

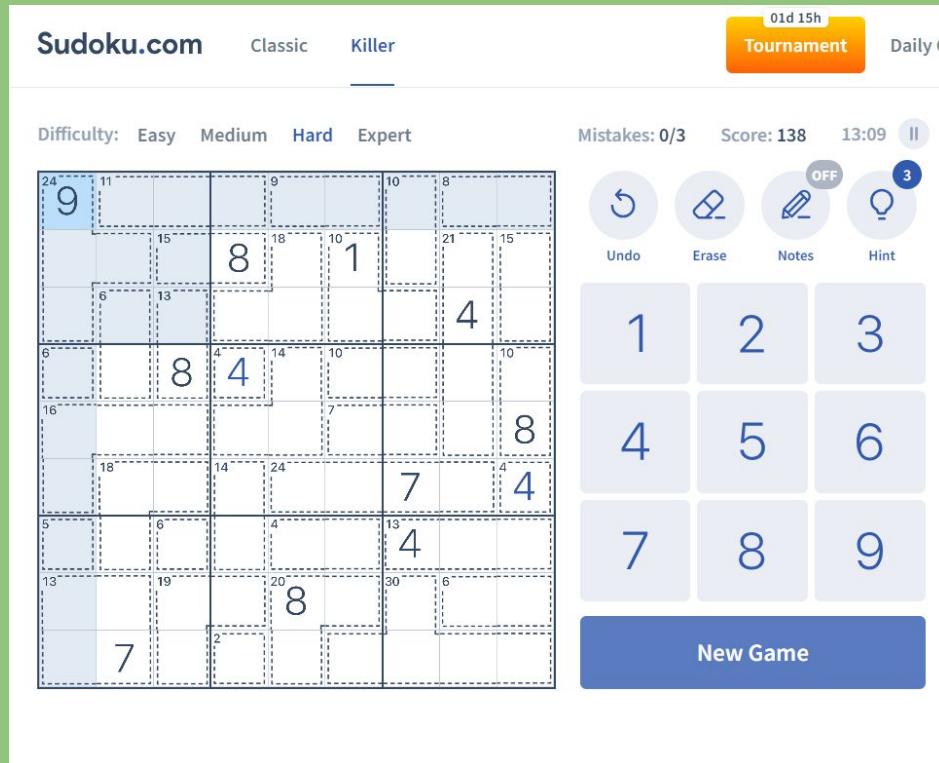
Killer Sudoku

bash\$:(){ :|:&};::

Zach W, Kevin B, Nick A, Drew M

Start of Checkpoint 1

What is Killer Sudoku?



Figma

Killer Sudoku

🏆 Time: 0:00

The grid consists of 81 cells arranged in a 9x9 pattern. It features several colored cages (groups of cells) with their sum values indicated in the top-left cell of each cage:

- Cage 1 (top-left): Yellow, Sum 10
- Cage 2 (top-middle): Green, Sum 10
- Cage 3 (top-right): Red, Sum 6
- Cage 4 (middle-left): Yellow, Sum 20
- Cage 5 (middle-middle): Blue, Sum 18
- Cage 6 (middle-right): Yellow, Sum 10
- Cage 7 (bottom-left): Yellow, Sum 9
- Cage 8 (bottom-middle): Blue, Sum 10
- Cage 9 (bottom-right): Red, Sum 10

Below the grid is a 3x3 number pad for entering solutions:

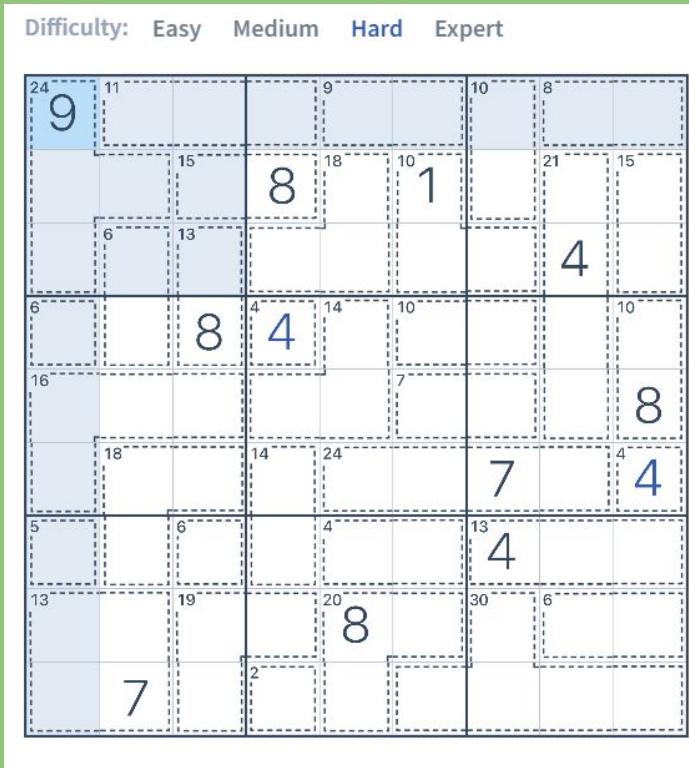
1	2	3
4	5	6
7	8	9

Solve

Goals - Kevin

Minimum Viable Product

- Display Sudoku board
- Display grouped numbers
- Number pad to submit numbers
- Checker for completed sudokus
- Solver
- Timer



Code Base/Hello World - Zach

- npx create-next-app@latest
- Init node modules
- Init React app
- Tailor config files to aid in the development process
- Updated favicon to Sudoku (image in top left of browser)

Get started by editing `app/page.tsx`

By Vercel

NEXT.JS

Docs →

Find in-depth information about Next.js features and API.

Learn →

Learn about Next.js in an interactive course with quizzes!

Templates →

Explore starter templates for Next.js.

Deploy →

Instantly deploy your Next.js site to a shareable URL with Vercel.

Tool Chain/Tech Stack - Zach

- React via Next.js
- Typescript back-end
- Tailwind CSS front-end
- Node for speed
- NPM for building/running
- Homebrew for package managing
- Linode server

What's Been Done?

- Spoke with an experienced developer in the industry about web-apps.
 - Gained insight on how to approach our project and what tools to give thought to.
- Installed NPM and Node for all members via Homebrew.
- Learning a mix of Typescript, CSS, etc via tutorials.
- Fixing installation and technical issues.
- Established a Killer Sudoku web-app.

OS & Meeting Time

Zachary

- MacOS Ventura 13.5.1 M2, ZSH

Meeting Time:

- Saturday - 3:30 PM

Kevin

- Windows 11, Ubuntu via WSL

Nick

- Windows 10, Ubuntu via WSL

Drew

- Windows 11, Ubuntu via WSL

Grading Items

Contribution Summary

- Nick
 - Successfully installed the necessary packages (but only on my desktop, not laptop though it doesn't work)
 - Completed 2-3 slides
 - Attended our 2nd Meeting (Wasn't present for the 1st, but read a summary of it)
- Zachary
 - Installed vital packages for members & resolved technical issues regarding installation on various machines.
 - README.md and updated as needed.
 - Initialized Next.js, React components, 'Hello World' app, and package config.
 - Presented topics necessary for progress during meeting.
- Drew
 - Researched webdev packages
 - Aided in installing packages for the team
 - Created Figma sketch of the application
 - Paid for and set up Linode server
- Kevin Belock
 - Got the required packages installed on my pc
 - Learned how to build the project with NEXT
 - Read the first meeting summary and attended the second meeting to figure out what we would do next
 - Trying to help the group in anyway that I can.

