Consider the following program:

```python
1 # Program to solve the Towers of Hanoi
2
3 def hanoi(disks, source, spare, dest):
4     if disks>1:
5         hanoi(disks-1, source, dest, spare)
6         print('Move disk from',source,'to',dest)
7         hanoi(disks-1, spare, source, dest)
8     else:
9         print('Move disk from',source,'to',dest)
10
11 if __name__ == '__main__':
12     hanoi(3,'A','B','C')
```

Here we show the contents of the stack every time an activation record is created, destroyed, or an output is produced.

**Stack of activation records:**

<table>
<thead>
<tr>
<th>main: ip = 13</th>
</tr>
</thead>
</table>

**Stack of activation records:**

<table>
<thead>
<tr>
<th>hanoi: disks = 3, source = A, spare = B, dest = C, ip = 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>main: ip = 15</td>
</tr>
</tbody>
</table>

**Stack of activation records:**

<table>
<thead>
<tr>
<th>hanoi: disks = 2, source = A, spare = C, dest = B, ip = 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>hanoi: disks = 3, source = A, spare = B, dest = C, ip = 6</td>
</tr>
<tr>
<td>main: ip = 15</td>
</tr>
</tbody>
</table>

**Stack of activation records:**

<table>
<thead>
<tr>
<th>hanoi: disks = 1, source = A, spare = B, dest = C, ip = 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>hanoi: disks = 2, source = A, spare = C, dest = B, ip = 6</td>
</tr>
<tr>
<td>hanoi: disks = 3, source = A, spare = B, dest = C, ip = 6</td>
</tr>
<tr>
<td>main: ip = 15</td>
</tr>
</tbody>
</table>

**Output 1:** Move disk from A to C

**Stack of activation records:**

<table>
<thead>
<tr>
<th>hanoi: disks = 1, source = A, spare = B, dest = C, ip = 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>hanoi: disks = 2, source = A, spare = C, dest = B, ip = 6</td>
</tr>
<tr>
<td>hanoi: disks = 3, source = A, spare = B, dest = C, ip = 6</td>
</tr>
<tr>
<td>main: ip = 15</td>
</tr>
</tbody>
</table>

**Stack of activation records:**

<table>
<thead>
<tr>
<th>hanoi: disks = 2, source = A, spare = C, dest = B, ip = 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>hanoi: disks = 3, source = A, spare = B, dest = C, ip = 6</td>
</tr>
<tr>
<td>main: ip = 15</td>
</tr>
</tbody>
</table>

**Output 2:** Move disk from A to B

**Stack of activation records:**
hanoi: disks = 2, source = A, spare = C, dest = B, ip = 7
hanoi: disks = 3, source = A, spare = B, dest = C, ip = 6
main: ip = 15

**Stack of activation records:**

hanoi: disks = 1, source = C, spare = A, dest = B, ip = 3
hanoi: disks = 2, source = A, spare = C, dest = B, ip = 11
hanoi: disks = 3, source = A, spare = B, dest = C, ip = 6
main: ip = 15

**Output 3:** Move disk from C to B

hanoi: disks = 1, source = C, spare = A, dest = B, ip = 11
hanoi: disks = 2, source = A, spare = C, dest = B, ip = 11
hanoi: disks = 3, source = A, spare = B, dest = C, ip = 6
main: ip = 15

**Stack of activation records:**

hanoi: disks = 2, source = A, spare = C, dest = B, ip = 11
hanoi: disks = 3, source = A, spare = B, dest = C, ip = 6
main: ip = 15

**Stack of activation records:**

hanoi: disks = 3, source = A, spare = B, dest = C, ip = 6
main: ip = 15

**Output 4:** Move disk from A to C

**Stack of activation records:**

hanoi: disks = 3, source = A, spare = B, dest = C, ip = 7
main: ip = 15

**Stack of activation records:**

hanoi: disks = 2, source = B, spare = A, dest = C, ip = 3
hanoi: disks = 3, source = A, spare = B, dest = C, ip = 11
main: ip = 15

**Stack of activation records:**

hanoi: disks = 1, source = B, spare = C, dest = A, ip = 3
hanoi: disks = 2, source = B, spare = A, dest = C, ip = 6
hanoi: disks = 3, source = A, spare = B, dest = C, ip = 11
main: ip = 15

**Output 5:** Move disk from B to A

**Stack of activation records:**

hanoi: disks = 1, source = B, spare = C, dest = A, ip = 11
hanoi: disks = 2, source = B, spare = A, dest = C, ip = 6
hanoi: disks = 3, source = A, spare = B, dest = C, ip = 11
main: ip = 15

**Stack of activation records:**

hanoi: disks = 2, source = B, spare = A, dest = C, ip = 6
hanoi: disks = 3, source = A, spare = B, dest = C, ip = 11
main: ip = 15

**Output 6:** Move disk from B to C
Stack of activation records:

- hanoi: disks = 2, source = B, spare = A, dest = C, ip = 7
- hanoi: disks = 3, source = A, spare = B, dest = C, ip = 11
- main: ip = 15

Stack of activation records:

- hanoi: disks = 1, source = A, spare = B, dest = C, ip = 3
- hanoi: disks = 2, source = B, spare = A, dest = C, ip = 11
- hanoi: disks = 3, source = A, spare = B, dest = C, ip = 11
- main: ip = 15

Output 7: Move disk from A to C

- hanoi: disks = 1, source = A, spare = B, dest = C, ip = 11
- hanoi: disks = 2, source = B, spare = A, dest = C, ip = 11
- hanoi: disks = 3, source = A, spare = B, dest = C, ip = 11
- main: ip = 15

Stack of activation records:

- hanoi: disks = 2, source = B, spare = A, dest = C, ip = 11
- hanoi: disks = 3, source = A, spare = B, dest = C, ip = 11
- main: ip = 15

Stack of activation records:

- hanoi: disks = 3, source = A, spare = B, dest = C, ip = 11
- main: ip = 15

Stack of activation records:

- main: ip = 15

Stack of activation records: