

1 You have a **PriceEditor** component that has one property called **price**. How would you use that component?

`<PriceEditor 23.67 />`

`<PriceEditor property="price:23.67" />`

B **A** `<PriceEditor price="23.67" />`

D

F

I

2

You have a **PriceEditor** component that has one property called **price**. How would you make use of that property in the component definition? Choose *two*

I

props.price

Assuming props is a param of the component

A

D

A

priceAssuming props has been declared as a param as (**{price}**)

I

D

B

props.priceAssuming props has been declared as a param as (**{props}**)

B

F

const {price} = useProps()

F

3

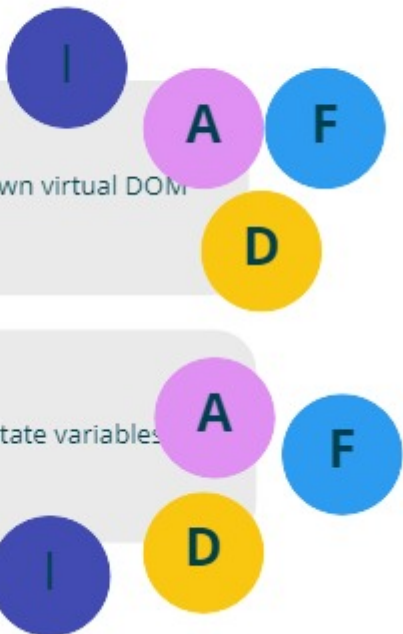
How does React keep track of changes to data in a running application? Choose *two*

An internal database

Its own virtual DOM

The browser's Local and Session storage

State variables



4

How does React's virtual DOM recognize when something has changed?

State hooks cause React to check current and previous state values

A

I

Scanning your code's state variables

Use of its diff algorithm

B

D

F

5

Yes or **No**?

You can modify a state variable by modifying it directly.

YES

NO

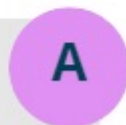
A

F

B

I

D



6

State variables are declared using which syntax?

`const variable = <some initial value>`

`const variable = useState()`

B

`const [variable, setterForVariable] = useState()`

D

F

I

A

7

Why is it important to use the setter method that `useState()` provides to update your state variable?

Choose *two*

It causes React to perform a diff on the state data

F

J

I

It's a safer and OO way of updating the variable

F

It's a hook that causes React to perform other internal actions

J

I

8

What does React call the flow of data changes from child components to parents?

Reverse flow

G

D

B

Inverse flow

F

Unidirectional flow

9

Properties flow from...?

Children to their parent

Parent to their children

B

I

C

D

F

10

Where should state data be placed in a component hierarchy?

In the highest component in the hierarchy

B

D

In the highest common component in the hierarchy

I

F

In the same component where the data is being used

11

How do you modify the state variables that are higher up in the component hierarchy?

F

C

D

By providing a callback to the child components

B

By passing the state variable down the hierarchy as a property

12

Yes or **No**?

Does a static version of your app involve working with data from a server?

YES

B

I

F

NO

G

D

13

Yes or **No**?

Do all React components have to be visible?

YES

NO

G

F

D

I

14

How does the following piece of code cause the component lifecycle to behave?

```
useEffect( () => { ... } )
```

Runs the effect every time for CDM, CDU
and possibly CWU

Runs the effect only once

Runs the effect every time one of its state
variables change

15

How does the following piece of code cause the component lifecycle to behave?

```
useEffect( () => { ... }, [state1] )
```

Runs the effect if the current and previous value of state1 are the same

Runs the effect if the current and previous value of state1 are not the same

Runs the effect if the current and previous values of all other states except state1 have changed



16

How does the following piece of code cause the component lifecycle to behave?

```
useEffect( ( ) => { ... }, [s1, s2] )
```

E

Runs the effect if the current and previous value of s1 or s2 differ

D

F

I

Runs the effect if the current and previous value of s1 and s2 are unchanged

17

Which piece of code tells React to only run the effect on the initial render?

D **F** `useEffect(() => { ... }, [])`

`useEffect(() => { ... })`

`useEffect(() => { ... }, [dataState])`

B

C

I

18

Yes or **No**?

In the following piece of code, data can be a React prop?

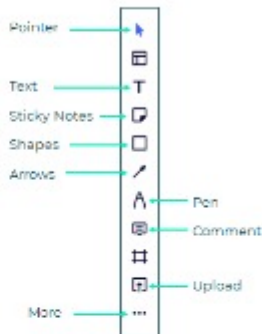
```
useEffect( () => { ... }, [data] )
```



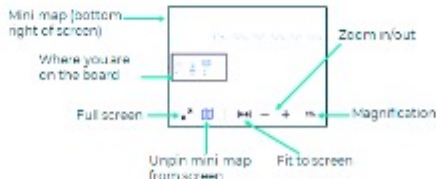


QA Basic navigation tools...

- Main navigation tools (visible to everyone) are on left-hand side of screen
- Can use keyboard shortcuts – e.g. CTRL-G, CTRL-C
- Tools (bottom left of screen) visible to you



QA Basic navigation tools...



Add some
post its!

Press N to
create your
own sticky
notes

Hello
from
Dom

This is
Mike

Kawabunga

Hello!

Draw
something

Press P
to create
your art



Write
something

Press T to
express your
thoughts

OK

Lots of notes

arh nutts

hello!

Objectives for this event



Thinking
in React

Build
stuff

Learn
ReactJS
with details



Regarding webcams

Regarding mute

Frequency of breaks

9:30
Tea Coffee:
15min
lunch: 60
16:30

*Regarding
group participation*

Regarding questions

Anything else

Name

Organisation

Role

Project Types

Dom

Howdens DDT

Junior Digital Developer

Desktop and Mobile apps C#,
Java for 5 years, front and
back end, focused on
engineering and timber
industries. Enjoy game dev.

Started programming in C++ and Java, moved to Java and C#, have played around with
other languages like Python and others.

Tautvydas

Digital Developer

Paul

Senior Software Developer

Technical lead developer

15 years .net experience

C#, Sql Full stack

developer

Web development

Sitacore CMS development

Websites, CMS's
c# developer with
javascript, jquery
experience, CSS,
sass, html etc.

Tony Forrest

MIKE

DIGITAL DEVELOPER (MID)

- DESKTOP (IN THE PAST)
- NOW MORE WEB BASE
- C# DOTNET MOSTLY (3.5 YRS) SOME JAVA,
NOT MUCH FRONT END. PYTHON & C++
BEFORE THAT IN AUDIO
- SOME EXP IN JS ETC BUT NOT MUCH

1 You have a **ProgressBar** component that has one property called **price**. How would you use that component?

`<ProgressBar 25.87 />`

`<ProgressBar property="price 25.87" />`

`<ProgressBar price="25.87" />` ✓

2 You have a **ProgressBar** component that has one property called **price**. How would you make use of that property in the component definition? Choose two.

