ASSIGNMENT 1

Q1.WAP to create one dimensional array.

#include <stdio.h>

int main()

{

int marks[5],i;

printf("Enter the marks of 5 students=");

for(i=0;i<5;i++){

scanf("%d",&marks[i]);

marks[i]=marks[i]+5;

}

for(i=0;i<5;i++){

printf("%d\n",marks[i]);

}

return 0;

}

Q2.WAP to print grade of student as per their marks given in an array.

#include <stdio.h>

int main()

{

int marks[5],i;

printf("Enter the marks of 5 students=");

for(i=0;i<5;i++){

scanf("%d",&marks[i]);

}

for(i=0;i<5;i++){

printf("grade od student %D with marks %d\n is",marks[i]);

}

if(a[i]>=75){

printf("A");

}

else if(a[i]>=60 && a[i]<74){

printf("B");

}

else if(a[i]>=40 && a[i]<59){

printf("C");

}

else{

printf("D");

}

return 0;

}

Q3.WAP to find who scored first “99” in an array marks.

#include <stdio.h>

int main()

{

int a[5],i,found=0;

printf("Enter the marks of an array=");

for(i=0;i<5;i++){

scanf("%d",&a[i]);

}

for(i=0;i<5;i++){

if(a[i]==99){

found=1;

printf("student %d scored 99 first",(i+1));

break;

}

}

if(!found){

printf("no one scored 99 marks");

}

return 0;

}

Q4.WAP to find who and how many students 99 in an array marks.

#include <stdio.h>

int main()

{

int a[5],i,found=0,student;

student=0;

printf("Enter the marks of an array=");

for(i=0;i<5;i++){

scanf("%d",&a[i]);

}

for(i=0;i<5;i++){

if(a[i]==99){

found=1;

printf("student %d scored 99 first",(i+1));

student++;

}

}

if(!found){

printf("no one scored 99 marks");

}

printf("Total number of student that scorred 99 marks are %d",student);

return 0;

}

Q5.WAP to find sum of all scores in marks array.

#include <stdio.h>

int main()

{

int a[5],i,sum=0;

printf("Enter the marks of an array=");

for(i=0;i<5;i++){

scanf("%d",&a[i]);

}

for(i=0;i<5;i++){

sum=sum+a[i];

}

printf("sum of all the scores is %d",sum);

return 0;

}

Q6.WAP to find average scores of the marks array.

#include <stdio.h>

int main()

{

int a[5],i,sum=0,avg;

printf("Enter the marks of an array=");

for(i=0;i<5;i++){

scanf("%d",&a[i]);

}

for(i=0;i<5;i++){

sum=sum+a[i];

}

avg=sum/5;

printf("average of all the scores is %d",avg);

return 0;

}

Q7.WAP to check whether score is even or odd in an array.

#include <stdio.h>

int main()

{

int a[5],i;

printf("Enter the marks of an array=");

for(i=0;i<5;i++){

scanf("%d",&a[i]);

}

for(i=0;i<5;i++){

if(a[i]%2==0){

printf("score of student %d is even",i+1);

}

else{

printf("score of student %d is odd",i+1);

}

}

return 0;

}

Q8.WAP to find maximum and minimum score in the marks array.

#include <stdio.h>

void findMinMax(float arr[], int n) {

float min = arr[0];

float max = arr[0];

for (int i = 1; i < n; i++) {

if (arr[i] < min)

min = arr[i];

else if (arr[i] > max)

max = arr[i];

}

printf("Minimum score: %.2f\n", min);

printf("Maximum score: %.2f\n", max);

}

Q9.

#include <stdio.h>

int main() {

int num\_students;

printf("Enter the number of students: ");

scanf("%d", &num\_students);

int marks[num\_students];

for (int i = 0; i < num\_students; i++) {

printf("Enter marks for student %d: ", i + 1);

scanf("%d", &marks[i]);

}

for (int i = 0; i < num\_students; i++) {

if ((i == 0 || marks[i] >= marks[i - 1]) && (i == num\_students - 1 || marks[i] >= marks[i + 1])) {

printf("Peak element found: %d at index %d\n", marks[i], i);

return 0;

}

}

printf("No peak element found.\n");

return 0;

}

Q10.

