

Some fork() “Puzzles”

COMP 321

Dave Johnson



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What Does This Program Do?

```
int
main(void)
{
    int i;

    for (i = 0; i < 2; i++)
        fork();
    printf("hello\n");
    exit(0);
}
```

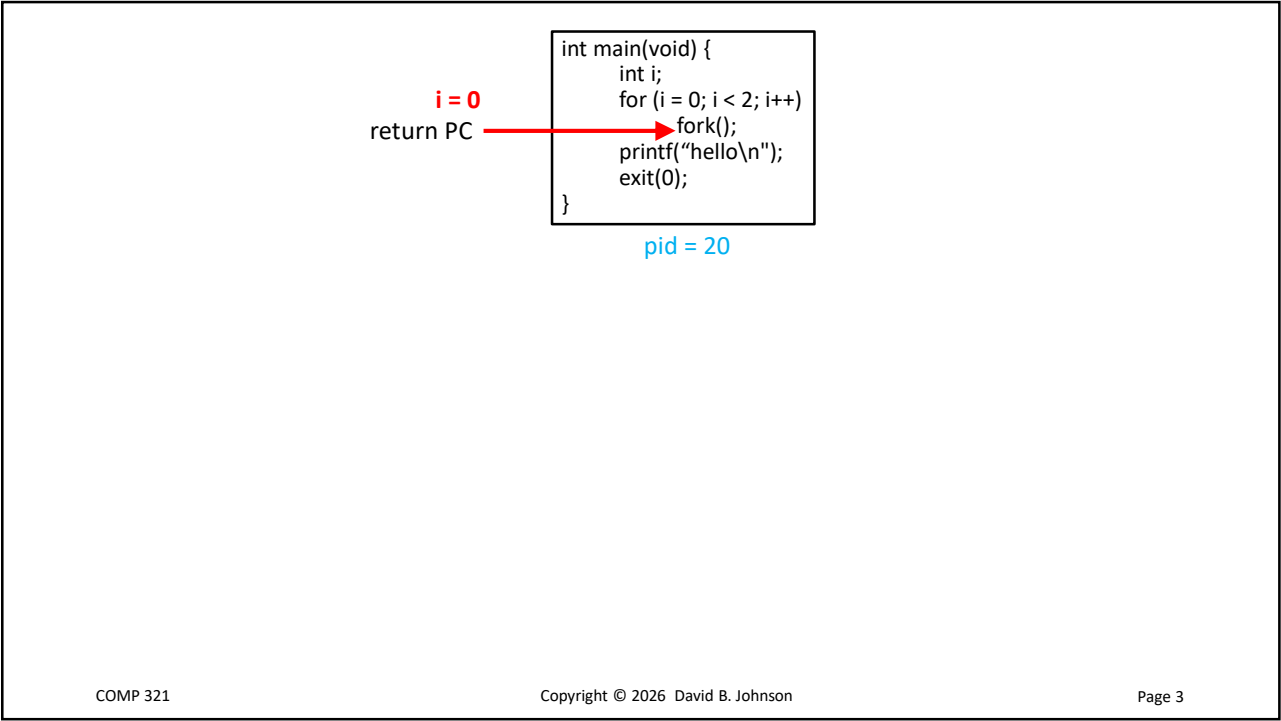
How many times does “hello\n”
get printed?

