TECKY ACADEMY

Redux in TypeScript

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15+ years programming experience

Lead Instructor in **Tecky Academy**

CTO in a AI + Computer Vision Company

- China Merchants Cup **Winner**

CTO in a Basketball League Company

- Real-time video live streaming with overlay

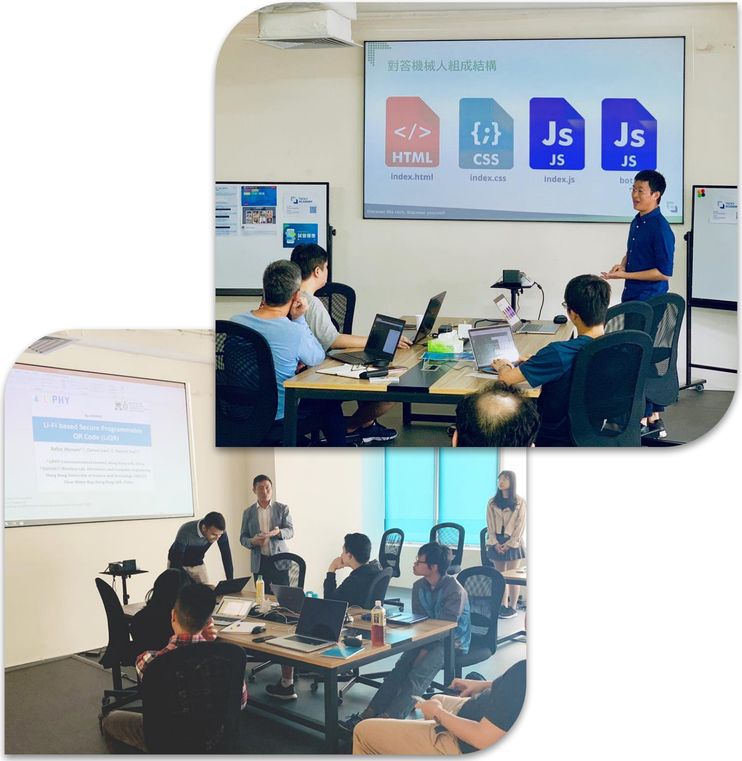
Ex-CTO in a Mobile App Dev Company

- ICT Award Grand and Gold Award **Winner**
- HSBC YB Award **Winner**
- Innovative Entrepreneur **Awardee**

About **Tecky Academy**

Providing affordable and career-centric technology education to those who are interested in pursuing a career in the technology field

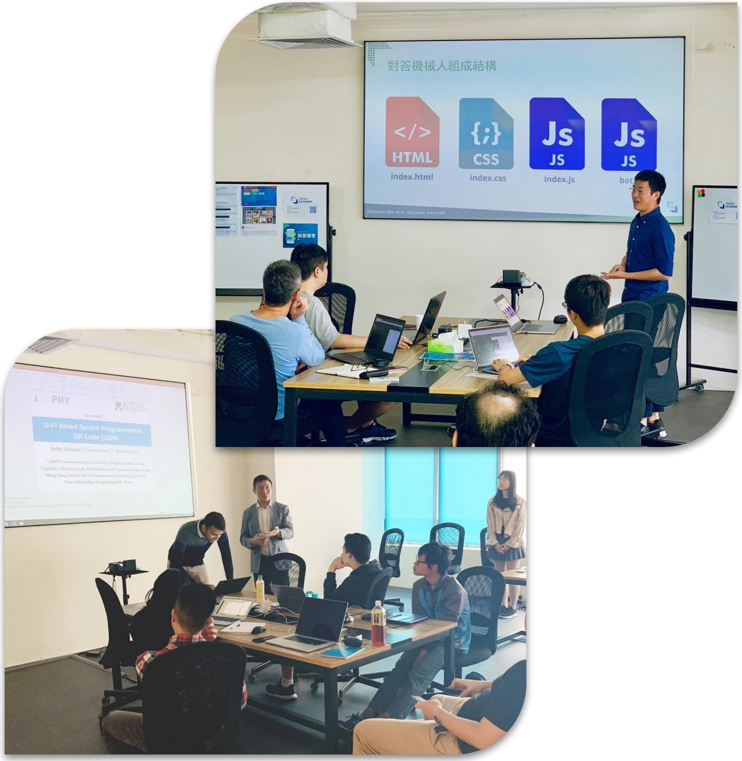
“Discover the tech, Discover yourself” is our motto



