

React vs React Native

Usage Scope	Syntax	Animation & Gestures	Routing
React.js is a JS library for building Responsive User Interfaces for Building Web Application. React ONative is a framework for creating mobile applications with a native feel.	Both use JSX, but React uses HTML tags while React Native uses <view> <text> etc.	React uses CSS animations on a major scale to achieve animations for a web page while the recommended way for react native is to use the Animated API.	React uses react-router for routing and doesn't have any inbuilt routing capabilities but React Native has a built-in Navigator library.

useLocalStorage

```
import { useState, useEffect } from 'react';
import AsyncStorage from '@react-native-async-storage/async-storage';

function useLocalStorage(key, initialValue) {
  const [storedValue, setStoredValue] = useState(() => {
    try {
      const item = AsyncStorage.getItem(key);
      return item ? JSON.parse(item) : initialValue;
    } catch (error) {
      console.error(error);
      return initialValue;
    }
  });

  const setValue = async (value) => {
    try {
      const valueToStore = value instanceof Function ? value(storedValue) : value;
      setStoredValue(valueToStore);
      await AsyncStorage.setItem(key, JSON.stringify(valueToStore));
    } catch (error) {
      console.error(error);
    }
  };

  return [storedValue, setValue];
}

// Usage
// const [username, setUsername] = useLocalStorage('username', 'defaultName');
```

useDeviceOrientation (cont)

```
> useEffect(() => {
  const onChange = ({ window }) => {
    setOrientation(window.width > window.height ? 'LANDSCAPE' : 'PORTRAIT');
  };
  Dimensions.addEventListener('change', onChange);
  return () => Dimensions.removeEventListener('change', onChange);
}, []);
return orientation;
}

// Usage:
// const orientation = useDeviceOrientation();
```

User Input

useDeviceOrientation

```
import { useState, useEffect } from 'react';
import { Dimensions } from 'react-native';
function useDeviceOrientation() {
  const [orientation, setOrientation] =
    useState(
      Dimensions.get('window').width >
      Dimensions.get('window').height
        ? 'LANDSCAPE'
        : 'PORTRAIT'
    );
```

```
import React, { useState } from 'react';
import { View, TextInput, Button, Text } from
  'react-native';
import axios from 'axios';
import AsyncStorage from '@react-native-async-
  storage/async-storage';
const Login = ({ navigation }) => {
  const [email, setEmail] = useState('');
  const [password, setPassword] = useState('');
  const [error, setError] = useState('');
  const handleLogin = async () => {
    try {
      const response = await axios.post(
        'YOUR_API_ENDPOINT/login', {
          email,
          password,
        });
      const { token } = response.data;
      if (token) {
        await AsyncStorage.setItem(
          'authToken', token);
        navigation.navigate('Home');
      }
    } catch (err) {
      console.error("Login error: ",
        err);
      setError('Invalid login credentials');
    }
  }
};
```

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Page 2 of 6.

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User Input (cont)

```
> }
};
return (
  <View>
    <TextInput
      placeholder="Email"
      value={email}
      onChangeText={setEmail}
      autoCapitalize="none"
    />
    <TextInput
      placeholder="Password"
      value={password}
      onChangeText={setPassword}
      secureTextEntry
    />
    <Button title="Login" onPress={handleLogin} />
    {error && <Text>Error: {error}</Text>}
  </View>
);
};
export default Login;
```

Securely Store Auth Token

```
import * as Keychain from 'react-native-keychain';
// Storing the token securely
async function storeToken(token) {
  try {
    await Keychain.setGenericPassword(
      'userToken', token);
  } catch (error) {
    console.error('Error storing token:',
      error);
  }
}
// Retrieving the token
async function getToken() {
```

Securely Store Auth Token (cont)

```
> try {
  const credentials = await Keychain.getGenericPassword();
  if (credentials) {
    return credentials.password;
  }
} catch (error) {
  console.error('Error retrieving token:', error);
}
return null;
}
// Clearing the token
async function clearToken() {
  try {
    await Keychain.resetGenericPassword();
  } catch (error) {
    console.error('Error clearing token:', error);
  }
}
```

Context API

```
import { createContext } from 'react';
const MyContext = createContext();
export const MyProvider = ({ children }) => {
  const [value, setValue] = useState('initial value');
  return (
    <MyContext.Provider value={{ value,
      setValue }}>
      {children}
    </MyContext.Provider>
  );
}
// Usage
import React, { useContext } from 'react';
const MyComponent = () => {
  const { value, setValue } = useContext(MyContext);
  return (
```

Context API (cont)

```
> <div>
  {value}
  <button onClick={() => setValue('newValue')}>Set Value</button>
</div>
);
};
// Wrapping components in the provider
const App = () => (
  <MyProvider>
    <MyComponent />
  </MyProvider>
);
```

FlatList

```
const DATA = [
  { id: '1', title: 'Item 1' },
  { id: '2', title: 'Item 2' },
  // ... more items
];
const Item = ({ title }) => (
  <View style={style.item}>
    <Text style={style.title}> {title}
  </Text>
  </View>
);
// Pull to refresh
const [refreshing, setRefreshing] = useState(false);
const onRefresh = useCallback(() => {
  setRefreshing(true);
  // Fetch new data and set refreshing to false
  // For example:
  // fetchData().then(() => setRefreshing(false));
}, []);
const MyFlatListComponent = () => (
  <FlatList
    horizontal={false}
```