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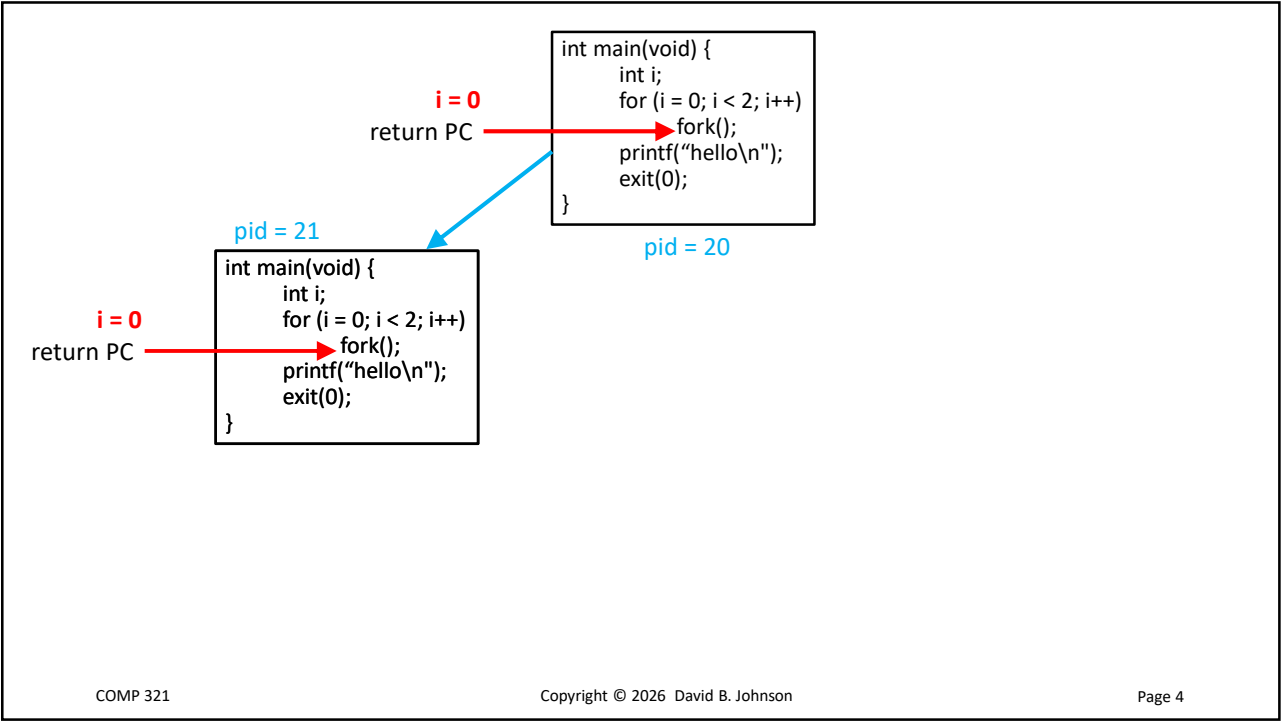
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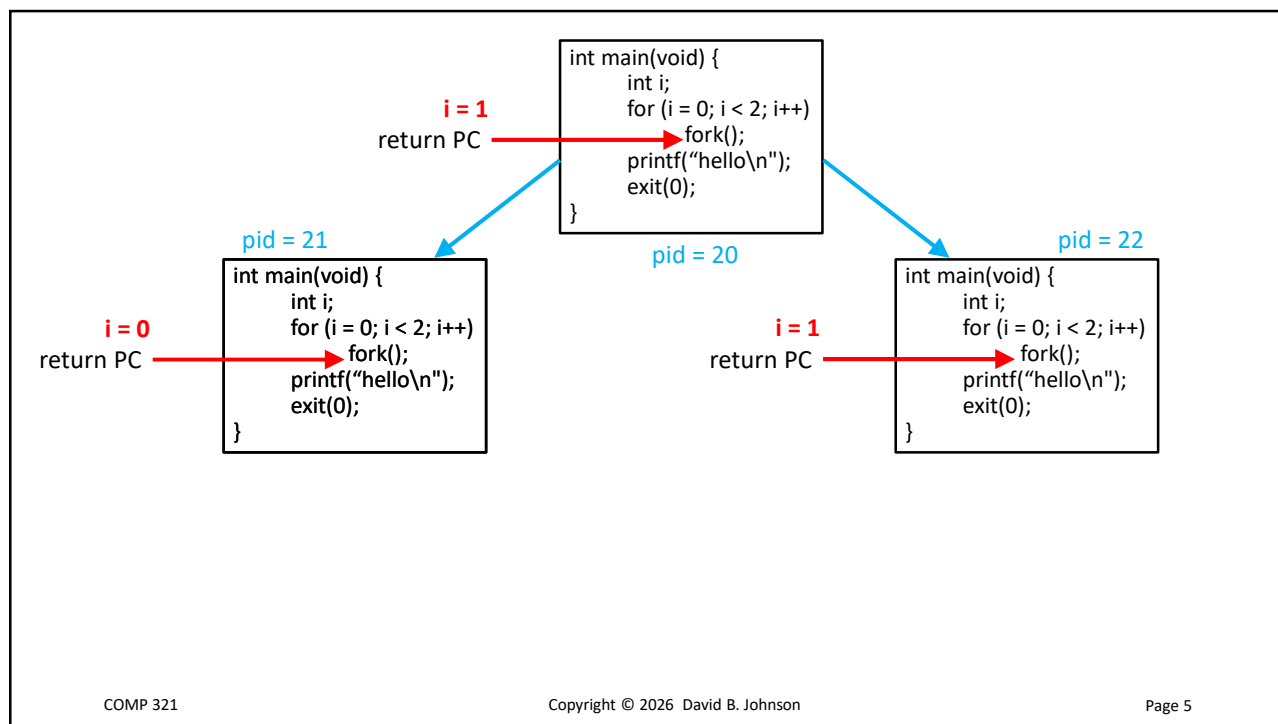
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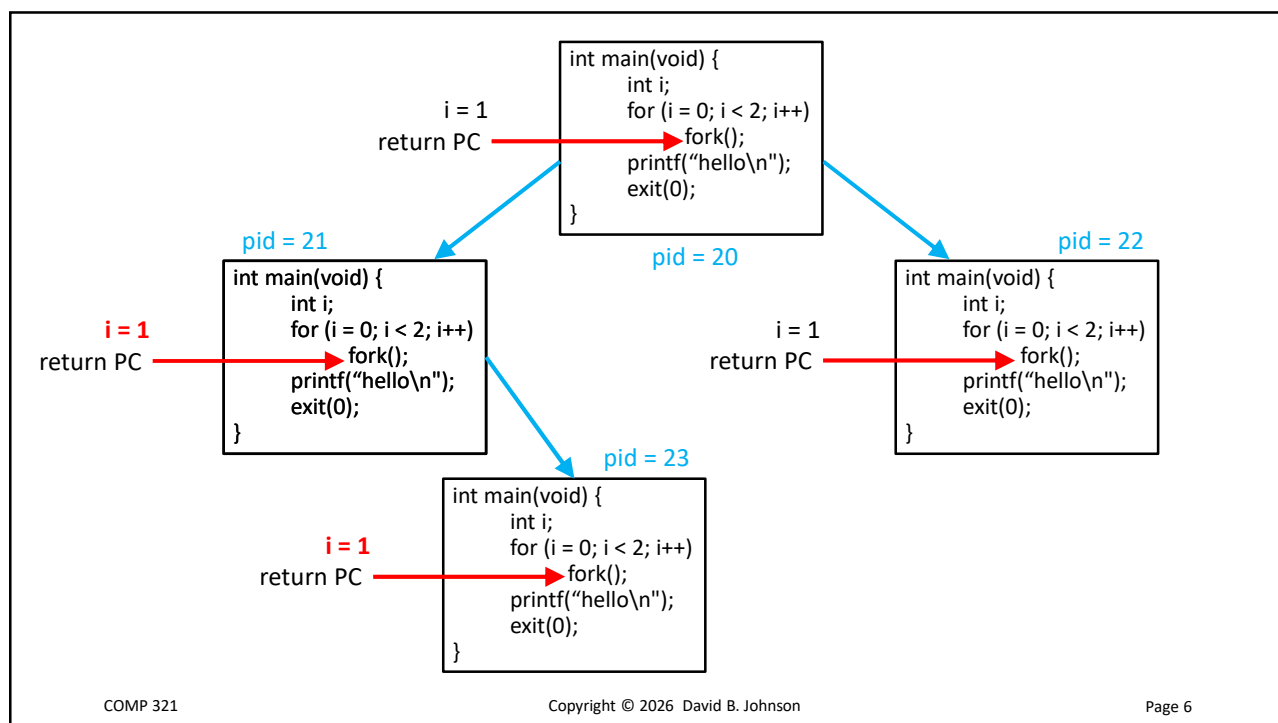
3