✓ `prop={price}`
Assigning price to prop of the component

✓ `price`
Assigning price to props directly as prop of the `propType`

`prop={price}`
Assigning price to props directly as prop of the `propType`

`price={price}`
Assigning price to props directly as prop of the `propType`

3 How does React keep track of changes to data in a running application? Choose two.

`ReactDOM.render` ✓

`ReactDOM.render` ✓

The browser's state and localStorage ✓

Subscribers ✓

4 How does React's virtual DOM re-render when something has changed?

React takes state changes and renders the virtual DOM again.

React takes state changes and renders the virtual DOM again.

React takes state changes and renders the virtual DOM again. ✓

5 Yes or No?
You can modify a state variable by modifying it directly.

YES

NO ✓

6 State variables are declared using which syntax?

`const state = {}`

`const state = {}`

`const state = {}` ✓

7 Why is it important to use the `setState()` method that `useState()` provides to update your state variable?

It ensures that the state is updated correctly. ✓

It ensures that the state is updated correctly. ✓

It ensures that the state is updated correctly. ✓

8 What does React call the flow of data changes from child components to parent?

Reverse flow

Forward flow ✓

Children to parent flow

9 Properties flow from...

Children to their parent

Parent to their children ✓

10 Where should state data be placed in a component hierarchy?

At the highest component in the hierarchy.

At the highest component in the hierarchy. ✓

At the lowest component in the hierarchy.

11 How do you modify the state variables that are higher up in the component hierarchy?

By using the `setState()` method. ✓

By using the `setState()` method.

12 Yes or No?
There is a built-in way of your app insider working with data from a server?

YES

NO ✓

13 Yes or No?
Do all React components have to be valid?

YES

NO ✓

14 How does the following piece of code cause the component lifecycle to behave?

`useEffect(() => { ... })`

✓ `useEffect(() => { ... })`

`useEffect(() => { ... })`

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15 How does the following piece of code cause the component lifecycle to behave?

`useEffect(() => { ... }, [data])`

`useEffect(() => { ... }, [data])`

`useEffect(() => { ... }, [data])` ✓

16 How does the following piece of code cause the component lifecycle to behave?

`useEffect(() => { ... }, [data])`

✓ `useEffect(() => { ... }, [data])`

`useEffect(() => { ... }, [data])`

17 Which piece of code below is to only run the effect on the initial render?

✓ `useEffect(() => { ... }, [])`

`useEffect(() => { ... }, [])`

`useEffect(() => { ... }, [data])`

18 Yes or No?
Is the following piece of code data can be a React prop?

`useEffect(() => { ... }, [data])`

YES

NO ✓

1

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`<PriceEditor property="price:23.67" />`

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props.price

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price

Assuming props has been declared as a param as **{{props}}**

const {price} = useProps()

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The browser's Local and
Session storage

State variables



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Scanning your code's state variables

Use of its diff algorithm



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In the same component where the data is being used



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By passing the state variable down the hierarchy as a property



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Yes or No?

Does a static version of your app involve working with data from a server?

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Yes or No?

Do all React components have to be visible?

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Which piece of code tells React to only run the effect on the initial render?



```
useEffect( () => { ... }, [ ] )
```

```
useEffect( () => { ... } )
```

```
useEffect( () => { ... }, [dataState] )
```

18

Yes or No?

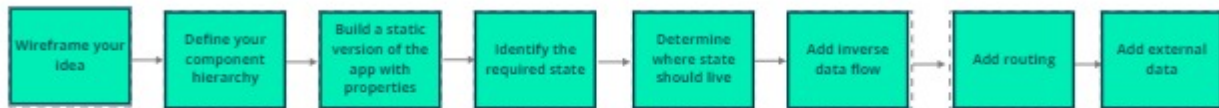
In the following piece of code, data can be a React prop?

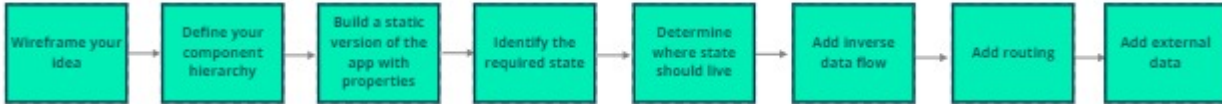
```
useEffect( () => { ... }, [data] )
```

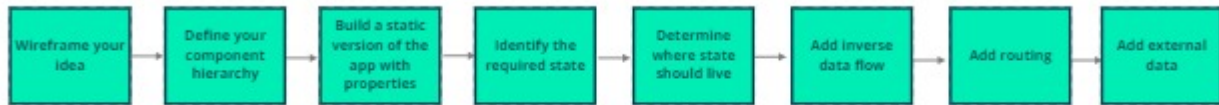


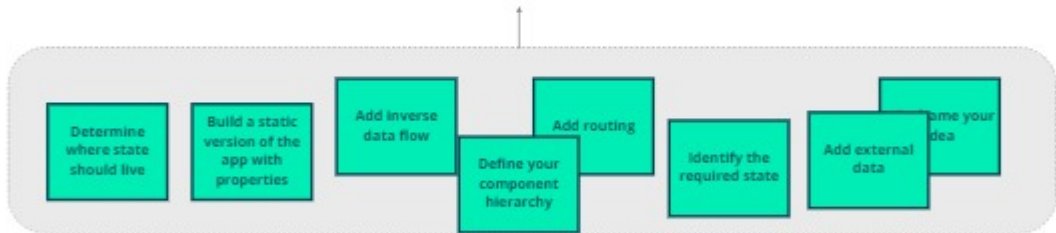
YES

NO









Mini Lab - VAT Calculator

During your Digital Phase you completed labs for a **ToDo** application

As a refresher and to consolidate what you have learnt, you will now develop a simple **VAT Calculator**

← → ↻ ⓘ localhost:3000

VAT CALCULATOR

VAT Rate: 20% ▾

Price excl VAT: 50

VAT to pay: 10

Price incl VAT: 60

User Stories

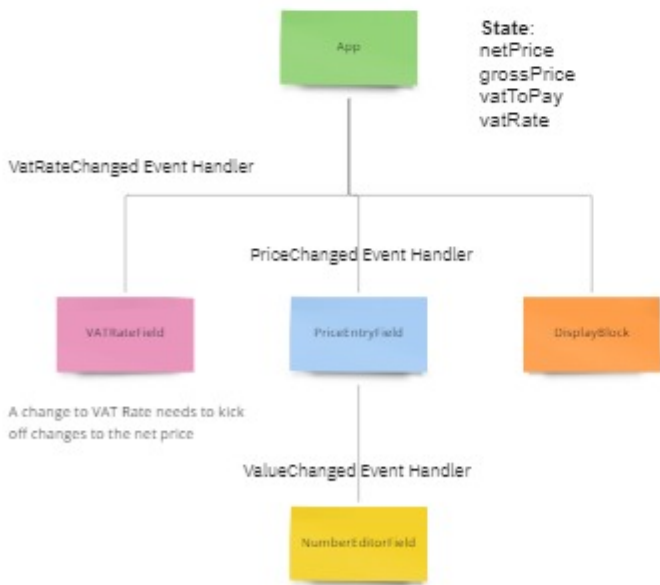
- 1

As a user, I want to be able to calculate the VAT to pay and the net price (price excluding VAT) given the gross price of an item (price including VAT).
- 2

As a user, I want to be able to adjust the VAT rate so that I can meet different government VAT requirements. The VAT rates should be 20%, 15%, 12.5% and 0% (Exempt).
- 3

As a user, I want to be able to calculate the total VAT to pay on an item and the total cost of the item including VAT (gross price) given its price excluding VAT (net price).

