```
CSE-F
Program:
# include < stdio.b>
 (othis, [ ] a this) troe bior
 4
   int i, j, temp;
   tor(1:0; 120; 1++)
    for (1:0; 120; 1++)
   it (acij Lacij)
          temp cacil;
             arij = acij;
             aci]: temp;
     birary (int all, inte, int n)
      int 1:0,j:n-1, mid;
       cohile (iz=j)
           mid = (i+i)/2
          it (acmid] = = e) ( (2x 1/2) his
               return mid+1
                                  6201 11 19
          else
           Lit (6 x0 [wid])
             jamid-1;
```

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2086
          12mid+1;
    (i < i) +i
       return 0;
   int moln ()
      int n, ", a[20], +, c, m, , m2;
      Print+ ("Enter the noiot elements of array");
      (scart ("1.1", 219);
      f. of binary (a, e, x),
     89 X $ 1 200)
       print ("Enter the elements of array in");
       for (120; 120; 1+1)
          SCORT ("14", & aci]);
                           E to the posice to
           sort (an);
        tor (120; 120; 1+t)
            Print+("/d", ori]);
     prent+ ("Enter the element to tind in array");
      scart ["1.d", xe);
       t: binary (a,e,n);
      it (+1:0)
      ¿ print ("element is found at 1d position", +);
                                   Scanned with CamScanner
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LATTE MAJ HAT - 1000 TH
     Else
      point ("-Element not found in);
Print ("Enter the position of array to find sum
                                 and product(n");
     scant ("1.d 1.d", 4m1, 2m2);
      m1--;
                 Miller Ers
       M2 -- ;
      Print (" The sum is 1.d", a[m] + a[m]);
      Print (" The product is 1.d", acmit acmil);
               (Elines on Aline) Hart
    Output
    -Enter the no.00 elements of array: 4.
     Enter the elements of array.
                     CHANGE TO MAN THE STREET
     2
    5 is enter the element to $100 in occolary-
     Element Ex Jourd at 1st position.
    enter position of array to tend sum & product
             constitut to million on the plant
    The sun is 8
     The product is 15.
                        : (4 p b) 1 hos
               X3M - 100 186 TXT 500 100 001
 program:
 # Enclude < Gtdlib.b.>
 # include < stdion>
 # define MAX-SIZE 10
   void merge - sort (Prot, int)
    ; (Initial, this trail the local - ableau pion
```

2)

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TIM MATERIA
                     Else
                         plant ("- Element not found (n);
Print ! "Enter the position of array to find sum and product!
                                                                                                                                and product/u");
                    scant ("1.1 1.1", 4m1, 2m2);
                                                                       CILITION DUST
                           M2 -- ;
                          Print+ (" The sum is 1.d", a[m] + a[m]);
                       Print+ (" The product is 1/d", arm] + arm]);
                                                         ( Street Car " If the ) Hale !
               Output
                 -Enter the no. of elements of array: 4:
                    Enter the elements of array.
                                                                                replace mount is ) thing
                 5 is enter the element to find in avoiding -
                    - Element & found at 1st position.
                Enter position of array to tend can & product
                                                    was any to colling an mil' thing
                         3/11
                  The sun is 8
                     The product is 15.
                                                       1941 NO NO TALKON CON DOT
        program:
        # fochige < chalib. b.>
        # include < Otdion>
       of JEIS-XAM SOFFE ID
              void merge - sort (Prat, int)
                  : (Initinity in the control of the c
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2)

Output; Climple Meage sort trample - furctions and Array Enter 5 Elements for coxting Your Data: 8 6 5 3 1 Sorted Data: 1 35 68 find the product of kth elements from first and last where k Insertion Sort: It is a simple conting algorithm that works the way we work playing cooks in our rough. Algorithm // sort an array of sizen. ansertion gort (arr,n) Loop from is to not a) Pick element arrij and insent it into somed sequerce arr [0 - - i-i] Ext 12,10, 13, 4,8 for above example, for in (second element of array) to 4 (last element et array).

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```
(izi) #
    m: (i+i)/2;
    medge_sort (i,m);
     menge_Sort (m+1, j);
    meage array (i, m, m+1, i);
    Void megge - agray (inta, int b, int c, intd)
    int icazice, K=0;
    while (iz: bas jz:d)
      if (arr-sort[i] Larr-sort[i])
                              Ag turker
       +[K++] ; OLOV-SOST [i++];
else
       +[K++] : ON-801+[j++];
   while (122b)
     +[K++]: arr-Sort [i++];
    ushile (jz:d)
    +[x++] : arr - sort [i++];
    for (1:0, 1:0; 12:d; 1+t, 1+t)
     arr-son [i]: t[i];
```

- ist, sence 10 is smaller than 12, more 12 and insent 10 before 12.
- all elements in array one smaller than 13.
- elements from 10 to 13 will move one position whead of their current position.

