Practical - 3

Name :- Ishwari Rajiv Narkhede
PRN :- 1841034
Branch :- Computer Engineering
Aim :- study and calculation of Halstead metrics parameters.

* Halstead's software Metrics :-

Halstead's metrics are included in a number of current commercial tools that count software lines of code. By counting the tokens and determining which are operators and which are operands, the following base measures can be collected:

n1 = No. of distinct operators
n2 = No. of distinct operands
N1 = Total no. of occurences of operators
N2 = Total no. of occurences of operands.

Example:-

```
int
main (int argc, char **argv)
{
    int rad = 12.34;
    printf("Area of circle with radius %.f is: %.f \n", rad,
                                                area(rad));
    return 0;
}
```

```
float
area (float r) {
    return 22*r*r/7;
}
```

n1 – 14 – no. of unique operators
n2 – 9 – no. of unique operands
N1 – 30 – Total no. of operators
N2 – 13 – Total no. of operands.

Program length –: $N = N1 + N2$

$N = 30 + 13$

$\therefore N = 43$

Program Vocabulary: $n = n1 + n2$

$n = 14 + 9$

$\therefore n = 23$

Volume : $V = N * \lg n$

$V = 43 * \lg 23$

$\therefore V = 194.51$

Difficulty: $D = (n1 * N2) / (2 * n2)$

$= (14 * 30) / (2 * 9)$

$= (1020)/18$

$= 10.11$

Effort: $E = D * V$

$= 10.11 * 194.51$

$= 1966.5$

Time to implement : T = E/18

= 1966.5/18

= 109.25 sec.