Suggested Components



← → ↻ ⓘ localhost:3000

VAT CALCULATOR

VAT Rate: 20% ▾

Price excl VAT: 50

VAT to pay: 10

Price incl VAT: 60

Code in Pairs

Option 1
Code the solution for the VAT calculator in pairs.

Option 2
Code the solution for the VAT calculator along with your instructor.

Mini Lab - Key Takeaways

Add stickies describing your key takeaways from this activity.



Dockerizing a React Application



Step 1:

Create a **Dockerfile** in the root of your React Application directory

```
vat-calculator > Dockerfile > ...
1  # Set the base image to node:17-alpine
2  FROM node:17-alpine as build
3
4  # Specify where our app will live in the container
5  WORKDIR /app
6
7  # Copy the React App to the app directory in the container
8  COPY . /app/
9
10 # Install the app dependencies
11 RUN npm install
12 # Build a production version
13 RUN npm run build
14
15 # Prepare nginx
16 FROM nginx:1.21.6-alpine
17 # Copy the built react app from alpine container to nginx container
18 COPY --from=build /app/build /usr/share/nginx/html
19 # Copy our new config file for nginx
20 COPY nginx/nginx.conf /etc/nginx/conf.d/default.conf
21
22 # Start nginx
23 EXPOSE 80
24 CMD ["nginx", "-g", "daemon off;"]
25
```

Right click picture and select
"Send to back" to reveal copyable code

Step 2:

Create a **.dockerignore** file in the root of your React Application directory

```
vat-calculator >  .dockerignore
```

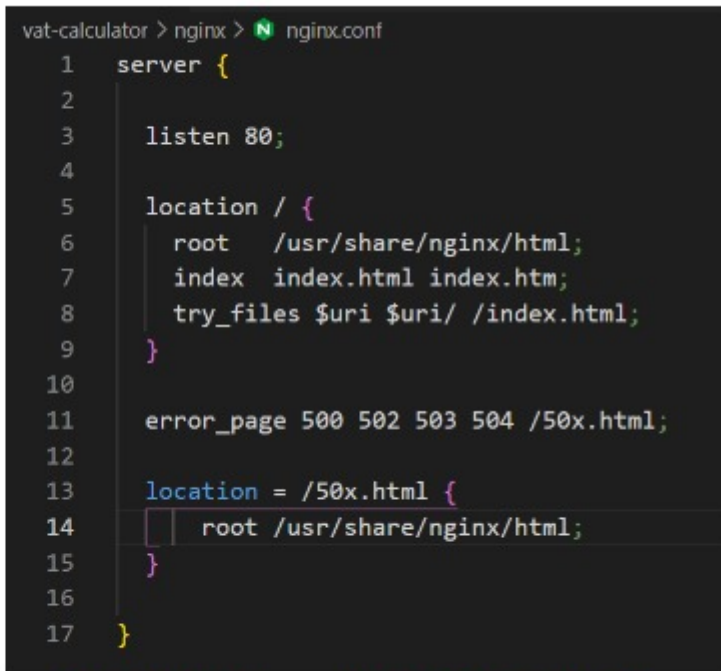
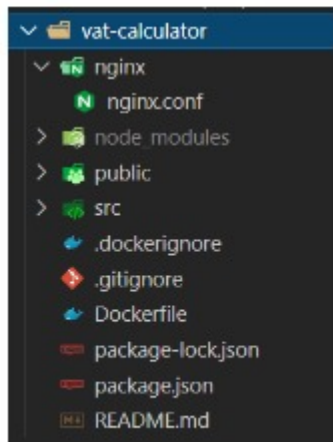
```
1  node_modules
```

```
2  |
```

Step 3:

Create an **nginx** folder in the root of your React Application folder.

Add a file: **nginx.conf**



Right click picture and select "Send to back" to reveal copyable code

Step 4:

Build your docker image and tag it as **vat-calculator:1.0**

```
C:\Total_Learning_React\Demos\vat-calculator>docker build --tag vat-calculator:1.0 .  
[+] Building 671.4s (18/18) FINISHED  
=> [internal] load build definition from Dockerfile  
=> => transferring dockerfile: 631B  
=> [internal] load .dockerignore
```

```
docker build --tag vat-calculator:1.0 .
```

Step 5:

Verify your image exists using the **docker images** command

```
C:\Total_Learning_React\Demos\vat-calculator>docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
vat-calculator	1.0	36c290509464	4 minutes ago	20.9MB
mongo	4.2	0df68ce04956	5 days ago	388MB

Create and run a container based on the image

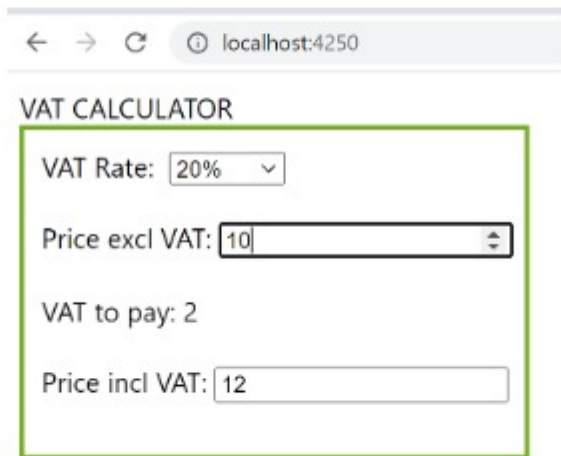
Name the container **vat-container** and expose it on an un-used port, for example: **4250**

```
C:\Total_Learning_React\Demos\vat-calculator>docker run -p 4250:80 -d --name vat-container vat-calculator:1.0
783b0b28dbdf014302b4e04ffcbdddfdd5fdc40152a125e1dfc7368247d177d
```

```
docker run -p 4250:80 -d --name vat-container vat-calculator:1.0
```

Step 6:

Browse to the port you exposed and confirm your application is running.



A screenshot of a web browser window. The address bar shows 'localhost:4250'. The page title is 'VAT CALCULATOR'. The form contains the following elements:

- VAT Rate: 20% (dropdown menu)
- Price excl VAT: 10 (input field)
- VAT to pay: 2 (text label)
- Price incl VAT: 12 (input field)

The entire form area is enclosed in a green rectangular border.

React: Deploying a React Application



.gitlab-ci.yml

