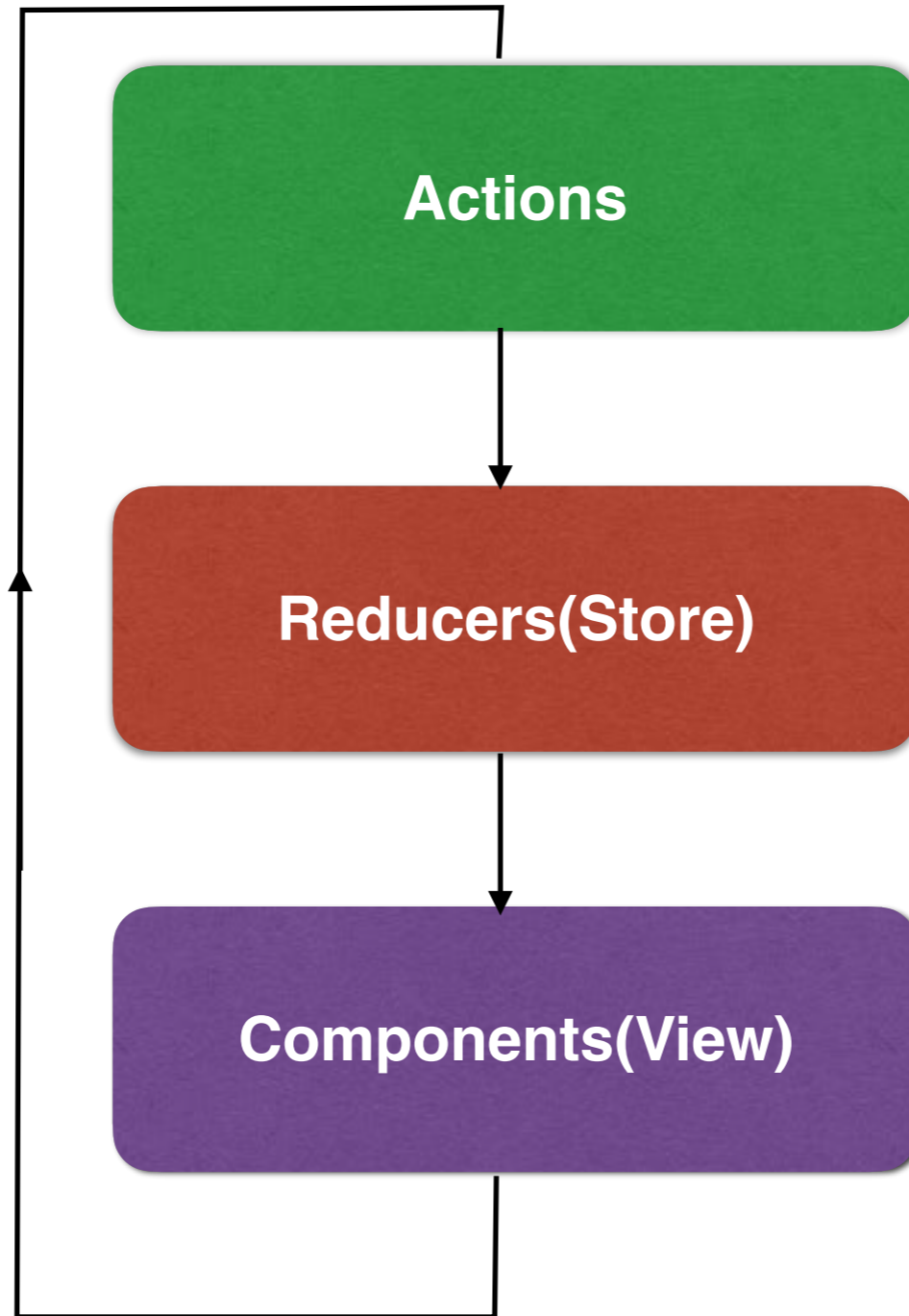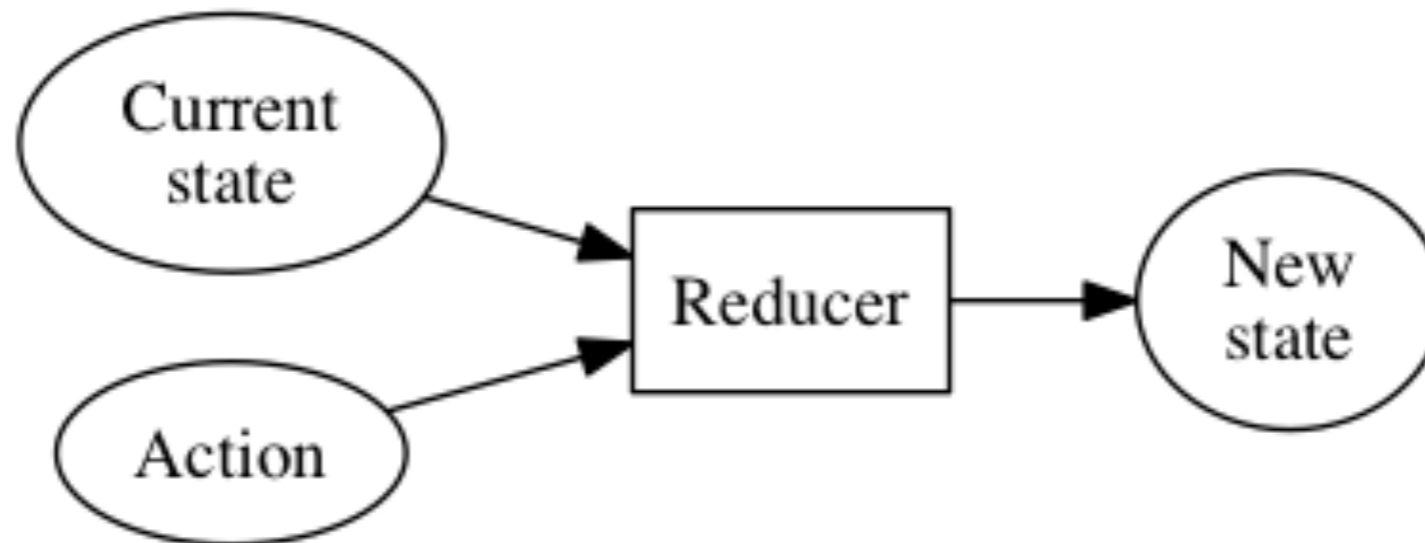# Testing Single Page Application

