# Node & React Interns Assignment Guide

## 1. Introduction

Welcome to the Converse AI assignment guide for Node & React Interns. This document provides detailed instructions to help you complete the two required assignments successfully. By completing these assignments, you will demonstrate your proficiency in React JS and your ability to develop real-time applications.

### Goals:

- **Assignment 1**: Create an interactive 3x3 matrix that responds to user clicks.

- **Assignment 2**: Develop a real-time stock market application with essential trading functionalities.

Each assignment helps evaluate your technical competencies, coding efficiency, and ability to build user-friendly interfaces.

## 2. Step-by-Step Instructions

### Assignment 1: Interactive 3x3 Matrix

1. **Set Up Your Project:**

- Initial Setup: Create a new React JS project using `create-react-app`.

- Basic Components: Set up your project structure with the necessary components.

2. **Create the 3x3 Matrix:**

- Matrix Layout: Build a component that renders a 3x3 matrix using a two-dimensional array or a loop.

- Styling: Ensure each box in the matrix is styled appropriately to appear uniform and clickable.

3. **Handle Click Events:**

- Click Handler: Implement a click event handler for each box that changes its color to green when clicked.

- Track Clicks: Keep track of the order of clicks using a state management solution like React's `useState`.

4. **Final Click Event:**

- Last Box Click Logic: When the last (ninth) box is clicked, loop through the array of stored clicks to change all colors to orange sequentially.

5. **Testing Your App:**

- Test Functionality: Click on each box to ensure the color changes to green and verify that clicking the last box changes all to orange.

- Troubleshooting: Debug any issues with state management or rendering.

6. **Recording Your Implementation:**

- Screen Recording: Use a screen recording tool to capture the implementation process and the final working application.

- Save and Review: Ensure the video is clear and covers all required aspects.

### Assignment 2: Real-Time Stock Market Application

1. **Project Initialization:**

- Set Up Project: Create a new React JS project.

- Create Components: Define components for stock listing, buying, selling, and dashboard views.

2. **Design the User Interface:**

- Layout: Ensure a simple and intuitive layout.

- User Experience: Make it easy for users to navigate and perform actions such as buying and selling stocks.

3. **Implement Stock Trading Features:**

- Stock Listing: Display available stocks and their prices.

- Buy/Sell Mechanism: Formulate buy/sell buttons with simple logic to simulate trading.

- Dashboard View: Showcase the user's holdings and any other relevant data.

4. **Real-Time Data Handling:**

- Simulated Data: Implement a mechanism to simulate real-time data updates.

- State Management: Use state management tools for real-time data reflection.

5. **Performance Considerations:**

- Ensure Smooth Performance: Optimize components and state updates for a smooth user experience.

- Test Under Load: Verify the app's performance with simulated load.

6. **Recording Your Implementation:**

- Screen Recording: Capture a usage video showing various features and functionalities.

- Comprehensive Walkthrough: Ensure the video includes key functionalities and user interactions.

## 3. Best Practices

- **Code Cleanliness**: Maintain clean and readable code by using descriptive variable names and comments.

- **Component Reusability**: Break down the app into reusable components to maintain scalability.

- **Responsive Design**: Make sure the UI works smoothly across different devices and screen sizes.

- **Test Thoroughly**: Test your app under different scenarios to ensure robustness.

- **Optimize Performance**: Use best practices for optimizing React applications, such as memoization where needed.

## 4. Submission Guidelines

1. **Video File Format**: Ensure that your recording is saved in a standard video format (e.g., MP4).

2. **Video Quality**: The video should be clear, with good audio and video quality, and demonstrate the full functionality of your app.

3. **Submission**: Submit the video files for both assignments through the designated platform or email as instructed by Converse AI.

4. **Deadline**: Adhere to the deadlines provided to ensure your submission is considered.

## 5. Frequently Asked Questions (FAQ)

### Q1: Can I use additional libraries in my React project?

**A1**: Yes, you can use additional libraries if they help improve the functionality or user experience of your application.

### Q2: How detailed should the video recording be?

**A2**: The video should cover the entire process, from setting up the project to the final running application, and showcase all required functionalities.

### Q3: What if I encounter bugs or issues?

**A3**: Debug systematically. Utilize React's development tools and browser console to identify and fix issues. Refer to documentation and online resources if needed.

### Q4: Is there a specific way to simulate real-time stock data?

**A4**: Yes, you can simulate real-time data using setInterval or setTimeout functions to periodically update state with new data.

### Q5: How should I handle click events for Assignment 1?

**A5**: Use React's state management to track clicks and conditional rendering based on state updates for changing box colors.

By following this guide, you will ensure that you understand the assignments thoroughly and can complete them effectively. Good luck!