Surat Technical Education & Research Society's
Smt. Kalavatiben Fulchandbhai Vakhariya Education Complex
SASCMA EMCC & H.H. BBA &
U.J.B. BCA & Msc(IT) & STERS BA
(Psychology) & B.sc. (Data Science)
Affiliated to Veer Narmad South Gujarat University

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INDEX

1. Find the second largest element in an array

```
#include<stdio.h>
int main() {
   int n , i , j ;
   printf("Enter Your Array Size : ") ;
   scanf("%d" , &n ) ;
   int arr[n] ;

   // Dynamic array
   for( i = 0 ; i < n ; i++ ) {
      printf("Enter Value of a[%d] :- " , i ) ;
      scanf("%d" , &arr[i] ) ;
   }

   // Bubble Short
   for( i = 0 ; i < n-1 ; i++ )  {
      for( j = 0 ; j < n-i-1 ; j++ ) {
         if(arr[j]<arr[j+1]) {
            arr[j] = arr[j]*arr[j+1];
            arr[j+1] = arr[j]/arr[j+1];
            arr[j] = arr[j]/arr[j+1];
         }
      }
   }
   // Print Second Largest Element
```

```
    printf("\nSecond Largest Element is %d " , arr[1]);
    return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_1.c -o ass_1014_1
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_1
Enter Your Array Size : 5
Enter Value of a[0] :- 10
Enter Value of a[1] :- 50
Enter Value of a[2] :- 60
Enter Value of a[3] :- 40
Enter Value of a[4] :- 30

Second Largest Element is 50
PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

2. Reverse a given string

```
#include<stdio.h>
int main() {
   char str[100] ;
   int len = 0 ;
   printf("Enter a String : ");
   fgets( str , sizeof(str) , stdin );

   // Count Length of the String
   for( int i = 0 ; str[i] != '\0' ; i++ ) {
      len++ ;
   }
   len-- ; // Know Orijinal langth without '\0'

   // Print Reverse string Character by Character
   for( int j = len ; str[j] >= 0 ; j-- ) {
      printf("%c",str[j]);
   }
   return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_2.c -o ass_1014_2
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_2
Enter a String : Priyansh

hsnayirP
PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

3. Find the largest of four numbers

```
#include<stdio.h>
int main() {
   int arr[4] , i ;

   //Dynamic Array
   for( i = 0 ; i < 4 ; i++ ) {
      printf("Enter a arr[%d] : ",i);
      scanf("%d",&arr[i]);
   }

   int large = arr[0] ; // Assumed First Element is Largest
   for( i = 1 ; i < 4 ; i++ ) {
      if(large < arr[i] ) {
         large = arr[i] ;
      }
   }

   printf("Large is : %d " , large );
   return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_3.c -o ass_1014_3
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_3
Enter a arr[0] : 5
Enter a arr[1] : 1
Enter a arr[2] : 6
Enter a arr[3] : 7
Large is : 7
PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

4. Print the first N even numbers

```
#include<stdio.h>
int main() {
   int n , i ;
   printf("Enter a Number : ");
   scanf("%d", &n );
   printf("First %d Even Numbers Are : " , n );
   for( i = 0 ; i < n ; i++ ) {
      printf("%d  " , i * 2 );
   }
   return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_4.c -o ass_1014_4
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_4
Enter a Number : 10
First 10 Even Numbers Are : 0  2  4  6  8  10  12  14  16  18
PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

