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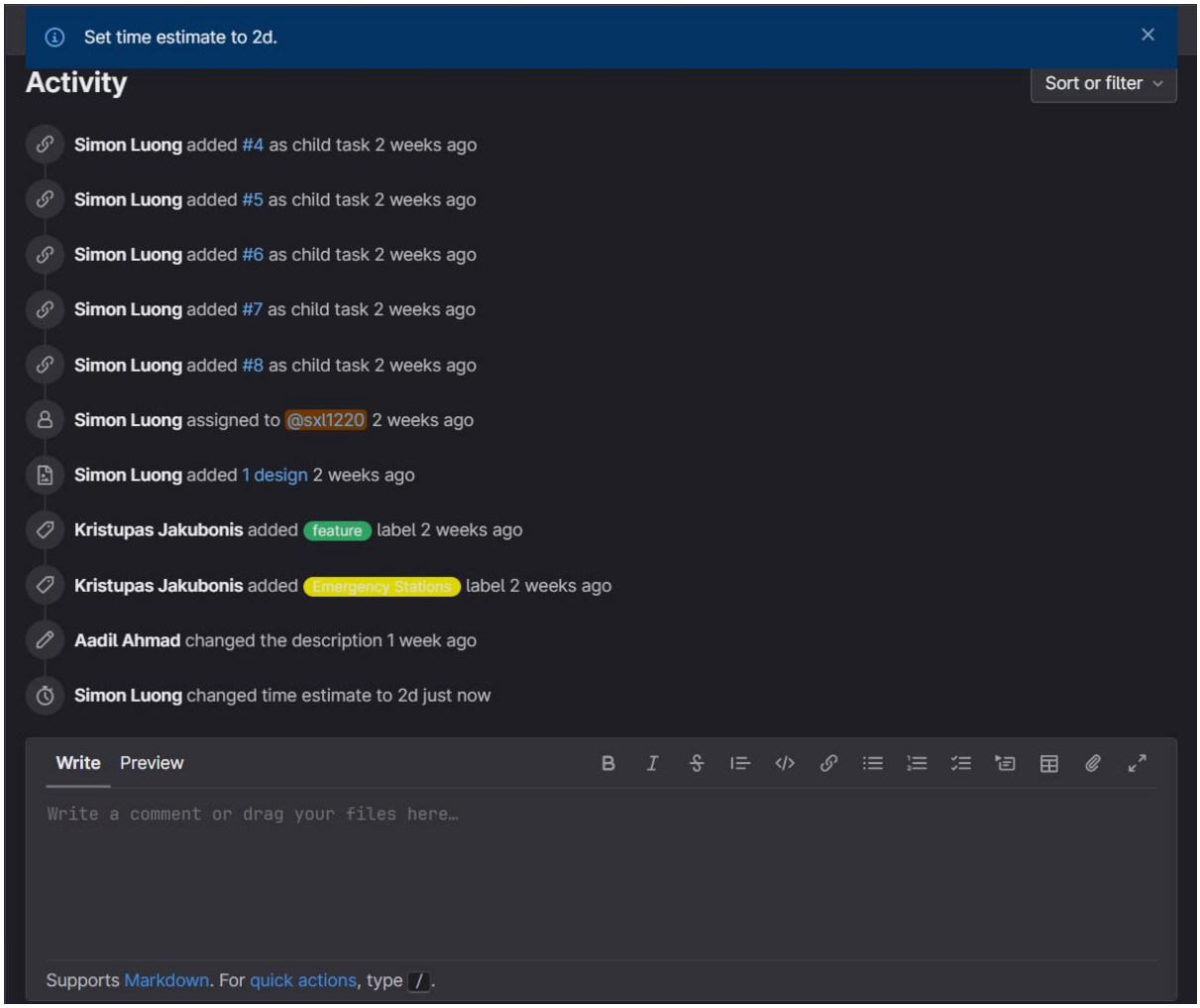
Individual Submission 2 (S2)

Agile estimation:

Our agile estimations are estimates of how long our tasks will take. We have tried to split tasks equally but if someone finishes early, they can help other people with their tasks. Each day is worth 8 hours.



Tech Report: Angular – Front end

Due to an increasing complexity of client-side programming in recent years, the requirements for web apps are now as high as a desktop app, and so a software framework is becoming increasingly desirable for developers. A framework enables the developer to cover the broad and complex requirements of a web app.

What is Angular?
Angular is an open-source front-end JavaScript framework that enables developers to develop complex applications as well as bring familiar new architectural concepts to the client. It is used primarily for developing single-page web applications (SPAs) and dynamic web applications, supported by all modern web browsers and compatible with mobile browsers, using HTML and Typescript to create single-page client applications. Angular is focused on a component-based architecture and was developed using Typescript. Angular CLI is included in JHipster.

How can Angular help us?
It combines modern architectural approaches to handle complex web application requirements, and separates the responsibilities. The developer can split an application in such a way that it becomes maintainable, testable and extensible. The idea is to break the application into small testable pieces so that the developer paradigms of "single-responsibility" and "separation-of-concerns" can be adhered to.

Angular helps with many emerging issues such as creating components, databinding to the UI/HTML, transforming data against the UI with pipes, offloading "work" to services, communicating with an API, etc. Since our web app uses a good few APIs, such as crime and maps, this can heavily benefit us as it can get quite messy with the amount of APIs we have. Furthermore, Angular could benefit us by aiding with the fetching information from our databases and applying them to the HTML UIs within our web app.

Why use Angular?
There are a whole range of advantages of using Angular. The main advantages are that:

- Angular allows developers to create their own components which can be reused, combined and nested
- Users can effortlessly call data from TypeScript code on the web page and respond to appropriate user input without having to manually write any code, enabling the integration of third-party libraries without implementing another intermediate layer (glue code).
- Productivity and code consistency
- Easy testing: Angular can be used to perform unit testing, and end-to-end testing.
- Code reduction and good maintainability: By using TypeScript, Angular apps get an object oriented architecture, which in turn leads to clear and well-maintainable source code
- Angular is cross-platform and compatible with all major browsers such as Chrome and Firefox

Coding guidance and examples
Use square brackets to access properties of elements. E.g. to alter HTMLElement.hidden, we do:

```
<p [hidden]="true">{{text}}</p>
```

We can listen to events and change components through user interaction. E.g. we have a button:

```
<button (click)="someFunction()">Button Text</button>
```

Development prep: Tech Stack

```
C:\Users\Simon\Downloads\team20-22>git push
fatal: The current branch test has no upstream branch.
To push the current branch and set the remote as upstream, use

    git push --set-upstream origin test

To have this happen automatically for branches without a tracking
upstream, see 'push.autoSetupRemote' in 'git help config'.


C:\Users\Simon\Downloads\team20-22>git push --set-upstream origin test
Enumerating objects: 109, done.
Counting objects: 100% (109/109), done.
Delta compression using up to 8 threads
Compressing objects: 100% (64/64), done.
Writing objects: 100% (77/77), 26.32 KiB | 748.00 KiB/s, done.
Total 77 (delta 18), reused 0 (delta 0), pack-reused 0
remote:
remote: To create a merge request for test, visit:
remote:   https://git.cs.bham.ac.uk/team-projects-2022-23/team20-22/-/merge_requests/new?merge_request%5Bsource_branch%5D=test
remote:
To git.cs.bham.ac.uk:team-projects-2022-23/team20-22.git
   8e95f45..52b597a  test -> test
branch 'test' set up to track 'origin/test'.

C:\Users\Simon\Downloads\team20-22>git push
Everything up-to-date

C:\Users\Simon\Downloads\team20-22>
```