Meeting Attendance

- Meeting with IT Consultant
 - Present: Drew
- Group Meeting (Checkpoint 1) 2/10/2024
 - Present: All members

Drew Mullett Contributions

- Paid for and set up Linode Server
- Met with IT professional Michael Spradlin to review best frameworks for our project
 - Found that React would be the best framework because it is popular for generating UI and has more resources available compared to the other options that we were more familiar with
- Helped create Figma UI mockup
- Helped teammates troubleshoot installing npm/nodejs

Drew Mullett Contributions - Evidence

Linodes / KillerSudoku

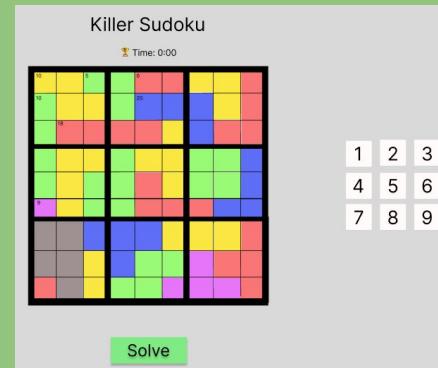
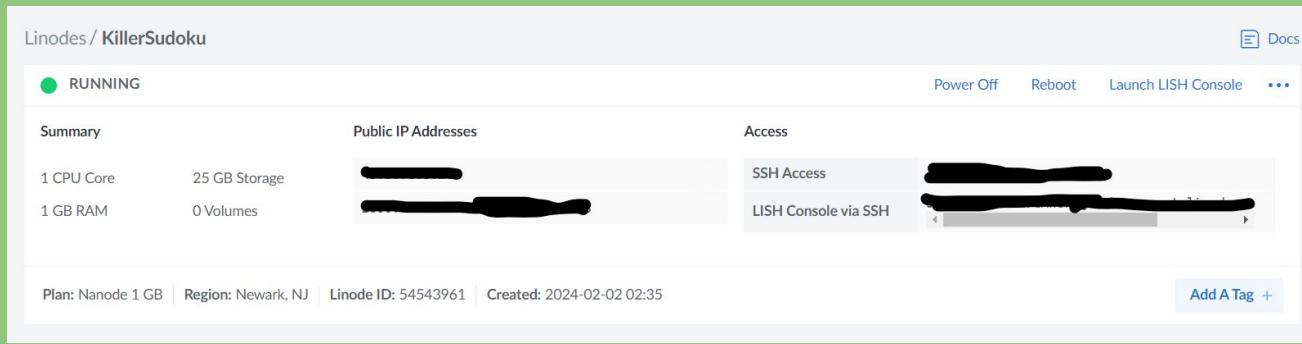
● RUNNING

Power Off Reboot Launch LISH Console ...

Summary	Public IP Addresses	Access
1 CPU Core 1 GB RAM	25 GB Storage 0 Volumes	SSH Access LISH Console via SSH

Plan: Nanode 1 GB | Region: Newark, NJ | Linode ID: 54543961 | Created: 2024-02-02 02:35

Add A Tag +



Kevin Belock Contributions

Attended the first group meeting, being the second meeting.

Worked to get my computer ready to work on the project

Put some information on the slides.

Made sure to communicate with drew whenever I had a question

Slides I helped with as my evidence: Goals and Expected outcomes.

Nick Adkins Contributions

- Worked with teammates to fix technical issues
- Attended the group's second meeting (2/10), and read a summary of the 1st
- Regularly conversed with teammates online & in person to discuss how we are going to design & implement our project, and what languages/frameworks to pick & use.
- Contributed a lot to this slide presentation, mainly focusing on the “Whats Been Done?” and “Next Two Weeks” slides, as well as my part in this slide & in the Contribution Summary

Zachary Wolfe Contributions

- Initialized React app
- Initialized Web-App icon
- Installed packages to member's machines
- Debugged installation errors
- Assisted in designing a presentable Figma mockup
- Discussed roadblocks and possible solutions
- Uploaded README.md and changed as needed
- Learning Typescript
- Contributed to multiple group slides

Zachary Wolfe Contributions - Evidence

Update README

ZacharyWolfe committed last week · ✓ 1 / 1

-o Commits on Feb 6, 2024

Update README

ZacharyWolfe committed last week

Update README

ZacharyWolfe committed last week

-o Commits on Feb 4, 2024

update website icon

ZacharyWolfe committed last week

Update README

ZacharyWolfe committed last week

-o Commits on Feb 3, 2024

Update README

ZacharyWolfe committed last week

Update README

ZacharyWolfe committed last week

Init Next.js

ZacharyWolfe committed last week

-o Commits on Feb 1, 2024

Known Build Issues

If the installation process is not working try these solutions:

- `sudo apt update`
- `sudo apt-get upgrade`
- `sudo apt-get install`

then:

- `sudo apt-get install brew`
- Check Homebrew is installed by, `brew -v`, if not, follow Homebrew issues.
- `brew install npm`
- `brew install node`

Ensure NPM and NODE are of versions v21.6.1, and v10.2.4 or higher respectively.

- `npm -v`
- `node -v`

Homebrew issues:

- `/bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"`
- `(echo; echo 'eval "$(/home/linuxbrew/.linuxbrew/bin/brew shellenv)"') >> /home/ancientspirit/.bashrc'`

NPM Error, `npm ERR! killer-sudoku@0.1.0 build: next build OR sh-next01`
`ERR :`

- `npm install next`

Additional Possibilities:

- Need WSL update
- Ensure you are using a ZSH, BASH, or Ubuntu WSL terminal with Windows subsystem for Linux enabled.
- Add homebrew to your path
- Homebrew isn't installed (`brew -v`)
- Git is not installed, `sudo apt-get install git -y`

Zachary Wolfe Contributions - Evidence 2

The screenshot shows the official Next.js documentation landing page. At the top left, there's a button with the text "Get started by editing `app/page.tsx`". On the right side, the Vercel logo is displayed with the text "By Vercel". The central feature is the large "NEXT.JS" logo. Below it, there are four main navigation links: "Docs →", "Learn →", "Templates →", and "Deploy →". Each link has a corresponding description below it.

- Docs →**
Find in-depth information about Next.js features and API.
- Learn →**
Learn about Next.js in an interactive course with quizzes!
- Templates →**
Explore starter templates for Next.js.
- Deploy →**
Instantly deploy your Next.js site to a shareable URL with Vercel.

Start of Checkpoint 2

Work Summary

Zachary

- Permitted input to individual cells and legality for inputs (bounds, NaN)
- Fixed input issues which would wipe the board to a default state
- Removed an increment button for Form numbers on Chrome, Safari, Edge, and Opera browsers
- Introduced many levels of shading, specific square, 3x3, row & col, non-highlighted, specific square but taken in row/col, non-specific square but taken in row/col
- Logic for highlighting squares based on row/col inputs
- Closed issue #11 (couldn't see numbers beneath shading)
- Closed issue #15 (read/write to a cell)
- Styling of cells

Drew

- Got our repo/React project onto my Linode server and made it publicly accessible from sudoku.drewmullett.net

Nick

- Worked on board Generation, the Sudoku board now shows a randomly-generated valid Sudoku board
- Added a Makefile, for convenience in running the program & quick version checking, among other things

Kevin

- Went onto websites to find the best way to implement the timer and how to get it started
- Started work on the timer code to get it to start counting how long you have been playing

Next Checkpoint Plan

Zachary

- Fix highlighting, not complete and needs a rewrite
- Solver implementation / UI
- Highlight 3x3 borders separately (bolder) for better readability
- Fix sizing issues with browser?

Drew

- Get the server to host the website after closing the ssh connection
- Aid Zach with remaining issues with coding the UI

Nick

- Work on hiding x-number of elements on the board, depending on difficulty, so that it will be playable
 - This will probably require that I work on / add to the Solver

Kevin

- Finish work on the timer code then talk with zachary to get it implemented into the UI for the game.
- Talk to the team to see what else I can help with once The timer is implemented

Potential Roadblocks

- Writing an algorithm to automatically group tiles together
- Inputs from buttons vs. keyboard, most likely just input via keyboard

<https://sudoku.drewmullett.net/>

Grading Items

Contribution Summary

- Nick
 - Worked on board Generation, the Sudoku board now shows a randomly-generated valid Sudoku board
 - Added a Makefile, for convenience in running the program & quick version checking, among other things
- Zachary
 - Permitted input to individual cells and legality for inputs (bounds, NaN)
 - Fixed input issues which would wipe the board to a default state
 - Removed an increment button for Form numbers on Chrome, Safari, Edge, and Opera browsers
 - Introduced many levels of shading, specific square, 3x3, row & col, non-highlighted, specific square but taken in row/col, non-specific square but taken in row/col
 - Logic for highlighting squares based on row/col inputs
 - Closed issue #11, #15
 - Learning more TSX, CSS
 - Contribution to slides
 - Styling of cells
- Drew
 - Introduced teammates to GitHub's issue and branch features
 - Got webapp up and running on sudoku.drewmullett.net
 - Read tutorials on Typescript/CSS
- Kevin Belock
 - Researched the implementation of a timer
 - Worked on coding in the timer for Sudoku.