5. Subtract two matrices

```
#include<stdio.h>
int main() {
   int r , c , i , j ;
   int matrix1[100][100] , matrix2[100][100] , sub[100][100] ;
   printf("Enter Row : ") ;
   scanf("%d" , &r );
   printf("Enter Column : ");
   scanf("%d" , &c );

   printf("\n");
   printf("Value of matrix 1 : \n");

   for( i = 0 ; i < r ; i++ ) {
      for( j = 0 ; j < c ; j++ ) {
         printf("matrix1[%d][%d] : " , i , j );
         scanf("%d" , &matrix1[i][j] );
      }
   }

   printf("\n");
   printf("Value of matrix 2 : \n");

   for( i = 0 ; i < r ; i++ ) {
      for( j = 0 ; j < c ; j++ ) {
```

```
            printf("matrix2[%d][%d] : " , i , j );
            scanf("%d" , &matrix2[i][j] );
        }
    }

    for( i = 0 ; i < r ; i++ ) {
        for( j = 0 ; j < c ; j++ ) {
            sub[i][j] = matrix1[i][j] - matrix2[i][j] ;
        }
    }

    printf("\n");
    printf("matrix 1 : \n");

    for( i = 0 ; i < r ; i++ ) {
        for( j = 0 ; j < c ; j++ ) {
            printf("%d\t" , matrix1[i][j] );
        }
        printf("\n");
    }

    printf("\n");
    printf("matrix 2 : \n");

    for( i = 0 ; i < r ; i++ ) {
        for( j = 0 ; j < c ; j++ ) {
            printf("%d\t" , matrix2[i][j] );
```

```
        }
      printf("\n");
   }

   printf("\n");
   printf("Substraction : \n");

   for( i = 0 ; i < r ; i++ ) {
      for( j = 0 ; j < c ; j++ ) {
         printf("%d\t" , sub[i][j] );
      }
      printf("\n");
   }
   return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_5.c -o ass_1014_5
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_5
Enter Row : 2
Enter Column : 2

Value of matrix 1 :
matrix1[0][0] : 1
matrix1[0][1] : 5
matrix1[1][0] : 3
matrix1[1][1] : 4

Value of matrix 2 :
matrix2[0][0] : 9
matrix2[0][1] : 1
matrix2[1][0] : 3
matrix2[1][1] : 7

matrix 1 :
1       5
3       4

matrix 2 :
9       1
3       7

Substraction :
-8      4
0       -3
PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

6. Check whether a number is perfect

```
#include <stdio.h>
int main() {
   int num , sum = 0 ;
   printf("Enter a number: ");
   scanf("%d", &num);

   for (int i = 1; i <= num / 2; i++) {
      if (num % i == 0) {
      sum += i;
      }
   }

   if ( sum == num ) {
      printf("%d is a perfect number.\n", num);
   }
   else {
      printf("%d is not a perfect number.\n", num);
   }

   return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_6.c -o ass_1014_6
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_6
Enter a number: 6
6 is a perfect number.
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_6
Enter a number: 10
10 is not a perfect number.
PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

7. Count vowels in a string

```
#include<stdio.h>
int main() {
   char str[1000] ;
   int vowel = 0 ;
   printf("Enter Your String : ");
   fgets( str , sizeof ( str ) , stdin );

   for ( int i = 0 ; str[i] != '\0' ; i++ ) {
      if( str[i] == 'A' || str[i] == 'E' || str[i] == 'I' || str[i] == 'O' || str[i] == 'U' || str[i] == 'a' || str[i] == 'e' || str[i] == 'i' || str[i] == 'o' || str[i] == 'u' ) {
         vowel++ ; // if condition is true then vowel increase by 1
      }
   }
   printf("There are %d Vowels in %s " , vowel , str );
   return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_7.c -o ass_1014_7
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_7
Enter Your String : Priyansh
There are 2 Vowels in Priyansh

PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

8. Calculate the circumference of a circle

```
#include<stdio.h>
#define pi 3.14 // Constant Declare
int main() {
   float r ;
   printf("Enter Radius : ");
   scanf("%f" , &r );
   printf("Circumference of a Circle is %f " , 2*pi*r); // Calculate and Print Circumference of a Circle
   return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_8.c -o ass_1014_8
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_8
Enter Radius : 5
Circumference of a Circle is 31.400000
PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

9. Delete an element from an array

```
#include<stdio.h>
int main() {
   int size , pos , i ;
   printf("Enter Array size : ");
   scanf("%d" , &size);
   int arr[size] ;
   for( i = 0 ; i < size ; i++ ) {
      printf("Enter arr[%d] : " , i );
      scanf("%d" , &arr[i] );
   }
   printf("Which Index Number You Have To Delete ( 0 - %d ) : " , size-1 );
   scanf("%d" , &pos );
   for( i = pos ; i < size ; i++ ) {
      arr[i] = arr[i+1] ; // Shift Element Left
   }
   size-- ; // Reduce Array Size
   // Print New Array
   printf("Array after Deletion : ");
   for ( i = 0 ; i < size ; i++ ) {
      printf("%d  " , arr[i] );
   }
   return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_9.c -o ass_1014_9
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_9
Enter Array size : 5
Enter arr[0] : 10
Enter arr[1] : 20
Enter arr[2] : 30
Enter arr[3] : 40
Enter arr[4] : 50
Which Index Number You Have To Delete ( 0 - 4 ) : 3
Array after Deletion : 10  20  30  50
PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

10. Convert a string to lowercase