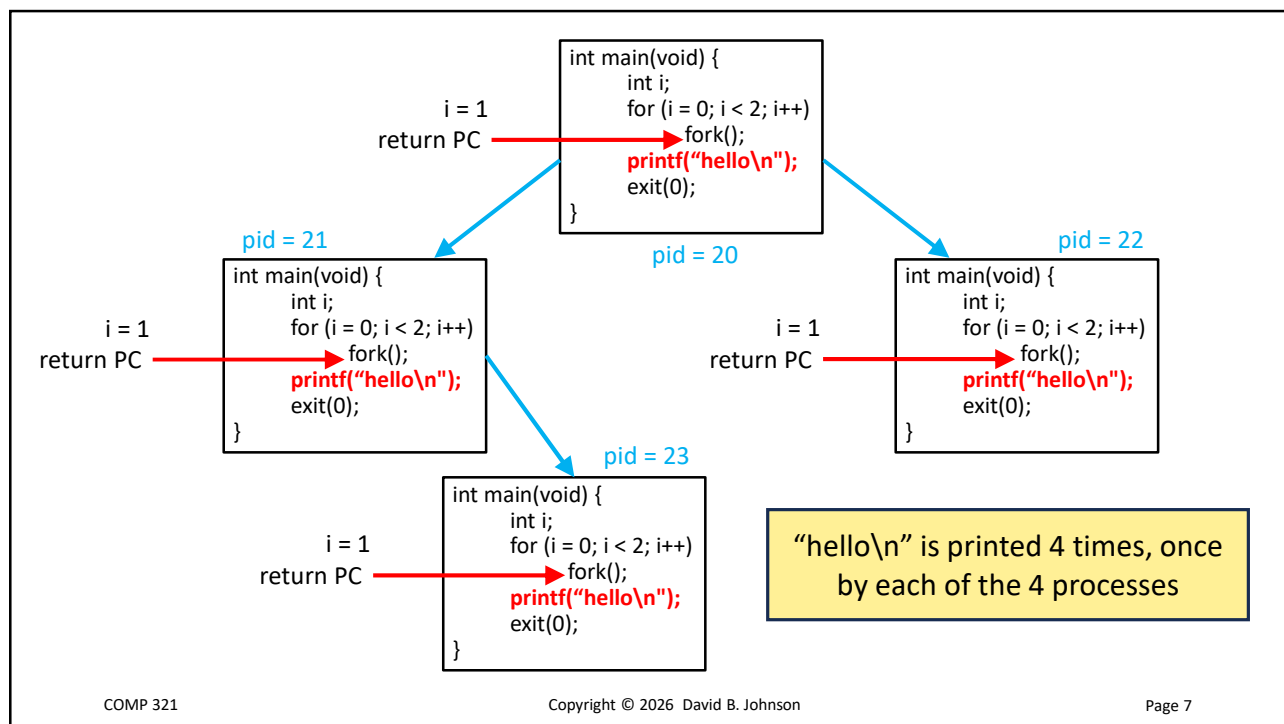
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What Does This Program Do?

