Assignment 4

Question

计算下列代码片段的 `Halstead` 复杂度的11项内容：

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

Answer

操作符：

Operator	Occurrences
if	1
<	1
+=	1
-	1
dayray	1
+	6
*	2
/	4
%	1
return	1
int	1

$n_1 = 11, N_1 = 20$

操作数：

Operand	Occurrences
month	3
3	1
12	1
year	5
day	1
1	1
26	1
10	1
4	1
6	1
100	1
400	1
7	1

$n_2 = 13, N_2 = 19$

结果：

Halstead 复杂度度量内容	计算结果
词汇表长度 Program vocabulary	$n = n_1 + n_2 = 24$
程序长度 Program length	$N = N_1 + N_2 = 39$
预测长度 Calculated program length	$\hat{N} = n_1 log_2 n_1 + n_2 log_2 n_2 = 86.15946$
程序体积或容量 Volume	$V = N log_2(n) = 178.81354$
程序级别 Level	$\hat{L} = (2/n_1) * (n_2/N_2) = 0.12440$
程序难度 Difficulty	$D = 1/\hat{L} = 8.03846$
编程工作量 Effort	$E = V * D = 1437.38574$
语言级别	$L' = \hat{L} * \hat{L} * V = 2.72769$
编程时间	$\hat{T} = E/(S * F) = 0.02218$
平均语句大小	$N/语句数 = 9.75$
错误数预测值	$B = V/3000 = 0.05960$