* Recursive methods count /execution count
* Iteration count
* Time to build/execute
* OOP concepts (Method inheritance, Attribute inheritance, coupling factor, Clustering factor, Polymorphism factor, Method hiding, Attribute hiding, Reusability factor, Child count, descendant count, Parent count, Ancestor count)
* AOP concepts
* Complexity of called libraries, apis, webservices.
* Entity/class count
* LOC
* Effort to code
* Number of defects
* Program structure
* Nesting levels
* Variable counts
* Methods counts
* Number of function points
* Number of unused imports

**Complexity of a normal method with nesting**

Method A(){ //line 1

int i=0; //line 2

if(a<b){ //line 3

for(int j=0;j<5;j++){ //line 4

for(int k=0;k<6;k++){ //line 5

if(c>d){ //line 6

i++; //line 7

} //line 8

} //line 9

} //line 10

} //line 11

} //line 12

* Normally we can define a formula like N(Sz+Cs+Cu-0.5Co+hj) to calculate a complexity of a simple code.
* There N is nesting level, S is size which calculates the count line wise basically a program statement. We can ignore operators like (), {}, ; and etc as they are depending upon the programming language even. And in the above formula “C” is the control structures like for, if and etc where weights can be given 3,2 and etc respectively because in “**If”** there is only to check one or more conditions but in a loop like “**for”** there may have condition plus the initializations and increments. And also, we should multiply the complexity inside the loop by number of iterations.
* I have considered “Method” ,“A” as two symbols and get counted even it’s a method declaration because they are kinda program statement.

When line **3, 4, 5, 6** conditions get **true** complexity should be as follows.

|  |  |  |  |
| --- | --- | --- | --- |
| Line No | Size (S) | Control Structures (C) | Complexity N(S+C) \*iterations |
| 1 | 2 | 0 | 1(2+0)\*1 = 2 |
| 2 | 4 | 0 | 2(4+0)\*1 = 8 |
| 3 | 3 | 2 | 2(3+2)\*1 = 10 |
| 4 | 10 | 3 | 3(10+3)\*1 = 39 |
| 5 | 10 | 3 | 4(10+3)\*5 = 260 |
| 6 | 3 | 2 | 5(3+2)\*(5\*6) = 750 |
| 7 | 3 | 0 | 6(3+0)\*(5\*6) = 540 |
| 8-12 | 0 | 0 | 0 |

Total complexity when 3, 4, 5, 6 condition gets true = 2+8+10+39+260+750+540+0 = 1609

When line **3** conditions get **false** complexity should be as follows.

|  |  |  |  |
| --- | --- | --- | --- |
| Line No | Size (S) | Control Structures (C) | Complexity N(S+C) \*iterations |
| 1 | 2 | 0 | 1(2+0)\*1 = 2 |
| 2 | 4 | 0 | 2(4+0)\*1 = 8 |
| 3 | 3 | 2 | 2(3+2)\*1 = 10 |
| 4-12 | 0 | 0 | 0 |

Total complexity when 3 condition gets false = 2+8+10+0 = 20

When line **4** conditions get **false** complexity should be as follows.

|  |  |  |  |
| --- | --- | --- | --- |
| Line No | Size (S) | Control Structures (C) | Complexity N(S+C) \*iterations |
| 1 | 2 | 0 | 1(2+0)\*1 = 2 |
| 2 | 4 | 0 | 2(4+0)\*1 = 8 |
| 3 | 3 | 2 | 2(3+2)\*1 = 10 |
| 4 | 7 | 3 | 3(7+3)\*1 = 30 |
| 5-12 | 0 | 0 | 0 |

Total complexity 4 condition gets false = 2+8+10+30+0 = 50

When line **5** conditions get **false** complexity should be as follows.

|  |  |  |  |
| --- | --- | --- | --- |
| Line No | Size (S) | Control Structures (C) | Complexity N(S+C) \*iterations |
| 1 | 2 | 0 | 1(2+0)\*1 = 2 |
| 2 | 4 | 0 | 2(4+0)\*1 = 8 |
| 3 | 3 | 2 | 2(3+2)\*1 = 10 |
| 4 | 10 | 3 | 3(10+3)\*1 = 39 |
| 5 | 7 | 3 | 4(7+3)\*5 = 200 |
| 6-12 | 0 | 0 | 0 |

Total complexity when 5 condition gets false = 2+8+10+39+200+0 = 259

When line **6** conditions get **false** complexity should be as follows.

|  |  |  |  |
| --- | --- | --- | --- |
| Line No | Size (S) | Control Structures (C) | Complexity N(S+C) \*iterations |
| 1 | 2 | 0 | 1(2+0)\*1 = 2 |
| 2 | 4 | 0 | 2(4+0)\*1 = 8 |
| 3 | 3 | 2 | 2(3+2)\*1 = 10 |
| 4 | 10 | 3 | 3(10+3)\*1 = 39 |
| 5 | 10 | 3 | 4(10+3)\*5 = 260 |
| 6 | 3 | 2 | 5(3+2)\*(5\*6) = 750 |
| 7-12 | 0 | 0 | 0 |

Total complexity when 6 condition gets false = 2+8+10+39+260+750+0 = 1069

By considering all true and false paths total complexity can be derived using the **Median** of both true and false

**Total complexity**= (1609+20+50+259+1069)/5 = 601.4