```
vat-calculator > 📄 .gitlab-ci.yml > ...
  gitlab-ci (ci.json)
1  # A BUILD stage to confirm the React App Builds
2  # A TEST stage to run any React tests
3  # A DOCKER-BUILD stage to containerize the app using a Dockerfile and push the image to the Container Registry
4  # A DEPLOY stage to pull the image onto an AWS EC2 instance and spin up a container
5  stages:
6    - build
7    - test
8    - docker-build
9    - deploy
10
11  build:
12    stage: build
13    image: node
14    script:
15      - echo "Start building App"
16      - npm install
17      - npm run build
18      - echo "Built successfully!"
19  artifacts:
20    expire_in: 1 hour
21    paths:
22      - build
23      - node_modules/
24
```

Right click picture and select "Send to back" to reveal copyable code

```
24
25 test:
26   stage: test
27   image: node
28   script:
29     - echo "Testing App"
30     - CI=true npm test
31     - echo "Tested successfully!"
32
```

Right click picture and select "Send to back" to reveal copyable code

```
32
33 docker-build:
34   stage: docker-build
35   # this version of docker is used to prevent 'access denied' errors when connecting from EC2
36   image: docker:19.03.12
37   services:
38     - name: docker:19.03.12-dind
39   before_script:
40     # login to Gitlab's docker registry using the built-in stored credentials
41     - docker login -u "$CI_REGISTRY_USER" -p "$CI_REGISTRY_PASSWORD" $CI_REGISTRY
42   script:
43     # Build the image from the Dockerfile. Ensure the base images are up-to-date by pulling the
44     # latest images referenced
45     # Tag the image with the address of the project's Container Registry
46     - docker build --pull -t "$CI_REGISTRY_IMAGE" .
47     # Push the new image to the Container Registry
48     - docker push "$CI_REGISTRY_IMAGE"
49
```

Right click picture and select "Send to back" to reveal copyable code

```
deploy:
  stage: deploy
  # need an image that will enable us to ssh int our cloud server
  image: kroniak/ssh-client
  before_script:
    - echo "Deploying app"
    # need variable in gitlab: SSH_PRIVATE_KEY and PROD_SERVER_IP
  script:
    - chmod 400 $SSH_PRIVATE_KEY
    - ssh -o StrictHostKeyChecking=no -i $SSH_PRIVATE_KEY ec2-user@$PROD_SERVER_IP "echo 'hello from your AWS EC2 instance'"
    - echo "Did I connect to EC2?"
    - ssh -o StrictHostKeyChecking=no -i $SSH_PRIVATE_KEY ec2-user@$PROD_SERVER_IP "echo 'try to perform a docker login'"
    - ssh -o StrictHostKeyChecking=no -i $SSH_PRIVATE_KEY ec2-user@$PROD_SERVER_IP "sudo docker login -u \"$CI_REGISTRY_USER\" -p \"$CI_REGISTRY_PASSWORD\" $CI_REGISTRY"

    - ssh -o StrictHostKeyChecking=no -i $SSH_PRIVATE_KEY ec2-user@$PROD_SERVER_IP "sudo docker pull registry.gitlab.com/qa167/vat-calculator"
    - echo "Pulled"
    - ssh -o StrictHostKeyChecking=no -i $SSH_PRIVATE_KEY ec2-user@$PROD_SERVER_IP "docker stop vatcontainer || true && docker rm vatcontainer || true"
    - ssh -o StrictHostKeyChecking=no -i $SSH_PRIVATE_KEY ec2-user@$PROD_SERVER_IP "docker run -p 3001:80 -d --name vatcontainer registry.gitlab.com/qa167/vat-calculator"
```

Right click picture and select "Send to back" to reveal copyable code



⚠ Not secure | 3.250.223.42:3001

VAT CALCULATOR

VAT Rate: ▾

Price excl VAT:

VAT to pay: 0

Price incl VAT:

Instances (1) [Info](#)

Connect

Instance state ▾

Actions ▾

Launch instances ▾



Search

< 1 >



Instance state = running X

Clear filters

<input type="checkbox"/>	Name ▾	Instance ID	Instance state ▾	Instance type ▾	Status check	Alarm status	Availability Zone ▾	Public IPv4 DNS ▾	Public IP
<input type="checkbox"/>	DevOpsSec...	i-015c313a/71B7ae8	running @	t2.micro	2/2 checks passed	No alarms +	eu-west-1b	eu3-1-250-223-42.eu-a...	3.250.22

Inbound rules (5)



Manage tags

Edit inbound rules

Filter security group rules

< 1 >



<input type="checkbox"/>	Name ▾	Security group rule... ▾	IP version ▾	Type ▾	Protocol ▾	Port range
<input type="checkbox"/>	-	sgr-050c5d0dda6e888...	IPv4	Custom TCP	TCP	3005
<input type="checkbox"/>	-	sgr-0ac385047b786ab...	IPv4	HTTPS	TCP	443
<input type="checkbox"/>	-	sgr-00c7bd501e077db...	IPv4	Custom TCP	TCP	5001
<input type="checkbox"/>	-	sgr-0d2e0bd8d5c597fc	IPv4	HTTP	TCP	80
<input type="checkbox"/>	-	sgr-017253aa9df0856b1	IPv4	SSH	TCP	22

Open EC2 instance command line interface:



Install Docker on your Amazon Linux 2 instance:

```
sudo yum update -y
sudo amazon-linux-extras install docker
sudo service docker start
sudo systemctl enable docker
sudo usermod -a -G docker ec2-user
```

Log out of your instance, then log back in to confirm your permissions

```
docker info
```



```
$ ssh-keygen -m PEM -t rsa -b 4096 -C "yourAWSemail@email.com"
```

```
$ cat ~/.ssh/id_rsa
```

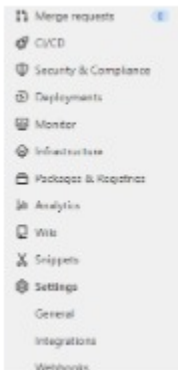
```
$ cat ~/.ssh/id_rsa.pub >> ~/.ssh/authorized_keys
```

```
[ec2-user@ip-172-31-35-72 ~]$ cat ~/.ssh/id_rsa  
-----BEGIN RSA PRIVATE KEY-----  
MIIEJKAIBAAKCAgEAsavnGAXayl6C12ej0yVxej1rmABgYgj5YumbkoTuqB+1LysV  
abOsXRiEDNclu619q9o+kE/p2wFN9QTDD0pvqlY1VNsssi6TnAoyqM/NWFOZjpoP  
xBiPw2mE81xQ+sOYvcnrut9IhztDHcFfsd+XvPG909JRP31nF0DAm1dLqmsH1AX9  
qFO92/dtcvWCFnSYyXr4/5onh+e7dgKawIODLu0Lh0QZbT7cFbXWPcgj7k21b3mq  
rVIPTStAD34v6789fX05A0vtRXDouQEPEKnypGVuMuZ/h5DcuxvRIg8DqVwttFMJ  
qAifHpf0dw7A/7vHx74K7ni2Tqj7IQnWvoyK55q6P3z+sBx7zRNYnnd+skPD/Nq/
```