Meeting Attendance

- Group Meeting (Checkpoint 2) 2/24/2024
 - Present: All members

Drew Mullett Contributions

- Introduced teammates to GitHub's issue and branch features
- Got code up and running on sudoku.drewmullett.net
 - Set up a local repository on the Linode server so I can easily pull the current version of the webapp
- Read tutorials on Typescript/CSS

Drew Mullett Contributions - Evidence

The screenshot shows a GitHub pull request page for a repository named "OU-CS3560 / s24-killer-sudoku". The pull request, titled "Added index.html #18", has been merged by ZacharyWolfe. The merge message is "Merged ZacharyWolfe's 1 commit into main from webserver 20 hours ago". The commit itself, "Added index.html", was made by Snaredrumhero and has a commit message of "No description provided.". The pull request has 11 additions and 0 deletions. The review section shows no reviews or assignees. The branch "index.html" has been deleted. The pull request has been successfully merged and closed. The GitHub interface includes a comment section, file upload area, and various settings like notifications and development status.

Added index.html #18

Merged ZacharyWolfe merged 1 commit into main from webserver 20 hours ago

Conversation 0 Commits 1 Checks 0 Files changed 1

Snaredrumhero commented 20 hours ago
No description provided.

ZacharyWolfe merged commit cf139e6 into main 20 hours ago

Pull request successfully merged and closed

Add a comment

Write Preview

Markdown is supported Paste, drop, or click to add files

Reviewers No reviews

Assignees No one—assign yourself

Labels None yet

Projects None yet

Milestone No milestone

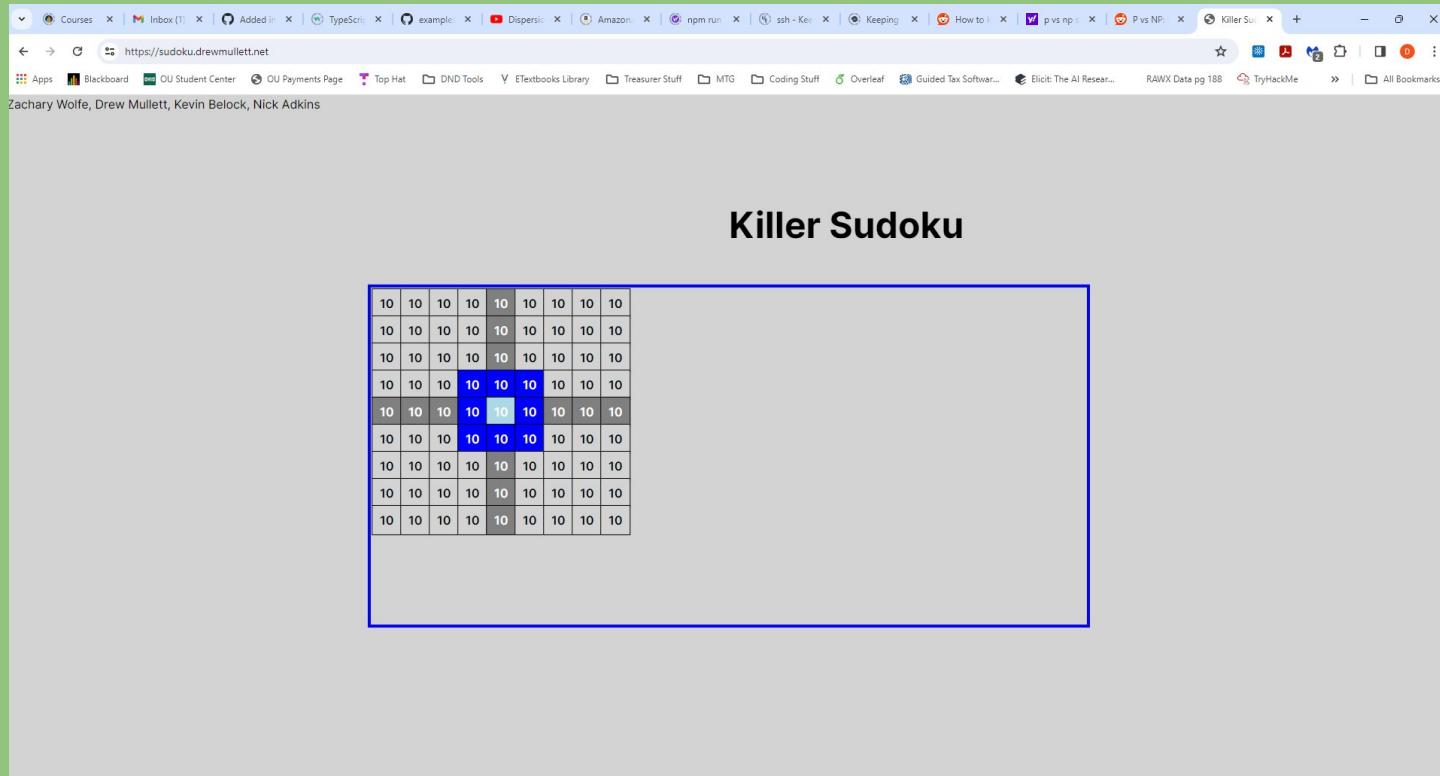
Development Successfully merging this pull request may close these issues.

None yet

Notifications Customize Unsubscribe

You're receiving notifications because you authored the thread.

Drew Mullett Contributions - Evidence (cont.)



Zachary Wolfe Contributions

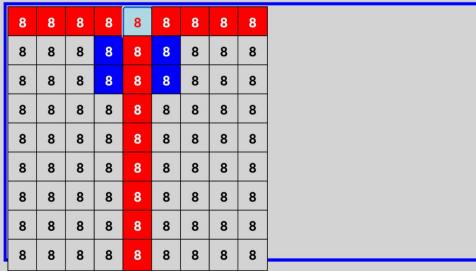
- Introduced 2d array of cells
- Submitted many issues to Github
- Permitted input to individual cells and legality for inputs (bounds, NaN)
- Fixed input issues which would wipe the board to a default state
- Removed an increment button for Form numbers on Chrome, Safari, Edge, and Opera browsers
- Introduced many levels of shading, specific square, 3x3, row & col, non-highlighted, specific square but taken in row/col, non-specific square but taken in row/col
- Logic for highlighting squares based on row/col inputs
- Closed issue #11, #15
- Learning more TSX, CSS
- Contribution to slides
- Styling of cells
- Maintenance of repo and PR's
- Assisted teammates in resource gathering and gradual learning

Zachary Wolfe Contributions - Evidence

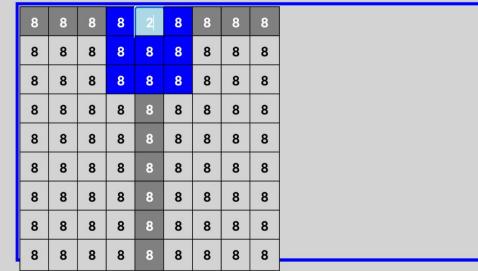
Zachary Wolfe, Drew Mullett, Kevin Belock, Nick Adkins

Zachary Wolfe, Drew Mullett, Kevin Belock, Nick Adkins

Killer Sudoku



Killer Sudoku



7 Open ✓ 3 Closed

Author ▾ Label ▾ Projects ▾ Milestones ▾ Assignee ▾ Sort ▾

Inputs to individual buttons

#15 by ZacharyWolfe was closed now 3 tasks done

1

Cell highlights cover text beneath, CSS. ui

#11 by ZacharyWolfe was closed 3 days ago

1

Zachary Wolfe Contributions - Evidence cont.

