

软件测试 Assignment 4.

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1. 计算下列代码片段的 Halstead 复杂度的11项内容:

```
1  if (month < 3) {
2      month += 12;
3      --year;
4  }
5  return dayray((int)(day + (month + 1) * 26/10 + year + year/4 + 6 *
    (year/100) + year/400)% 7);
```

Operator	Number of Occurrences	Operand	Number of Occurrences
lf	1	month	3
<	1	year	5
+=	1	day	1
--	1	26	1
+	5	3	1
*	1	12	1
/	3	1	1
int	1	10	1
dayray	1	4	1
%	1	6	1
return	1	100	1
		7	1
		400	1
$n_1 = 11$	$N_1 = 17$	$n_2 = 13$	$N_2 = 19$

Halstead 复杂度:

- 1. 程序词汇表长度: $n = n_1 + n_2 = 24$
- 2. 程序长度: $N = N_1 + N_2 = 36$

3. 程序预测长度: $N^{\wedge} = n_1 \log_2 n_1 + n_2 \log_2 n_2 = 86.16$
4. 程序体积: $V = N \log_2(n) = 165.06$
5. 程序级别: $L^{\wedge} = (2/n_1) \times (n_2/N_2) = 0.124$
6. 程序难度: $D = 1/L^{\wedge} = 8.038$
7. 编程工作量: $E = V \times D = V/L^{\wedge} = 1331.13$
8. 语言级别: $L' = L^{\wedge} \times L^{\wedge} \times V = 2.456$
9. 编程时间: $T^{\wedge} = E/(S \times f) = 0.0205$
10. 平均语句大小: $N/\text{语句数} = 9$
11. 错误数预测值: $B = V/3000 = N \log_2(n)/3000 = 0.055$