About **Tecky Academy**

3-month full time Coding Bootcamp

- HTML CSS JS in the hard way
- TypeScript
- React + TypeScript
- Node.js + TypeScript
- React Native + TypeScript
- React Native Redux + TypeScript
- DevOps AWS CI/CD...



Today’s Topic

TypeScript

Redux

TypeScript

JavaScript that scales

A statically typed superset of JavaScript
that compiles to plain JavaScript.

Any browser. Any host. Any OS.

TypeScript 101

```
function greeter(person: string) {
    return "Hello, " + person;
}


let user = "Jane User";


console.log(greeter(user));
```

TypeScript 101

```
function greeter(person: string) {
    return "Hello, " + person;
}

let user = "Jane User";

console.log(greeter(user));
```

TypeScript 101

```
function greeter(person: string) {
    return "Hello, " + person;
}

let user = [0, 1, 2];

console.log(greeter(user));
```

TypeScript 101

```
function greeter(person: string) {
    return "Hello, " + person;
}

let user = [0, 1, 2];

console.log(greeter(user));
```

TypeScript 102

```
interface Person {
    firstName: string;
    lastName: string;
}
function greeter(person: Person) {
    return "Hello, " + person.firstName + " " + person.lastName;
}

let user = { firstName: "Jane", lastName: "User" };
console.log(user);
```

TypeScript 103

- Undefined checking
- Decorators
- Namespaces
- Type Inference
- Enums
- Generics

Redux

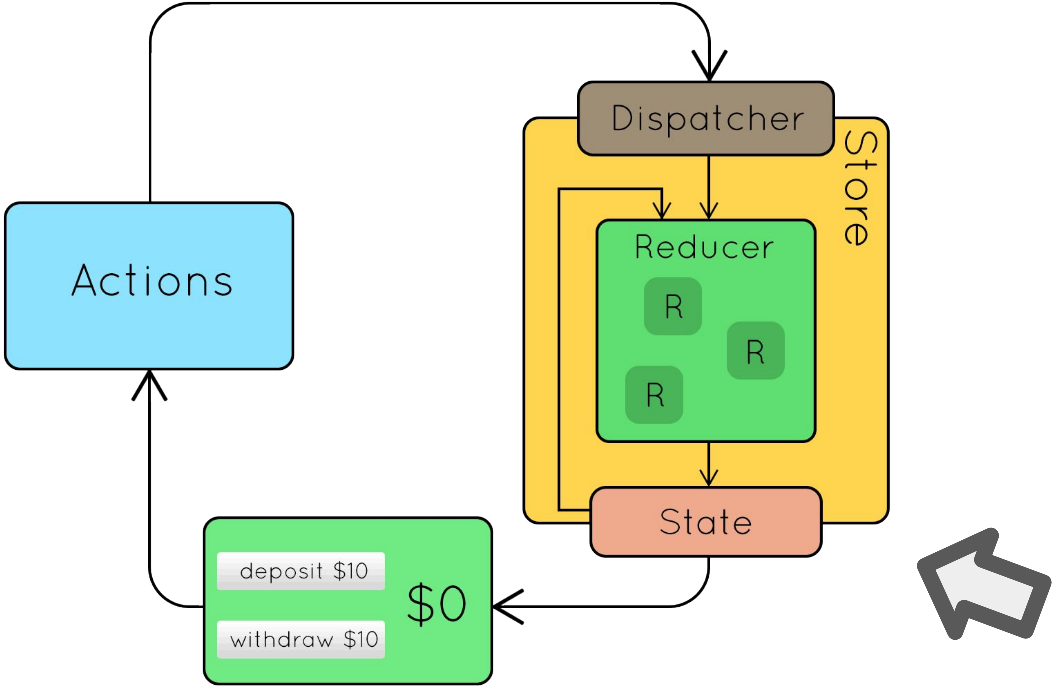
Redux is a **predictable state container** for JavaScript apps.

