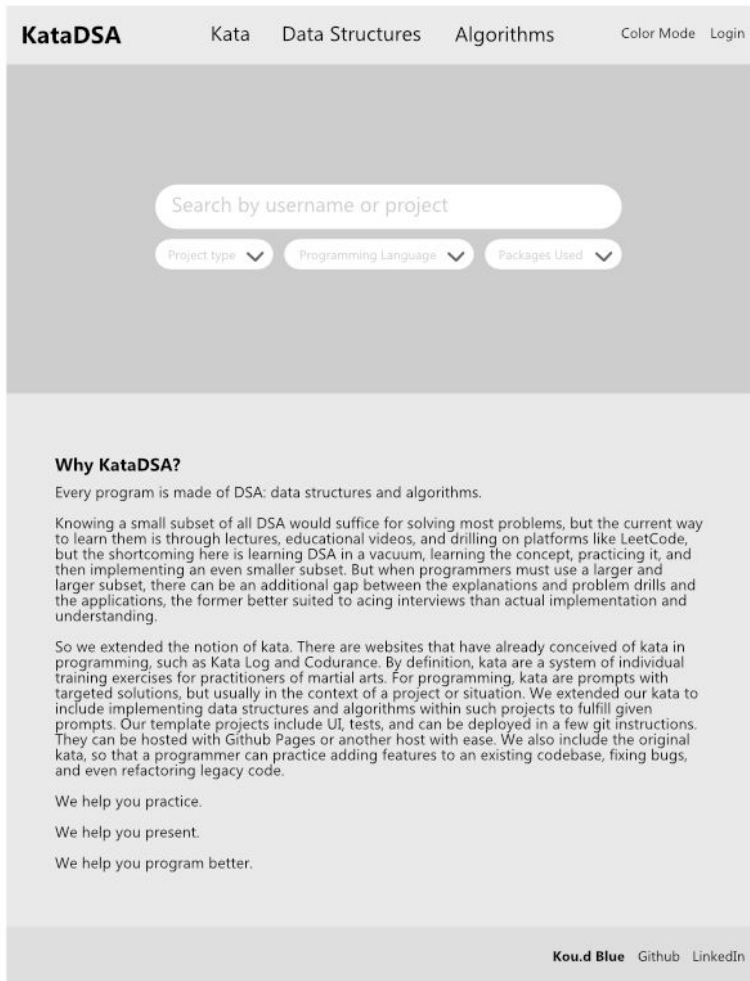**Search projects and programmers**
- username
- project name
- project type
- programming language
- package used

Prompts
- kata
- data structures
- algorithms

Organization: Kou.d Blue

KataDSA   Kata   Data Structures   Algorithms   Color Mode   Login

Search by username or project

Project type ⌄   Programming Language : ⌄   Packages Used ⌄

Why KataDSA?

Every program is made of DSA: data structures and algorithms.

Knowing a small subset of all DSA would suffice for solving most problems, but the current way to learn them is through lectures, educational videos, and drilling on platforms like LeetCode, but the shortcoming here is learning DSA in a vacuum, learning the concept, practicing it, and then implementing an even smaller subset. But when programmers must use a larger and larger subset, there can be an additional gap between the explanations and problem drills and the applications, the former better suited to acing interviews than actual implementation and understanding.

So we extended the notion of kata. There are websites that have already conceived of kata in programming, such as Kata Log and Codurance. By definition, kata are a system of individual training exercises for practitioners of martial arts. For programming, kata are prompts with targeted solutions, but usually in the context of a project or situation. We extended our kata to include implementing data structures and algorithms within such projects to fulfill given prompts. Our template projects include UI, tests, and can be deployed in a few git instructions. They can be hosted with Github Pages or another host with ease. We also include the original kata, so that a programmer can practice adding features to an existing codebase, fixing bugs, and even refactoring legacy code.

We help you practice.

We help you present.

We help you program better.

