**Programming Fundamentals**

**Assignment1**

Q1) What is the output of the program below:

int g\_arr[5]={5,9};

int main()

{

int arr[5] = {4,9,1};

cout<<arr[2] <<“ “ <<arr[4]<<endl;

cout<<g\_arr[1] <<g\_arr[3];

return 0;

}

Ans) 1 0

90

Q2) What is the output of the program below:

int main()

{

int arr[5] = {42,19,11};

cout<<arr[5] <<arr[6];

return 0;

}

Ans) 0 and any junk value.

Q3) What is the output of the program below:

int main()

{

int y = 1;

switch(y)

{

cout<< “This is C++” <<endl;

case 1:

cout<< “hey”;

break;

case 2:

cout<< “hello”;

break;

}

return 0;

}

Ans)hey

Q4) What is output of program given below:

int main()

{

unsigned char ch = 255;

while(++ch!=0)

{

cout<<++ch<<" ";

}

return 0;

}

What will be the output if the condition of the while loop is changed to (ch++!=0)

Ans) no output in first case and infinite loop in second case.

Q5) How many times will “Hello” be printed?

int main()

{

int x;

for (x = -1; x <= 10; ++x)

{

if (x<5)

continue;

else

break;

cout<< “Hello” <<endl;

}

return 0;

}

Ans) 0 times.

Q6) What is the output of program below:

int main()

{

int arr[]={2};

cout<< 0[arr]<<endl;

cout<< “hello”+3;

cout<<endl<<“hi\0all”;

cout<<endl << sizeof(5.4);

return 0;

}

Ans) 2

lo

hi

8

Q7) What is output of below program:

int main()

{

int a[] = {2,3,4};

int b[] = {2,3,4};

if(a==b)

{

cout<< “equal”;

}

else

{

cout<< “unequal”;

}

}

Ans) unequal

Q8) What is the output of the program given below:

void count()

{

static int count1 = 0;

int count2 = 0;

count1++;

count2++;

cout<< "\nValue of count1 is” << count1,

cout<<“\nValue of count2 is” << count2;

}

int main()

{

count();

count();

count();

return 0;

}

Ans) 1

1

2

1

3

1

Q9) What is the output of the program below:

#define max 5

int main()

{

int i=0;

i=max++;

cout<< i++;

return 0;

}

Ans) error

Q10) What is the output of the program below:

int main()

{

int a,b;

a=(1,3,15);

b=(2,4,6);

cout<<a+b;

return 0;

}

Ans) 7

Q11) What is the output of the program below:

int main()

{

if(cout<<"C++")

cout<< "programming”;

else

cout<< "Language";

return 0;

}

Ans) C++programming

Q12) What least positive integer (except 97) could replace the ?in the code below to display ‘a’ on the screen?

int main()

{

char c = ?;

cout<<c;

return 0;

}

Q13) What is the output of the program below:

int main()

{

int i=2,j=2;

while(i+1?--i:j++)

cout<< i;

return 0;

}

Ans)1

Q14) What is output of program below:

int r();

int main()

{

for(r();r();r()) {

cout<< r() <<endl;

}

return 0;

}

int r(){

int static num=7;

return num--;}

ans) 5

2

Q15) Array of 5 integers is to be passed to an a function. Which of these are invalid function prototypes.

* void f(int a[])
* void f(int a[5])
* void f(int a[6])
* void f(int a[2])
* void f(int a[0])
* void f(int a)
* void f(int \*a)

ans) d,e

Q16) What is output of below program:

int main()

{

char str[]={'a','b','c'};

char str1[]="abc";

cout << sizeof(str) << endl;

cout << sizeof(str1);

return 0;

}

Ans) 3

4

Q17) Write a program to display “hello” to the user without using a semicolon anywhere in the code (except for “using namespace std;”).

Ans)

#include<iostream>

using namespace std;

int main()

{

if(cout<<"hello")

{

}

}

Q18) Write a program to print the pattern below:

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\*

Ans )

#include <iostream>

using namespace std;

void print\_arrow(int n)

{

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

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

cout << " ";

}

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

cout << "\*";

}

cout << "\n";

}

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

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

cout << " ";

}

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

cout << "\*";

}

cout << "\n";

}

}

// Driver code

int main() {

int n = 5;

print\_arrow(n);

return 0;

}

Q19) Write a program to find whether the year entered by user is a leap year or not.

