Assignment - 2

Q - (a)   int sum = 1

$$for \ (int \ i = 0; \ i < n; \ i++)$$
$$\{ for \ (int \ j = 0; \ j < n; \ j++) \} \rightarrow O(N^2)$$
$$sum = sum + i - j$$

Time comp = $O(N^2)$

(b)   int s = 0
$$for \ (int \ i = 1; \ i < n; \ i = i * 2) \rightarrow O(logN)$$
$$for(int \ j = 0; \ j < 100; \ j++) \rightarrow O(1)$$
$$s++;$$

Time comp = $O(logN)$

(c)   int s = 1;

$$for \ (int \ i = 1; \ i < n; \ i = i * 2) \} \rightarrow O(N/2)$$
$$s + = i$$
$$for(int \ j = 1; \ j < n; \ j + = 2) \ O(N/2) \ logN$$
$$s--;$$

Time comp = $O(N/2) + O(log N)$
$$\rightarrow O(N/2)$$

(d)   int s=1;

for (int i=0; i<n* n; i+=2) $O(N/2)$
      s * = i;

for (int j=1; j<n; j+=2) $O(N/2)$
      s--;

Time complex = $O(N^2/2) + O(N/2)$