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Data Structures – Lab Assignment 3

```
public class IterationMathlib extends Mathlib {                    1


        @Override
        public int gcd(int x, int y) {                             1
                int temp;                                          1
                while(y!=0) {                                      n


                        if (x>=y && x!=0) {                        1


                                temp =x;                           1
                                x=y;                               1
                                y=temp % x;                        1
                        }
                }
                // TODO Auto-generated method stub
                return x;                                          1


        }
```

Big O Notation for iterationMathLib

GCD

1++1+1+n(1+1+1+1)+1

4+n(4)

4+4n

All constants to 0

0+1n

1n

All coefficients to 1

1n

= O(n)

```
@Override
        public int hanoi(int n) {                                   1
            while(n==1) {                                           n


                return 1;                                           1
            }
            if(n>1) {                                               1
                return 2*hanoi(n-1) + 1;                            1
            }
            // TODO Auto-generated method stub
            return 0;                                               1
        }

}
```

Big O Notation

Hanoi

1(n+1(1+1)+1

2(n + 1)2

4n + 4

All constants to 0

4n+0

4n

All coefficients to 1

1n

O(n)