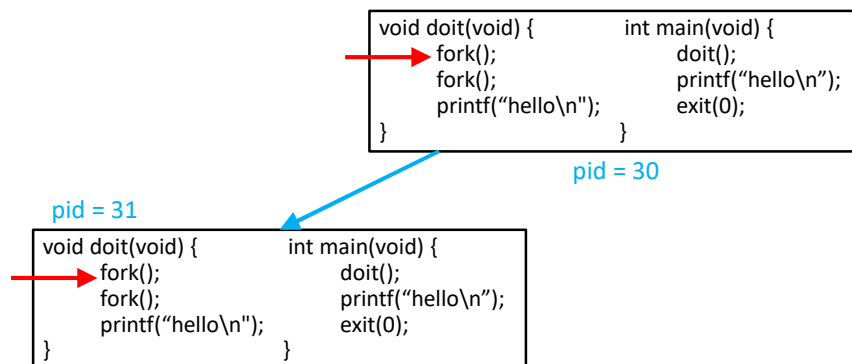
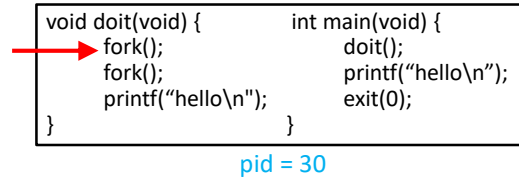
```
void doit(void)
{
    fork();
    fork();
    printf("hello\n");
}

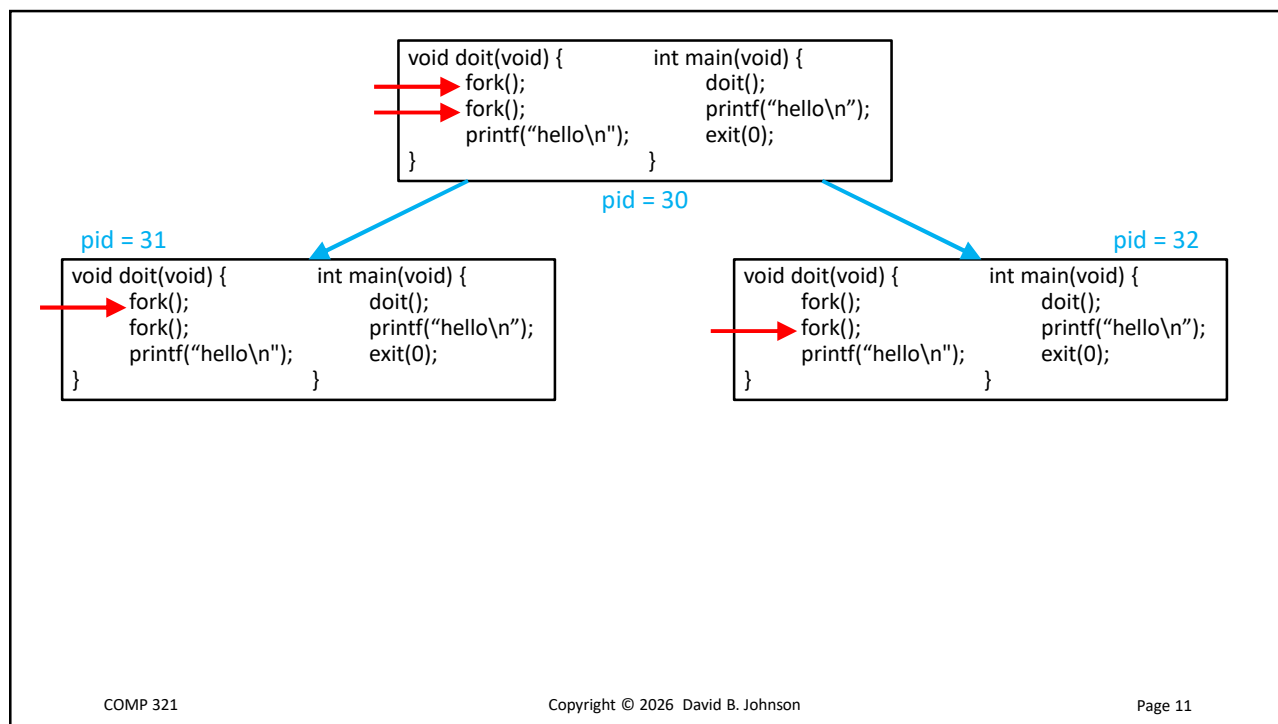
int main(void)
{
    doit();
    printf("hello\n");
    exit(0);
}
```

How many times does "hello\n" get printed?

