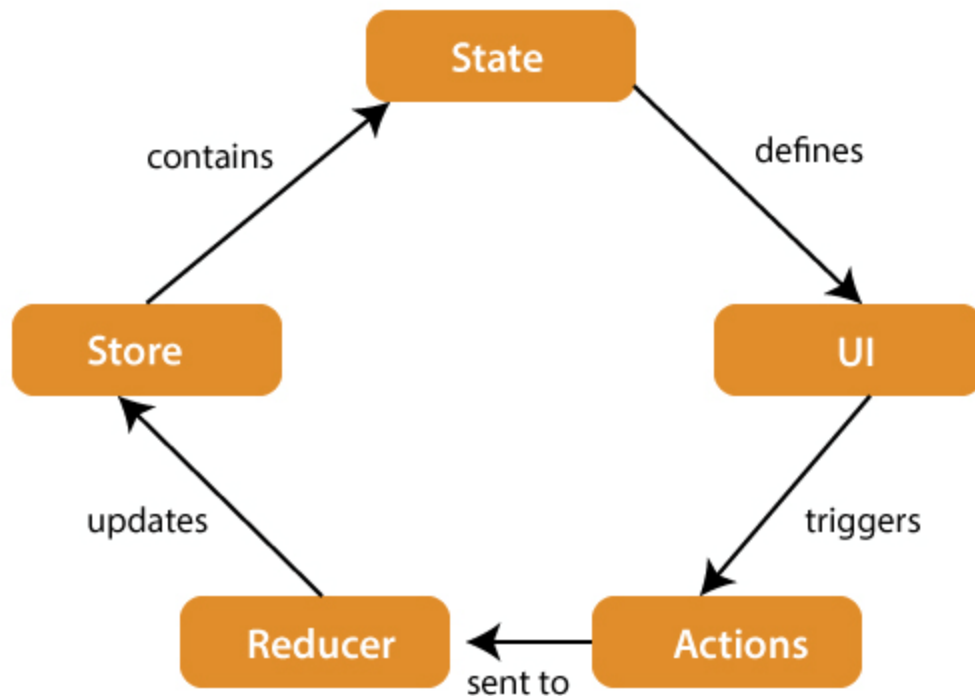# Redux React Native

Introduction

- open-source JavaScript library used to manage application state or project-state.

- State management is process to sharing application data across multiple component within same application where each component can read and modify the application state depending on requirement.

  - Aba suppose euta ecommerce app xa re. Kunai product item add garda kheri cart maa ni tyo product ko price add hunuparyo, which would not just be in different component but also maybe present in completely different screen. Aba useContext use ta garda hunthyo data transfer garna lai, tarw kati garnu ra tyo ni, thats not ideal solution. Tei vara redux ko concept aako.
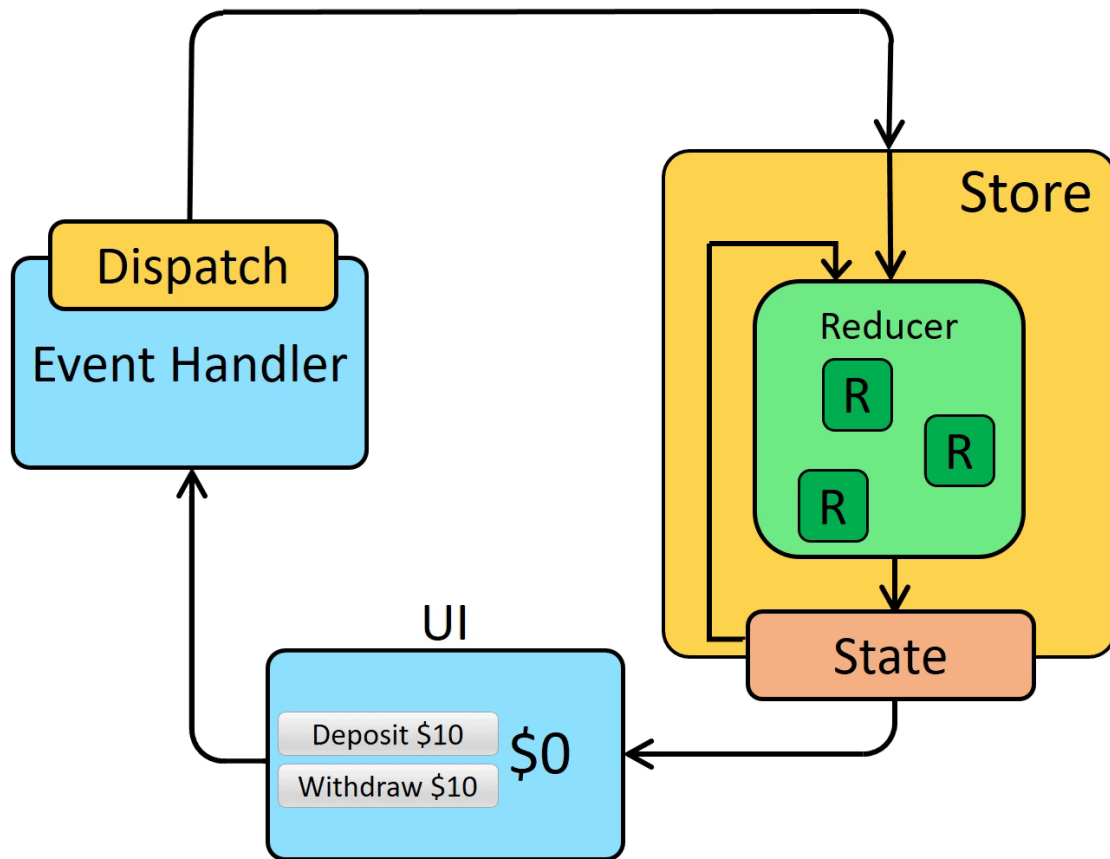
Basic Architecture of Redux

