Project #1 Sequential Presentation

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Contents

1. Basic concept

2. Algorithm of each stage
   A) Devil stage
   B) Live & Dead stage
   C) Angel stage
1. Basic concept

- remove redundant and recurrent work
- use data as small as possible
2. algorithm of each stage

A) Devil stage

- devil data in char pointer as map size.
  
The value indicates the number of devils in the cell.

<table>
<thead>
<tr>
<th>Number of devils</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 1 6 12 0 3 0 0</td>
</tr>
<tr>
<td>0,0,0</td>
</tr>
</tbody>
</table>

char = 1 Byte
2. algorithm of each stage

A) Devil stage

- movement and merging of devil by moving the data.
  • Because movement is implemented with merging, repeated searching time is reduced.
2. Algorithm of each stage

B) Live & Dead stage

- Only one byte saves the data of two cell by using bit.
  - next state for changing state - 1 bit
  - current state - 2 bit
  - prev state for remove plague - 1 bit

state of cell

```
<table>
<thead>
<tr>
<th>Live</th>
<th>Live</th>
<th>Dead</th>
<th>Live</th>
<th>Plague</th>
<th>Live</th>
<th>Live</th>
<th>Live</th>
<th>Dead</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,0,0</td>
<td>0,0,1</td>
<td>0,0,2</td>
<td>0,0,3</td>
<td>0,0,4</td>
<td>0,0,5</td>
<td>0,0,6</td>
<td>0,0,7</td>
<td></td>
</tr>
</tbody>
</table>
```

char = 1 Byte
2. algorithm of each stage

B) Live & Dead stage

- Divide 27 cells around the cell (include the cell) into 3 parts of plane.
  And two parts are reused in next cell. It makes the data needed for counting live reduce by 1/3.
2. algorithm of each stage

B) Live & Dead stage

- Search whether there is plague cell or not.
  And merge plague stage into live & dead stage.
  It makes recurrent searching time reduce.

1. Counting enclosed live cell
2. Set next state
3. If there is plague, next state is reversed
4. Current state is replaced with next state
2. Algorithm of each stage

C) Angel stage

- Set direction to move and Move.
- Searching the cell in scope and Remove plague state.
- Searching the devil in scope and Remove devils.
Any question?