FlatList (cont)

```
> refreshing={refreshing}
  onRefresh={onRefresh}
  data={DATA}
  renderItem={({ item }) => <Item title={item.title} />}
  keyExtractor={item => item.id}
  />
);
```

Stack Navigation

```
import { NavigationContainer } from '@react-navigation/native';
import { createStackNavigator } from '@react-navigation/stack';
const Stack = createStackNavigator();
const App = () => (
  <NavigationContainer>
    <Stack.Navigator initialRouteName="Home">
      <Stack.Screen name="Home" component={HomeScreen} />
      <Stack.Screen name="Details" component={DetailsScreen} />
    </Stack.Navigator>
  </NavigationContainer>
);
```

Bottom Tab Navigation

```
import { NavigationContainer } from '@react-navigation/native';
import { createBottomTabNavigator } from '@react-navigation/bottom-tabs';
const Tab = createBottomTabNavigator();
const App = () => (
  <NavigationContainer>
    <Tab.Navigator>
      <Tab.Screen name="Home" component={HomeScreen} />
      <Tab.Screen name="Settings" component={SettingsScreen} />
    </Tab.Navigator>
  </NavigationContainer>
);
```



Drawer Navigation

```
import { NavigationContainer } from '@react-navigation/native';
import { createDrawerNavigator } from '@react-navigation/drawer';

const Drawer = createDrawerNavigator();

const App = () => (
  <NavigationContainer>
    <Drawer.Navigator initialRouteName="Home">
      <Drawer.Screen name="Home"
        component={HomeScreen} />
      <Drawer.Screen name="Settings"
        component={SettingsScreen} />
    </Drawer.Navigator>
  </NavigationContainer>
);
```

Redux

```
// npm install redux react-redux redux-thunk
// actions/types.js
export const FETCH_DATA_BEGIN = 'FETCH_DATA_BEGIN';
export const FETCH_DATA_SUCCESS = 'FETCH_DATA_SUCCESS';
export const FETCH_DATA_FAILURE = 'FETCH_DATA_FAILURE';
// actions/dataActions.js
export const fetchDataBegin = () => ({
  type: FETCH_DATA_BEGIN,
});
export const fetchDataSuccess = (data) => ({
  type: FETCH_DATA_SUCCESS,
  payload: { data },
});
export const fetchDataFailure = (error) => ({
  type: FETCH_DATA_FAILURE,
  payload: { error },
});
// reducers/dataReducer.js
const initialState = {
  data: [],
  loading: false,
  error: null,
```

Redux (cont)

```
> };
export default function dataReducer(state = initialState, action) {
  switch (action.type) {
    case FETCH_DATA_BEGIN:
      return {
        ...state,
        loading: true,
        error: null,
      };
    case FETCH_DATA_SUCCESS:
      return {
        ...state,
        loading: false,
        data: action.payload.data,
      };
    case FETCH_DATA_FAILURE:
      return {
        ...state,
        loading: false,
        error: action.payload.error,
        data: [],
      };
    default:
      return state;
  }
}
// reducers/index.js
import { combineReducers } from 'redux';
import dataReducer from './dataReducer';
export default combineReducers({
  data: dataReducer,
});
// configureStore.js
import { createStore, applyMiddleware } from 'redux';
```

Redux (cont)

```
> import thunk from 'redux-thunk';
import rootReducer from './reducers';
const initialState = {};
const middleware = [thunk];
const store = createStore(
  rootReducer,
  initialState,
  applyMiddleware(...middleware)
);
export default store;
// App.js
import React from 'react';
import { Provider } from 'react-redux';
import store from './configureStore';
import Home from './Home'; // your main component
const App = () => (
  <Provider store={store}>
    <Home />
  </Provider>
);
export default App;
// Usage in components
import { connect } from 'react-redux';
import { fetchDataBegin } from './actions/dataActions';
const MyComponent = ({ data, fetchData }) => {
  // use data or call fetchData as needed
};
const mapStateToProps = state => ({
  data: state.data.data,
});
const mapDispatchToProps = dispatch => ({
  fetchData: () => dispatch(fetchDataBegin()),
});
export default connect(mapStateToProps, mapDispatchToProps)(MyComponent);
```

React Native app feel smooth on animations

```
// The primary reason and an important one why
well-built native apps feel so smooth
// are by avoiding expensive operations during
interactions and animations.
// React Native has a limitation that there is
only a single JS execution thread,
// but you can use InteractionManager to make
sure long-running work is scheduled
// to start after any interactions/animations
have completed.
import React, { useState, useEffect } from
'react';
import { Text, InteractionManager } from
'react-native';
const ExpensiveComponent = () => {
  const [isLoading, setIsLoading] =
useState(false);
  useEffect(() => {
    InteractionManager.runAfterInteractions(
      () => {
        loadData();
      }
    );
  }, []);
  const loadData = () => {
    // Simulate a data loading process
    setTimeout(() => {
      setIsLoaded(true);
    }, 2000);
  };
  if (!isLoading) {
    return <Text> Loading...</Text>;
  }
  return <Text>Data Loaded !</Text>;
};
export default ExpensiveComponent;
```

