WEB TECHNOLOGY

LAB8

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T1. Develop a currency converter application that allows users to input an amount in one currency and convert it to another. For the sake of this challenge, you can use a hard-coded exchange rate. Take advantage of React state and event handlers to manage the input and conversion calculations.

```
import React, { useState } from 'react';
import './App.css';

function App() {
  const [amount, setAmount] = useState('');
  const [fromCurrency, setFromCurrency] = useState('USD');
  const [toCurrency, setToCurrency] = useState('INR');
  const [convertedAmount, setConvertedAmount] = useState(null);

  const handleAmountChange = (event) => {
    setAmount(event.target.value);
  };

  const handleFromCurrencyChange = (event) => {
    setFromCurrency(event.target.value);
  };

  const handleToCurrencyChange = (event) => {
    setToCurrency(event.target.value);
  };

  const handleConvert = () => {
    let exchangeRate;
    if (fromCurrency === 'USD' && toCurrency === 'INR') {
```

```
      exchangeRate = 82.91;
    } else if (fromCurrency === 'INR' && toCurrency === 'USD') {
      exchangeRate = 1 / 82.91;
    } else {
      exchangeRate = 1;
    }
    const converted = parseFloat(amount) * exchangeRate;
    setConvertedAmount(converted.toFixed(2));
  };

  return (
    <div className="App">
      <h1>Currency Converter</h1>
      <div>
        <label>
          Amount:
          <input type="number" value={amount}
onChange={handleAmountChange} />
        </label>
      </div>
      <div>
        <label>
          From:
          <select value={fromCurrency}
onChange={handleFromCurrencyChange}>
            <option value="USD">USD</option>
            <option value="INR">INR</option>
          </select>
        </label>
      </div>
      <div>
        <label>
          To:
          <select value={toCurrency} onChange={handleToCurrencyChange}>
            <option value="USD">USD</option>
            <option value="INR">INR</option>
          </select>
        </label>
      </div>
      <button onClick={handleConvert}>Convert</button>
```

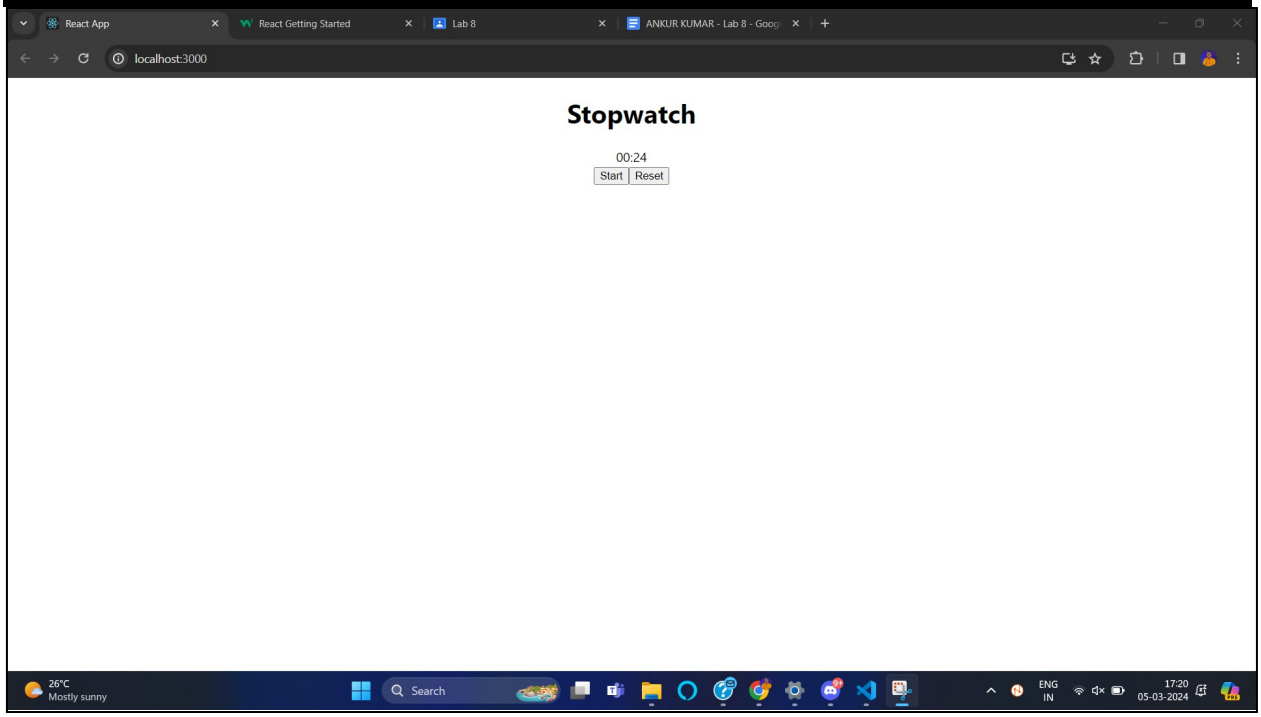
```
      {convertedAmount && (
        <p>{amount} {fromCurrency} equals {convertedAmount}
{toCurrency}</p>
      )}
    </div>
  );
}

export default App;
```