```
PQCKydEiqU1AXdXbrA1Az/SgVKYj2FRB4lNQERAP1YNKBBuqDBXyHp1bGSjib4s9  
yR9q/e+muIYcAgyNUdKtDPaXVG4550/hbNGEX/V9hx5HmngMz1aIxo/5lCb9dtsX  
psSG8MKPE/ssTN97G0JDR76rvapOR3LTm0GhalqXc2+aR9nxNuc9cOERwMM=  
-----END RSA PRIVATE KEY-----
```

Be sure to include these lines
when copying

Consider using a tool like PUTTY to run the above scripts simply because it's easier to select, copy and paste the private key ready for the next step



Variables

Variables store information like passwords and secret keys, that you can use in job scripts. [Learn more.](#)

Variables can be:

- Protected:** Only exposed to protected branches or tags.
- Masked:** Hidden in job logs. Must match masking requirements. [Learn more.](#)

Environment variables are configured by your administrator to be protected by default.

Type	Key	Value	Protected	Masked	Environments
Variable	PROD_SERVER_IP	54.198.115.11	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	All (default)
File	SSH_PRIVATE_KEY	-----BEGIN RSA PRIVATE KEY----- PQ213U... -----END RSA PRIVATE KEY-----	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	All (default)

Add variable

Reveal values

Copy the whole private key into a
GitLab project *file* called:
SSH_PRIVATE_KEY

Copy the AWS EC2 instance's Public IP
address into a GitLab project *variable*
called: **PROD_SERVER_IP**

public IP address of
AWS EC2 instance

Update variable

Key: PROD_SERVER_IP

Value: 54.198.115.11

Type: Variable

Environment scope: All environments

Flags: ☒ Protected variable, ☐ Mask variable

Buttons: Cancel, Update variable, Update variable

Update variable

Key: SSH_PRIVATE_KEY

Value: -----BEGIN RSA PRIVATE KEY-----
PQ213U...
-----END RSA PRIVATE KEY-----

Type: File

















Environment scope: All environments

Flags: ☒ Protected variable, ☐ Mask variable

Buttons: Cancel, Update variable, Update variable

From previous step

Push some code changes to your GitLab repository and watch the pipeline stages run.


Status	Pipeline	Trigger	Stages
<div> passed</div> <div>00:10:09</div> <div>35 minutes ago</div>	<div>Added comments to pipeline and an Orange border</div> <div>#519709447  main -> 6ccaa73c </div> <div>latest</div>		<div>   </div> <div>...</div>
<div> passed</div> <div>00:09:32</div> <div>44 seconds ago</div>	<div>Added word-wrap to yml and a Magenta border</div> <div>#519855776  main -> 8a95ba10 </div> <div>latest</div>		<div>   </div> <div>...</div>



Not secure

| 3.250.223.42:3001

VAT CALCULATOR

VAT Rate: 

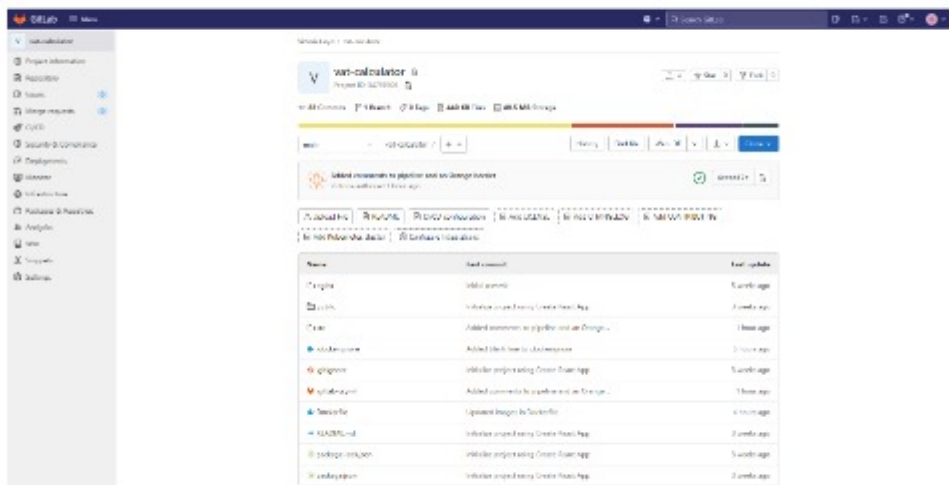
Price excl VAT:

VAT to pay: 0

Price incl VAT:

Create a GitLab project and push your React App code to its repository.

Add a GitLab pipeline to the project by adding a special file called: `.gitlab-ci.yml`



The screenshot displays the GitLab web interface for a project named 'van-calculator'. The left sidebar contains navigation links for various project features. The main content area shows the project's CI/CD pipeline configuration, including a table of jobs and their execution status.

Navigation Links (Left Sidebar):

- Project information
- Repository
- Issues
- Merge requests
- CI/CD
- Security & Compliance
- Deployments
- Container
- Infrastructure
- Package & Registry
- Analysis
- Wiki
- Settings

Project Details:

- Project: van-calculator
- Project ID: 3478804
- Web IDE: Available
- CI/CD: Available

CI/CD Pipeline Configuration:

The pipeline is defined in the `.gitlab-ci.yml` file. The configuration includes a `stages` section with `test` and `deploy` stages, and a `jobs` section with the following jobs:

Job Name	Script	Status
test	npm test	Success
deploy	npm run build & npm run deploy	Success
test	npm test	Success
deploy	npm run build & npm run deploy	Success
test	npm test	Success
deploy	npm run build & npm run deploy	Success
test	npm test	Success
deploy	npm run build & npm run deploy	Success
test	npm test	Success
deploy	npm run build & npm run deploy	Success

Task 1: Designing a Learning Path

1. **Identify the Learning Objectives:** Determine what you want your students to know and be able to do by the end of the course.

2. **Assess Current Knowledge:** Conduct a pre-assessment to gauge students' existing knowledge and skills related to the topic.

3. **Design the Learning Path:** Create a sequence of activities, resources, and assessments that will lead students to achieve the learning objectives.