Kou.d Blue   Github   LinkedIn

In-scope
- except login

Not-in-scope
(dummy element)

In-scope

Feature
Projects

Two views:
- List view
- Details

List view
- Uses short description
- action
  - no auth: Search by project
  - auth: Add project | Go to project

Details view
- Uses long description
- action
  - no auth: Search | Go to profile
  - auth: Add project | Edit project

Feature
Template Projects

From project:
- Add to user projects
- Go to Github
- Fork or use as template

Organization: Kou.d Blue

Includes:
- UI in React
- Tests in Jest/Each
- Designated folder for user code
- Instructions to deploy

Future implementations:
Available in different languages and frameworks

Feature
Programmer Profile
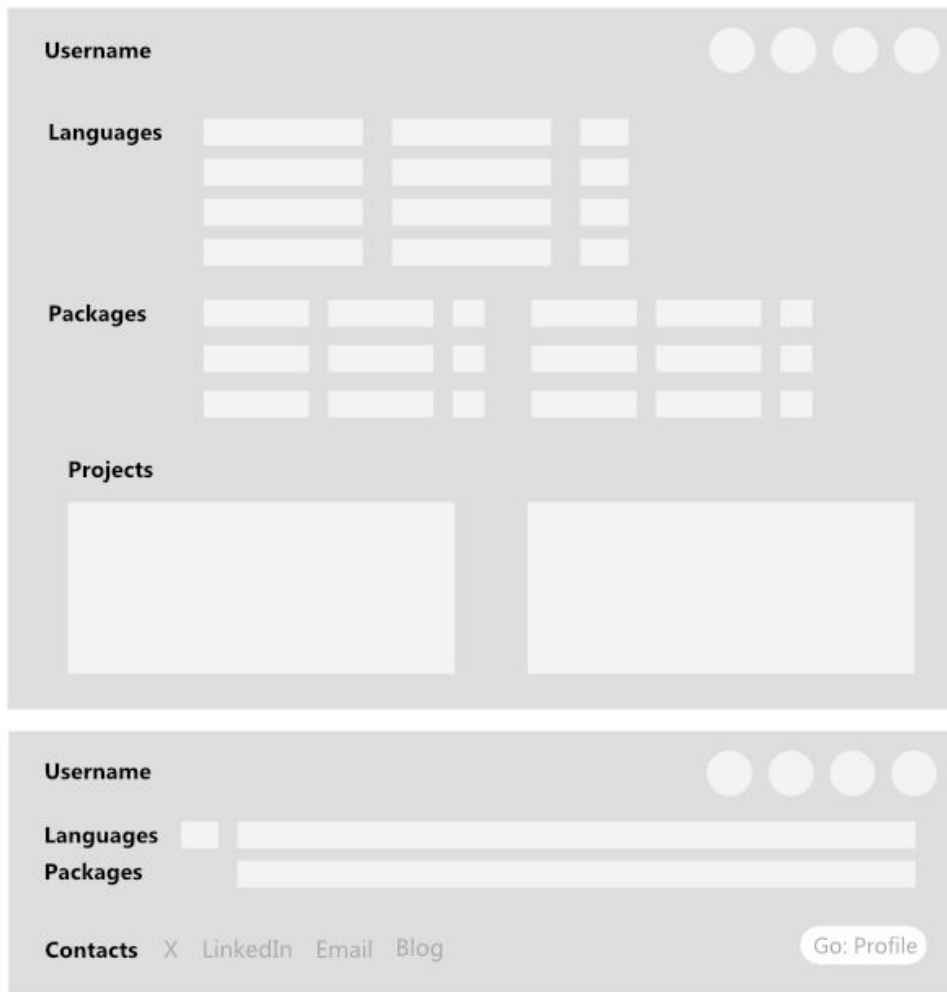
Two views:
- List view
- Details

List view:
- Summary:
  - no. projects
  - languages and packages
Type: Professional, Open source, Academic, Hobby

Details
- Languages and packages
  - name, level, no. projects
- Grid: projects view

Feature
Add a Project

KataDSA project:
- Pre-populate details

User project
- Remove user title and comments

Project types
- Product: Kata | Ds | Algorithm | App
- Institution:
  - Professional
  - Open source
  - Academic
  - Hobby (default)

Add Project

Project Title	
Your Title	
Description	

Long description...   Any comments?

Select a project type ⌄   Select a project type ⌄

Institution	
Website	
Project Url	

Submit

Academic

Select a degree type ⌄

Professional or Open Source

Position

☐ Current position   ☐ Volunteer position

Values in
Design

Url

Add and update projects

Github OAuth and Api

Username

Project name
- Languages in project
- Commits
- Size of codebase
- Contributors
- Scrape Readme.md

Github repo
Github Pages

System of proof:

- LinkedIn
- Facebook and Google
- Udemy, Coursera, etc.

How to verify someone attended a certain school?

