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# Create a new Word Document for React.js syllabus
doc_react = Document()

# Title
doc_react.add_heading('React.js Syllabus', 0)

# Add main topics and subtopics in bullet format
react_syllabus = {
    "1. Introduction to React.js": [
        "What is React and its advantages",
        "Setting up React environment using create-react-app",
        "JSX and Virtual DOM",
        "React component structure",
        "Introduction to Functional and Class Components"
    ],
    "2. React Components": [
        "Component lifecycle (for Class Components)",
        "State and props: What they are and how to use them",
        "Passing data between components using props",
        "Rendering lists and conditional rendering",
        "Component composition and reuse"
    ],
    "3. Handling Events in React": [
        "Handling events in functional components",
        "Event binding in Class components",
        "Synthetic events in React",
        "Handling forms and user input in React"
    ],
    "4. State Management in React": [
        "useState Hook: Managing component state",
        "Complex state management with objects and arrays",
        "Managing multiple state variables",
        "State immutability and why it's important"
    ],
    "5. Side Effects in React": [
        "Introduction to side effects",
        "useEffect Hook: Handling side effects in functional components",
        "Dependency arrays in useEffect",
        "Cleanup function in useEffect"
    ],
    "6. React Router": [
        "Introduction to React Router",
        "Setting up routes in a React application",
        "Linking to different routes using Link and NavLink",
        "Route parameters and using dynamic routing",
        "Programmatic navigation using useHistory and useNavigate"
    ],
    "7. React Forms and Input Handling": [
        "Controlled components in React",
        "Handling input fields (text, checkbox, radio buttons)",
        "Form submission and handling events",
        "Validation and error handling in forms"
    ],
    "8. Component Communication": [

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        "Parent to child communication via props",
        "Child to parent communication with callback functions",
        "Lifting state up for shared state across components",
        "Using Context API for deep prop passing"
    ],
    "9. Advanced State Management with Context API": [
        "Context API: Creating and using contexts",
        "useContext Hook for consuming context",
        "Avoiding prop drilling with Context API",
        "Updating state within Context"
    ],
    "10. Introduction to Redux (State Management)": [
        "What is Redux and when to use it",
        "Redux fundamentals: Actions, reducers, and store",
        "Connecting React with Redux using react-redux",
        "Using Redux DevTools for debugging state",
        "Async actions and middleware (Redux Thunk)"
    ],
    "11. Working with APIs in React": [
        "Fetching data with the fetch API and Axios",
        "Displaying loading and error states",
        "Fetching data on component mount with useEffect",
        "Updating state with fetched data"
    ],
    "12. Optimizing React Performance": [
        "React.memo and useMemo for performance optimization",
        "useCallback to optimize function components",
        "Lazy loading components with React.lazy and Suspense",
        "Understanding Reconciliation and rendering"
    ],
    "13. Error Handling in React": [
        "Error boundaries in React",
        "Handling JavaScript errors in the component tree",
        "Try-catch blocks in async operations",
        "Handling network and API errors"
    ],
    "14. Testing React Components": [
        "Introduction to testing in React",
        "Unit testing components with Jest",
        "Writing component tests with React Testing Library",
        "Mocking API requests in tests"
    ],
    "15. React Build and Deployment": [
        "Building React apps for production",
        "Code splitting and optimization",
        "Deploying React apps to popular platforms (Netlify, Vercel,
        GitHub Pages)",
        "Introduction to server-side rendering with Next.js"
    ]
}

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# Add each section and subtopics to the document
for topic, subtopics in react_syllabus.items():
    doc_react.add_heading(topic, level=1)

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    for subtopic in subtopics:
        doc_react.add_paragraph(subtopic, style='List Bullet')

# Save the document to a file
doc_react_path = "/mnt/data/ReactJS_Syllabus.docx"
doc_react.save(doc_react_path)

doc_react_path
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