T2. Create a stopwatch application through which users can start, pause and reset the timer. Use React state, event handlers and the setTimeout or setInterval functions to manage the timer's state and actions.

```
// App.js
import React, { useState, useRef } from 'react';
import './App.css';

function App() {
  const [time, setTime] = useState(0);
  const [isRunning, setIsRunning] = useState(false);
  const intervalRef = useRef(null);
```

```
const handleStart = () => {
  setIsRunning(true);
  intervalRef.current = setInterval(() => {
    setTime((prevTime) => prevTime + 1);
  }, 1000);
};

const handlePause = () => {
  clearInterval(intervalRef.current);
  setIsRunning(false);
};

const handleReset = () => {
  clearInterval(intervalRef.current);
  setTime(0);
  setIsRunning(false);
};

const formatTime = (timeInSeconds) => {
  const minutes = Math.floor(timeInSeconds / 60);
  const seconds = timeInSeconds % 60;
  return (
    String(minutes).padStart(2, '0') + ':' +
    String(seconds).padStart(2, '0')
  );
};

return (
  <div className="App">
    <h1>Stopwatch</h1>
    <div className="timer">{formatTime(time)}</div>
    <div className="controls">
      {!isRunning ? (
        <button onClick={handleStart}>Start</button>
      ) : (
        <button onClick={handlePause}>Pause</button>
      )}
      <button onClick={handleReset}>Reset</button>
    </div>
```

```
    </div>
  );
}

export default App;
```