	Author	Label	Projects	Milestones	Reviews	Assignee	Sort
0 Open ✓ 11 Closed							
Change data to string for complete removal in a single cell, add .gitignore file with an additional...	#21 by ZacharyWolfe was merged 13 minutes ago						
Added server mode to Makefile	#20 by Snaredrumhero was merged 3 hours ago						
Add title, names, highlight on init board, and remove int counter...	#19 by ZacharyWolfe was merged yesterday						
Added index.html	#18 by Snaredrumhero was merged yesterday						
Support specific space highlights, issue resolution, wrap in try catch	#17 by ZacharyWolfe was merged yesterday						
Rearrange buttons and div to allow for the whole square to be clicked...	#16 by ZacharyWolfe was merged yesterday						
Ui-stuff	#14 by nickadkins47 was merged last week • Approved				1		
Tab name as "Killer Sudoku"	#13 by nickadkins47 was closed last week • Changes requested				1		
Remove classes, refactor, update globals.css	#10 by ZacharyWolfe was merged last week						
Update README.md	#9 by ZacharyWolfe was merged last week						
Add support for individual spaces && sudoku board <small>backend</small>	#7 by ZacharyWolfe was merged last week						

Nick Adkins Contributions

- Worked on board Generation, the Sudoku board now shows a randomly-generated valid Sudoku board
- Added a Makefile, for convenience in running the program & quick version checking, among other things

Nick Adkins Contributions - Evidence

Generation - Board is now randomly generated #22

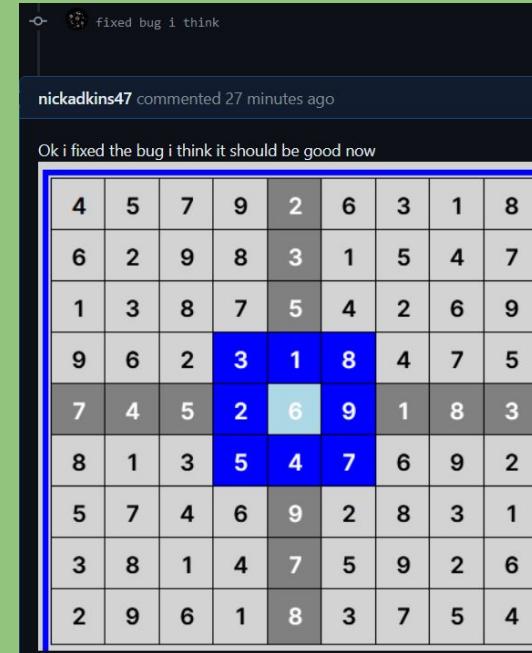
[Open](#) nickadkins47 wants to merge 7 commits into `main` from `generation`

Conversation 2 Commits 7 Checks 0 Files changed 2

nickadkins47 commented 35 minutes ago

Moved initboard() function to different file, Generate.tsx
Added a way to randomly generate a valid sudoku board (currently all tiles are still filled/shown)
Slightly edited some stuff in Sudoku.tsx so that these changes will show up on localhost:3000

8	1	4	2	3	9	6	5	7
5	6	7	1	4	8	2	9	3
2	3	9	7	5	6	4	1	8
9	2	3	6	7	5	1	8	4
7	5	6	8	1	4	9	3	2
6	7	5	4	8	1	3	2	9
1	4	8	3	9	2	7	6	5
4	8	1	9	2	3	5	7	6
3	9	2	5	6	7	8	4	1



Nick Adkins Contributions - Evidence cont.

Makefile (Main Branch)

```
M Makefile
Drew Mullett, yesterday | 3 authors (You and others)

1 .PHONY: run version
2
3
4 run:
5   @(cd killer-sudoku; npm run build; npm run start)
6
7 server:
8   @(git pull; cd killer-sudoku; npm run build; npm run start)
9
10 version:
11   @printf "node: %s\n" "$(shell node -v)"
12   @printf "npm : %s\n" "$(shell npm -v)"
13   @printf "tailwindcss: %s\n" "$(shell npm view tailwindcss version)"
14
```

Updated Makefile (Ui-stuff Branch)

```
M Makefile
You, 28 seconds ago | 3 authors (You and others)

1 .PHONY: run server u update v version
2
3
4 run:
5   @(cd killer-sudoku; npm run build; npm run start)
6
7 server:
8   @(git pull; cd killer-sudoku; npm run build; npm run start)
9
10 u: update
11
12 update:
13   @sudo apt update
14   @sudo apt-get upgrade
15
16 v: version
17
18 version:
19   @printf "node      : %s\n" "$(shell node -v | cut -d'v' -f2- 2> /dev/null)"
20   @printf "npm       : %s\n" "$(shell npm -v          2> /dev/null)"
21   @printf "tailwind  : %s\n" "$(shell npm view tailwind version 2> /dev/null)"
22   @printf "tailwindcss: %s\n" "$(shell npm view tailwindcss version 2> /dev/null)"
23   @printf "Brew      : %s\n" "$(shell brew -v | cut -d' ' -f2- 2> /dev/null)"
24   @printf "nvm       : %s\n" "$(shell nvm -v          2> /dev/null)"
```

Kevin Belock Contributions

- Researched how the best way to implement the timer would be through react
- Have started programming the timer though not fully implemented yet, I have pushed what I have to the Timer branch on github.

Kevin Belock Contributions - Evidence

```
killer-sudoku > app > 🏃 Timer.tsx > 🏃 Timer > 🏃 gettime
 1  /**
 2   * @file    Timer.tsx
 3   * @author  Kevin Belock (kb848020@ohio.edu)
 4   * @brief   An element which creates a timer for how long you
 5   * @date    February 24, 2024
 6   * @version 1.0
 7  */
 8
 9  import React from 'react';
10
11 import { useState } from 'react';
12
13 const Timer = () => {
14
15     const [minuets, setMinuets] = useState(0);
16     const [seconds, setSeconds] = useState(0);
17
18     const start = 3600;
19
20     const getTime = () => {
21
22         setMinuets(Math.floor([(start / 60) % 60]));
23         setSeconds(Math.floor(start % 60));
24
25     }

```

Start of Checkpoint 3

Meeting Attendance

- Group Meeting 3/5/2024
 - Present: All members
- Group Meeting 3/16/2023
 - Zachary, Drew, Kevin
- Group Meeting (Checkpoint 3) 3/19/2024
 - Present: All members

Work Summary

Zachary

- Reworked Timer to add support for instancing a timer on a board.
- Linked Timer to cell clicks and pause/start button.
- Pause button stops timer, resume by button or pressing on board.
- Completed UI highlighting for the last time.
- Added a 'New Game' button and number Panel.
- Added navbar for pathing.
- Added bolded border outline on board.
- Added Google API icons to support an intuitive UI.
- Fixed browser resizing.
- Closed Issue #12, #1, #31.

Drew

- Added functionality for server to make HTTP GET request along with difficulty selector.
- Created pathing segments for sudoku and killer sudoku.

Work Summary (cont.)

Nick

- Added function to Solve the sudoku board
(Mostly works, but still WIP)
- Completely Reworked the Generation Algorithm to be more random, at the cost of time efficiency (of which is still barely noticeable: a time of 0.2 ms VS ~30 ms to generate a board)
 - I just recently optimized the algorithm from ~30 ms → ~20 ms
- Reworked tile showing system so that the resulting board is always compatible with the solver function
- Closed Issue #2

Kevin

- Finished the base template for the Timer
- Researching how to implement the cages for a Killer Sudoku board.
- Made a list of progress to go through to slowly build the necessary components for the cages of Killer Sudoku.