4. **Implement the Path:** Deliver the learning path to your students, providing support and guidance as needed.

5. **Evaluate and Reflect:** Assess student progress and reflect on the effectiveness of the learning path to make improvements.

Activity 1

Activity 1: Introduction to the Course

Duration: 15 minutes

Objectives: Students will understand the course structure, goals, and expectations.

Activities: Welcome speech, overview of the course, and a Q&A session.

Activity 2: Review of Prerequisites

Duration: 10 minutes

Objectives: Students will review key concepts and skills from previous courses.

Activities: Lecture on prerequisite topics and a short quiz.

Activity 3: Setting Expectations

Duration: 10 minutes

Objectives: Students will understand the course requirements and how to succeed.

Activities: Discussion on course expectations and a student testimonial.

Activity 2

Activity 2: Introduction to the Course

Duration: 15 minutes

Objectives: Students will understand the course structure, goals, and expectations.

Activities: Welcome speech, overview of the course, and a Q&A session.

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Duration: 10 minutes

Objectives: Students will understand the course requirements and how to succeed.

Activities: Discussion on course expectations and a student testimonial.

Activity 4

Activity 4: Introduction to the Course

Duration: 15 minutes

Objectives: Students will understand the course structure, goals, and expectations.

Activities: Welcome speech, overview of the course, and a Q&A session.

Activity 5

Activity 5: Review of Prerequisites

Duration: 10 minutes

Objectives: Students will review key concepts and skills from previous courses.

Activities: Lecture on prerequisite topics and a short quiz.

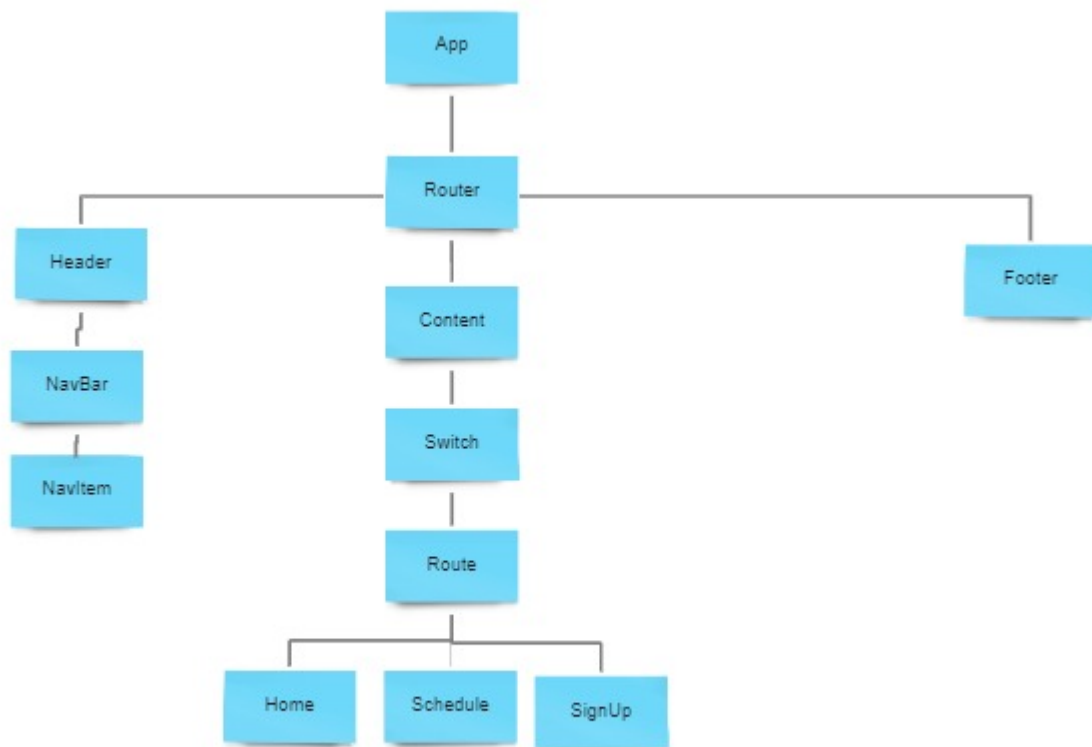
Activity 6

Activity 6: Setting Expectations

Duration: 10 minutes

Objectives: Students will understand the course requirements and how to succeed.

Activities: Discussion on course expectations and a student testimonial.





What	How	Why
What	How	Why
What	How	Why
What	How	Why

What	How	Why
What	How	Why
What	How	Why
What	How	Why

What was good?	What was bad?
What	Actions

What was good?	What was bad?
What	Actions



Key insight: The key insight is the key insight.



Key insight: The key insight is the key insight.



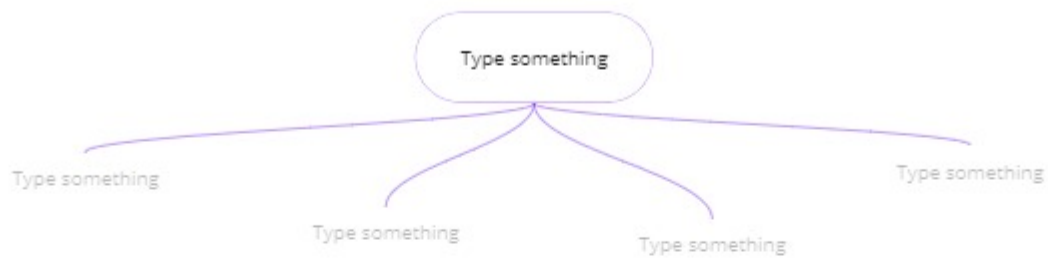
Key insight: The key insight is the key insight.



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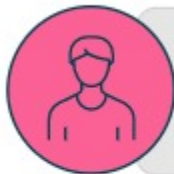


To do

In progress

Done





As a User, I want to be able to leave a review for a movie, so that other Users can decide whether the Movie is worth going to see.



As a User, I want to be able to access the website on any device, so that I can access the information I need on the device of my choice.



As a User, I want to be able to subscribe to the website using a form, so that I can receive the latest promotions and information.



As a User, I want to be able to login to the service, so that I have access to user specific features like reviews.



As a User, I want to be able to register to the site, so that I can login to the site and use special features.

To do

In progress

Done



What was good?

What was bad?

Ideas

Actions

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What was bad?

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Learning is the process of acquiring new knowledge, skills, and attitudes through experience, reflection, and practice.



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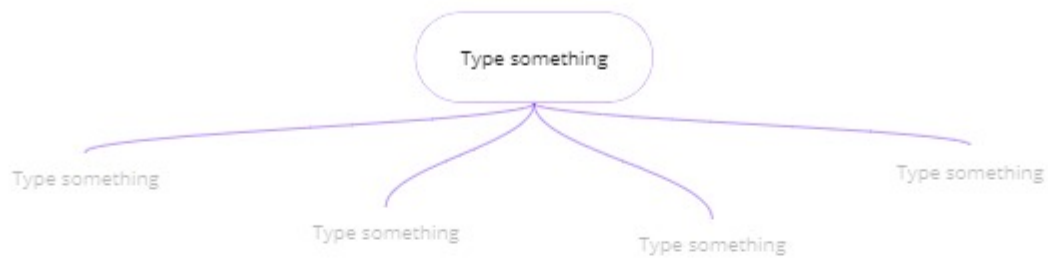
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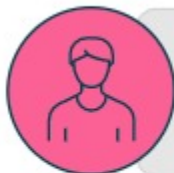


To do

In progress

Done





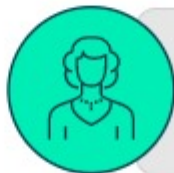
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Super learning is the ability to learn quickly and efficiently, and to learn from a wide range of sources.



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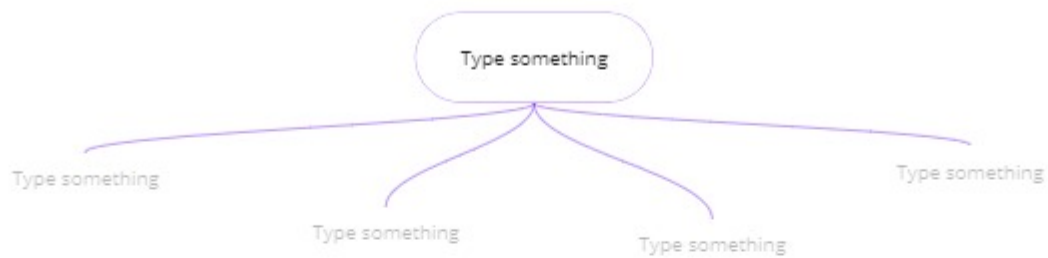
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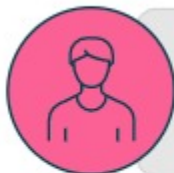


To do

In progress

Done





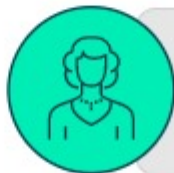
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To do

In progress

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What was bad?

Ideas

Actions

Securing a React Application with JWT



