

## DFD for React App with Theme Toggle and Lazy Loading

### This React app includes:

- ✅ Theme Toggle (Switch between Light/Dark mode using ThemeProvider)
- ✅ Lazy Loading of About & Contact Pages (Optimizing performance with React Suspense)
- ✅ State Management (Control component visibility dynamically)

### Level 0 (Context Diagram)

At the highest level, we represent the system as a whole:

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| External Entity: |

| User |

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| React App |

| (Theme Toggle, |

| Lazy Loading, UI) |

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### Explanation:

#### ➤ External Entity (User)

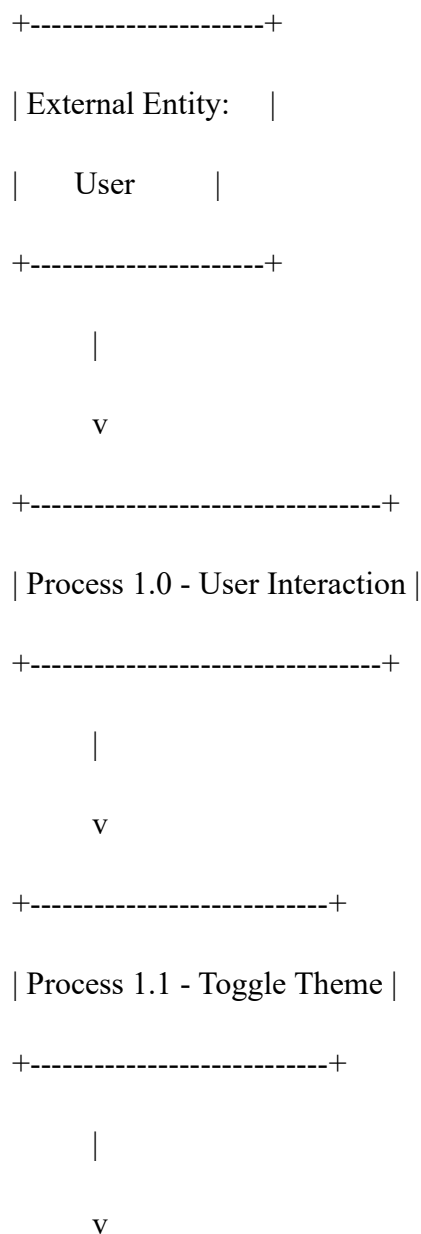
- The user interacts with the application via buttons and UI elements.
- Actions include:
  - **Toggling the theme** (Light/Dark Mode).
  - **Clicking the About button** to load the About Page.
  - **Clicking the Contact button** to load the Contact Page.

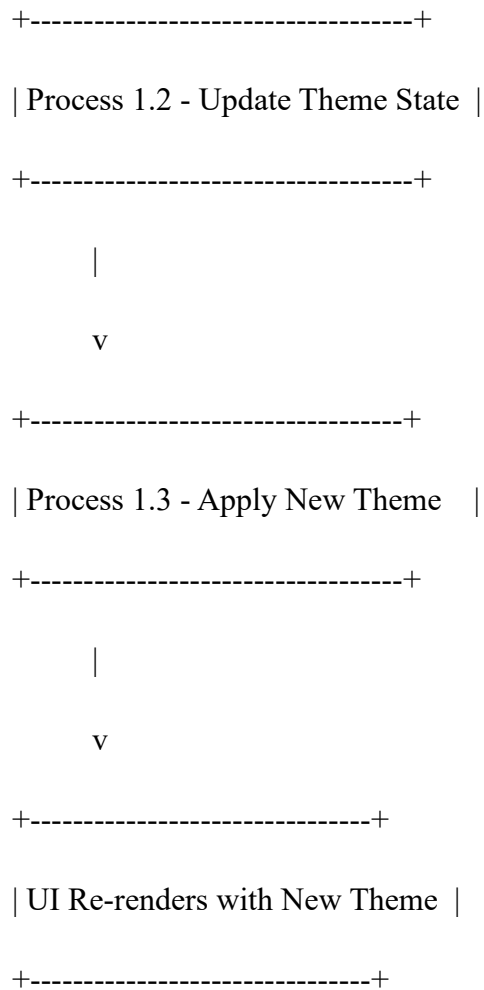
➤ **Main Process (React App)**

- The React App **manages user interactions**, updates the UI, and dynamically loads components.
- Key functionalities:
  - **Theme Toggle:** Manages switching between Light and Dark mode.
  - **Lazy Loading:** Loads About and Contact pages only when the user requests them, improving performance.
  - **UI State Management:** Ensures smooth transitions and updates based on user actions.