Ans)

#include<iostream>

using namespace std;

int main()

{

int year;

cout<<"enter the year to check it is leap year or not";

cin>>year;

if((year%4)==0)

cout<<"leap year";

else

cout<<"not leap year";

return 0;

}

Q20) Write a program to find if two strings entered by user are anagrams.

Ans)

#include <iostream>

using namespace std;

int anagram(char c[], char d[])

{

int i, f = 0, x[26] = {0}, y[26] = {0};

for(i = 0; c[i] != '\0'; i++)

x[c[i] - 'a']++;

for(i = 0; d[i] != '\0'; i++)

y[d[i] - 'a']++;

for (i = 0; i < 26; i++)

{

if (x[i] != y[i])

f = 1;

}

if (f == 1)

cout << "Entered strings are not anagrams.";

else

cout << "Entered strings are anagrams.";

}

int main ()

{

char a[50], b[50];

int k;

cout << "Enter string 1 : ";

gets(a);

cout << "Enter string 2 : ";

gets(b);

anagram(a, b);

return 0;

}

Q21) Write a program to display vowels in the string entered by user and the number of times each vowel occurs in the string.

Ans)

#include<iostream>

using namespace std;

int main()

{

char a[50];

int c1=0,c2=0,c3=0,c4=0,c5=0;

cout<<"Enter the string:: ";

gets(a);

for(int i=0; a[i]!='\0' ;i++)

{

if(a[i]=='a'||a[i]=='A')

c1++;

else

if(a[i]=='e'||a[i]=='E')

c2++;

else

if(a[i]=='i'||a[i]=='I')

c3++;

else

if(a[i]=='o'||a[i]=='O')

c4++;

else

if(a[i]=='u'||a[i]=='U')

c5++;

}

cout<<"Number of A's::"<<c1<<endl;

cout<<"Number of E's::"<<c2<<endl;

cout<<"Number of I's::"<<c3<<endl;

cout<<"Number of O's::"<<c4<<endl;

cout<<"Number of U's::"<<c5<<endl;

return 0;

}

Q22) Write a program to add, subtract and multiply two matrices.

Ans)

#include<iostream>

using namespace std;

int main()

{

int arr1[20][20],arr2[10][10];

int result[20][20];

int c[20][20],d[20][20];

int m,n;

int i,j;

cout<<" Enter the number of rows (m) : ";

cin>>m;

cout<<" Enter the number of columns (n) : ";

cin>>n;

cout<<" \n Enter the elements of the 1st matrix \n ";

for (i=0; i<m; i++)

{

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

{

cout<<" Element "<<i<<" : "<<j<<" --> ";

cin>>arr1[i][j];

}

}

cout<<"\n Enter the elements of the 2nd matrix : \n ";

for (i=0; i<m; i++)

{

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

{

cout<<" Element "<<i<<" : "<<j<<" --> ";

cin>>arr2[i][j];

}

}

cout<<"\n 1st matrix \n ";

for (i=0; i<m; i++)

{

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

{

cout<<" "<<arr1[i][j];

}

cout<<"\n";

}

cout<<"\n 2nd matrix \n ";

for (i=0; i<m; i++)

{

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

{

cout<<" "<<arr2[i][j];

}

cout<<"\n";

}

cout<<" \n Multiplication of matrix is \n";

int k=0;

for(i=0;i< m;i++)

{

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

{

result[i][j] = 0;

for(k=0;k< m;k++)

{

result[i][j] = result[i][j] + arr1[i][k] \* arr2[k][j];

}

}

}

for (i=0; i<m; i++)

{

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

{

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

}

cout<<"\n \n";

}

for(i=0; i<m; i++)

{

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

{

c[i][j]=arr1[i][j]+arr2[i][j];

d[i][j]=arr1[i][j]-arr2[i][j];

}

}

cout<<"\nThe Resultant Matrix C=Arr1+arr2 is :\n";

for(i=0; i<m; i++)

{

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

{

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

}

cout<<"\n";

}

cout<<"\n The Resultant Matrix D=arr1-arr2 is : \n";

for(i=0; i<m; i++)

{

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

{

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

}

cout<<"\n";

}

return 0;

}

Q23) Write a program to find nth (input n from user) power of the number entered by user without using the already defined pow function in math.h.

Ans)

# include<iostream>

using namespace std;

int main()

{

int num,pow;

int tot=1;

cout<<"enter the number to find its nth power"<<endl;

cin>>num;

cout<<"enter the power of number you want to find"<<endl;

cin>>pow;

for(int i=1;i<=pow;i++)

{

tot=tot\*num;

}

cout<<"the power "<<pow<<" of number "<<num<<" is:: "<<tot;

return 0;

}

Q24) Write a program to find the age of a person in years, months and days. Input the person’s DOB and present date, month and year.