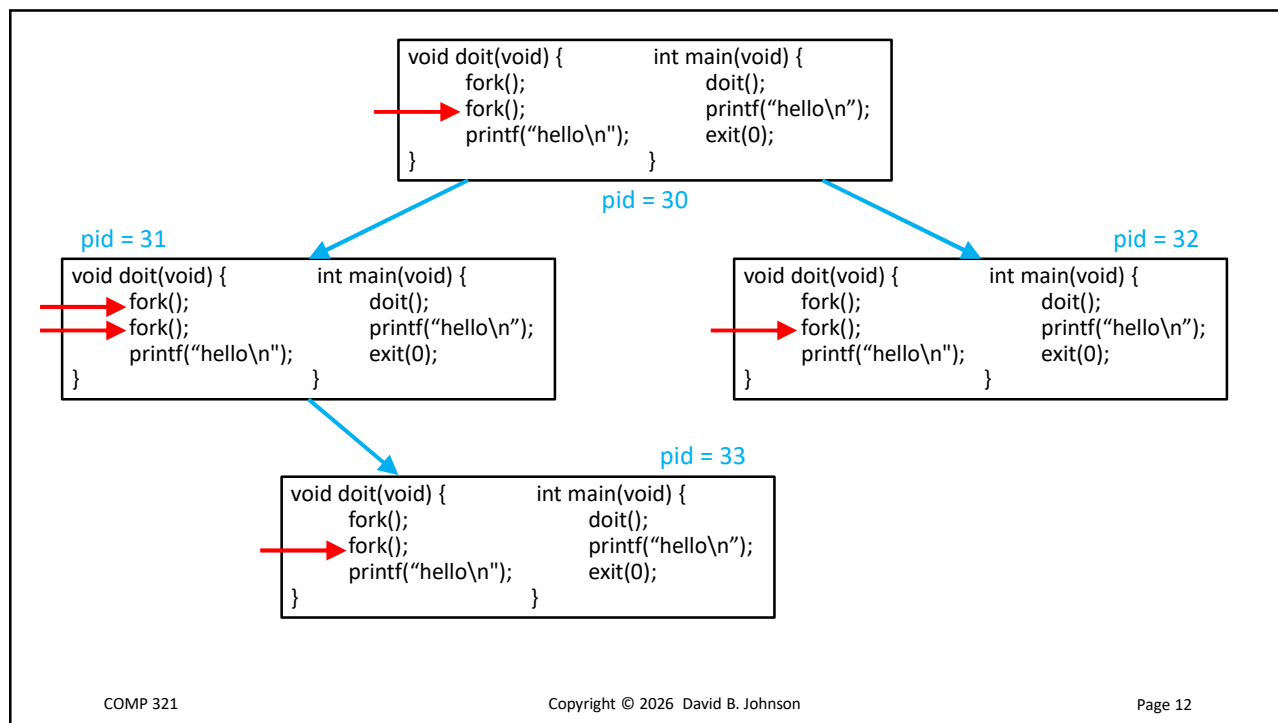
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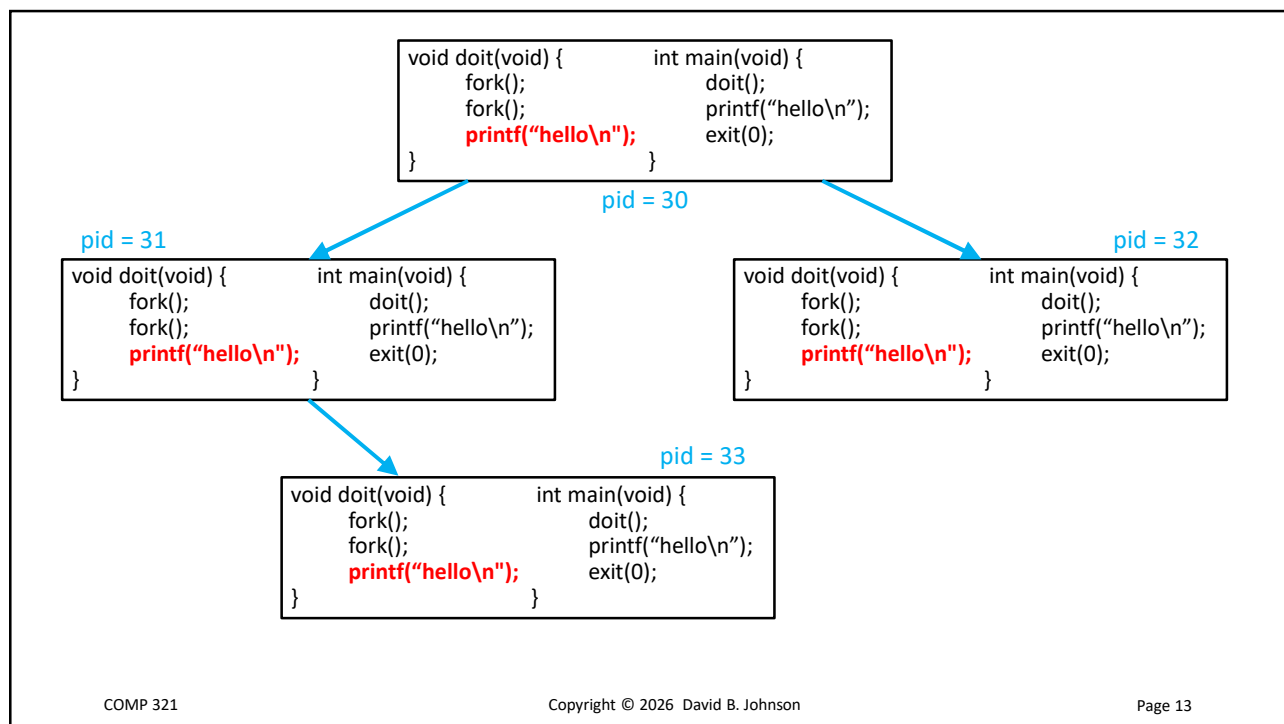




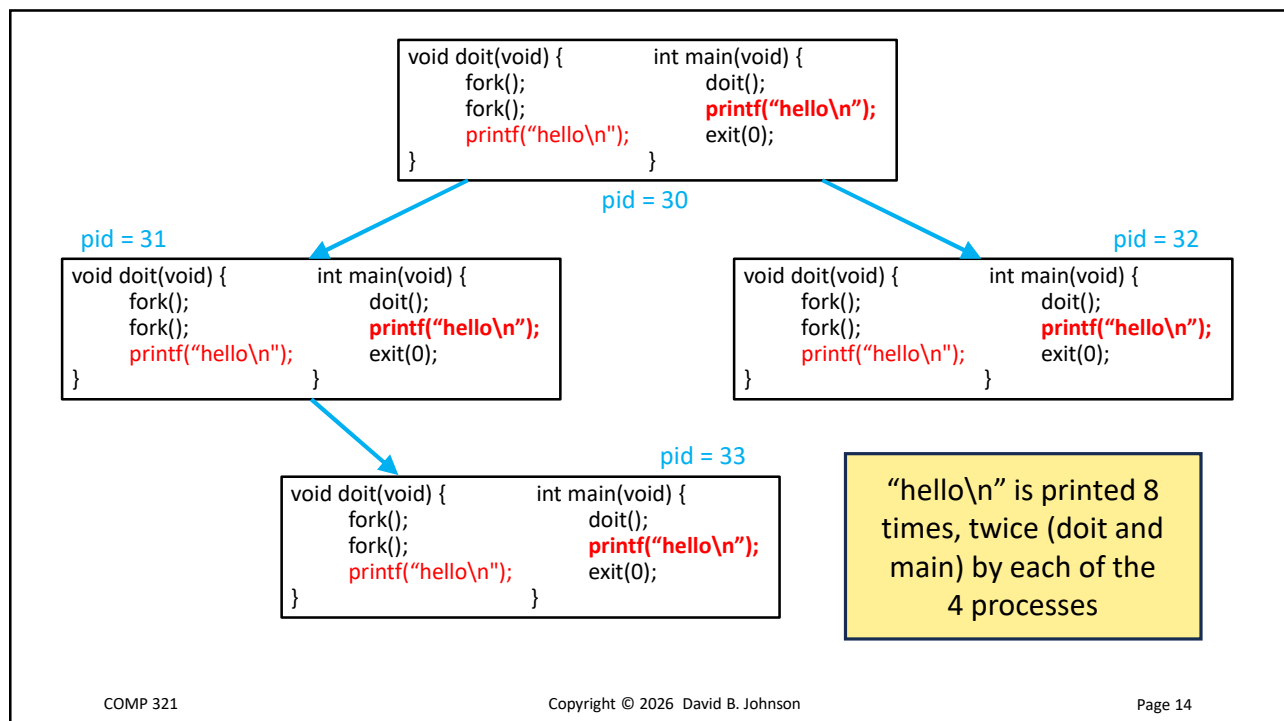
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What Does This Program Do?

```
int
main(void)
{
    int x = 3;

    if (fork() != 0)
        printf("x = %d\n", ++x);

    printf("x = %d\n", --x);
    exit(0);
}
```

What values of x get printed?