## Level 1 DFD (Decomposing the React App Process)

Breaking the system into **sub-processes**:

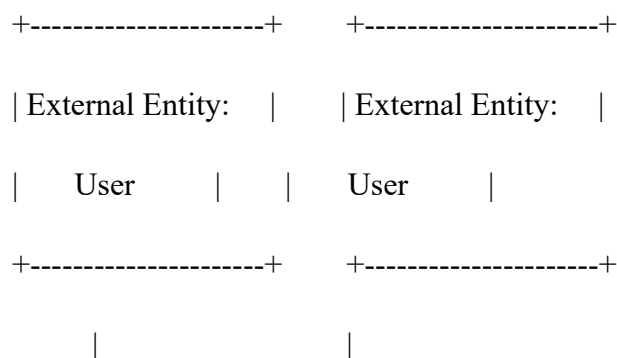


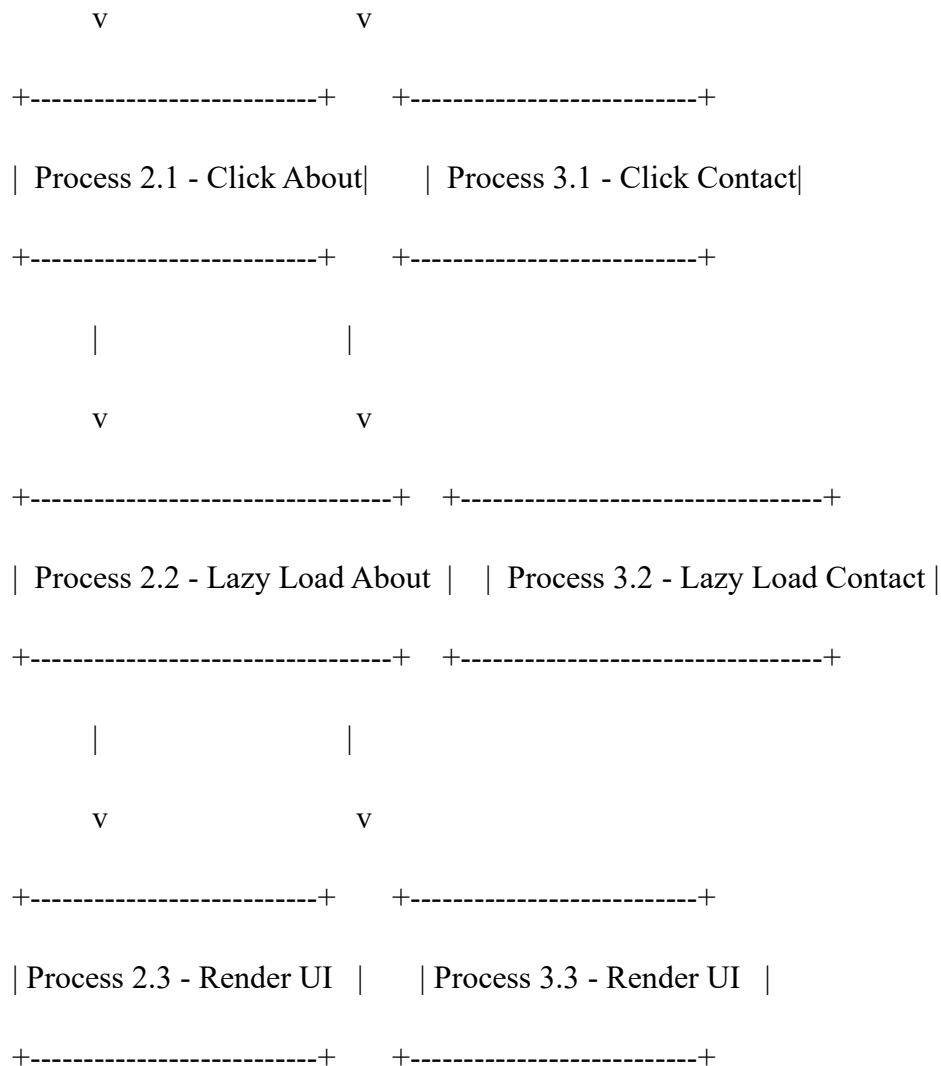


## Explanation (Theme Toggle)

- **User clicks the "Toggle Theme" button** → This triggers a function that updates the theme.
- **The theme state is updated** in ThemeContext.
- **The UI is re-rendered** with the selected theme (Light/Dark).

## Level 1 DFD (About & Contact Lazy Loading Flow)





## Explanation (Lazy Loading Components)

- **User clicks "About" or "Contact"** → This updates a boolean state (showAbout or showContact).
- **React Suspense starts loading the component asynchronously.**
- **Once loaded, the component renders**, displaying the About or Contact page.

## Final Summary:

### ➤ Theme Toggle Process

- User clicks **Toggle Theme** button.
- The state updates in **ThemeContext**.
- The UI re-renders with the new theme.

### ➤ About Page Loading

- User clicks **About** button.
- React Suspense **dynamically loads** the component.
- The **About page is displayed**.

➤ **Contact Page Loading**

- User clicks **Contact** button.
- React Suspense **dynamically loads** the component.
- The **Contact page is displayed**.