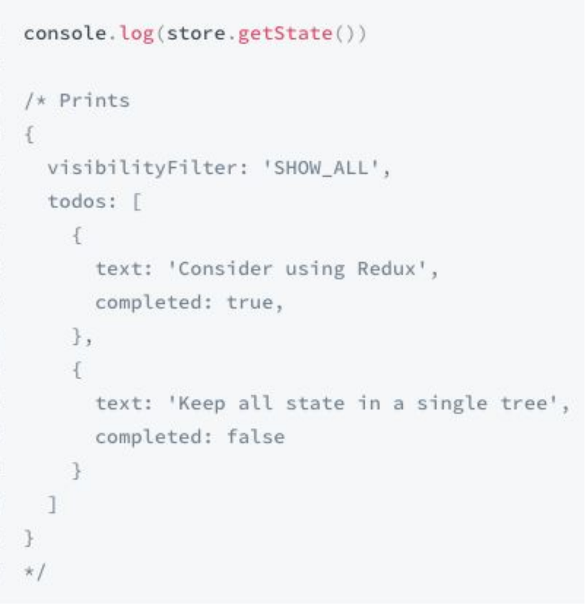
Single source of truth

State is read-only

Changes are made with pure functions (reducers)

Single source of truth



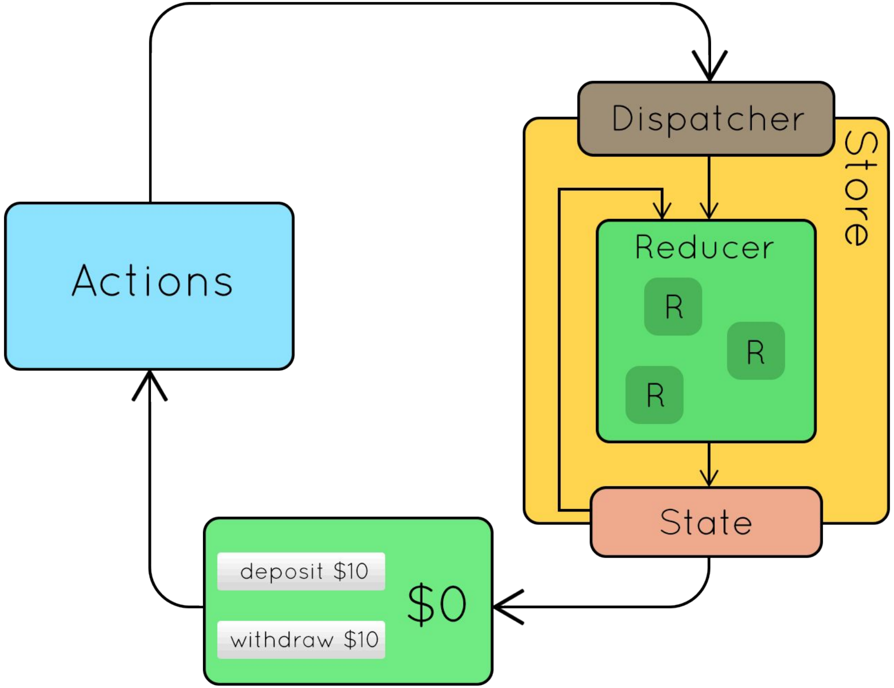


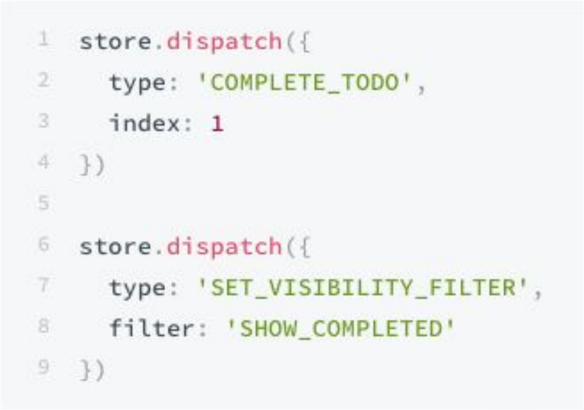
```
console.log(store.getState())

/* Prints
{
  visibilityFilter: 'SHOW_ALL',
  todos: [
    {
      text: 'Consider using Redux',
      completed: true,
    },
    {
      text: 'Keep all state in a single tree',
      completed: false
    }
  ]
}
*/
```

