Selection Sout Implementation: void selection sout (intaxa[], intn) for (inti = 0; iz(n-1); i++) for (int j = i+1; j(n; j++) 2 if (asca [1]) asca [j]) Swap (asta [i], asta [j]); vætum; time Analysis: (n-1) for (int i=0; i/(n-1); i++) n (n+1) for (int j = i+1; J(n; j++) n (n+1) if (area [i]) area [j]) か(カナ1) Swap (asia [i]) asia [j]);

191-15-12485 Time function f (+) = CI(n-1)+C2 n(n+1)+C3 n(n+1)+C4 n(n+1) Best case occurs when the array is already sont tod 1 2 3 4 5 value of C4 will be 0, so time function will be. f(+) = (e2+c3) * n2+ (e2+c3+2e1) * n-e1 This function look like $f(t) = an^2 + bn + e$, which is quadrie function · Word case will be occurred when the array is reversity southed 54321 P(+) = (e4+ c2+c3) * n2 (c4+c2+c3+2e1) * n2-e, look like f(+) = (an2+bn+e): which is quotice function. Time Complexity: (++1:12): (0=1) mot f(+) = an2+bn+c [Best Cone] Worst case: $f(t) = an^2 + bn + e$ $-n = (n^2)$

```
Implementation: Insertion sout
   void insertion (int area [] - intn)
  for (i=0, ixn; i++)
     x = are [i] = (1) = office for
               which is quadric tunction
  while (+) =0 99 ara [+] 1x)
       ara [J+1] = ara [J] J ---
       ara [j+1]=x;
 Analysis:
 void insertion (int are[], int n) @ "
 2 intitoxx;
                          ling Complexity:
 for (i=0); izn; i++)
              [ Bert Cose]
                        P(+) = On + bn+C
 n=asta [i];
while (J)0 33 ara [J])
ara[J-1] = ara[J], J-+, rd+
```

131-13-12482 ana []+1]=x; .. Time function: $f(1) = c(n + c_2(n-1) + c_3(n-1) + c_4 \frac{n(n+1)}{2} + c_5 \frac{n(n+1)}{2} + c_6(n+1)$ Best case occurs when array; a almeady usested 1 2 3 5 7 when ex will execute for (n-1) time and es will execute for o time. so function will be f'(+) = C1 * n+C2 (n-1) + C3 (n-1) + C4(n-1) + C3 * O+C6(n-1) = n(C1+C2+C3+C4+C6)-(c2+C3+C4+C6) . This look like y = an-b. That's Linear egn warst case occurs when the array is reversly souted, 75321

.. Time function will be f(+) = c1*n+c2+c3(n-1)+c4* n(n+1)+c5* n(n+1)+ $= \frac{e_1 + e_2}{2} n^2 + 2 (e_1 + e_2 + e_3 + e_6) - (e_1 + e_2 + e_4)$

199-15-12485 121-12-12193 .: look like & = an + bn + c; This is a quadratic equ Time Complexity incit sand from: Best Case: We know y = an - b [. Best case] 12318 17 / worst case; here Et will execute for any We know, y - on +bn+e [- work cose] 181 = 11681+62+63+64+66)-(02+62+64+64) twow who mount of metro linear ed wood sittis Earles Reversor si Roma the anim emposiones 112/8/5/E 1860 = 601-162+63(01-1)+60+601-1654 0000)