#include <stdio.h>

int is\_prime(int n) {

if (n <= 1) return 0;

for (int i = 2; i \* i <= n; i++) {

if (n % i == 0) return 0;

}

return 1;

}

int main() {

int num\_students;

printf("Enter the number of students: ");

scanf("%d", &num\_students);

int marks[num\_students];

int prime\_count = 0;

for (int i = 0; i < num\_students; i++) {

printf("Enter marks for student %d: ", i + 1);

scanf("%d", &marks[i]);

if (is\_prime(marks[i])) {

prime\_count++;

}

}

printf("Count of prime numbers: %d\n", prime\_count);

return 0;

}

Q11.

#include <stdio.h>

int main() {

int num\_students;

printf("Enter the number of students: ");

scanf("%d", &num\_students);

int marks[num\_students + 1];

for (int i = 0; i < num\_students; i++) {

printf("Enter marks for student %d: ", i + 1);

scanf("%d", &marks[i]);

}

printf("Array before insert: ");

for (int i = 0; i < num\_students; i++) {

printf("%d ", marks[i]);

}

printf("\n");

int position, value;

printf("Enter the position to insert (1 to %d for front, %d to %d for between, %d for end): ", 1, num\_students, num\_students + 1);

scanf("%d", &position);

printf("Enter the value to insert: ");

scanf("%d", &value);

if (position < 1 || position > num\_students + 1) {

printf("Invalid position! Please enter a position between 1 and %d.\n", num\_students + 1);

return 1;

}

for (int i = num\_students; i >= position - 1; i--) {

marks[i] = marks[i - 1];

}

marks[position - 1] = value;

num\_students++;

printf("Array after insert: ");

for (int i = 0; i < num\_students; i++) {

printf("%d ", marks[i]);

}

printf("\n");

return 0;

}

Q12.

#include <stdio.h>

int main() {

int num\_students;

printf("Enter the number of students: ");

scanf("%d", &num\_students);

int marks[num\_students];

for (int i = 0; i < num\_students; i++) {

printf("Enter marks for student %d: ", i + 1);

scanf("%d", &marks[i]);

}

printf("Array before delete: ");

for (int i = 0; i < num\_students; i++) {

printf("%d ", marks[i]);

}

printf("\n");

int position;

printf("Enter the position to delete (1 to %d for front, 2 to %d for between, %d for end): ", num\_students, num\_students, num\_students);

scanf("%d", &position);

if (position < 1 || position > num\_students) {

printf("Invalid position!\n");

return 1;

}

for (int i = position - 1; i < num\_students - 1; i++) {

marks[i] = marks[i + 1];

}

num\_students--;

printf("Array after delete: ");

for (int i = 0; i < num\_students; i++) {

printf("%d ", marks[i]);

}

printf("\n");

return 0;

}

Q13.

#include <stdio.h>

int main() {

int num\_elements;

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

scanf("%d", &num\_elements);

int arr[num\_elements];

for (int i = 0; i < num\_elements; i++) {

printf("Enter element %d: ", i + 1);

scanf("%d", &arr[i]);

}

printf("Array before rotation: ");

for (int i = 0; i < num\_elements; i++) {

printf("%d ", arr[i]);

}

printf("\n");

if (num\_elements > 1) {

int last = arr[num\_elements - 1];

for (int i = num\_elements - 1; i > 0; i--) {

arr[i] = arr[i - 1];

}

arr[0] = last;

}

printf("Array after rotation: ");

for (int i = 0; i < num\_elements; i++) {

printf("%d ", arr[i]);

}

printf("\n");

return 0;

}

Q14.

#include <stdio.h>

int main() {

int n;

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

scanf("%d", &n);

int arr[n];

int duplicates[n];

int count = 0;

for (int i = 0; i < n; i++) {

printf("Enter element %d: ", i + 1);

scanf("%d", &arr[i]);

}

for (int i = 0; i < n; i++) {

for (int j = i + 1; j < n; j++) {

if (arr[i] == arr[j]) {

int alreadyExists = 0;

for (int k = 0; k < count; k++) {

if (duplicates[k] == arr[i]) {

alreadyExists = 1;

break;

}

}

if (!alreadyExists) {

duplicates[count++] = arr[i];

}

break;

}

}

}

if (count == 0) {

printf("-1\n");

} else {

printf("Duplicates: ");

for (int i = 0; i < count; i++) {

printf("%d ", duplicates[i]);

}

printf("\n");

}

return 0;

}