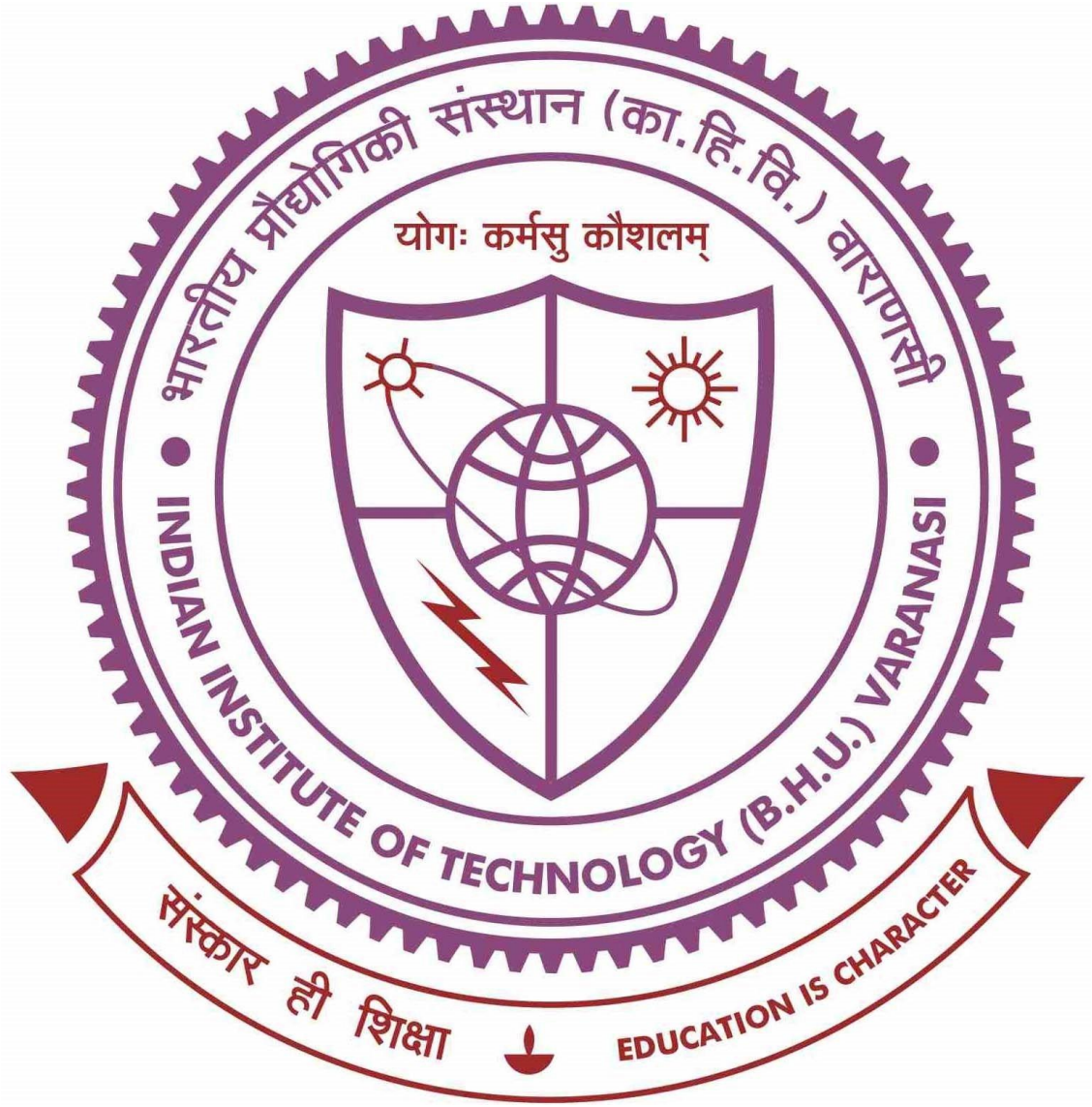

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DEPT-COMPUTER SCIENCE AND ENGG

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SECTION-BA-1

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1.Write a program in c to store integers in an array and print it.

Solution:-

```c
#include <stdio.h>
int main()
{
int n;
   printf("Enter the number of elements of the array :");
   scanf("%d", &n);
   int array[n];
   for (int i = 0; i < n; i++)
   {
       scanf("%d", &array[i]);
   }
   for (int i = 0; i < n; i++)
   {
       printf("%d\n", array[i]);
   }
   return 0;
}
```

2.Write a program in c to find the sum of all the elements in an array.