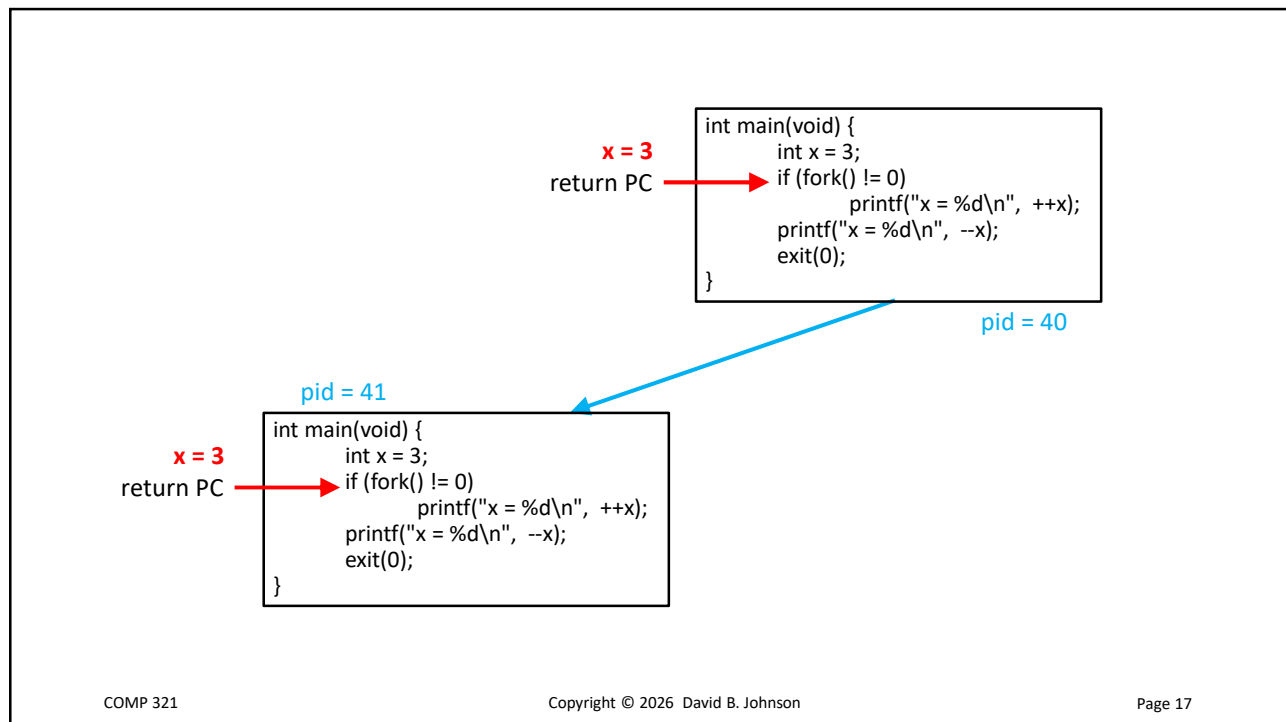
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x = 3
return PC

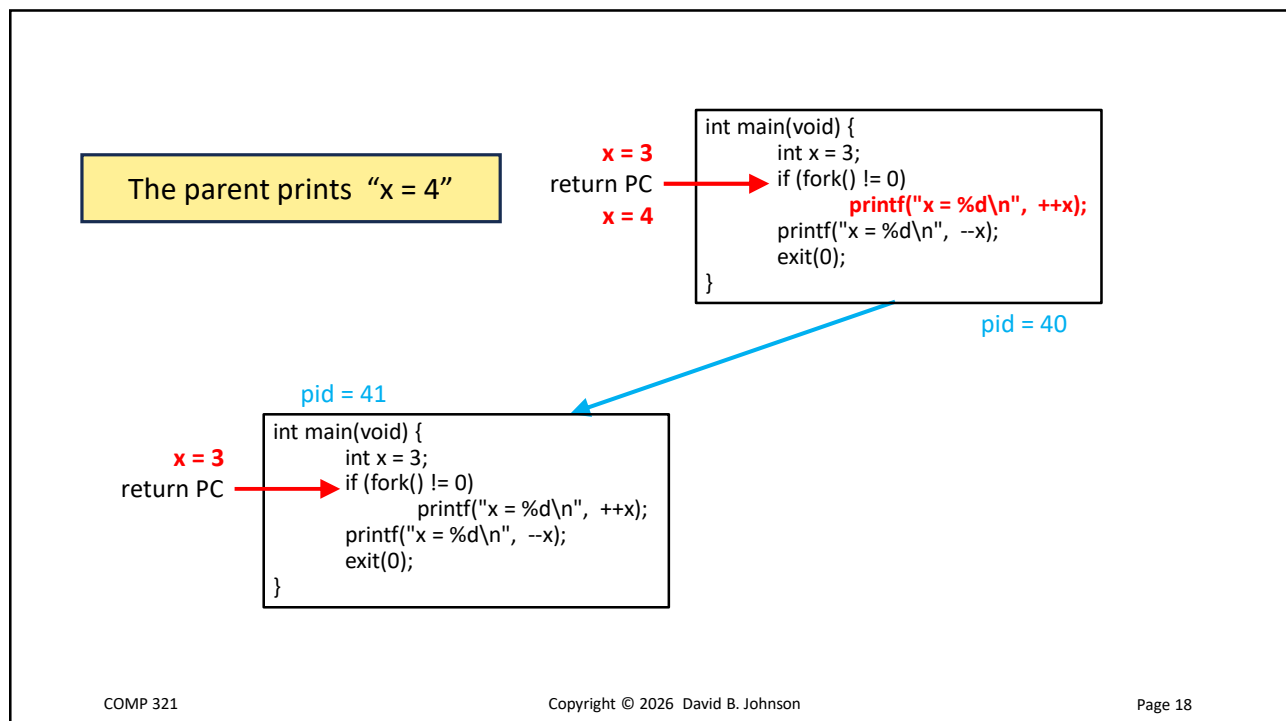
```
int main(void) {
    int x = 3;
    if (fork() != 0)
        printf("x = %d\n", ++x);
    printf("x = %d\n", --x);
    exit(0);
}
```

