Reserve 2 pennies
Pay 1
Reserve 2 pennies
Pay 2
Reserve 2 pennies
Pay 1
Reserve 2 pennies
Pay 3
Reserve 2 pennies
Pay 1
Reserve 2 pennies
Pay 2
Reserve 2 pennies
Pay 1
Reserve 2 pennies
Pay 4

Definitely $O(n)$ worst case
000000
000001 Reserve 2 pennies Pay 1 1 in reserve
000010 Reserve 2 pennies Pay 2 1 in reserve
000011 Reserve 2 pennies Pay 1 2 in reserve
000100 Reserve 2 pennies Pay 3 1 in reserve
000101 Reserve 2 pennies Pay 1 2 in reserve
000110 Reserve 2 pennies Pay 2 2 in reserve
000111 Reserve 2 pennies Pay 1 3 in reserve
001000 Reserve 2 pennies Pay 4 1 in reserve
<table>
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<th>Instruction</th>
<th>Amount</th>
<th>Reserve Status</th>
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<tbody>
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<td>Pay 1</td>
<td>1 🍀 in reserve</td>
</tr>
<tr>
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<td>Reserve 2 pennies</td>
<td>Pay 2</td>
<td>1 🍀 in reserve</td>
</tr>
<tr>
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<td>Pay 1</td>
<td>2 🍀 in reserve</td>
</tr>
<tr>
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<td>Pay 1</td>
<td>2 🍀 in reserve</td>
</tr>
<tr>
<td>000100</td>
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<td>Pay 3</td>
<td>1 🍀 in reserve</td>
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</tr>
<tr>
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<td>Pay 1</td>
<td>3 🍀 in reserve</td>
</tr>
<tr>
<td>001000</td>
<td>Reserve 2 pennies</td>
<td>Pay 4</td>
<td>1 🍀 in reserve</td>
</tr>
</tbody>
</table>
Reserve 2 pennies

Pay 1
1 in reserve

Reserve 2 pennies
Pay 2
1 in reserve

Reserve 2 pennies
Pay 1
2 in reserve

Reserve 2 pennies
Pay 3
1 in reserve

Reserve 2 pennies
Pay 1
2 in reserve

Reserve 2 pennies
Pay 2
2 in reserve

Reserve 2 pennies
Pay 1
3 in reserve

Reserve 2 pennies
Pay 4
1 in reserve
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<th>limit</th>
<th>data</th>
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</thead>
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<td>6</td>
<td>“r”</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>“r”</td>
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<td>6</td>
<td>“r”</td>
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<tr>
<td>6</td>
<td>12</td>
<td>“r”</td>
</tr>
<tr>
<td>7</td>
<td>12</td>
<td>“r”</td>
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<tr>
<td>8</td>
<td>12</td>
<td>“r”</td>
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</tbody>
</table>
The diagram illustrates the process of data compression using a sliding window technique. The window size decreases with each iteration, allowing for more efficient compression. The data is represented by a sequence of characters, and the compression is achieved by identifying and removing repeated patterns. The size of the window and the number of data points are shown at the beginning of each iteration, followed by a visual representation of the data and the compressed result. The process continues until the entire data set is processed.