Comparison

Killer Leaderboard Daily

Zachary Wolfe, Drew Mullett, Kevin Belock, Nick Adkins

Difficulty: Easy Medium Hard Expert

Sudoku

00:08 ⓘ

Solve Clear

1 2 3
4 5 6
7 8 9

New Game

Checkpoint 3



Courses × Index () × Added × TypeScript × example × Amazon × npm run × ssh + Ken × Keeping × How to × p vs np × P vs NP × TryHackMe × RAWX Data pg 188 × All Bookmarks

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Zachary Wolfe, Drew Mullett, Kevin Belock, Nick Adkins

Killer Sudoku

10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10

Checkpoint 2



Next Checkpoint Plan

Zachary

- Adjust highlighting algorithm to disregard clicks onto the same cell without any change which will in turn adjust panel clicks so that the algorithm can find which cell to change the number in.
- Start on dashed borders, cell groupings, and placing numbers in the top left of certain cells.
- Add an Erase button.
- Count mistakes the player has made.
- Authenticating users.
- Create page for leaderboard & choose database.
- Game ending

Drew

- Implement server interception of GET & POST requests.
- Encode Sudoku puzzle into JSON and decode it into a Sudoku puzzle object.

Nick

- Implement the backend part of the Tile Notes system
- Add a lot more stuff to the solver algorithm
- Help with the backend part of the Killer Sudoku Groupings
- Fix bug in Solve button (it doesn't solve correctly if there are incorrect tiles)

Kevin

- Work on implementing the sudoku cages

Road Blocks

Zachary

- Finding the previous cell you clicked on for panel, search for it using two for's?

Drew

- How to properly encode the information into a json format that would make sense
- How to separate sudoku and killer sudoku generation

Nick

- How killer sudoku groupings are gonna be generated (Thinking about what is the best way to do this)

Kevin

- Getting the cages to not overlap with each other and generating the shapes of the cages
- Designing the shapes and how to do highlighting / marking the different groups.

Toolkits

- GitHub
- Doxygen Generation VSCode ext
- Chrome Dev Tools
- Docker
- IDEs: VScode, NVIM
- Figma, websequencediagrams.com
- Firebase - Authentication / (Storing users?)
- Tailwind CSS, React TSX

Zachary Wolfe Static Analysis

```
const ha = 'timerRef.current' is possibly 'null'. ts(18047)
  setB (property) RefObject<TimerRef>.current: TimerRef | null
    View Problem (F8) No quick fixes available
      timerRef.current.reset();
      You, 1 second ago • Uncomm
      return initBoard(used);
    });
};
```

```
        }  
    }  
  
const handleClickNewGame = () => {  
    setBoard(prevBoard => {  
        const timerRef: React.RefObject<TimerRef> = useRef(null)  
        timerRef.current?.reset();  
        return initBoard(used);  
    });  
};  
  
const handleClickDifficultyButton = (buttonName: string) => {  
    console.log(buttonName, " Killer Sudoku puzzle requested");  
};
```

Kevin Belock's Static analysis

- The tool I used was Esplint. It was a tool shared to all of the team members to use
- The issues it recorded is where a variable is assigned and never used, saying to use different variable types when no variable is recorded. The variables assigned but not used might affect the performance with how much memory that could be wasted in not taking care of them, same as making some variables consts would improve their security.
- I did not fix any issues as all of the issues that were recorded were found on my team partners parts of the project. I was researching how to implement the sudoku grouping for the killer sudoku board.

Kevin Belock's Static analysis cont.

```
ancientspirit@LAPTOP-IV9A91P:~/Desktop/CS3650/Team Project/s24-killer-sudoku$ npx eslint .
Pages directory cannot be found at /mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/p
/s24-killer-sudoku/src/pages. If using a custom path, please configure with the 'no-html-link-for-pages' rule

/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/app/generate.tsx
17:27 error 'used' is defined but never used @typescript-eslint/no-unused-vars
42:18 error 'o' is never reassigned. Use 'const' instead prefer-const
53:16 error 'difficulty' is never reassigned. Use 'const' instead prefer-const
76:64 error 'temp' is assigned a value but never used @typescript-eslint/no-unused-vars
79:20 error Unnecessary constant condition no-constant-condition
80:21 error 'x' is never reassigned. Use 'const' instead prefer-const
81:21 error 'y' is never reassigned. Use 'const' instead prefer-const
100:9 error 'arr' is never reassigned. Use 'const' instead prefer-const
127:10 error 'shuffleArray' is defined but never used @typescript-eslint/no-unused-vars
128:9 error 'end' is never reassigned. Use 'const' instead prefer-const
130:13 error 'i' is never reassigned. Use 'const' instead prefer-const
131:13 error 'temp' is never reassigned. Use 'const' instead prefer-const
137:10 error 'initBoardBoldLines' is defined but never used @typescript-eslint/no-unused-vars
162:2 error Unnecessary semicolon no-extra-semi

/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/app/killerSudoku.tsx
24:5 error Unexpected var, use let or const instead no-var
24:9 error 'gameOver' is assigned a value but never used @typescript-eslint/no-unused-vars
25:5 error Unexpected var, use let or const instead no-var

/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/app/solver.tsx
16:9 error 'board' is never reassigned. Use 'const' instead prefer-const
18:9 error 'notes' is never reassigned. Use 'const' instead prefer-const
119:13 error 'a' is never reassigned. Use 'const' instead prefer-const
121:13 error 'b' is never reassigned. Use 'const' instead prefer-const
134:13 error 'num1' is never reassigned. Use 'const' instead prefer-const
135:13 error 'num2' is never reassigned. Use 'const' instead prefer-const
136:13 error 'num3' is never reassigned. Use 'const' instead prefer-const
138:17 error 'tile1' is never reassigned. Use 'const' instead prefer-const
141:17 error 'tile2' is never reassigned. Use 'const' instead prefer-const
144:17 error 'tile3' is never reassigned. Use 'const' instead prefer-const
```

Make sure that all the Babel plugins and presets you are using are defined as dependencies or devDependencies in your package.json file. It's possible that the missing plugin is loaded by a preset you are using that forgot to add the plugin to its dependencies; you can workaround this problem by explicitly adding the missing package to your top-level package.json

```
/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/postcss.config.js
0:0 error Parsing error: Cannot find module 'next/babel'
Require stack:
/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/node_modules/next/dist/compiled/babel/bundle.js
/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/node_modules/next/dist/compiled/babel/eslint-parser.js
/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/node_modules/eslint-config-next/parser.js
/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/node_modules/eslint/eslintrc/dist/eslintrc.cjs
```

Make sure that all the Babel plugins and presets you are using are defined as dependencies or devDependencies in your package.json file. It's possible that the missing plugin is loaded by a preset you are using that forgot to add the plugin to its dependencies; you can workaround this problem by explicitly adding the missing package to your top-level package.json

X46 problems (45 errors, 1 warning)
30 errors and 0 warnings potentially fixable with the '--fix' option.

```
144:17 error 'tile3' is never reassigned. Use 'const' instead prefer-const
145:17 error Unexpected newline between object and J of property access no-unexpected-multiline
146:17 error Unexpected newline between object and J of property access no-unexpected-multiline
188:9 error 'result' is never reassigned. Use 'const' instead prefer-const

/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/app/sudoku.tsx
21:2 error Unnecessary semicolon no-extra-semi
144:13 warning Custom fonts not added in 'pages/_document.js' will only load for a single page. This is discouraged. See: https://nextjs.org/docs/messages/no-page-custom-font @next/next/no-page-custom-font

/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/app/page.tsx
9:2 error Unexpected var, use let or const instead no-var
9:6 error 'gameOver' is assigned a value but never used @typescript-eslint/no-unused-vars
10:5 error Unexpected var, use let or const instead no-var
11:12 error 'panelNum' is assigned a value but never used @typescript-eslint/no-unused-vars
70:18 error 'prevBoard' is defined but never used @typescript-eslint/no-unused-vars

/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/app/sudoku/page.tsx
9:2 error Unexpected var, use let or const instead no-var
9:6 error 'gameOver' is assigned a value but never used @typescript-eslint/no-unused-vars
10:5 error Unexpected var, use let or const instead no-var
69:18 error 'prevBoard' is defined but never used @typescript-eslint/no-unused-vars
95:13 error Unexpected var, use let or const instead no-var
96:13 error Unexpected var, use let or const instead no-var
97:13 error Unexpected var, use let or const instead no-var

/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/pages/_document.js
0:0 error Parsing error: Cannot find module 'next/babel'
Require stack:
/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/node_modules/next/dist/compiled/babel/bundle.js
/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/node_modules/next/dist/compiled/babel/eslint-parser.js
/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/node_modules/eslint-config-next/parser.js
/mnt/c/Users/ancie/OneDrive/Desktop/CS3650/Team Project/s24-killer-sudoku/killer-sudoku/node_modules/eslint/eslintrc/dist/eslintrc.cjs

Make sure that all the Babel plugins and presets you are using
```