Solution:-

```c
#include <stdio.h>
int main()
{
int n;
   printf("Enter the number of elements of the array :");
   scanf("%d", &n);
   int array[n];
   int sum = 0;
   for (int i = 0; i < n; i++)
   {
       scanf("%d", &array[i]);
   }
   for (int i = 0; i < n; i++)
   {
       sum += array[i];
   }
```

```
   printf("The sum of the elements of the array is :");
   printf("%d", sum);
   return 0;
}
```

3.Write a program in C to find the maximum and minimum element of an array.

Solution:-

```
   #include <stdio.h>
int main()
{
 int n;
   printf("Enter the number of elements of the array :");
   scanf("%d", &n);
   int array[n];
   for (int i = 0; i < n; i++)
   {
       scanf("%d", &array[i]);
   }
   int small=array[0],large =array[0];
   for (int i = 0; i < n; i++)
   {
       if (array[i]<small)
       {
           small =array[i];
       }

   }
   for (int i = 0; i < n; i++)
   {
       if (array[i]>large)
       {
           large =array[i];
       }

   }
   printf("The largest element of the array is %d and the
smallest element of the array is %d",large,small);
   return 0;
```

```
}
```

4.Write a program in C to count the frequency of each element in an array.

Solution:-

```
 #include <stdio.h>
int main()
{
int n, count;
   printf("Enter the number of elements of the array :");
   scanf("%d", &n);
   int array[n], freq[n];
   for (int i = 0; i < n; i++)
   {
       scanf("%d", &array[i]);
       freq[i] = -1;
   }
   for (int i = 0; i < n; i++)
   {
       count = 1;
       for (int j = i + 1; j < n; j++)
       {
           if (array[i] == array[j])
           {
               count++;
               freq[j] = 0;
           }
       }
       if (freq[i] != 0)
       {
           freq[i] = count;
       }
   }
   printf("\n The Frequency of the elements in this Array is :
\n");
   for (int i = 0; i < n; i++)
   {
       if (freq[i] != 0)
       {
```

```
            printf("%d Occurs %d Times \n", array[i], freq[i]);
        }
    }
    return 0;
}
```

5.Write a program in C to find the mean median and mode of the elements of an array.

Solution:-

```
#include <stdio.h>
int main()
{
int n, count;
   printf("Enter the number of elements of the array :");
   scanf("%d", &n);
   int array[n], freq[n];
   for (int i = 0; i < n; i++)
   {
      scanf("%d", &array[i]);
   }
   int sum = 0;
   for (int i = 0; i < n; i++)
   {
      sum += array[i];
   }

   int array2[n], mode, k, c, max = 0;
   for (int i = 0; i < n - 1; i++)
   {
      mode = 0;
      for (int j = i + 1; j < n; j++)
      {
         if (array[i] == array[j])
         {
            mode++;
         }
      }
      if ((mode > max) && (mode != 0))
      {
         k = 0;
         max = mode;
         array2[k] = array[i];
         k++;
```

```
    }
    else if (mode == max)
    {
       array2[k] = array[i];
       k++;
    }
 }
 for (int i = 0; i < n; i++)
 {
    if (array[i] == array2[i])
    {
       c++;
    }
 }
 int tmp;
 for (int i = 0; i < n; i++)
 {
    for (int j = i + 1; j < n; j++)
    {
       if (array[i] > array[j])
       {
          tmp = array[i];
          array[i] = array[j];
          array[j] = tmp;
       }
    }
 }
 float median;
 if (n % 2 == 0)
 {
    median = (float)(array[n / 2 - 1] + array[n / 2]) / 2;
 }
 else
 {
    median = (float)array[(n - 1) / 2];
 }

 float mean = (float)sum / n;
 printf("The mean of the number is %.1f \n", mean);
 printf("The median is %.1f \n", median);
 if (c == n)
 {
    printf("The elements of the array have no mode\n");
 }
 else
 {
    printf("The mode(s) of the elements of the array is/are: ");
    for (int i = 0; i < k; i++)
```

```
        {
            printf("%d, ", array2[i]);
        }
        printf("\n");
    }
    return 0;
}
```

6.Write a program in C to separate odd and even numbers in separate arrays.