pid = 40

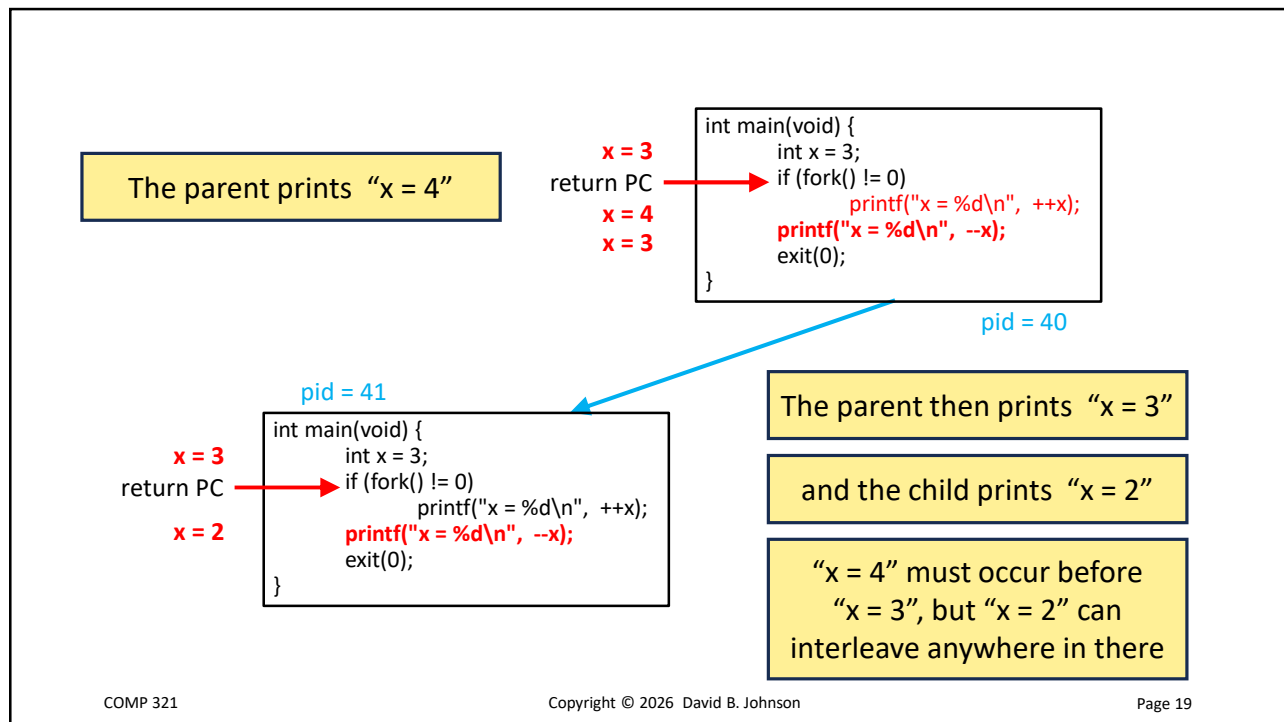
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What Does This Program Do?

```

int counter = 1;
int
main(void)
{
    if (fork() == 0) {
        counter--;
        exit(0);
    } else {
        wait(NULL);
        printf("counter = %d\n", ++counter);
    }
    exit(0);
}

```

What values of counter get printed?

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```
int counter = 1;

int main(void)
{
    if (fork() == 0) {
        counter--;
        exit(0);
    } else {
        wait(NULL);
        printf("counter = %d\n", ++counter);
    }
    exit(0);
}
```

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```
int counter = 1;

int main(void)
{
    if (fork() == 0) {
        counter--;
        exit(0);
    } else {
        wait(NULL);
        printf("counter = %d\n", ++counter);
    }
    exit(0);
}
```