Nick Adkins Static Analysis

Thus far, i've only used ESLint & used it to check the main directory, found 2 errors & 1 warning. As of now, this is all i've done with Static Analysis.

```
nickadkins47@DESKTOP-DS33BNP:~/CS3560/s24-killer-sudoku$ npx eslint .
Pages directory cannot be found at /home/nickadkins47/CS3560/s24-killer-sudoku/pages or /home/nickadkins47/CS3560/s24-killer-sudoku/src/pages. If using a custom path, please configure with the `no-html-link-for-pages` rule in your eslint config file.

/home/nickadkins47/CS3560/s24-killer-sudoku/killer-sudoku/app/Sudoku.tsx
 144:13  warning  Custom fonts not added in `pages/_document.js` will only load for a single page. This is discouraged. see: https://nextjs.org/docs/messages/no-page-custom-font @next/next/no-page-custom-font

/home/nickadkins47/CS3560/s24-killer-sudoku/killer-sudoku/pages/_document.js
 0:0  error  Parsing error: Cannot find module 'next/babel'
Require stack:
- /home/nickadkins47/CS3560/s24-killer-sudoku/killer-sudoku/node_modules/next/dist/compiled/babel/bundle.js
- /home/nickadkins47/CS3560/s24-killer-sudoku/killer-sudoku/node_modules/next/dist/compiled/babel/eslint-parser.js
- /home/nickadkins47/CS3560/s24-killer-sudoku/killer-sudoku/node_modules/eslint-config-next/parser.js
- /home/nickadkins47/.npm/_npx/515228b7c8d004a2/node_modules/@eslint/eslintrc/dist/eslintrc.cjs

Make sure that all the Babel plugins and presets you are using are defined as dependencies or devDependencies in your package.json file. It's possible that the missing plugin is loaded by a preset you are using that forgot to add the plugin to its dependencies: you can workaround this problem by explicitly adding the missing package to your top-level package.json

/home/nickadkins47/CS3560/s24-killer-sudoku/killer-sudoku/postcss.config.js
 0:0  error  Parsing error: Cannot find module 'next/babel'
Require stack:
- /home/nickadkins47/CS3560/s24-killer-sudoku/killer-sudoku/node_modules/next/dist/compiled/babel/bundle.js
- /home/nickadkins47/CS3560/s24-killer-sudoku/killer-sudoku/node_modules/next/dist/compiled/babel/eslint-parser.js
- /home/nickadkins47/CS3560/s24-killer-sudoku/killer-sudoku/node_modules/eslint-config-next/parser.js
- /home/nickadkins47/.npm/_npx/515228b7c8d004a2/node_modules/@eslint/eslintrc/dist/eslintrc.cjs

Make sure that all the Babel plugins and presets you are using are defined as dependencies or devDependencies in your package.json file. It's possible that the missing plugin is loaded by a preset you are using that forgot to add the plugin to its dependencies: you can workaround this problem by explicitly adding the missing package to your top-level package.json

✖ 3 problems (2 errors, 1 warning)
```

Drew Mullett Static Analysis

Before fixes

```
andrewmullett@DESKTOP-K4EDPIH:~/s24-killer-sudoku$ npx eslint .  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/app/Generate.tsx  
17:27  error  'used' is defined but never used          @typescript-eslint/no-unused-vars  
42:18  error  'o' is never reassigned. Use 'const' instead    prefer-const  
43:18  error  'o' is never reassigned. Use 'const' instead    prefer-const  
76:60  error  'temp' is assigned a value but never used      @typescript-eslint/no-unused-vars  
79:28  error  Unexpected constant condition                no-constant-condition  
80:23  error  'x' is never reassigned. Use 'const' instead    prefer-const  
83:23  error  'x' is never reassigned. Use 'const' instead    prefer-const  
100:9   error  'arr' is never reassigned. Use 'const' instead    prefer-const  
127:18  error  'shuffleArray' is defined but never used     @typescript-eslint/no-unused-vars  
128:9   error  'end' is never reassigned. Use 'const' instead    prefer-const  
130:23  error  'end' is never reassigned. Use 'const' instead    prefer-const  
131:13  error  'temp' is never reassigned. Use 'const' instead    prefer-const  
137:18  error  'initBoardBoldLines' is defined but never used @typescript-eslint/no-unused-vars  
162:2   error  Unnecessary semicolon                      no-extra-semi  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/app/KillerSudoku.tsx  
24:5   error  Unexpected var, use let or const instead      no-var  
29:19  error  'gameOver' is assigned a value but never used @typescript-eslint/no-unused-vars  
28:8   error  Unexpected var, use let or const instead      no-var  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/app/Solver.tsx  
10:9   error  'boards' is never reassigned. Use 'const' instead    prefer-const  
18:13  error  'rows' is never reassigned. Use 'const' instead    prefer-const  
119:13  error  'a' is never reassigned. Use 'const' instead    prefer-const  
121:13  error  'b' is never reassigned. Use 'const' instead    prefer-const  
135:13  error  'num1' is never reassigned. Use 'const' instead    prefer-const  
139:13  error  'num2' is never reassigned. Use 'const' instead    prefer-const  
136:13  error  'num3' is never reassigned. Use 'const' instead    prefer-const  
138:17  error  'title' is never reassigned. Use 'const' instead    prefer-const  
140:17  error  'title2' is never reassigned. Use 'const' instead    prefer-const  
146:17  error  'title3' is never reassigned. Use 'const' instead    prefer-const  
148:17  error  Unexpected newline between object and I of property access no-unexpected-multiline  
146:17  error  Unexpected newline between object and I of property access no-unexpected-multiline  
160:19  error  'result' is never reassigned. Use 'const' instead    prefer-const  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/app/Sudoku.tsx  
21:2   error  Unnecessary semicolon                      no-extra-semi  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/app/page.tsx  
9:2   error  Unexpected var, use let or const instead      no-var  
9:5   error  'gameOver' is assigned a value but never used @typescript-eslint/no-unused-vars  
10:5   error  'panelNum' is assigned a value but never used @typescript-eslint/no-unused-vars  
11:12  error  'panelNum' is assigned a value but never used @typescript-eslint/no-unused-vars  
70:18  error  'prevBoard' is defined but never used       @typescript-eslint/no-unused-vars  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/app/page.tsx  
9:2   error  Unexpected var, use let or const instead      no-var  
9:5   error  'gameOver' is assigned a value but never used @typescript-eslint/no-unused-vars  
10:5   error  'panelNum' is assigned a value but never used @typescript-eslint/no-unused-vars  
11:12  error  'panelNum' is assigned a value but never used @typescript-eslint/no-unused-vars  
70:18  error  'prevBoard' is defined but never used       @typescript-eslint/no-unused-vars  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/app/sudoku/page.tsx  
9:2   error  Unexpected var, use let or const instead      no-var  
9:6   error  'gameOver' is assigned a value but never used @typescript-eslint/no-unused-vars  
10:5   error  Unexpected var, use let or const instead      no-var  
11:12  error  'panelNum' is assigned a value but never used @typescript-eslint/no-unused-vars  
70:18  error  'prevBoard' is defined but never used       @typescript-eslint/no-unused-vars  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/app/sudoku/page.tsx  
9:2   error  Unexpected var, use let or const instead      no-var  
9:6   error  'gameOver' is assigned a value but never used @typescript-eslint/no-unused-vars  
10:5   error  Unexpected var, use let or const instead      no-var  
69:18  error  'prevBoard' is defined but never used       @typescript-eslint/no-unused-vars  
95:13  error  Unexpected var, use let or const instead      no-var  
96:13  error  Unexpected var, use let or const instead      no-var  
97:13  error  Unexpected var, use let or const instead      no-var  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/postcss.config.js  
1:1   error  'module' is not defined                      no-undef  
  
✗ 44 problems (44 errors, 0 warnings)  
38 errors and 6 warnings potentially fixable with the '--fix' option.
```

After fixes

```
andrewmullett@DESKTOP-K4EDPIH:~/s24-killer-sudoku$ npx eslint --fix .  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/app/Generate.tsx  
17:27  error  'used' is defined but never used          @typescript-eslint/no-unused-vars  
76:64  error  'temp' is assigned a value but never used      @typescript-eslint/no-unused-vars  
79:20  error  Unexpected constant condition                no-constant-condition  
127:10  error  'shuffleArray' is defined but never used     @typescript-eslint/no-unused-vars  
137:10  error  'initBoardBoldLines' is defined but never used @typescript-eslint/no-unused-vars  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/app/KillerSudoku.tsx  
24:11  error  'gameOver' is assigned a value but never used @typescript-eslint/no-unused-vars  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/app/Solver.tsx  
145:17  error  Unexpected newline between object and I of property access no-unexpected-multiline  
146:17  error  Unexpected newline between object and I of property access no-unexpected-multiline  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/app/page.tsx  
9:8   error  'gameOver' is assigned a value but never used @typescript-eslint/no-unused-vars  
11:12  error  'panelNum' is assigned a value but never used @typescript-eslint/no-unused-vars  
70:18  error  'prevBoard' is defined but never used       @typescript-eslint/no-unused-vars  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/app/sudoku/page.tsx  
9:8   error  'gameOver' is assigned a value but never used @typescript-eslint/no-unused-vars  
69:18  error  'prevBoard' is defined but never used       @typescript-eslint/no-unused-vars  
  
/home/andrewmullett/s24-killer-sudoku/killer-sudoku/postcss.config.js  
1:1   error  'module' is not defined                      no-undef  
  
✗ 14 problems (14 errors, 0 warnings)
```

Drew Mullett Static Analysis

- Had a few errors with defining editable variables when it was not strictly necessary (i.e. using let instead of const). After updating the code, I've made a PR to have the team review it to make sure I'm not papering over important aspects of other people's code

Zachary Wolfe Contributions

- Improved performance by removing keystroke inputs re-highlighting the entire board
- Installed package for rerouting and was working on this for a few weeks until a better solution was provided by drew
- Fixed up Timer, added support for instancing a timer on a board
- Linked the timer to cell clicks
- Pressing the pause button stops the timer, resume by pressing anywhere on the board
- Fixed UI highlighting for the final time
- Added a 'New Game' and Button Panel
- Added navbar
- Added bolded border outline
- Added Google API icons to support an intuitive UI
- Fixed browser resizing
- Closed Issue #12, #1, #31

Zachary Wolfe Contributions - Evidence

UI #31
ZacharyWolfe opened this issue 2 weeks ago

Closed 5 tasks done

 [Redacted]

 [Redacted]

 [Redacted] ZacharyWolfe assigned Phoenix2317 and Snaredrumhe

 [Redacted] ZacharyWolfe closed this as completed last week

Subcontainer holding main Sudoku board misaligned #12
ZacharyWolfe opened this issue last month · 2 comments

Closed

 ZacharyWolfe commented last week

Fixed by removing color attribute of .Main{} CSS

 [Redacted]

 [Redacted] ZacharyWolfe closed this as completed last week

ZacharyWolfe commented 2 weeks ago • edited

Member ...

Issues

- Board is not in the center of the screen
- Resizing browser window breaks the uniform distribution of cells.
- Move 'Solve' below board
- Move Timer above board and below Title
- Button/Menu for changing Difficulty

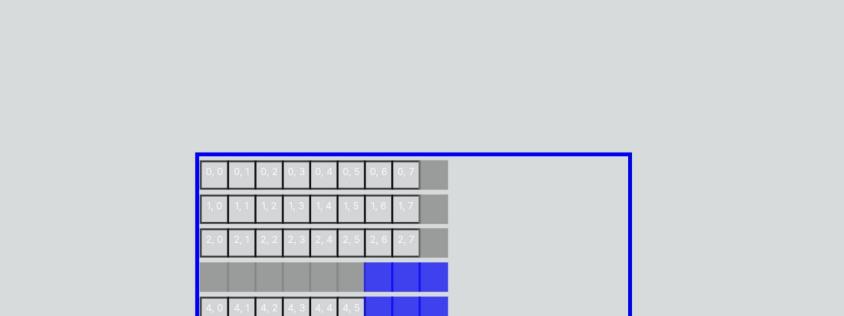
Subcontainer holding main Sudoku board misaligned #12
ZacharyWolfe opened this issue last month · 2 comments

Closed

 ZacharyWolfe commented last month

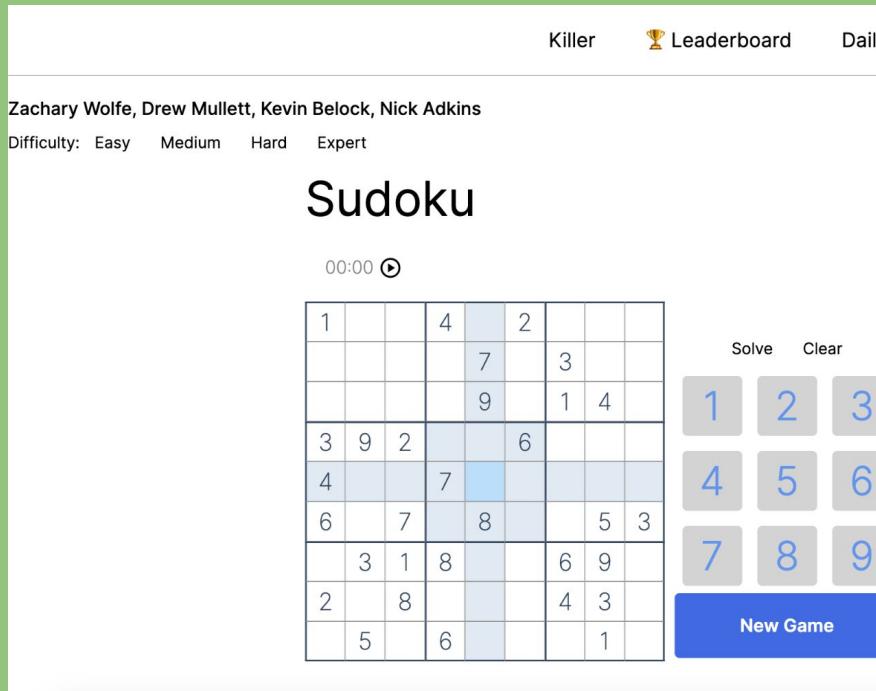
 Member ...

I need this board to be aligned on the center of the screen (primarily inside of the blue container)



Zachary Wolfe Contributions - Evidence cont.

- Navbar
- Panel
- New Game
- Bold outlines
- Buttons hover
- Timer start-stop
- Changed whole layout of website to support intuitive UI



Drew Mullett Contributions

- Added functionality for server to make http GET request along with difficulty options
- Created site segments for sudoku and killer sudoku
- Created Dockerfile for project

Drew Mullett Contributions - Evidence

The image displays four screenshots arranged in a 2x2 grid, illustrating contributions to two web-based Sudoku games.

Top Left Screenshot: A screenshot of the "Killer" game interface from <https://sudoku.drewmullett.net/killer>. It shows a 9x9 grid with some numbers filled in. Below the grid are buttons for "Solve", "Clear", and "New Game".

Top Right Screenshot: A GitHub issue titled "How to separate Client and Server data? #29" ([View Issue](#)). The issue was opened by Snaredrumhero and has one comment. The comment discusses separating client and server data, mentioning completed puzzle, leaderboard, and puzzle generation features for the server, and incomplete puzzle and validation for the client. The issue is marked as closed.

