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**Week 1 Assignment**

1. Write a C program to print an array.

#include<stdio.h>

int main(){

  int n;

  printf("Enter the size of an array : ");

  scanf("%d", &n);

  int arr[n];

  printf("Enter the elements of array : ");

  for(int i = 0; i < n; i++) scanf("%d",&arr[i]);

  printf("The given array is : \n");

  for(int i = 0; i < n; i++) printf("%d ,  ", arr[i]);

  return 0;

}

2. Write a C program to check whether a given string is Palindrome or not.

#include<stdio.h>

#include<string.h>

int main(){

  char str[50];

  printf("Enter the elements of array : ");

  gets(str);

  int check = 0, n = strlen(str);

  for(int s = 0, e = n - 1; s <= e; s++, e--) {

    if(str[s] != str[e]) {

      check = 1;

      break;

    }

  }

  if(check) printf("The given array is not Palindrome");

  else printf("The given array is Palindrome");

  return 0;

}

3. Write a C program to convert temperature from degree Centigrade to Fahrenheit.

#include <stdio.h>

int main(){

  float temp;

  printf("Enter temperature in Centigrade : ");

  scanf("%f", &temp);

  printf("Temperature in Fahrenheit : %f", ((temp \* 9/5) + 32));

  return 0;

}

4. Write a C program to sort an array.

#include<stdio.h>

void BubbleSort(int arr[], int n){

  for(int i = n - 2; i >= 0; i--){

    int isSwapped = 0;

    for(int j = 0; j <= i; j++){

      if(arr[j] > arr[j + 1]){

        isSwapped = 1;

        int temp = arr[j];

        arr[j] = arr[j + 1];

        arr[j + 1] = temp;

      }

    }

    if(!isSwapped) break;

  }

}

int main(){

  int n;

  printf("Enter the size of an array : ");

  scanf("%d", &n);

  int arr[n];

  printf("Enter the elements of array : ");

  for(int i = 0; i < n; i++) scanf("%d",&arr[i]);

  BubbleSort(arr, n);

  printf("After sorting the given array: \n");

  for (int i = 0; i < n; i++) printf("%d , " , arr[i]);

  return 0;

}

5. Write a C program to print the largest and second largest element of the array.

#include<stdio.h>

#include<limits.h>

int maxEl(int arr[], int n){

  int max = arr[0];

  for( int i = 0; i < n ; i++){

    if(max < arr[i]) max = arr[i];

  }

  return max;

}

int secondMax(int arr[], int n){

  int max = INT\_MIN, smax = INT\_MIN;

  for( int i = 0; i < n ; i++){

    if(max < arr[i]) {

      smax = max;

      max = arr[i];

    }

    if(arr[i] != max && arr[i] > smax) smax = arr[i];

  }

  return smax;

}

int main(){

  int n;

  printf("Enter the size of an array : ");

  scanf("%d", &n);

  int arr[n];

  printf("Enter the elements of array : ");

  for(int i = 0; i < n; i++) scanf("%d",&arr[i]);

  printf("Largest element is : %d\n\n", maxEl(arr, n));

  printf("Second Largest element is : %d", secondMax(arr, n));

  return 0;

}

6. Write a C program to display Fibonacci series.

#include<stdio.h>

int main(){

  int n, sum = 1, a = 1, b = 1;

  printf("Enter the term : ");

  scanf("%d", &n);

  if(n >= 1) printf("1  , ");

  for(int i = 2; i <= n; i++){

    printf("%d  , ", sum);

    sum = a + b;

    a = b ;

    b = sum;

  }

  return 0;

}

7. Write a C program to print reverse array.

#include<stdio.h>

int main(){

  int n;

  printf("Enter the size of an array : ");

  scanf("%d", &n);

  int arr[n];

  printf("Enter the elements of array : ");

  for(int i = 0; i < n; i++) scanf("%d",&arr[i]);

  printf("The given array is : \n");

  for(int i = n - 1; i >= 0; i--) printf("%d ,  ", arr[i]);

  return 0;

}

8. Write a C program to check the sum of all elements of an array.

#include<stdio.h>

int main(){

  int n, sum = 0;

  printf("Enter the size of an array : ");

  scanf("%d", &n);

  int arr[n];

  printf("Enter the elements of array : ");

  for(int i = 0; i < n; i++) scanf("%d",&arr[i]);

  for(int i = 0; i < n; i++) sum += arr[i];

  printf("Sum : %d", sum);

  return 0;

}

9. Write a C program to check duplicate number in an array.

#include<stdio.h>

int main(){

  int n, sum = 0, check = 0, dup;

  printf("Enter the size of an array : ");

  scanf("%d", &n);

  int arr[n];

  printf("Enter the elements of array : ");

  for(int i = 0; i < n; i++) scanf("%d",&arr[i]);

  for(int i = 0; i < n; i++)

    for(int j = i + 1; j < n; j++){

      if(arr[i] == arr[j]) {

        check = 1;

        dup = arr[i];

        break;

      }

    }

  if(check) printf("Duplicate number is : %d", dup);

  else printf("There is no duplicate number in this array.");

  return 0;

}