**Algorithms Pracical 3**

Two characteristics of recursion: A base case (often N=0); Algorithm calls itself.

Recursion is theoretically powerful and often used in algorithms that could benefit from recursive methods

All recursive functions can be implemented iteratively. True

If a recursive algorithm does not have a base case a compile error is thrown. False

A recursive function must have a void return type. False

Recursive calls are usually contained in a loop. False

Infinite recursion can occur when a recursive algorithm does not contain a base case. True

Which Statement is true? – The base case for this recursive function is an argument with the value 0

Common bugs in recursion – No base case, inefficient use of recursion, too much memory usage, excessive recomputation

How to address excessive recomputing - Store previous results to computer-taxing function calls and use them instead of recomputing

Public int recursiveFib(int n)

{

If (n<=1)

{

Return n;

}

else

{

Return recursiveFib(n-1) + recursiveFib(n-2);

}

}

Iteration is more efficient than recursion as recursion calculates Fibonacci numbers multiple times per each function call. Iteration is O(N) time; Recursive is O(2N).