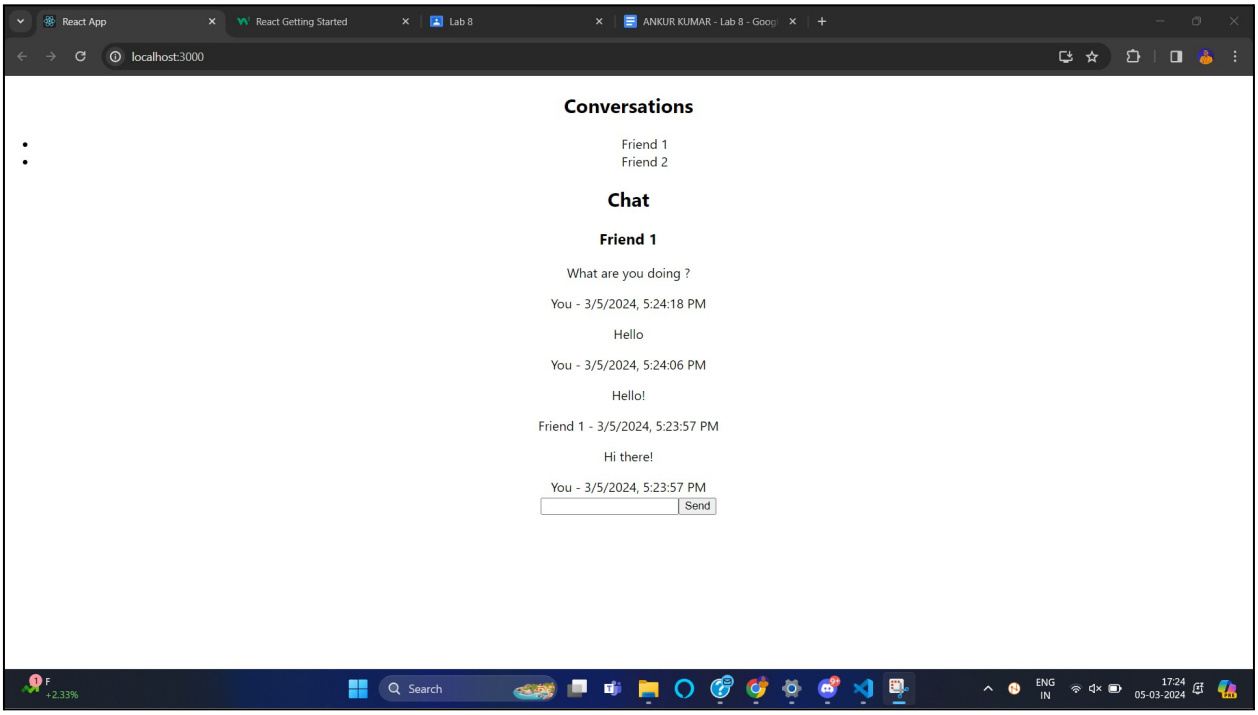


T3.Develop a messaging application that allows users to send and receive messages in real time. The application should display a list of conversations and allow the user to select a specific conversation to view its messages. The messages should be displayed in a chat interface with the most recent message at the top. Users should be able to send new messages and receive push notifications.

```
import React, { useState, useEffect } from 'react';
import './App.css';

function App() {
  const [conversations, setConversations] = useState([]);
  const [selectedConversation, setSelectedConversation] = useState(null);
  const [newMessage, setNewMessage] = useState('');
  const [messages, setMessages] = useState([]);

  useEffect(() => {
    fetchConversations();
  }, []);
```

```
  useEffect(() => {
    if (selectedConversation) {
      fetchMessages(selectedConversation.id);
    }
  }, [selectedConversation]);

  const fetchConversations = () => {
    const mockConversations = [
      { id: 1, name: 'Friend 1' },
      { id: 2, name: 'Friend 2' },
    ];
    setConversations(mockConversations);
  };

  const fetchMessages = (conversationId) => {
    const mockMessages = [
      { id: 1, text: 'Hello!', sender: 'Friend 1', timestamp: new Date()
},
      { id: 2, text: 'Hi there!', sender: 'You', timestamp: new Date() },
    ];
    setMessages(mockMessages);
  };

  const handleConversationClick = (conversation) => {
    setSelectedConversation(conversation);
  };

  const handleMessageSend = () => {
    const message = { id: messages.length + 1, text: newMessage, sender:
'You', timestamp: new Date() };
    setMessages([message, ...messages]);
    setNewMessage('');
  };

  return (
    <div className="App">
      <div className="sidebar">
        <h2>Conversations</h2>
        <ul>
```

```
          {conversations.map((conversation) => (
            <li key={conversation.id} onClick={() =>
handleConversationClick(conversation)}>
              {conversation.name}
            </li>
          ))}
        </ul>
      </div>
      <div className="chat">
        <h2>Chat</h2>
        {selectedConversation && (
          <div>
            <h3>{selectedConversation.name}</h3>
            <div className="messages">
              {messages.map((message) => (
                <div key={message.id} className={message.sender === 'You'
? 'sent' : 'received'}>
                  <p>{message.text}</p>
                  <span>{message.sender} -
{message.timestamp.toLocaleString()}</span>
                </div>
              ))}
            </div>
            <div className="message-input">
              <input type="text" value={newMessage} onChange={(e) =>
setNewMessage(e.target.value)} />
              <button onClick={handleMessageSend}>Send</button>
            </div>
          </div>
        )}
      </div>
    </div>
  );
}

export default App;
```


React App
React Getting Started
Lab 8
ANKUR KUMAR - Lab 8 - Goog
localhost:3000
Conversations
Friend 1
Friend 2
Chat
Friend 1
What are you doing ?
You - 3/5/2024, 5:24:18 PM
Hello
You - 3/5/2024, 5:24:06 PM
Hello!
Friend 1 - 3/5/2024, 5:23:57 PM
Hi there!
You - 3/5/2024, 5:23:57 PM
Send
Search
ENG
IN
17:24
05-03-2024