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COEN 171

Quiz 5

1) void printArgs(int numArgs, char\* args[]) {

for(int i=0; i<numArgs; i++)

printf(args[i]);

}

2) void func1(void (\*f)()) {

f();

}

void func2() {

printf(“Hello, world! I'm inside func1”);

}

3) func1(&func2);

4) int func(int a, int b){

int c=a+b;

return c;

}

|  |
| --- |
| a |
| b |
| c |
| bl caller |

5) int fib( int n){

if n<2 return n;

else return fib(n-1)+fib(n-2)

}

fib(4)

|  |  |  |
| --- | --- | --- |
| fib | n=4 |  |
|  | bl caller | Return value: 3 |
| fib | n=3 |  |
|  | bl fib | Return value: 2 |
| fib | n=2 |  |
|  | bl fib | Return value: 1 |
| fib | n=1 |  |
|  | bl fib | Return value: 1 |
| fib | n=0 |  |
|  | bl fib | Return value: 0 |
| fib | n=1 |  |
|  | bl fib | Return value: 1 |
| fib | n=2 |  |
|  | bl fib | Return value: 1 |
| fib | n=1 |  |
|  | bl fib | Return value: 1 |
| fib | n=0 |  |
|  | bl fib | Return value: 0 |

6)

fib\_tail(int n, int a, int b){ //fib\_tail(4, 1, 0);

if(n==0) return b;

else fib(n-1, a+b, a);

//more elegant: return n== 0 ? b : fib(n-1, a+b, a);

}

7)

|  |  |  |
| --- | --- | --- |
| fib\_tail | n=4 |  |
|  | a=1 |  |
|  | b=0 |  |
|  | Bl caller |  |
| fib\_tail | n=3 |  |
|  | a=1 |  |
|  | b=1 |  |
|  | bl fib\_tail |  |
| fib\_tail | n=2 |  |
|  | a=2 |  |
|  | b=1 |  |
|  | bl fib\_tail |  |
| fib\_tail | n=1 |  |
|  | a=3 |  |
|  | b=2 |  |
|  | bl fib\_tail |  |
| fib\_tail | n=0 |  |
|  | a=5 |  |
|  | b=3 |  |
|  | bl fib\_tail | Return value: 3 |