Ans)

#include<iostream>

using namespace std;

int main()

{

int d1,d2,d3,m1,m2,m3,y1,y2,y3;

int month[]={31,28,31,30,31,30,31,31,30,31,30,31};

cout<<"enter the date of birth of person in format 'dd <enter> mm <enter> yyyy' "<<endl;

cin>>d1;

cout<<endl;

cin>>m1;

cout<<endl;

cin>>y1;

cout<<endl;

cout<<"enter the present date in same format as above"<<endl;

cin>>d2;

cout<<endl;

cin>>m2;

cout<<endl;

cin>>y2;

cout<<endl;

if(d1>d2)

{

d2=d2+month[m1-1];

m2=m2-1;

}

if(m1>m2)

{

y2=y2-1;

m2=m2+1;

}

y3=y2-y1;

m3=m2-m1;

d3=d2-d1;

cout<<"the age of person is::"<<y3<<" years "<<m3<<" months "<<d3<<" days ";

return 0;

}

Q25) Write a program that replaces each vowel in the text present in a file with the character ‘#’.

Ans)

#include<fstream>

using namespace std;

int main()

{

char ch;

fstream file;

file.open("vowels.txt");

while(file)

{

file.get(ch);

if(ch=='a'||ch=='A'||ch=='e'||ch=='E'||ch=='i'||ch=='I'||ch=='o'||ch=='O'||ch=='u'||ch=='U')

{

file.put('#');

}

}

file.close();

}

Q26) Write a program that accepts string from user as command line arguments, finds the strings which are palindromes and writes them to a file, separated by new lines. Implementation should be done using subfunctions.

For example if the arguments given by user are: hello hi nitin bye naman, then the program should create a file with the following contents:

nitin

naman

ans)

#include<fstream>

#include<iostream>

using namespace std;

int check (char arr[],int n)

{

int flag=0;

int l=(n-1);

for(int i=0;i<n/2;i++)

{

if(arr[i]!=arr[l])

flag=1;

}

if(flag==1)

return 1;

else

return 0;

}

int main(int argc,char\*\* argv)

{

int temp;

cout << "You have entered " << argc

<< " arguments:" << "\n";

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

cout << argv[i] << "\n";

ofstream file;

file.open("palindrome.txt");

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

{

temp=check(argv[i],sizeof(argv[i]));

if(temp==0)

{

file<<argv[i];

file<<"\n";

}

}

file.close();

}

Q27) Write a program to concatenate the contents of two files to a third file. For example:

file1 file2

hello all welcome

here

Then file3 must contain

hello all

welcome

here

ans)

#include<iostream>

#include<fstream>

using namespace std;

int main()

{

char ch;

fstream file1,file2,file3;

file1.open("f1.txt");

file2.open("f2.txt");

file3.open("f3.txt");

while(file1)

{

file1.get(ch);

file3.put(ch);

file3<<"\n";

}

while(file2)

{

file2.get(ch);

file3.put(ch);

}

file1.close();

file2.close();

file3.close();

}

Q28) Write a function that concatenates two integer arrays into a third array in such a way that the smaller size array elements follow the larger one, for example:

Array1: 11,16

Array2: 12,20,34,56,78,90

Target Array3: 12,20,34,56,78,90,11,16

Ans)

#include<iostream>

using namespace std;

int main()

{

int n,m;

int ar1[20],ar2[20],ar3[40];

cout<<"enter number of elements in 1st array"<<endl;

cin>>n;

cout<<"\n enter elements"<<endl;

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

{

cin>>ar1[i];

cout<<endl;

}

cout<<"enter the number of elements in 2nd array"<<endl;

cin>>m;

cout<<"\n enter elements "<<endl;

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

{

cin>>ar2[i];

cout<<endl;

}

if(m>=n)

{int k=0;

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

{

ar3[i]=ar2[i];

}

for(int i=m;i<(m+n);i++)

{

ar3[i]=ar1[k];

k++;

}

}

else

{int k=0;

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

{

ar3[i]=ar1[i];

}

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

{

ar3[i]=ar2[k];

k++;

}

}

cout<<"\n the concated array is "<<endl;

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

{

cout<<ar3[i];

cout<<endl;

}

return 0;

}