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EXPERIMENT 01

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OBJECTIVE : Write a Program to create an ARRAY with algorithm:

ALGORITHM : Array - ARR (A, N)
// here A is an array of N elements
STEP 1 : declare i
STEP 2 : Repeat step 3 for I = 0 to N-1
STEP 3 : Read A[I]
STEP 4 : Write A[I]
STEP 5 : Exit

CODE :

```
# include <stdio.h>
# include <conio.h>

void main ()
{ int a[10], i, n ;
   printf ("Shreyansh 18BCAN023 \n\n ");
   printf ("Enter no. of elements in Array : ");
    scanf ("%d", &n);
   printf ("Enter values in Array : ");
   for (i=0 ; i<n ; i++)
    { scanf ("%d", &a[i]); }
   printf ("Entered Values are : "); for (i=0; i<n; i++)
    { printf ("%d", a[i]); }
    getch ();
}
```

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EXPERIMENT 02

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OBJECTIVE : Write a Program to find MAX and MIN element from an array with algorithm.

ALGORITHM : Array-(MAXMIN (A)
// here A is an array.
STEP 1 : Declare I, MAX, MIN ;
STEP 2 : Read A[5] ;
STEP 3 : set MAX = A[0] and MIN = A[0] ;
STEP 4 : Repeat step 5 and 6 for I=0 to <5
STEP 5 : if (MAX < A[I])
Then MAX = A[I] ;
STEP 6 : if (MIN > A[I])
Then MIN = A[I] ;
STEP 7 : write MAX and MIN
STEP 8 : Exit

CODE :

```
# include <stdio.h>
# include <conio.h>

void main ()
{ int a[5], Max, Min, i, n ;
  printf ("Shreyansh 18BCAN023 \n\n");
  printf (" Enter 5 values in Array : ");
  for (i=0 ; i<5 ; i++)
   { scanf ("%d", & a[i]); }
```

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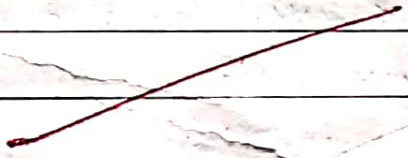
```
Max = a[0];
Min = a[0];
for (i=0; i<5; i++)
 { if (Max < a[i])
      { Max = a[i]; }
    if (Min > a[i])
      { Min = a[i]); }
 }
printf ("The largest Number is %d", Max);
printf ("Smallest Number is %d", Min);
 getch ();
}
```



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EXPERIMENT 03

OBJECTIVE : Write a Program to calculate SUM of the values of a Array.

ALGORITHM : Array - SUMARRAY (SUM + A)
// here A is an array
STEP 1 : declare I ;
STEP 2 : Read A[5] ;
STEP 3 : set SUM = 0 ;
STEP 4 : Repeat step 5 for I=0 to <5
STEP 5 : SUM = SUM + A[I] ;
STEP 6 : WRITE SUM ;
STEP 7 : Exit

CODE :

```
# include <stdio.h>
# include <conio.h>

void main ()
{ int a[5], i, sum = 0 ;
   printf ("Shreyansh 18BCAN023 \n\n ");
   printf (" Enter 5 values in the Array : ");
   for (i = 0 ; i < 5 ; i ++)
   { scanf ("%d", & a[i]); }
   for (i = 0 ; i < 5 ; i++)
   { sum = sum + a[i] ; }
   printf (" The SUM of the values is %d ", sum);
   getch ();
}
```

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EXPERIMENT 04

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OBJECTIVE : Write a Program to find out a particular element in a array.

CODE :

```
# include <stdio.h>
# include <conio.h>

void main ()
{ int a[10], i, s, r=0;
  printf ("Linear Search \n");
  printf ("Shreyansh 18BCAN023 \n\n");
  printf ("Enter 5 Numbers : ");
  for (i=0 ; i<5 ; i++)
   { scanf ("%d", &a[i]); }
  printf ("Enter the Element for its Position : ");
  scanf ("%d", &s);
  for (i=0 ; i<5 ; i++)
  { if (s==a[i])
     { r=1;
       printf ("\n Position of the Element is %d", ++i); }
  }
  if (r==0)
  { printf ("Element NOT FOUND"); }
  getch ();
}
```

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EXPERIMENT 05

OBJECTIVE : Write a program to implement any sorting method on an array.

CODE :

```
#include <stdio.h>
#include <conio.h>

void main()
{ int a[3], i, j, t;
  printf("2D Array\n");
  printf("shreyansh 18BCAN023\n\n");
  printf("Enter the Elements :");
  for (i=0; i<3; i++)
  { scanf("%d", &a[i]);
  for (i=0; i<3; i++)
  { for (j=i+1; j<3; j++)
    { if (a[i] > a[j])
      { t = a[i];
        a[i] = a[j];
        a[j] = t; }
    }
  }
  printf("Ascending Order of the Elements is :");
  for (i=0; i<3; i++)
  { printf("%d ", a[i]); }
  getch();
}
```

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EXPERIMENT 06

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* OBJECTIVE : Write a program to create 2D array of 3×4 .