Credit: https://bumbu.me/simple-redux/

State is read-only



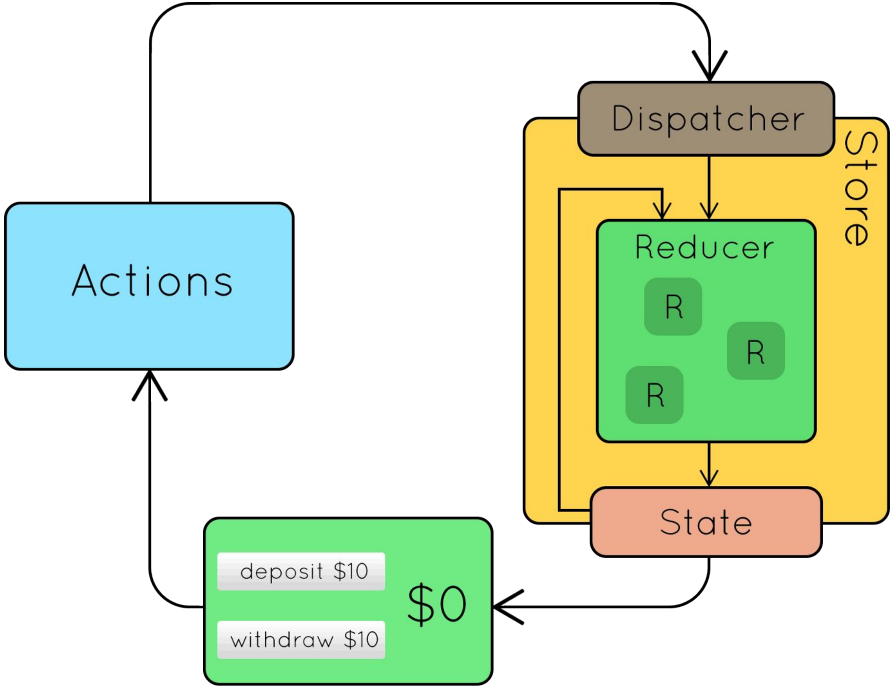


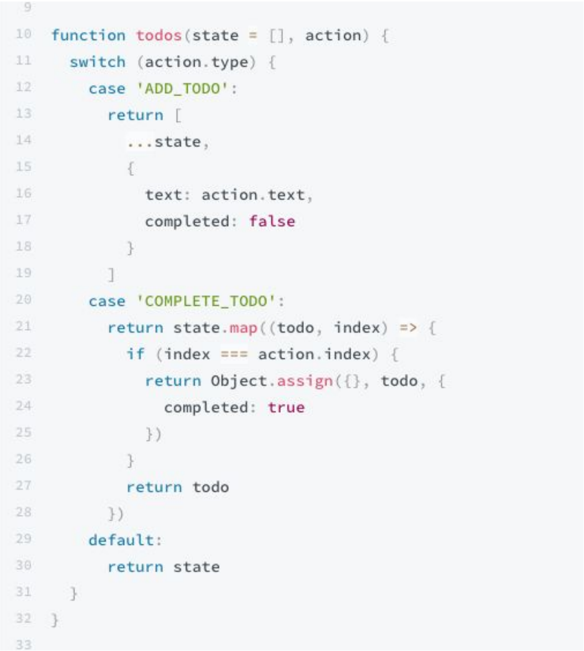
```
store.dispatch({
  type: 'COMPLETE_TODO',
  index: 1
})

store.dispatch({
  type: 'SET_VISIBILITY_FILTER',
  filter: 'SHOW_COMPLETED'
})
```

Credit: https://bumbu.me/simple-redux/

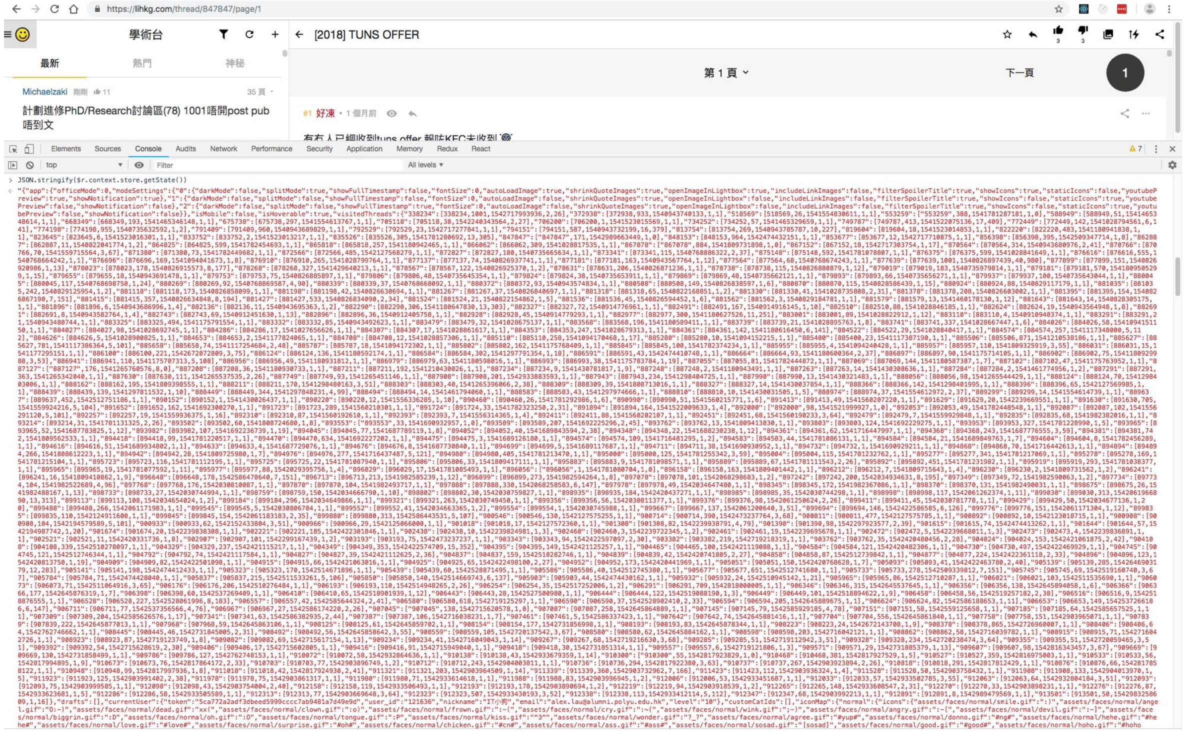
Changes are made with pure functions (reducers)




```
function todos(state = [], action) {
  switch (action.type) {
    case 'ADD_TODO':
      return [
        ...state,
        {
          text: action.text,
          completed: false
        }
      ]
    case 'COMPLETE_TODO':
      return state.map((todo, index) => {
        if (index === action.index) {
          return Object.assign({}, todo, {
            completed: true
          })
        }
        return todo
      })
    default:
      return state
  }
}
```