How to verify someone participated in a project?

How to verify someone has a given set of skills?

How to verify a person's experience without testing them?

Authenticity: Quality of being authentic

BS!
Cannot be measured or objectively determined

- True to one's own personality, values and spirit
- Honest with self and takes responsibility for mistakes
Source: Mind Tools

Validity: Quality of being logically or factually sound
- Considered acceptable according to some standard or criteria

Values in
Design

Url
as Proof of Validity
- client side
- server side

Github
as Proof of Validity
- user
- repository

Validity:

Reduce options and extent of user-provided information

Use security measures to measure validity

Regex Url	Ping	Checkers
Input requires valid url	Urls are pinged	Google Safe Browsing List Lookup API
Url is checked with regex before being sent to server		IPQualitySource API
Error: Invalid url	**Error:** Broken or inactive url	**Error:** Insecure url

Authenticate	Populate	Scan and Update
Login into Github	Select Auto-Populate (all projects)	Check changes in project - versions / releases - last commit - contributor list
Authorize access for KataDSA	Add or edit project (update by url)	
Purpose: Access project details	**Purpose:** Use (more) objective details	**Purpose:** Verify implicit claims

Follow the
Progress of KataDSA

Main repo (private)

Public repo: KataDSA @smkou

- capstone proposal

- prototype

Organization: Kou.d Blue

- template projects

Deployed at: katadsa.dev

```
{
    "users": {
        "eb6f7da5-6e62-44f6
            "username": "sm
            "githubUsername
            "contacts": "bb
            "settings": "0b
        },
        "d77d2ba7-8aa1-4a20
            "username": "ag
            "githubUsername
            "contacts": "",
            "settings": "13
        }
    },
    "contacts": {
        "bb84b158-a57f-420c
            "twitter": "kou
            "linkedin": "ko
            "email": "koudb
            "blog": "smkou.
        }
    },
    "settings": {
        "0b5fe8f6-25c0-4569
            "privateAccount
            "featuredProjec
        },
        "13b3a9d0-7565-4c56
            "privateAccountEnabled": false,
            "featuredProjectsEnabled": false
        }
    },
```

```tsx
function getModeBtn(theme: string | undefined, setTheme: (theme: string) => void): JSX.Element {
    if (theme === 'light')
        return <Button onClick={() => setTheme('dark')}>Dark Mode</Button> as JSX.Element
    else
        return <Button onClick={() => setTheme('light')}>Light Mode</Button> as JSX.Element
}

export default function Header() {
    const [mounted, setMounted] = useState(false)
    const [isMenuOpen, setIsMenuOpen] = useState(false)
    const { theme, setTheme } = useTheme()

    useEffect(() => setMounted(true), [])
    if (!mounted) return null

    return <Navbar onMenuOpenChange={setIsMenuOpen}>
        <NavbarContent>
            <NavbarMenuToggle aria-label={isMenuOpen ? 'Close menu' : 'Open menu'} className="sm:hidden" />
            <NavbarBrand>
                <h1 className="font-bold text-inherit">KataDSA</h1>
            </NavbarBrand>
        </NavbarContent>
        <NavbarContent className="hidden sm:flex gap-4" justify="end">
            <NavbarItem>
                <Link color="foreground" href="/kata">Kata</Link>
            </NavbarItem>
            <NavbarItem>
                <Link color="foreground" href="/data-structure">Data Structures</Link>
            </NavbarItem>
            <NavbarItem>
                <Link color="foreground" href="/algorithm">Algorithms</Link>
            </NavbarItem>
            <NavbarItem className="hidden lg:flex">
                <ButtonGroup>
                    {getModeBtn(theme, setTheme)}
                    <Button href="/login" as={Link}>Login</Button>
                </ButtonGroup>
            </NavbarItem>
        </NavbarContent>
        <NavbarMenu>
            <NavbarMenuItem>
                <Link color="foreground" className="w-full" href="/kata" size="lg">Kata</Link>
            </NavbarMenuItem>
        </NavbarMenu>
```

Conclusion

Challenges:

- Bad timing
  Started treatment for eyes same week capstone started

- Time
  Difficult juggling treatment / eye condition with career services and research

- Nextui and TailwindCSS

Plans:

- Ongoing project
  Setup katadsa app with supabase and api integrations
  Redeploy to Vercel

- Develop template projects
  Learn data structures and algorithms by adding templates to KataDSA inventory