```
#include<stdio.h>
int main() {
   char str[1000] ;
   printf("Enter a Strting : ");
   fgets( str , sizeof(str) , stdin );
   for ( int i = 0 ; str[i] != '\0'; i++ ) {
      if( str[i] >= 'A' && str[i] <= 'Z' ) {
         str[i] += 32 ;
      }
   }
   printf("Lower String : %s " , str);
   return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_10.c -o ass_1014_10
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_10
Enter a Strting : Priyansh
Lower String : priyansh

PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

11. Search for an element in an array

```
#include<stdio.h>
int main() {
   int size , i , find , a ;
   printf("Enter Array Size : ");
   scanf("%d" , &size );
   int arr[size] ;
   for ( i = 0 ; i < size ; i++ ) {
      printf("Enter arr[%d] : " , i );
      scanf("%d" , &arr[i] );
   }
   printf("Which Element You Have To Find : ") ;
   scanf("%d" , &find );
   for ( i = 0 ; i < size ; i++ ) {
      if( find == arr[i] ) {
         printf("%d is Available on Index of %d \n" , find , i );
         a++ ;
      }
   }
   if( !a ) {
      printf("%d is not Found " , find );
   }
   return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_11.c -o ass_1014_11
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_11
Enter Array Size : 5
Enter arr[0] : 10
Enter arr[1] : 20
Enter arr[2] : 10
Enter arr[3] : 30
Enter arr[4] : 50
Which Element You Have To Find : 10
10 is Available on Index of 0
10 is Available on Index of 2
PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

12. Check whether a number is prime

```
#include<stdio.h>
int main() {
   int n , prime = 0 ;
   printf("Enter a value : ");
   scanf("%d" , &n );
   for ( int i = 1 ; i <= n ; i++ ) {
      if ( n % i == 0 ) {
         prime++ ;
      }
   }
   if ( prime == 2 ) {
      printf("%d is Prime Number " , n);
   }
   else {
      printf("%d is Non - Prime Number " , n);
   }
   return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_12.c -o ass_1014_12
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_12
Enter a value : 10
10 is Non - Prime Number
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_12
Enter a value : 7
7 is Prime Number
PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

13. Add two matrices

```
#include<stdio.h>
int main() {
   int r , c . i , j ;
   int matrix1[100][100] , matrix2[100][100] , add[100][100] ;
   printf("Enter Row : ") ;
   scanf("%d",&r);
   printf("Enter Column : ");
   scanf("%d",&c);

   printf("\n");
   printf("Value of matrix 1 : \n");

   for( i = 0 ; i < r ; i++ ) {
      for( j = 0 ; j < c ; j++ ) {
         printf("matrix1[%d][%d] : " , i , j );
         scanf("%d" , &matrix1[i][j]);
      }
   }

   printf("\n");
   printf("Value of matrix 2 : \n");
```

```
for( i = 0 ; i < r ; i++ ) {
    for( j = 0 ; j < c ; j++ ) {
        printf("matrix2[%d][%d] : " , i , j );
        scanf("%d" , &matrix2[i][j]);
    }
}

for( i = 0 ; i < r ; i++ ) {
    for( j = 0 ; j < c ; j++ ) {
        add[i][j] = matrix1[i][j]  + matrix2[i][j] ;
    }
}

printf("\n");
printf("matrix 1 : \n");

for( i = 0 ; i < r ; i++ ) {
    for( j = 0 ; j < c ; j++ ) {
        printf("%d\t",matrix1[i][j]);
    }
    printf("\n");
}

printf("\n");
```

```
    printf("matrix 2 : \n");

    for( i = 0 ; i < r ; i++ ) {
        for( j = 0 ; j < c ; j++ ) {
            printf("%d\t",matrix2[i][j]);
        }
        printf("\n");
    }

    printf("\n");
    printf("Addition : \n");

    for( i = 0 ; i < r ; i++ ) {
        for( j = 0 ; j < c ; j++ ) {
            printf("%d\t",add[i][j]);
        }
        printf("\n");
    }
    return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_13.c -o ass_1014_13
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_13
Enter Row : 2
Enter Column : 2

Value of matrix 1 :
matrix1[0][0] : 1
matrix1[0][1] : 5
matrix1[1][0] : 6
matrix1[1][1] : 7

Value of matrix 2 :
matrix2[0][0] : 2
matrix2[0][1] : 4
matrix2[1][0] : 6
matrix2[1][1] : 1

matrix 1 :
1       5
6       7

matrix 2 :
2       4
6       1

Addition :
3       9
12      8
PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

14. Count the number of words in a string