```
const Login = () => {
  const [user, setUser] = useState({username: '', password: ''})
  const [isAuthenticated, setAuth] = useState(false);

  const handleChange = (event) => {
    setUser({...user, [event.target.name] : event.target.value})
  }
}
```

The React Login component submits (POSTs) the user state object to the REST API's login endpoint and then checks for an **Authorization** Header in the returned **Response** object

It stores the value of the Authorization Header (the sent JSON Web Token (JWT)) in Session storage

It then sets the **isAuthenticated** state variable to true

```
const login = () => {
  fetch(SERVER_URL + 'login', {
    method: 'POST',
    body: JSON.stringify(user)
  })
  .then(res => {
    const jwtToken = res.headers.get('Authorization');
    if (jwtToken !== null) {
      sessionStorage.setItem("jwt", jwtToken);
      setAuth(true);
    }
    else {
      toast.warn("Check your username and password", {
        position: toast.POSITION.BOTTOM_LEFT
      })
    }
  })
  .catch(err => console.error(err))
}
```

```
if (isAuthenticated === true) {
  return (<Carlist />)
}
else {
  return (
    <div>
      <TextField name="username"
        label="Username" onChange={handleChange} /><br/>
      <TextField type="password" name="password"
        label="Password" onChange={handleChange} /><br/><br/>
      <Button variant="outlined" color="primary"
        onClick={login}>
        Login
      </Button>
      <ToastContainer autoClose={1500} />
    </div>
  );
}

export default Login;
```

```

fetchCars = () => {
  // Read the token from the session storage
  // and include it in the Authorization header
  const token = sessionStorage.getItem("jwt");
  fetch(SERVER_URL + 'api/cars',
    {
      headers: { 'Authorization': token }
    })
    .then((response) => response.json())
    .then((responseData) => {
      this.setState({
        cars: responseData._embedded.cars,
      });
    })
    .catch(err => console.error(err));
}

```

All other component functions attach the JWT to the `Request` header from Session storage.

```

// Add new car
addCar(car) {
  const token = sessionStorage.getItem("jwt");
  fetch(SERVER_URL + 'api/cars',
    {
      method: 'POST',
      headers: {
        'Content-Type': 'application/json',
        'Authorization': token
      },
      body: JSON.stringify(car)
    })
    .then(res => this.fetchCars())
    .catch(err => console.error(err))
}

```


POST localhost:8686/login

Send

Params Authorization Headers (10) Body Pre-request Script Tests Settings

Cookies

none form-data x-www-form-urlencoded raw binary GraphQL Text