 4, 10, 12, 13, 8
 - 1:4 B will move to position after 4, and dements
 4 nom 10 to 13 will move one position ahead.
 4,8,10,12,13.

Selection sort;

It sorts by an array by repeatedly finding the minimum element trom unsorted post and putting it into the beginning. The algorithm maintains two subarrays in given array.

- 1) The subarray which is already sorted.
- 2) Remaining subarray which is unsorted.

On every Everation of selection sort, the minimum event from the unsorted subarriay is picked and moved to the sorted subarriay.

example:

our []: 40 30 20 20 5

// frod the minimum element in arr [0.-.4]

1 and place it in beginning
5 30 10 20 40

```
11 Find the minimum element in arr [1 - 4]
                     Il and place it at beginning of arr[1-4]
             5 10 30 20 40
                          11 find the minimum element in arr[2--4]
                         11 and place it at beginning of arr[2 -- 4]
                                        510 20 30 40
                           Il find the minimum element in arr [3 -- 4]
                             Il and place for at beginning of arr[3--4]
5 10 20 30 40.
                                                                13 18 19 20 d 28 4
           # include < otdio.n>
            # include < confo.h>
            int moin()
                      Port cerr [50], i,i,n, temp, sum:0, product:1;
                  Print+ ("Enter total no.01 elements to store:");
                       (Scout (...19, 40);
                        print ("Entu" 1.d elements: "in);
                       for (120; 120:9++)
                                (cont(,19, 5 out[])
               prent! ("Sorting array wing bubble sort (n");
            tor (300; 12(0-1); 1++)
                              tor(i=0: j=(n-1-1); j++)
                                 { the [arrest of content of the cont
                                          E temp = arrail
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4.

```
printil. The areas elements south succeptions (u.):
 brint (" what elements in orceased as orgen: / w/o.).
 ¿ print+ ("1410", orr[i]);
  Print+ ("array elements in alternate order in");
   for ( : 20; 12=11; 1=1+2)
   Print ("Yd In", arreid):
   for ( 1:1; 12:0; 1+2).
   E sum : sum + orreci];
   Print (" The Gum of odd position elements are it in sum);
    tox (1:0; 1/20; 1:1+2)
      product = arrei];
                                CHARLES SUBJECT TO
   prints!" The product of even position elements are iding.
10 to 3.
    getch();
    returne);
              to Break the At 1st west thing
 Output:
 Enter total no. of elements to store: 5
  enter 5 elements:9
                         · (HIS + HOLD BANG
   7
   5 14 140 MILLION OF MATERIAL PROPERTY
```

```
Soffing array using bubble soft.
All array clements sorted succestably!
Array elements in ascending order.
                      : Eller Whitten
        Visites the region of discourse process
 Array elements on Alternate order.
 The Sum of odd possess on elements are: 15
      product of even position elements are = 28
# 9 occude < Otd 10.12>
#include < stdlib. bs
 void Brnaryseauch (ent arritz, ent num, ent tirkt, ent lost)
  Ent mid;
    it (tirst > Out)
      prenty ("Number of not found");
   else
      mid = (+988+ + Cast);
        (aur [ [bim] ria) ti
         print ("Element is town at ender 1.d", mid);
          (xit(0);
```

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```
else it (arr [mid]) num)
     Broary season (arr, num, first, mid-1);
     else
      Benory south (arr, num, mid+1, last);
void moun ()
  int arr [100], beg, mid, erd, i, n, nun;
  Print+ ("Enter Orge of an array");
  (scart ("1.d", 20);
  Print+ ("Enter values in sorted sequence (n");
  for (1:0; 120; 1++)
   9
   (cont ("1.d", 2 arr [:]);
    3
   beg:0;
   end : n-1;
   Print+ ("Enter a value to be granch:");
   Sount ("/d", 2 num);
   Binary seasich (arr, num, beg, end);
Output
 Enter the vise of an array 4
  enter the values on sorted sequence
  Enter a value to be search: 7
   Exement in tourn at
                             ender: 3
```