```
DSA Assignment - 6
                                       V. Virod sai Varma
     # Enclude Litatio. h>
 int mainl)
    ( Int i, low, high, mid, n, key, arr [100], temp, i, one, two,
  Print ! " Entire the no. of Llimints in array");
      Scanf ("1.d". darr[i]);
       for (1:0, 12n; 1++)
       if (f=1+1; $ Ln; $++)
       Lit (arr [i] Karr [i])
        { if (temp=arr[i]);
         { arr [i] sarr[i];
         arr[i]: temp;
Print + ("In eliments of array is sorted in decending order;);
    for liso, inn, ita)
                              His Athant him I bling
      Print + ("1.4", arr[i]);
  print f ("Enter Nalue to find");
```

```
scant ("Y.d", a next);
    low-o
    high = n-1;
    mid = (low + high)/2',
   while low thigh), justing the spirit
                                                   8
      if (arr [mid] > key)
                        if it inch "bi" I from
        low = mid +1; (1); (2) (0; i)
       else (f. larr [mid] = ky)
       Print f ("1.d found at location 1.d"
                                   ky midti);
     break,
                          Klidar Amel 1
       else
        high = mid - 11,
        mid = (low + high / 2;
 If (loo > high)
print of ("Not found! "/ d fin't present in the listin"
Print + ("1/n");
Printy (" Enter two locations to find sum & products
                           of the elements ")
```

Scanned with CamScanner

```
Seant (" Y.d", done):
   Scont (" y. d", d two);
   Jum = or [one] + arr [two];
   Product : (arr[oni]*arr[two]);
Print of l' the sum of elements = % d", sum);
Print + [" the product of elements = "1. d", product);
                             rom I I'm int
 neturn o.
 યુ
  output:
  Enter no of dements in array 5
       5 integers
 Enter
       al friend ref. Harmers F. A. War Will bring
 9
  7
  4
Element of orray is sorted is duending order.
 97542 enter value to find 5
   5 found at location 3
 Enter two locations to find sum and product of
  flements.
  2
The sum of elements of
  the product of elements = 10
```

```
1001 h . " h ! " ! I in
(2)
                         Martin Comment
   # Include & stdio. h>
  7 define man - Size E5
   Void merge-sort [man-size];
 Void mirge_array (int, int, int, int);
     Int arr sort (man - Size),
  int main ()
    int i, k, pro=1;
Print of l'Isample merge sort example function and
                           array(ni);
  Print + ("In enter 1. d Eliments for sorting In",
                              mar - sire);
    tor (izo; [Lman-size; i++)
     Scant ("Y.d", darr-Sort [:]);
    Print f ("In your data!");
     for liso, Exman - Size; 1++
    of printf (" "t' 1. d", orr-sort (i)],
                              reserved a los man
        merge sort (o, mon -size _1).
```

```
Print + (" (n sorted data! ");
   for (i=0, "12 mare size; i++)
5
   Print (" It "I.d." Orr-Jort [9]);
Print + ("Find the product of the kth element from
           first and last where k (n").
 Sean + (" y.d", dk);
  Pro = arr - lort [h] & arr-lort [man-size-k-i].
 Print + lu produce = "l.d", pro);
getch ();
y
 Void murge - sort (întî,întî)
   int m.
   if (ins)
  Em=(1+f)/2
   winds- rout (i'w);
   merge_sort(m+1,3);
  merging two arrays
        merge_array (i, m, m+1,i),
  z
Void merge array (inta, intb, inte, inta)
```

```
Carifornia moment e il m
     int 6 [50];
    Int 120, 1=0, K=0;
  Et (arr-sort [i] Larr-sort [i])
     t [k++] carr -101t [1++],
  else
     + [K++] = Orr - Jort (++);
    collect remaining elements
                    The mobers of I th
    While Likeb
       t[K++]=arr-sort [i++];
 tor (i=a,j=a, ix=d;i++;j++)
    orr_lort [i]: +[i]
output !.
               for sorting
     5 (200 pe 100)
Enterz
   9
   7
   4
   6
your data: 97462
sorted data: 2 4 6 79
     K = 2
 product = 36
```

```
#include Lstdio. h?
 Hinclude Litdio.h>
  int maint)
   Int arr [sa], i,i,n, temp, Jumeo, product = 1:
Print + ("their total number of elements to store;")
  scant ("'.d",dn);
Print + Luther 1. d elements:", n);
  for (1:0,12n,1++)
   scant (" . l. d", dar [i]);
 Print f ("In sorting array using bubble tort techiquen);
  tor (1:0, ? L(n-1); 1++);
    tor (j=0; jx(n=1-1),j++)
     tooff arr [i] > arr [j+1]
                         Tillyon on Continue
         temp = arr [9]!
         arr [f] = arr [j+1]
          arr [ 3+1] = temp
   3
 Print of land array elements sorted successfully; In!);
```

```
Print + Lu Array elements &, assending order: Inth');
  for (1=0:jkn,1++)
     Print fl"/dln" arr [i])
  Print f ("array elements in alternate order In");
     torlieb; ilen; i=i+2)
      Print + L" " d In", arr [i]);
    for list, ik-n; i =i+2)
      Jum = Sum +arr [i];
   print of l" the sum of odd postive elements
             are = 1. a m" sum); ( ) ( ) ( )
    tor (1:0,11:1+2)
       product *b=air [i]
     Z
      print ("the products of even position
             dements are = 1.d ln", Product);
     get in 1);
     niturnolling total throngs
     3
```

```
Enter 5 Elements
  8
                of the mant of Johnson of the
 All array eliminis sorted successfully
 Arrangelement in ascending order
                      Converting year of oth
     4
         al a film took, mun, read tring who will
      8
  array elements int alternate order
     sum of odd position element is 9
     product of even position element are 6,4.
the
(\widehat{S})
    # include Litaio.h>
   # Include Ritdio. h>
        binary search [ fint arr [ ], fint num, fint first
       Int mid;
          if I tirst > last)
             ent flinumber is not found");
```

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```
Use
     1 mid = (tirst + last)/2:
    gt larr [mid] = = num)
   Print of l'etement is found at indu Y.d",
    enit (o);
     else et lorr [mid] > num)
    primary search (arr, num, first mid-1),
    else
   & Binary search (arv: num; mid +1, last);
    Your in themals willing move to doubt
 void main () {
int arr [100], beg, mid, end, i, n, num;
printy l'enter the size of an array ");
  scan + ["1.d", &n);
print / menter the values in sorted sequence (n');
    for (ico; ikn, i++)
```

```
Scont (" Y.d ". d arr [1]);
 3
  beg =0;
  end = n - 1 ',
print of l'enter a value to be search: ");
   Sean + (" Y.d", of num);
Binary Jearch (arr, num, beg, end);
output!
 Enter the like of on array 5
  Enter the values in sorted sequence
     4
    7
     8
  Enter a value to search: 5
   Elements is found at index: 1
```