CODE :

```
# include <stdio.h>
# include <conio.h>

void main ()
{ int array [3][4], b, c;
  printf (" 2D Array \n");
  printf ("Anuyansh 18BCAN023 \n\n ");
  printf ("Enter 12 elements in the 2D Array : \n");
  for (b=0; b<=2; b++)
  { for (c=0; c<=3; c++)
    { scanf ("%d", &array [b][c]); }
  }
  printf ("Entered Elements in the 2D Array are : \n");
  for (b = 0; b<=2; b++)
  { for (c=0; c<=3; c++)
    { printf ("%d ", array [b][c]); }
    printf ("\n");
  }
  getch ();
}
```

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EXPERIMENT 07

* OBJECTIVE : Write a Program to create a STRUCTURE with following info (NAME, ROLLNO, PERCENTAGE).

CODE :

```
#include <stdlib.h>
#include <stdio.h>
#include <conio.h>

struct students
{  char Name[50];
   int Rollno;
   int Perc;
};
void main()
{  printf("Basic structure\n");
   printf("Shreyansh 18BCAN023\n\n");
   struct students st1;
   printf("Enter details of a Student : ");
   printf("\n Name: "); scanf("%s", &st1.Name);
   printf("Rollno : "); scanf("%d", &st1.Rollno);
   printf("Percentage : "); scanf("%d", &st1.Perc);
   printf("\n\n Entered details are :\n");
   printf("%s %d %d", st1.Name, st1.Rollno, st1.Perc);
   getch();
}
```

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EXPERIMENT 08

OBJECTIVE: Write a Program to create same structure as previous but with ARRAY.

CODE:

```
#include <stdio.h>
#include <conio.h>

struct students
{ char Name[50];
  int RollNO;
};
void main()
{ struct students s[2];
  int i;
  printf("Array structure \n");
  printf("Shreyansh 18BCAN023 \n\n");
  printf("Enter details of the students (Name, RollNo):");
  for(i=0; i<2; i++)
  { scanf("%s %d", &s[i].Name, &s[i].Rollno); }
  printf("\n");
  printf("\n\n Entered details are :");
  for(i=0; i<2; i++)
  { printf("%s %d \n", s[i].Name, s[i].RollNO); }
  getch();
}
```

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EXPERIMENT 09

* OBJECTIVE : Write a program to add 2 Numbers using POINTERS.

CODE :

```
#include <stdio.h>
#include <conio.h>

void main ()
{ int a, b, *p1, *p2 ;
  printf ("Pointer Addition \n");
  printf ("Shreyansh 18BCAN023 \n\n");
  printf (" Enter 2 Number for Addition : ");
  scanf ("%d %d", &a, &b);
  p1 = &a;
  p2 = &b;
  printf ("Sum of the Numbers is %d", *p1 + *p2);
  getch ();
}
```

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EXPERIMENT 10

* OBJECTIVE : Write a Program to find out a Particular Element from an Array using LINEAR SEARCH Method.

```
# include <stdio.h>
# include <conio.h>

void main ()
{ int array[50], i, n, r=0, val, pos ;
  printf ("Linear Search \n");
  printf ("Enter the No. of Elements to be Entered : ");
  scanf ("%d", &n);
  printf ("Enter the Elements in Array : ");
  for (i=0 ; i<n ; i++)
  { scanf ("%d", &array[i]); }
  printf ("Enter the Elements to be found : ");
  scanf ("%d", &val);
  for (i=0 ; i<n ; i++)
  { if (array[i] == val)
      { r=1 ;
        pos = i ;
        break ;
      }
  }
  if (r==0)
  { printf ("Element not Found !! ");
  }
```

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```
else
{ printf ("Value is at %d Position ", pos+1);
}
getch();
}
```

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EXPERIMENT 11

* OBJECTIVE : WAP to find out a Particular Element from an Array using BINARY SEARCH Method.

```
# include <stdio.h>
# include <conio.h>

void main ()
{ int array[50], low, high, flag = 0, n, i, val, mid, pos ;
  printf (" Binary search \n ");
  printf ("Shreyansh 18BCAN023 \n\n ");
  printf (" Enter the no. of Elements to be Entered : ");
  scanf ("%d", &n);
  printf (" Enter %d Elements in Array : ", n);
  for ( i = 0 ; i < n ; i++)
  { scanf ("%d", & array [i]);
  }
  printf (" Enter the Elements to find : ");
  scanf ("%d", &val);
  high = n - 1;
  low = 0;
  while ( low <= high )
  { mid = ( low + high ) / 2 ;
    if ( array [mid] == val)
    { pos = mid ;
      flag = 1;
      break ; }
```

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```
    else if ( val > array [mid ])
    { low = mid + 1 ;
    }
    else
    { high = mid - 1 ;
    }
  }
  if ( flag == 1 )
  { printf (" Value is at %d Position ", pos + 1 );
  }
  else
  { printf (" Element not found !! ");
  }
  getch ();
}
```