```
1 { "username": "admin", "password": "adminpass" }
```

Body Cookies (0) Headers (15) Test Results

Status: 200 OK Time: 108 ms Size: 615 B Save Response

KEY	VALUE
Vary	Origin
Vary	Access-Control-Request-Method
Vary	Access-Control-Request-Headers
Authorization	Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpzZW50L3p0IiwiaWF0IjoxNjQ1MzI5MjE5MDcyOTgwInQ.DW..
Access-Control-Expose-Headers	Authorization
X-Content-Type-Options	noSniff
X-XSS-Protection	1; mode=block
Cache-Control	no-cache, no-store, max-age=0, must-revalidate
Pragma	no-cache
Expires	0

Postman shows the **Authorization** header that is returned from the REST API

← → 🌐 localhost:3000

CarList

Username
user

Password

LOGIN

After a successful login, the app shows a list of Cars that can be edited or deleted

← → 🌐 localhost:3000

CarList

[NEW CAR](#) [Export CSV](#)

Brand	Model	Color	Year	Price €		
Ford	Focus		2017	59000	EDIT	DELETE
Audi	TT		2014	29000	EDIT	DELETE
BMW	5 Series		2016	39000	EDIT	DELETE

Repository for Security Frontend

https://github.com/QA-Instructor/car_react.git

Repository for Security Backend

https://github.com/QA-Instructor/car_database_jwt.git

Note: The demo uses OIDC/OAuth2 which is no longer a recommended approach to protect public applications. The new recommended approach is to use OAuth2 authorisation code grant with Proof key for code exchange (PKCE). See:

<https://www.taithienbo.com/why-the-implicit-flow-is-no-longer-recommended-for-protecting-a-public-client>

[OAuth 2.0 — OAuth](#)

Microsoft are removing this the old flow in Azure and assume the other big players will follow:

[OAuth 2.0 implicit grant flow - The Microsoft Identity platform - Microsoft Entra | Microsoft Learn](#)

Possible framework to help out?

[react-oauth2-code-pkce - npm \[npmjs.com\]](#)

Images:

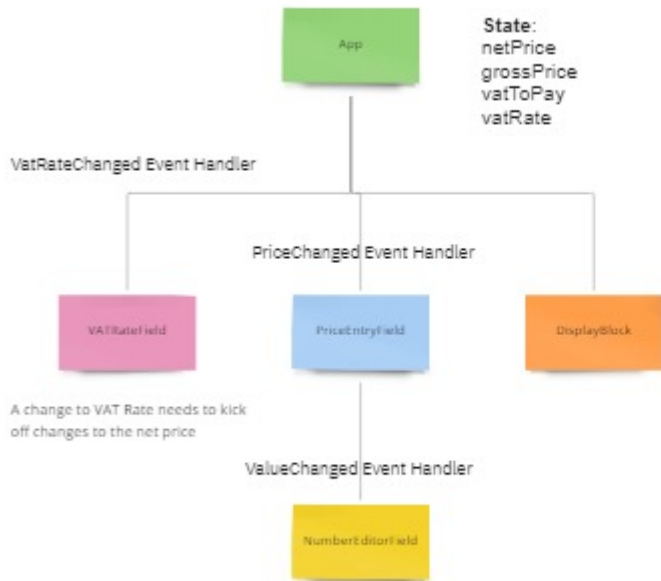
<https://tinyurl.com/2p83j5zn>

CSS and DATA

<https://github.com/QA-Instructor/classic-cinema-company-assets.git>

One solution to the VAT calculator :

<https://github.com/QA-Instructor/vat-calculator>



← → ↻ ⓘ localhost:3000

VAT CALCULATOR

VAT Rate:

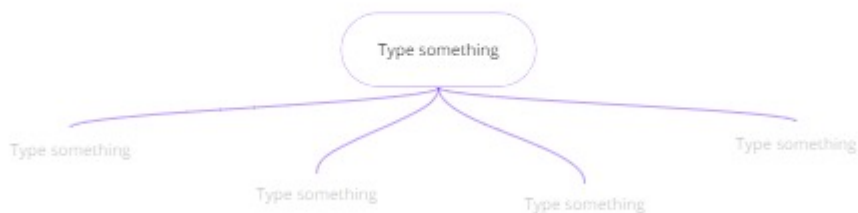
Price excl VAT:

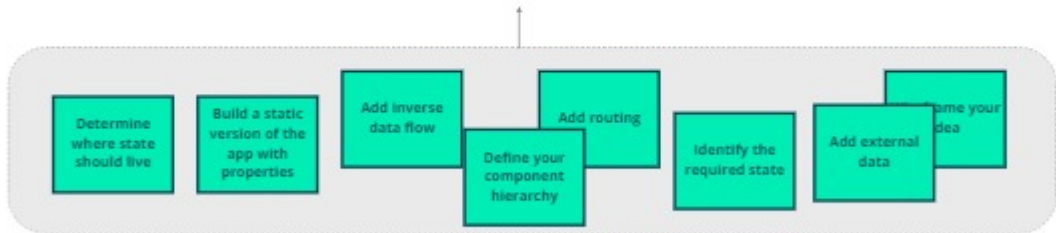
VAT to pay:

Price incl VAT:

G3 - Mini Lab - Component Hierarchy

Based on the user stories, design a component hierarchy for the VAT calculator.
Consider how you might re-use components.







What was good? In the first session, we had a lot of time to talk about the things that we did well on.



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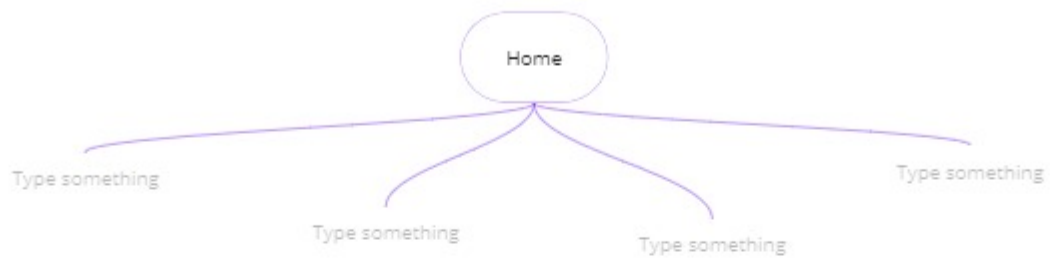
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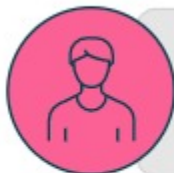


To do

In progress

Done





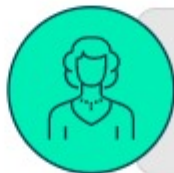
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To do

In progress

Done



What was good?

What was bad?

Ideas

Actions

What was good?

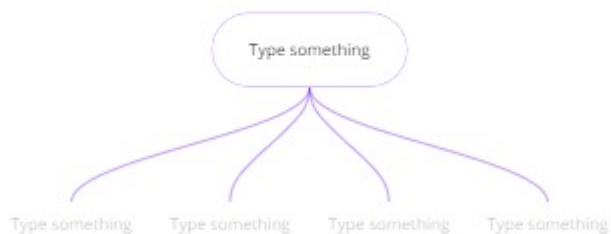
What was bad?

Ideas

Actions

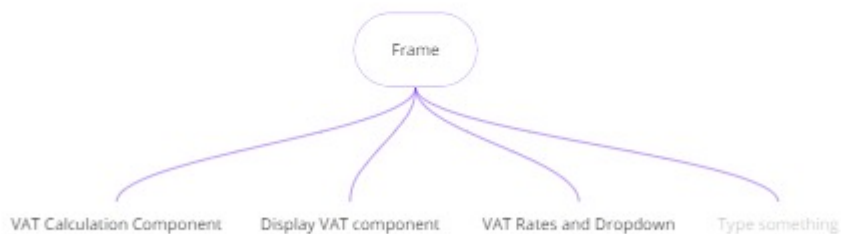
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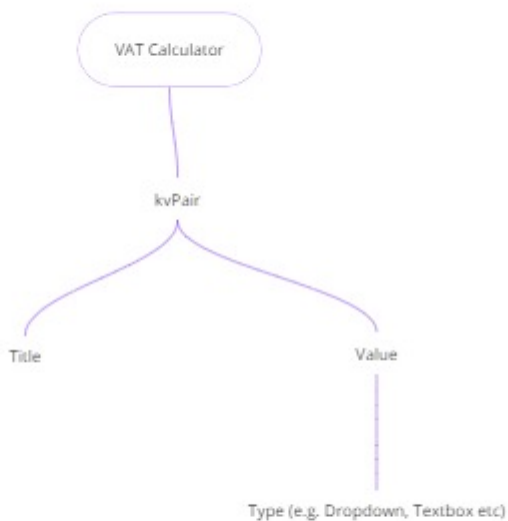
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Routing V6.0 app:

[QACS-TL/ReactTL-RouterV6Films \(github.com\)](https://github.com/QACS-TL/ReactTL-RouterV6Films)

Routing V5.0 app:

[QACS-TL/ReactTL-RouterV5Films \(github.com\)](https://github.com/QACS-TL/ReactTL-RouterV5Films)

[Migrating to React Router v6: A complete guide - LogRocket Blog](#)

package.json:
major.minor.patch

1.0.2
Major, minor and patch represent the different releases of a package.
npm uses the tilde (~) and caret (^) to designate which patch and minor versions to use respectively.
So if you see ~1.0.2 it means to install version 1.0.2 or the latest patch version such as 1.0.4.
If you see ^1.0.2 it means to install version 1.0.2 or the latest minor or patch version such as 1.1.0.
For more see: [What's the difference between a tilde \(~\) and a caret \(^\) in a npm package.json file? / Michael Lee \(michaelsoplee.com\)](#)

A possible solution to the Cinema Lab uses a C# .NET app as server:
[QACS-TL/QACinemaProjectSolution \(github.com\)](https://github.com/QACS-TL/QACinemaProjectSolution)