```
#include<stdio.h>
int main() {
   char str[1000] ;
   int i , count = 0 ;
   printf("Enter a String : ");
   fgets( str , sizeof(str) , stdin );
   for ( i = 0 ; str[i] != '\0'  ; i++ ) {
       if ( ( str[i] == ' ' || str[i] == '\t' || str[i] == '\n' ) && ( i > 0 && str[i-1] != ' ' && str[i-1] != '\t' && str[i] != '\n' ) ) {
          count++ ;
       }
   }

   if( i > 0 && str[i-1] != ' ' && str[i-1] != '\t' && str[i] != '\n' ) {
      count++;
   }
   printf("Number of words : %d " , count);
   return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_14.c -o ass_1014_14
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_14
Enter a String : priyansh k khatri
Number of words : 3
PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```

15.Multiply two matrices

```
#include<stdio.h>
int main() {
  int r , c , i , j ;
  int matrix1[100][100] , matrix2[100][100] , multi[100][100] ;
  printf("Enter Row : ") ;
  scanf("%d",&r);
  printf("Enter Column : ");
  scanf("%d",&c);

  printf("\n");
  printf("Value of matrix 1 : \n");

  for( i = 0 ; i < r ; i++ ) {
    for( j = 0 ; j < c ; j++ ) {
      printf("matrix1[%d][%d] : " , i , j );
      scanf("%d" , &matrix1[i][j]);
    }
  }

  printf("\n");
  printf("Value of matrix 2 : \n");

  for( i = 0 ; i < r ; i++ ) {
    for( j = 0 ; j < c ; j++ ) {
      printf("matrix2[%d][%d] : " , i , j );
```

```
 scanf("%d" , &matrix2[i][j]);
  }
 }

 for( i = 0 ; i < r ; i++ ) {
  for( j = 0 ; j < c ; j++ ) {
    multi[i][j] = matrix1[i][j] * matrix2[i][j] ;
  }
 }

 printf("\n");
 printf("matrix 1 : \n");

 for( i = 0 ; i < r ; i++ ) {
  for( j = 0 ; j < c ; j++ ) {
     printf("%d\t",matrix1[i][j]);
  }
  printf("\n");
 }

 printf("\n");
 printf("matrix 2 : \n");

 for( i = 0 ; i < r ; i++ ) {
  for( j = 0 ; j < c ; j++ ) {
     printf("%d\t",matrix2[i][j]);
  }
```

```
   printf("\n");
  }

  printf("\n");
  printf("Multiplicatin : \n");

  for( i = 0 ; i < r ; i++ ) {
    for( j = 0 ; j < c ; j++ ) {
        printf("%d\t",multi[i][j]);
    }
    printf("\n");
  }
  return 0;
}
```

Output :

```
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> gcc ass_1014_15.c -o ass_1014_15
PS C:\Users\Admin\Desktop\Prince\C_Program\practical> ./ass_1014_15
Enter Row : 2
Enter Column : 2

Value of matrix 1 :
matrix1[0][0] : 1
matrix1[0][1] : 5
matrix1[1][0] : 4
matrix1[1][1] : 9

Value of matrix 2 :
matrix2[0][0] : 1
matrix2[0][1] : 3
matrix2[1][0] : 2
matrix2[1][1] : 4

matrix 1 :
1       5
4       9

matrix 2 :
1       3
2       4

Multiplicatin :
1       15
8       36
PS C:\Users\Admin\Desktop\Prince\C_Program\practical>
```