

Examples

```
void code_1(int n) {  
    // Sqrt Time  
    for (int i = 1; i * i <= n; i++) {  
        cout << i << endl;  
    }  
    // the code below is  $O(\log n)$   
    // for (int i = 2; i < n; i *= 2) {  
    //     cout << i << endl;  
    // }  
}
```

Examples

```
void code_2(int n) {  
    // LinearLog  
    for (int i = 0; i < n; i++) {  
        for (int j = 1; j < n; j *= 2) {  
            cout << i << ", " << j << endl;  
        }  
    }  
}
```

Examples

```
void code_3(int n) {  
    // Sqrt Nested (n sqrt(n))  
    for (int i = 0; i < n; i++) {  
        for (int j = 1; j * j < n; j++) {  
            cout << i << "," << j << endl;  
        }  
    }  
}
```

Examples

```
void code_4(int n) {  
    // Log-Squared  
    for (int i = 1; i < n; i *= 2) {  
        for (int j = 1; j < n; j *= 2) {  
            cout << i << ", " << j << endl;  
        }  
    }  
}
```

Examples

```
void code_5(int n) {  
    // 0(log log n)  
    // 2 + 4 + 16 + 256 + ...  
    for (int i = 2; i < n; i = pow(i, 2)) {  
        cout << i << endl;  
    }  
}
```

Examples

```
void code_6(int n) {  
    // Quasilinear with Nested Log  
    //  $O(n \log^2 n)$   
    for (int i = 0; i < n; i++) {  
        for (int j = 1; j < n; j *= 2) {  
            for (int k = 1; k < n; k *= 2) {  
                cout << i << ", " << j << ", " << k << endl;  
            }  
        }  
    }  
}
```

Examples

```
void code_7(int n) {  
    // Logarithmic Halving with Linear Inner  
    // O(n)  
    // because  $n + (n/2) + (n/4) + \dots = 2n = O(n)$   
    for (int i = n; i > 0; i /= 2) {  
        for (int j = 0; j < i; j++) {  
            cout << i << ", " << j << endl;  
        }  
    }  
}
```