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import React, { useState } from 'react';

const Scheduler = () => {
  const [processes, setProcesses] = useState([]);
  const [processName, setProcessName] = useState('');
  const [burstTime, setBurstTime] = useState('');
  const [priority, setPriority] = useState('');
  const [algorithm, setAlgorithm] = useState('SJF');

  // Add process to the list
  const addProcess = () => {
    if (processName && burstTime && priority) {
      const newProcess = {
        name: processName,
        burstTime: parseInt(burstTime),
        priority: parseInt(priority),
      };
      setProcesses([...processes, newProcess]);
      setProcessName('');
      setBurstTime('');
      setPriority('');
    }
  };

  // Sorting for SJF
  const sjfScheduling = (processList) => {
    return processList.sort((a, b) => a.burstTime - b.burstTime);
  };

  // Sorting for Priority Scheduling
  const priorityScheduling = (processList) => {
    return processList.sort((a, b) => a.priority - b.priority);
  };

  // Handler for the algorithm to schedule
  const handleScheduling = () => {
    let scheduledProcesses = [];
    if (algorithm === 'SJF') {
      scheduledProcesses = sjfScheduling([...processes]);
    } else if (algorithm === 'Priority') {
      scheduledProcesses = priorityScheduling([...processes]);
    }
    return calculateTimes(scheduledProcesses);
  };

  // Calculate Completion Time and Turnaround Time
  const calculateTimes = (scheduledProcesses) => {
    let currentTime = 0;

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let totalTurnaroundTime = 0;
let totalWaitingTime = 0;

return scheduledProcesses.map((process, index) => {
  const waitingTime = currentTime;
  const turnaroundTime = waitingTime + process.burstTime;
  const completionTime = turnaroundTime;

  currentTime += process.burstTime;

  totalTurnaroundTime += turnaroundTime;
  totalWaitingTime += waitingTime;

  return {
    ...process,
    waitingTime,
    turnaroundTime,
    completionTime,
  };
});
});

const scheduledProcesses = handleScheduling();

return (
  <div className="container mx-auto p-4">
    <h1 className="text-2xl font-bold mb-4">Priority Scheduling
Algorithms</h1>

    <div className="mb-4">
      <input
        type="text"
        placeholder="Process Name"
        value={processName}
        onChange={(e) => setProcessName(e.target.value)}
        className="border p-2 rounded mr-2"
      />
      <input
        type="number"
        placeholder="Burst Time"
        value={burstTime}
        onChange={(e) => setBurstTime(e.target.value)}
        className="border p-2 rounded mr-2"
      />
      <input
        type="number"
        placeholder="Priority"
        value={priority}

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        onChange={(e) => setPriority(e.target.value)}
        className="border p-2 rounded mr-2"
      />
      <button onClick={addProcess} className="bg-blue-500 text-white p-2
rounded">
        Add Process
      </button>
    </div>

    <div className="mb-4">
      <label className="mr-2">Select Algorithm:</label>
      <select value={algorithm} onChange={(e) =>
setAlgorithm(e.target.value)} className="border p-2 rounded">
        <option value="SJF">Shortest Job First (SJF)</option>
        <option value="Priority">Priority Scheduling</option>
      </select>
    </div>

    <h2 className="text-xl font-semibold mb-2">Scheduled Processes</h2>
    <table className="table-auto border-collapse border border-gray-400">
      <thead>
        <tr>
          <th className="border border-gray-300 p-2">Process Name</th>
          <th className="border border-gray-300 p-2">Burst Time</th>
          <th className="border border-gray-300 p-2">Priority</th>
          <th className="border border-gray-300 p-2">Waiting Time</th>
          <th className="border border-gray-300 p-2">Turnaround Time</th>
          <th className="border border-gray-300 p-2">Completion Time</th>
        </tr>
      </thead>
      <tbody>
        {scheduledProcesses.map((process, index) => (
          <tr key={index}>
            <td className="border border-gray-300 p-2">{process.name}</td>
            <td className="border border-gray-300 p-
2">{process.burstTime}</td>
            <td className="border border-gray-300 p-
2">{process.priority}</td>
            <td className="border border-gray-300 p-
2">{process.waitingTime}</td>
            <td className="border border-gray-300 p-
2">{process.turnaroundTime}</td>
            <td className="border border-gray-300 p-
2">{process.completionTime}</td>
          </tr>
        ))}
      </tbody>
    </table>

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    </div>  
  );  
};  
  
export default Scheduler;
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