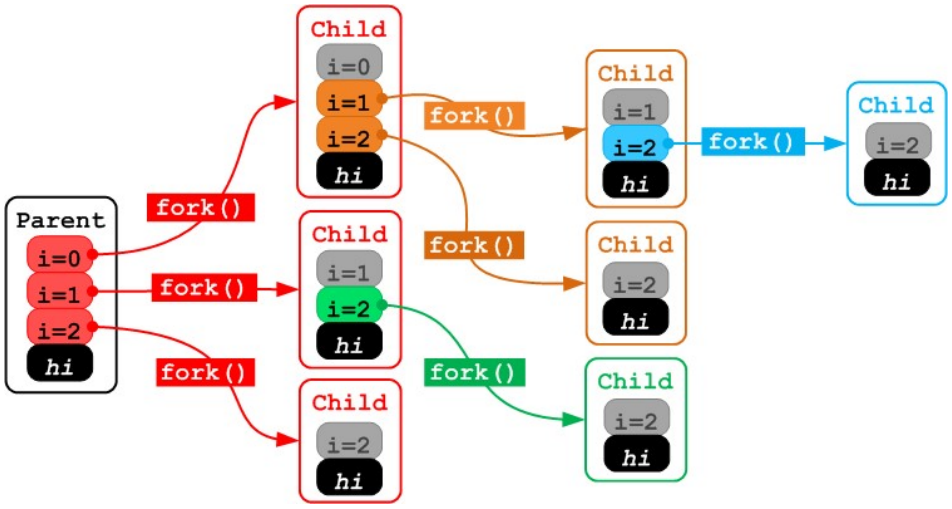
Sample fork problem with solution

Guess the output of the following program

```
#include <stdio.h>

void main()
{
  int i;

  for (i=0;i<3;i++)
  {
    fork();
    printf(" i=%d\n", i);
  }
 }
```



Here's how to understand it, starting at the for loop.

1. Loop starts in parent, i == 0
2. Parent's fork() is creating child 1.
3. You now have two processes. Both print i=0.
4. Loop restarts in both processes, now i == 1.
5. Parent and child 1 call fork(), creating child 2 and child 3.
6. You now have four processes. All four print i=1.
7. Loop restarts in all four processes, now i == 2.

8. Parent and children 1 through 3 all fork(), creating child 4 through child 7.
9. You now have eight processes. All eight print i=2.
10. Loop restarts in all eight processes, now i == 3.
11. Loop terminates in all eight processes, as i < 3 is no longer true.
12. All eight processes terminate.

So you get 0 printed two times, 1 printed four times, 2 printed 8 times, and hi printed 8 times.