Freddie Nelson

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Education

St Ninian's High School   August 2016 – June 2022

Adv Highers: Maths (Pending), Computing Science (Pending)

Highers: Maths (A), English (A), Computing Science (A), Physics (A), Geography (A)

NPAs: Cyber Security SCQF Level 6, Computer Games Development SCQF Level 6

Skills

Programming Languages: HTML, CSS/SCSS, JavaScript/TypeScript, SQL, Go, C, Visual Basic

Technologies: Vue.js, React.js, Node.js, Express.js, Electron, Socket.IO, Three.js, MongoDB, MySQL

Tools: Git, Github, Digitalocean, Docker, Netlify, Heroku, Figma, Photoshop, Trello

Projects

Scuffed Uno   (live site)

- A web game based on the card game UNO with over 50,000 monthly players
- Created custom 3D models and animations with Three.js and Tween.js
- Implemented a live chat utilizing websockets based on user feedback
- Cooperated with a game advertising agency to monetize the site

Haggis Lang   (code) (live site)

- An interpreter for 'haggis', a reference language originally created for use in SQA exam questions
- Handwritten scanner and recursive descent parser following original language spec
- Implemented type checker and semantic analysis stages to ensure input code is valid
- Built a web playground complete with syntax highlighting and input/output in Vue.js

Blaze 2D   (code) (live site)

- A 2D WebGL 2 game engine written from scratch in TypeScript
- Custom physics engine for dynamics, collisions and constraints simulation
- Implemented SPH and metaball rendering for fast 2D fluid simulation
- Developed a batch renderer with automatic texture swapping and atlas building

Shorty.lol   (code) (live site)

- A URL shortener and tracker built with React and Express
- Implemented type safe API calls from client with React Query
- Created username and password authentication utilizing JWTs for sessions
- Used Prisma ORM with Planetscale database for highly scalable and flexible DBA