Chad Oliver (1704287)

DATA STRUCTURES LAB 3

```
Public int gcd(int x ,int y){
(log n)   While(y != 0){
          (1)       If(x>y && x!= 0) {
          (1)                 Int temp = x;
          (1)                 X = y;
          (1)                 Y = temp % y ;
                    }
}
(1) Return x;
}
```

O (gcd) = log n (1 (1 + 1 + 1) + 1

= log n (1(3)) + 1

= log n (3) + 1

= 3 log n + 1

= 3 log n + 0

` = log n (logarithmic)

```
Public int Hanoi (int n) {
(1)     Int y = 0;
(n) While(n>0) {
(1)     If (n == 1) {
(1)     Y = 1;
(1)     N++;
}
    (1) Else {
    (1) Y = 2 * (2 * n – 1) + 1;
    (1)n++;
}
}
    (1) Return y;
}
```

O (Hanoi) = 1 + n (1 + 1 + 1) + 1 (1 + 1) + 1

= 1 + 3n + 2 + 1

= 4 + 3n

= 0 + 3n

= n (linear)