Bottom Left Screenshot: A screenshot of the "Classic" game interface from <https://sudoku.drewmullett.net/classic>. It shows a 9x9 grid with some numbers filled in. Below the grid are buttons for "Solve" and "Clear".

Bottom Right Screenshot: A GitHub pull request titled "Websolver #44" ([View PR](#)). It shows a merge from "webservice" into "main". The pull request was merged by Zachary Wolfe last week. The commit message indicates it adds 7 commits. The pull request has no reviews or assignees.

Nick Adkins Contributions

- Added function to Solve the sudoku board (Mostly works, but still WIP)
- Completely Reworked the Generation Algorithm to be more random, at the cost of time efficiency (of which is still barely noticeable: a time of 0.2 ms VS ~30 ms to generate a board)
 - I just recently optimized the algorithm from ~30 ms → ~20 ms
- Reworked tile showing system so that the resulting board is always compatible with the solver function
- Closed Issue #2

Nick Adkins Contributions - Evidence

(Both Generate.tsx & Solver.tsx are now about 200 lines each, can't show all of it here)

```
killer-sudoku > app > Generate.tsx > initBoard
...
1  /**
2   * @file      Generate.tsx
3   * @author    Nicholas Adkins (na761422@ohio.edu)
4   * @brief     Generates a valid full sudoku board
5   * @date      February 26, 2024
6   */
7
8   import { SpaceButtonProperties, HandleHighlighting, SaveBoardState } from "..."
9   import { solve_str, isAvailable, isValid, makeBoard, copyBoard } from "..."
10
11  /**
12   * @brief Initializes the board to be a 2d array, generates a board full
13   *       data with SpaceButtonProperties, and highlights the origin to
14   *       @param used (WIP)
15   *       @returns A 9x9 board
16   */
17  export function initBoard(used: number): SpaceButtonProperties[][] {
18
19    console.log("initBoard: Start");
20
21    let recNumber: number = 0;
22    let board: string[][] = makeBoard();
23    generate(board);
24
25    function generate(inputs: string[][]): boolean {
26
27      ...
28
29      return true;
30    }
31
32    return board;
33  }
34
```

```
killer-sudoku > app > Solver.tsx > ...
...
1  /**
2   * @file      Solver.tsx
3   * @author    Nicholas Adkins (na761422@ohio.edu)
4   * @brief     Function to solve a board / determine if it's solvable
5   * @date      March 8, 2024
6   */
7
8   // TODO: Re-do Comments and such
9
10
11  /**
12   * @brief takes input board & tries to solve it
13   * @param board input board of string[][] trying to be solved
14   * @returns tuple of a boolean (did it succeed or not) & the resulting board, or null if failed
15   */
16  export function solve_str(input: string[][]): [boolean, string[][]] {
17    let board: string[][] = copyBoard(input);
18
19    let notes: boolean[][][] = [];
20    for (let x = 0; x < 9; x++) {
21      notes[x] = [];
22      for (let y = 0; y < 9; y++) {
23        if (board[x][y] != '') continue;
24        notes[x][y] = [];
25        for (let n: number = 1; n <= 9; n++) {
26          ...
27        }
28      }
29    }
30
31    let success: boolean = true;
32    for (let x = 0; x < 9; x++) {
33      for (let y = 0; y < 9; y++) {
34        if (board[x][y] == '') {
35          if (notes[x][y].length == 0) {
36            success = false;
37            break;
38          }
39        }
40      }
41    }
42
43    if (!success) return [false, null];
44
45    let result: string[][] = copyBoard(board);
46    for (let x = 0; x < 9; x++) {
47      for (let y = 0; y < 9; y++) {
48        if (board[x][y] == '') {
49          let possibilities: number[] = notes[x][y];
50          if (possibilities.length == 1) {
51            result[x][y] = String(possibilities[0]);
52          }
53        }
54      }
55    }
56
57    return [true, result];
58  }
59
```

Nick Adkins Contributions - Evidence (cont.)

I Copied over my code into a test file, and logged the time it took to generate the board (using the performance.now() function).

Post-Optimization: I output the average time (ms) of 40 generation attempts, repeated 20 times, into a text file, as seen on the right.

I don't have an image of what the numbers were Pre-Optimization, but they were higher, around 30 ms or so.

Note: These numbers were from my desktop; it generates a bit slower on my laptop

1	
2	24.3467625
3	24.5544875
4	26.572747500000002
5	33.740042499999994
6	31.995249999999977
7	24.30849249999999
8	22.4601325
9	24.020654999999994
10	21.196372500000003
11	17.491824999999995
12	22.855915
13	18.117650000000005
14	33.35680999999999
15	21.53533749999994
16	19.0486925
17	24.3334275
18	22.84449999999999
19	23.442057500000004
20	29.64311999999993
21	30.24444250000001
22	20.023084999999988
23	

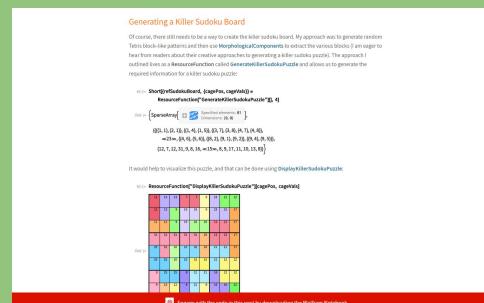
Kevin Belock's contributions

I researched ways to implement the cage / grouping for the killer sudoku side of the board. The hardest thing to make will be implementing the shapes and outlining them properly without any overlap.

Kevin Belock's contributions evidence

Websites I have visited for research;

- <https://markheath.net/post/typescript-tetris>
- <https://resources.jointjs.com/tutorials/joint/tutorials/ts-shape.html>
- <https://blog.wolfram.com/2020/06/02/using-integer-optimization-to-build-and-solve-sudoku-games-with-the-wolfram-language/>



The screenshot shows a blog post with a sidebar containing navigation links like 'Home', 'About', 'Contact', etc. The main content area has a heading 'Generating a Killer Sudoku Board' with a sub-section 'The Shape Classes'. It includes code snippets for defining custom shapes in TypeScript and a preview of the generated killer sudoku puzzle.

Every now and then I would think about trying to port it to Javascript with a HTML 5 canvas. But one of the frustrating things about Javascript (from a Java or C# developer's perspective) is it's rather peculiar approach to object inheritance, which I hadn't got round to learning.

So when TypeScript was announced, with its greatly simplified syntax for classes, I thought it might be worth giving this another try. And it turned out to be surprisingly easy to port. In fact I got it working shortly after the first version of TypeScript was released, but I never got round to blogging about it. Here's some notes:

The HTML

There wasn't much that needed to be done in the HTML, except to create a HTML 5 canvas object for us to draw on. Probably there is some cool trick web developers use to pick the optimal size for the game based on your browser size, but I just went for a fixed size canvas for now.

Custom Shape With TypeScript

We often get asked how to incorporate TypeScript with JointJS. As JointJS is a standard Javascript library, the integration process is quite simple and straightforward. In the following tutorial, we are going to create our very own custom shape using TypeScript, and also try to provide you with some useful information along the way.

A basic shape

To get started, we create a separate 'shapes.ts' file. We will define our custom shape here, and later you can import it in your main file. To define our custom shape in TypeScript, we are going to extend the default `dia.Element` class. The syntax is quite simple, and will seem familiar to those of you who have used Javascript classes before. In the following code, you can see our custom element: `MyShape`.

```
import { dia } from 'jointjs';
export class MyShape extends dia.Element {
  constructor(attrs, options) {
    super(attrs, options);
    this.$el.attr('shape-type', 'myshape');
  }
}
```

The `defaultType` function will return an object that contains the attributes for our model. It is possible to use an object for our `defaults`, but as objects are referenced, not copied in Javascript, our function will return a different object each time.

In Javascript classes, you may be used to working with `super`. In our use case, we want our child subtype to take attributes from its parent type. Using `...super.defaults`, if an attribute is undefined in the child, the parent attribute will be assigned instead. Similarly, once a property is set in the child, additional values of the same property from the parent are replaced.

This is the most basic boilerplate for a custom shape, but you have to agree it's not very exciting, so let's add some more attributes.