- Action

    - yo chahi euta object ho, used to send (dispatch) information from React component to other building blocks.

    - suppose add to cart maa item add garyo re, tei anusar aba action el chahi kun operation perform garni vanera vanxa (here, add operation perform garnu paryo ni ta)

    - yesma chahi type property hunxa, jasle chahi k operation vanera vanxa. Ani arko property vaneko payload vanni optionally huna sakxa, jasma chahi data hunxa which needs tyo be communicated to other blocks.

    - action is like an event that describes something that happened in the application.

- Reducer

    - aba action maa vaneko operation actually perform garni chahi reducer le ho

- yesle basically previous state ra action object chahi linxa, ani tespaxi next state return garxa

- Reducer is like an event listener which handles events based on the received action (event) type.

- Ylniharule chahi existing state lai modify garnu allowed hudaina, somewhat immutable. Baru tesko satta existing state lai copy garxa, ani tyo copied state maa chhai chnages lyauxa.

- Store

  - centralized place to hold application state. So, redux app maa chahi one redux store matra hunu recommended ho

  - store maa vako state update garna lai chahi dispatch() vanni method use garni.

    - Simply store.dispatch() call garni, ani tyo dispatch vitra chahi action object pathauni.

  - testai garerw selectors vanni hunxan, which are functions that know how to extract specific pieces of information from a store state value.

- View / UI

  - aba yesma chahi overall UI ho, basically components ko group

  - suppose 4 ota component xa re , component 1 chahi basically hamro product ho re, jaslai add garexi tesko total price of cart badhnu paryo. aba component 1 maa plus button thichnaa saath, euta action huni vo add gara vanera, anmi reducer le uta total price ko prev state lini vo ra action object, jasle chahi add gara vaniraxa tyo ni lini vo. Ani tei anusar dispatch garera price ko value chahi change garni vo, basically next state. Aba yo naya price chahi purano price satta visible hunuparyo ni arko component maa, testai garera feri tyo state chahi circulate vara UI mai aauni vo UI bata suru vara. Yesari chahi whole architecture kaam garxa.

Check this image link for better visual example of redux data flow

https://redux.js.org/assets/images/ReduxDataFlowDiagram-49fa8c3968371d9ef6f2a1486bd40a26.gif

Saga Flow

- aba Redux vaneko ta synchronous data flow support garni ho i.e. every time an action is sent to the store, a reducer is called and the state is updated immediately.

- Tara aba yeskai thau maa API call garnu paryo re action bata, basically asynchronous huni vo, jasma chahi paila response ko lagi wait garnu parxa, ra if there's no error, taba matra state can be updated. Yo chiz chahi complex workflow maa handle garna garo hunxa.

- Tehi vayera actions bata dispatch tira huni asynchronous operations ko lagi chahi middleware introduce vayeko ho. Redux Thunk ra Saga vaneko chahi widely used middleware ho for handling async operations in Redux. As a result, Saga use garepaxi side-effects ni majjale handle hunivayo.

Constants

- aba reducer ra action both maa common data hunuparyo, tyo export garni content chahi constants.js maa halni, ani action,js ra reducer.js maa chahi simply import garni

- export const ADD_TO_CART = "add_to_cart";
  - yesma LHS is type vani field ko value, for an action object

Action

- plain JS object jasma chahi type vanni ra payload vanni field hunxa

- k action lini vanera chahi type le vanxa vane, payload chahi kunai data pathaunu paryo sangai vane use garinxa

- This action object is then dispatched to the Redux store, where it is handled by a reducer.
  - reducer le tei action object ra prev state lera, next state chahi return garni ho

- aba UI maa kunai button press garexi kaam garaunu xa, suppose add to cart wala kaam vane
  - dispatch(addToCart(product));
  - yesari dispatch chahi use garnu paryp
  - const dispatch = useDispatch()
  - useDispatch vanya react-redux kai euta hook ho

Reducer