Credit: https://bumbu.me/simple-redux/

A Real Redux Store



```
> JSON.stringify($r.context.store.getState())
```

```
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```
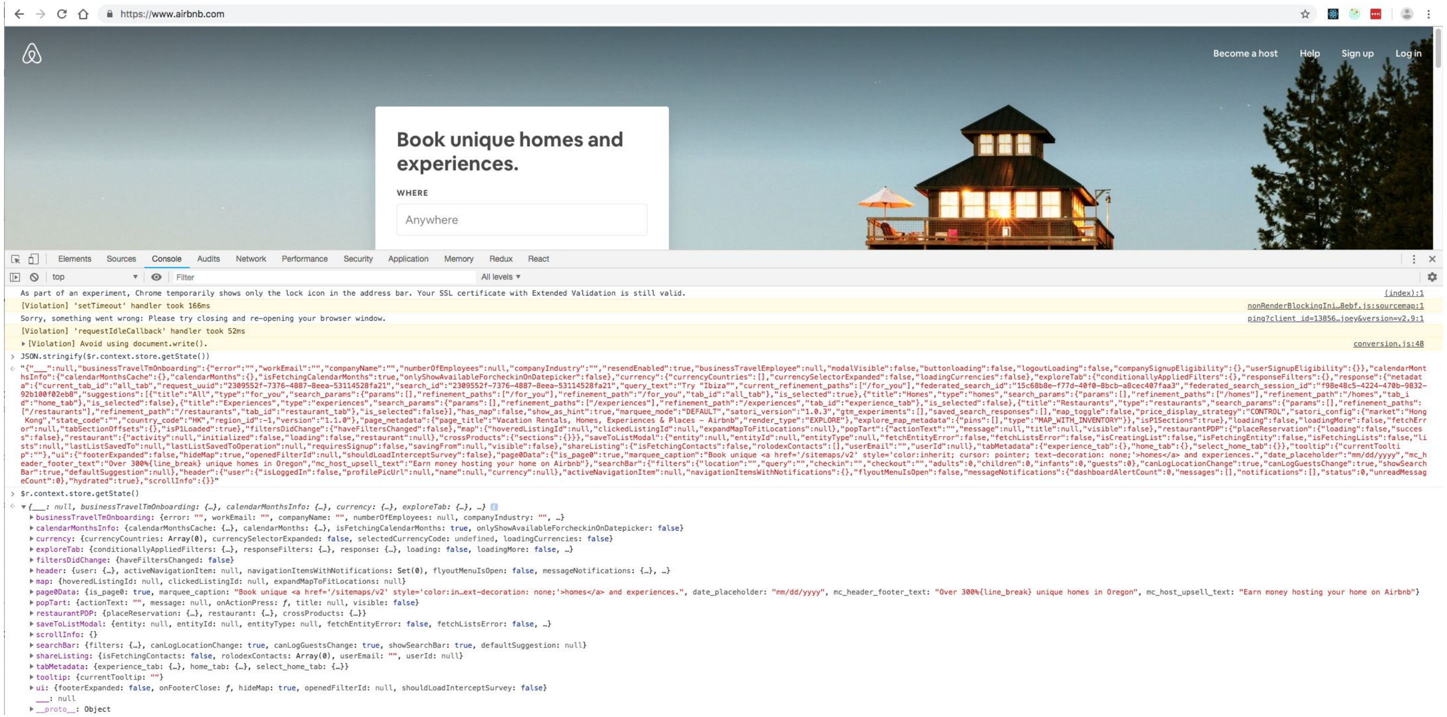

Another Real Redux Store