counter = 1

```
int counter = 1;

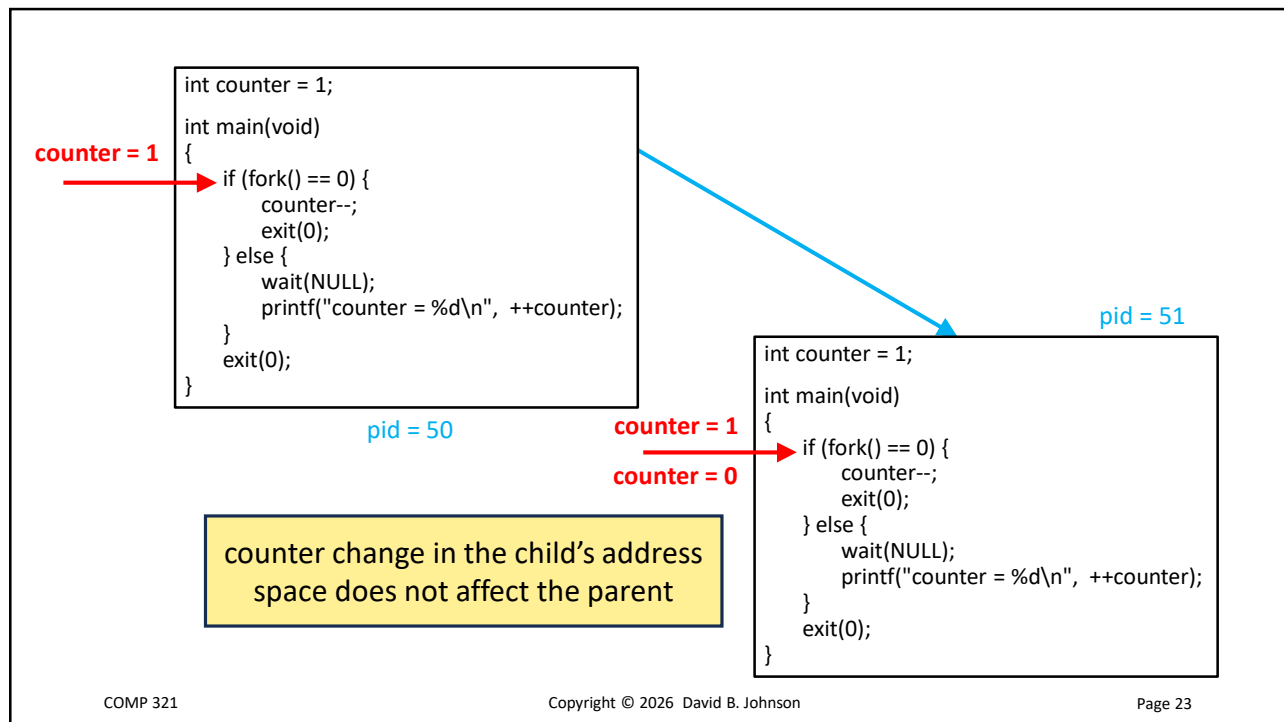
int main(void)
{
    if (fork() == 0) {
        counter--;
        exit(0);
    } else {
        wait(NULL);
        printf("counter = %d\n", ++counter);
    }
    exit(0);
}
```

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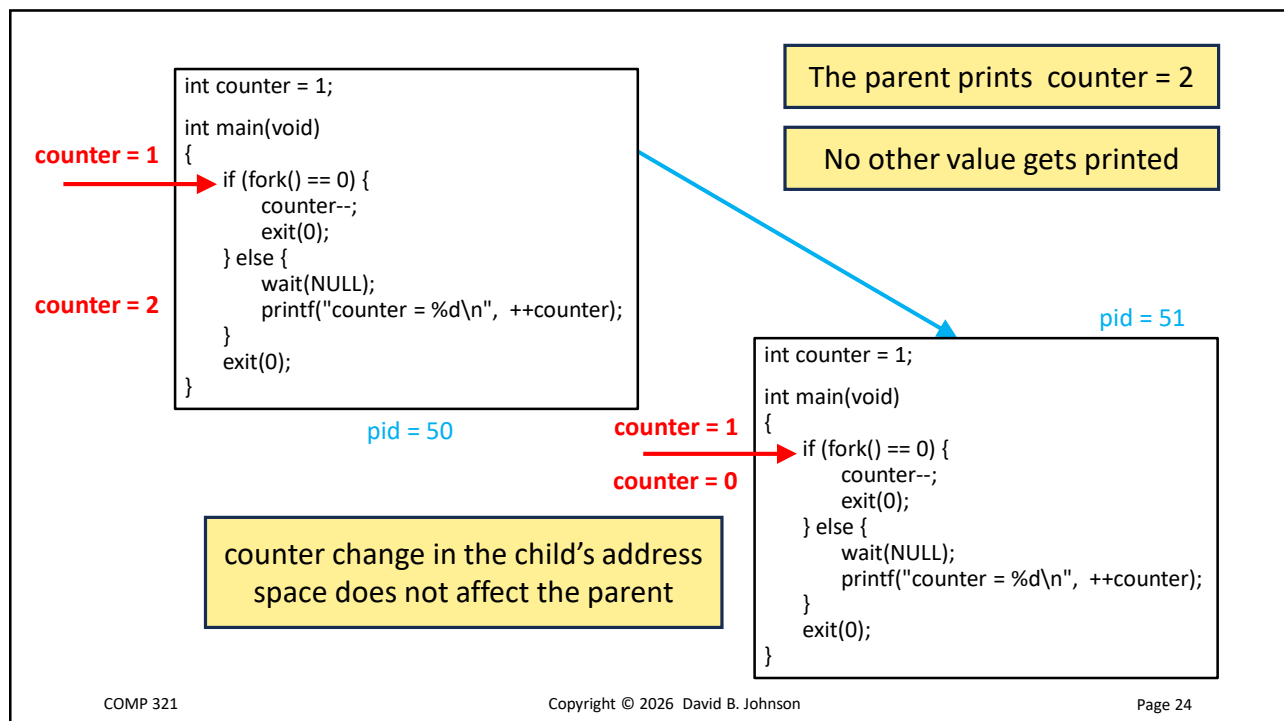
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