Why Test

- Easier to start developing

- Code Quality

- Minimise code regression

- Confidence in product

Redux

```
export function clearAll() {
    return { type: 'CLEAR_ALL' };
}
```

```
case 'CLEAR_QUEUE': {
    return Object.assign({}, state, { queue: {} });
}
```

React

```jsx
import React from 'react';

import 'bootstrap-webpack!bootstrap-webpack/bootstrap.config.js';
import { Button, ButtonToolbar } from 'react-bootstrap';

import './style.css';

export default class DefaultInput extends React.Component {

  constructor(props) {
    super(props);
    this.cancel = this.cancel.bind(this);
  }

  cancel() {
    this.props.onCancel();
  }

  render() {
    return (
      <div>
        <div className="popinput-input-busy">
        </div>
        <ButtonToolbar className="editable-buttons">
          <Button bsStyle="default" className="btn-sm" onClick={this.cancel}>
            <i className="glyphicon glyphicon-remove" />
          </Button>
        </ButtonToolbar>
      </div>
    );
  }
}

DefaultInput.defaultProps = {
  onCancel: undefined,
};
```

Actions

```javascript
export function clearAll() {
  return { type: 'CLEAR_ALL' };
}
```

```javascript
describe('queue actions', () => {
  it('should create an action to clear queue', () => {
    const expectedAction = {
      type: 'CLEAR_ALL',
    }
    expect(clearAll()).toEqual(expectedAction)
  })
})
```

Reducers

```
case 'CLEAR_QUEUE': {
  return Object.assign({}, state, { queue: {} });
}
```

```
it('should handle CLEAR_QUEUE', () => {
  expect(
    reducer(
      {
        queue: {1: "dadas", 2: "adsad"},
        current: { node: null, running: false },
        searchString: '',
        queueStatus: QUEUE_STOPPED,
        showResumeQueueDialog: false,
        visibleList: 'current'
      }, {
        type: 'CLEAR_QUEUE',
      })
  ).toEqual(
    {
      queue: {},
      current: { node: null, running: false },
      searchString: '',
      queueStatus: QUEUE_STOPPED,
      showResumeQueueDialog: false,
      visibleList: 'current'
    }
  )
})
})
```

Components

```javascript
import React from 'react'
import { shallow } from 'enzyme'
import TaskItem from '../mxcube3/ui/SampleQueue/TaskItem'

function setup() {
  const props = {
    changeSample: jest.fn()
    sampleName: 'TestSample'
  }

  const enzymeWrapper = shallow(<TaskItem {...props} />)

  return {
    props,
    enzymeWrapper
  }
}

describe('components', () => {
  describe('TaskItem', () => {
    it('should render taskItem with correct props', () => {
      const { enzymeWrapper } = setup()

      expect(enzymeWrapper.find('node-name').hasValue('TestSample'))
    })
  })
})
```

`PASS` __tests__/**queue.test.js**
  queue actions
    ✓ should create an action to clear queue (3ms)
  queue reducer
    ✓ should return the initial state (1ms)
    ✓ should handle ADD_TODO (1ms)

Test Suites: **1 passed**, 1 total
Tests: **3 passed**, 3 total
Snapshots: 0 total
Time: 2.967s, estimated 3s
Ran all test suites.

Are we safe?