Solution:-

```
#include <stdio.h>
int main()
{
int n, count;
        printf("Enter the number of elements of the array :");
        scanf("%d", &n);
        int array[n], freq[n];
        for (int i = 0; i < n; i++)
        {
            scanf("%d", &array[i]);
        }
        int odd[n],even[n];
        int x=0, y=0;
        for (int  i = 0; i < n; i++)
        {
           if (array[i]%2==0)
           {
               even[x]=array[i];
               x++;
           }
           else if (array[i]%2!=0)
           {
               odd[y]=array[i];
               y++;
           }

        }
```

```
        printf("The even elements of the array are\n");
        for (int i = 0; i < x; i++)
        {
           printf("%d\n",even[i]);
        }
         printf("The odd elements of the array are\n");
        for (int i = 0; i < y; i++)
        {
           printf("%d\n",odd[i]);
        }

        return 0;
}
```

7.Write a program in C to display the Fibonacci series upto 10 terms.

Solution:-

```
 #include <stdio.h>
int main()
{
int n;
   int next = 1;
   int prev = 0;
   for (int i = 0; i < 10; i++)
   {
      int z = prev;
      printf("%d\n", next);
      prev = next;
      next = prev + z;
   }
   return 0;
}
```

8.Write a program in C to sort the elements of an array in ascending order.

Solution:-

```
   #include <stdio.h>
int main()
```

```c
{
int n,tmp;
      printf("Enter the number of elements of the array :");
      scanf("%d", &n);
      int array[n];
      for (int i = 0; i < n; i++)
      {
         scanf("%d", &array[i]);
      }
   for (int i = 0; i < n; i++)
   {
      for (int j = i+1; j < n; j++)
      {
        if (array[i]>array[j])
        {
          tmp =array[i];
          array[i] = array[j];
          array[j]=tmp;
        }

      }
   }

   for (int i = 0; i < n; i++)
   {
      printf("The sorted elements of the array are:\n");
      printf("%d\n",array[i]);
   }
   return 0;
}
```

9.Write a program in C to input an integer array and an integer and find the indexs of the integer in the array.

Solution:-

```c
 #include <stdio.h>
int main()
{
int n;
      printf("Enter the number of elements of the array :");
```

```
      scanf("%d", &n);
      int array[n];
      for (int i = 0; i < n; i++)
      {
         scanf("%d", &array[i]);
      }
       int t,flag=0;
       printf("Enter the valeu of the number to find its index
:");
       scanf("%d",&t);
       for (int i = 0; i < n; i++)
       {
          if (array[i] == t )
          {  printf("The index of the number is\n");
             printf("%d\n",i);
              flag=1;
          }

       }
       if (flag == 0)
       {
          printf("The entered number is not present in the given
array");
       }

       return 0;
}
```

10.Write a program in c to display the product of two matrices.

Solution:-

```
 #include <stdio.h>
int main()
{
 int r1, r2, c1, c2;
   printf("Enter the number of rows and columns respectively of
matrix 1 :");
   scanf("%d %d", &r1, &c1);

   int matrix1[r1][c1];
```

```
   for (int i = 0; i < r1; i++)
   {
      printf("Enter the input for %d row of matrix 1:", i + 1);
      for (int j = 0; j < c1; j++)
      {
         scanf("%d", &matrix1[i][j]);
      }
   }
    printf("Enter the number of rows and columns respectively of
matrix 2 :");
   scanf("%d %d", &r2, &c2);
 int matrix2[r2][c2];
   for (int i = 0; i < r2; i++)
   {
      printf("Enter the input for %d row of matrix 2:", i + 1);
      for (int j = 0; j < c2; j++)
      {
         scanf("%d", &matrix2[i][j]);
      }
   }
 int product[r1][c2];
   for (int i = 0; i < r1; i++)
   {
      for (int j = 0; j < c2; j++)
      {
         product[i][j] = 0;
         for (int k = 0; k < r2; k++)
            product[i][j] = product[i][j] + matrix1[i][k] *
matrix2[k][j];
      }
   }
   printf("\n Product of the two matrix is \n");
   for (int i = 0; i < r1; i++)
   {
      for (int j = 0; j < c2; j++)
         printf("%6d", product[i][j]);
      printf("\n");
   }
```

```
return 0;
}
```