

C++ Functions and Data Types

For the code to the right:

1. Add comments to identify the Base Case in this recursive function.
2. Add a comment to identify the Recursive Step in this recursive function.
3. Add a comment on every line explaining what the C++ code is doing.
4. What is the output?
5. What is a C++ lambda expression?
6. What is a C++ smart pointer?

```
#include <iostream> // header for input and output
using namespace std; // allows use of cout without std::

int fib(int n) //fib functiondefinition
{
    if (n == 0)//base case
        return 0//gives 0
    }  
1.
    if (n == 1)//base case
        return 1//gives 1 back
    }  
2.
    return (fib(n - 1) + fib(n - 2))//recursive step
} //end fib function

int main() //main functiondefinition
{
    int n = 5; //initialize integer n with value 5
    for (int i = 0; i < n; i++) //loop below while i < n
        cout << fib(i) << " " // prints the fibonaci number at every i
    }  
3.
    return 0;
} //end main
```

4.

0

1

1

2

3

5. A lambda function is a small function that can be declared inside your code and inside other functions without having to give it a name

6. A pointer that manages its own memory which takes care of deleting memory when you are done with it and prevents memory leaks