FOCP Assignment Semester 2

Question 1

#include <iostream>

#include <cmath>

#include <string>

#include <iomanip>

using namespace std;

int main() {

int n, i, count = 0;

cout << "Enter an integer = ";

cin >> n;

for (i = 2; i <= sqrt(n); i++) {

if (n % i == 0) {

count++;

break;

}

}

if (count == 0 && n > 1) {

cout << n << " is a Prime number.";

int nextprime = n + 1;

while (true) {

int prime = 1;

for (i = 2; i <= sqrt(nextprime); i++) {

if (nextprime % i == 0) {

prime = 0;

break;

}

}

if (prime == 1) {

cout << endl << "Next prime number is = " << nextprime;

break;

}

nextprime++;

}

} else {

cout << n << " is a Composite number." << endl << "Its factors are - ";

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

if (n % i == 0) {

cout << i << " ";

}

}

}

return 0;

}

Question 2

#include <iostream>

#include <cmath>

using namespace std;

int main(){

cout<<"Enter size ";

int n;

cin>>n;

int arr[n];

cout<<"Enter numbers: ";

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

cin>>arr[i];

}

cout<<"The numbers in reverse order are: ";

for(int i=n; i>=0; i--){

cout<<arr[i]<<" ";

}

int max1 = arr[0], max2 = arr[0], min1 = arr[0], min2 = arr[0];

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

if(arr[i]>max1){

max2 = max1;

max1 = arr[i];

}

else if(arr[i]>max2 && arr[i]!=max1){

max2 = arr[i];

}

if(arr[i]<min1){

min2 = min1;

min1 = arr[i];

}

else if(arr[i]<min2 && arr[i]!=min1){

min2 = arr[i];

}

}

return 0;

}

Question 3

#include<iostream>

#include<cmath>

#include<string>

#include<iomanip>

using namespace std;

int main(){

string str;

cout<<"Enter a word = ";

getline(cin,str);

int len = str.size();

bool pal = true;

int i;

for (i=0;i<len/2;i++){

if ((str[i])!=(str[len-i-1])){

pal=false;

break;

}

}

pal?cout<<"word is a palindrome":cout<<"Word is not a palindrome";

for(int i=0; i<str.length(); i++){

if(str[i]=='a'||str[i]=='e'||str[i]=='i'||str[i]=='o'||str[i]=='u'){

str[i]='$';

}

}

cout<<endl<<"String after replacing characters by $ = "<<str;

    return 0;

}return 0;

}

Question 4

#include <iostream>

using namespace std;

int main(){

// Print a spiral pattern of numbers for a given n\*n matrix

int n;

cout<<"Enter n: ";

cin>>n;

int arr[n][n];

int num = 1;

int row = 0, col = 0;

int last\_row = n-1, last\_col = n-1;

while(row<=last\_row && col<=last\_col){

for(int i=col; i<=last\_col; i++){

arr[row][i] = num++;

}

row++;

for(int i=row; i<=last\_row; i++){

arr[i][last\_col] = num++;

}

last\_col--;

for(int i=last\_col; i>=col; i--){

arr[last\_row][i] = num++;

}

last\_row--;

for(int i=last\_row; i>=row; i--){

arr[i][col] = num++;

}

col++;

}

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

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

cout<<arr[i][j]<<" ";

}

cout<<endl;

}

}

Question 5

#include <iostream>

using namespace std;

int main()

{

int m[3][3];

cout << "enter elements" << endl;

for (int i=0; i<3;i++)

{

for(int j=0;j<3;j++)

{

cin>>m[i][j];

}

}

cout << "matrix: "<<endl;

for (int i=0;i<3;i++)

{

for (int j =0;j <3;j++)

{

cout<<m[i][j]<<" ";

}

cout<<endl;

}

cout << "after rotation: "<< endl;

for (int i=0;i<3; i++)

{

for (int j=3-1;j>=0;j--)

{

cout << m[j][i] << " ";

}

cout<<endl;

}

return 0;

}