```
As part of an experiment, Chrome temporarily shows only the lock icon in the address bar. Your SSL certificate with Extended Validation is still valid.   (index):1
[Violation] 'setTimeout' handler took 166ms   nonRenderBlockingIni…8ebf.js:sourcemap:1
Sorry, something went wrong: Please try closing and re-opening your browser window.   ping?client_id=13856…joey&version=v2.9:1
[Violation] 'requestIdleCallback' handler took 52ms
▸[Violation] Avoid using document.write().   conversion.js:48
> JSON.stringify($r.context.store.getState())
```

```
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eCount":0},"hydrated":true},"scrollInfo":{}}"
```

```
> $r.context.store.getState()
< ▾{___: null, businessTravelTmOnboarding: {…}, calendarMonthsInfo: {…}, currency: {…}, exploreTab: {…}, …} ℹ
   ▸businessTravelTmOnboarding: {error: "", workEmail: "", companyName: "", numberOfEmployees: null, companyIndustry: "", …}
   ▸calendarMonthsInfo: {calendarMonthsCache: {…}, calendarMonths: {…}, isFetchingCalendarMonths: true, onlyShowAvailableForcheckinOnDatepicker: false}
   ▸currency: {currencyCountries: Array(0), currencySelectorExpanded: false, selectedCurrencyCode: undefined, loadingCurrencies: false}
   ▸exploreTab: {conditionallyAppliedFilters: {…}, responseFilters: {…}, response: {…}, loading: false, loadingMore: false, …}
   ▸filtersDidChange: {haveFiltersChanged: false}
   ▸header: {user: {…}, activeNavigationItem: null, navigationItemsWithNotifications: Set(0), flyoutMenuIsOpen: false, messageNotifications: {…}, …}
   ▸map: {hoveredListingId: null, clickedListingId: null, expandMapToFitLocations: null}
   ▸page0Data: {is_page0: true, marquee_caption: "Book unique <a href='/sitemaps/v2' style='color:in…ext-decoration: none;'>homes</a> and experiences.", date_placeholder: "mm/dd/yyyy", mc_header_footer_text: "Over 300%{line_break} unique homes in Oregon", mc_host_upsell_text: "Earn money hosting your home on Airbnb"}
   ▸popTart: {actionText: "", message: null, onActionPress: ƒ, title: null, visible: false}
   ▸restaurantPDP: {placeReservation: {…}, restaurant: {…}, crossProducts: {…}}
   ▸saveToListModal: {entity: null, entityId: null, entityType: null, fetchEntityError: false, fetchListsError: false, …}
   ▸scrollInfo: {}
   ▸searchBar: {filters: {…}, canLogLocationChange: true, canLogGuestsChange: true, showSearchBar: true, defaultSuggestion: null}
   ▸shareListing: {isFetchingContacts: false, rolodexContacts: Array(0), userEmail: "", userId: null}
   ▸tabMetadata: {experience_tab: {…}, home_tab: {…}, select_home_tab: {…}}
   ▸tooltip: {currentTooltip: ""}
   ▸ui: {footerExpanded: false, onFooterClose: ƒ, hideMap: true, openedFilterId: null, shouldLoadInterceptSurvey: false}
    ___: null
   ▸__proto__: Object
```

Redux is good. It would be better if...

No more hardcoded string literal in multiple places

No more memorizing the definitions of the state

No more memorizing the definitions of all the action objects

And... more

TALK IS CHEAP
SHOW ME THE CODE

Redux ❤ **Type**Script

Type-Safe Actions

Immutability checking in compile-time

Root State code completion

Testable

Lots more...

TECKY
ACADEMY

We are looking for:

- Talks, meetups, confs, etc
- Bootcamp students
- Employers (in the future)

Thank you

Tecky Academy

TECKY.IO

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